

Using the Myers-Briggs Type Indicator (MBTI®) in the Teaching of Entrepreneurial Skills at an Iranian University

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Abstract

This study examined the relationships between students' personality styles and their intentions to become an entrepreneur after completing a course in entrepreneurship education. Results indicated that the majority of the students in the class were ENTJ, ISTJ, ESFJ, or ESTP. The students in this study had moderate intention in a new business start-up. The researchers found that students with extraversion and sensing personality types had higher level of entrepreneurial intentions than students with introversion and intuitive styles. The results of this study have implications for higher education which entrepreneurship educators should not adopt a "one style fits all" approach in the classroom. Clearly, the evidence indicated that various personality styles were evident in the classes, and thus one could suppose that various personality styles are evident in every college classroom.

Key words: Entrepreneurship education, cognitive styles, intentions, personality types, MBTI®

Introduction

In recent years, the government of Iran has shown interest in entrepreneurship because of its relationship with regional economic development through new ventures and job creation. Thus, colleges and universities across Iran have been challenged by the Ministry of Science, Research, and Technology (MSRT) to establish Centers for Entrepreneurship as part of the country's Entrepreneurship Development Program (EDP). The Centers for Entrepreneurship offers academic training at both undergraduate and graduate level to support students along the continuum of thinking and behaving entrepreneurially. The Centers' goals

may vary, but they hold a premise that entrepreneurship education is not just about teaching someone to run a business. It is also about encouraging creative thinking, enhancing levels of innovation, and promoting a strong sense of self-worth and accountability (Heinonen et al., 2006).

According to Alvarez and Busenitz (2001), if universities do not promote entrepreneurship education, it should then be expected that students would be less likely to pursue efforts towards starting a new venture. Therefore, universities aware of the importance of developing entrepreneurial potential (Vyakarnam, 2005) and competencies (Kirby, 2005; Gibb, 2006), are focusing on how to equip all students with the entrepreneurial skills. Furthermore, creating an awareness that there is an alternative way of employment other than being employed or self-employment (Galloway et al., 2005), which may not be for everyone, but all may use these skills as an employee (Vij, 2004) through the provision of transferability of skills (Vyakarnam, 2005; Galloway et al., 2005; Gibb, 2006).

It is commonly assumed that the personal characteristics (Bechard and Toulouse, 1998; Gorman et al., 1997) and skills of the entrepreneur can be developed through education. Indeed, some studies have suggested that entrepreneurial behavior can be stimulated through formal education programs. Research (Bonnett and Furnham, 1991; Gorman et al., 1997; Hansemark, 1998; Krueger and Dickson, 1994; Rasheed, 2003) has also shown that education can stimulate the development of entrepreneurial behavior in different ways. On the one hand, education for self-employment can increase knowledge about the setting up and management of businesses and promote personal characteristics associated with entrepreneurs, such as motivation to achieve, internal locus of control, or self-efficacy.

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Moreover, Vesper (1982) claimed that formal education about self-employment careers at universities facilitated the process of business creation, since it helped to raise students' awareness of the viability of self-employment as a professional option. In fact, different studies (Ede et al., 1998; Hatten and Ruhland, 1995; Kourilsky and Walstad, 1998; Walstad and Kourilsky, 1998) have shown how such education increases positive attitudes towards entrepreneurship as an alternative professional career. In a similar line, Dyer (1994) argued that education for self-employment puts students in contact with role models (such as successful entrepreneurs) that make entrepreneurship more attractive as a professional career. In this sense, education for self-employment can be considered as a socializing factor within the process of becoming an entrepreneur.

Of course, definitions of what the terms “entrepreneurship” and “entrepreneurial” mean also vary among scholars and practitioners. Nevertheless, in the Centers for Entrepreneurship, entrepreneurship is generally seen as an attractive career choice that also affords the opportunity to contribute to society through the introduction of innovative new products, services, and technological processes. Not surprisingly, one question that often interests entrepreneurship educators in the Centers for Entrepreneurship is how to stimulate entrepreneurship through training.

Purpose and Objectives

The purpose of this study was to describe the personality type preferences of students enrolled in an introductory entrepreneurship course in the College of Agriculture at Razi University, Iran. Currently, Introduction to Entrepreneurship is an elective course in the College of Agriculture at Razi University, and is well known for: (a) the rigorous nature of the course curriculum, and (b) the wide interest of students in the course. The following specific research questions were addressed:

1. Describe the students' MBTI® personality type.
2. Describe the students' MBTI® personality dimensions.
3. Determine the entrepreneurial intention level of students after completing a course in entrepreneurship.
4. Describe the relationship between students' personality style and entrepreneurial intentions.

Related Research

Related to entrepreneurship training, previous research (Alvarez and Jung, 2005; Franke et al., 2004) has indicated that entrepreneurship education results in higher levels of entrepreneurial intentions. Entrepreneurial intention is defined as the conscious state of mind that precedes action and directs attention towards business start-up as the goal (Bird, 1988; Shook et al., 2003). In turn, intentions have shown to play a very relevant role in the decision to

start a new firm (Lee and Wong, 2004). The intention to start up, then, would be a necessary precursor to performing entrepreneurial behaviors (Fayolle et al., 2006; Kolvereid, 1996).

Intention is considered the single best predictor of behavior (Ajzen, 1991, 2001; Fishbein and Ajzen, 1975). In turn, the intention of carrying out entrepreneurial behaviors may be affected by several cognitive factors, such as needs, values, wants, habits, and beliefs (Bird, 1988; Lee and Wong, 2004). In particular, the cognitive variables influencing intentions are called motivational “antecedents” by Ajzen (1991).

More favorable antecedents would increase the start-up intention (Linan, 2004). However, while previous research demonstrated the connection between cognitive variables and intentions to start a business, previous research has also overlooked other individual differences (in particular, personality types) that should be taken into account when designing and implementing training programs in entrepreneurship. Moreover, little has been done to examine the relationship between personality types and entrepreneurial intentions.

Entrepreneurial Cognition and Personality Type

One important aim of entrepreneurship education and training is to develop sound entrepreneurial cognitions, which are defined as “... the knowledge structures that people use to make assessments, judgments, or decisions involving opportunity evaluation, venture creation, and growth” (Mitchell et al., 2002, p. 97). These entrepreneurship cognitions are formed through an individual's perception and interpretation of information, which, in the context of entrepreneurship, refers to any information (about the marketplace, the technology, social, political, regulatory, and economic changes, etc.) that ultimately enable the discovery and exploitation of new business opportunities (Shane and Vankataraman, 2000).

To develop entrepreneurial cognition, students need to perceive entrepreneurship as fun, challenging, thrilling, exploratory, exciting, and fulfilling. To achieve this, entrepreneurship educators should use innovative approaches to entrepreneurship teaching.

A large number of entrepreneurship scholars have suggested a variety of teaching methods to support effective entrepreneurship learning. For example, one may include the use of live case studies (Mahlberg, 1995), business plans and projects (Miettinen, 2007; Solomon et al., 2002), an entrepreneurship club (Gillingham, 2005), self-directed learning (Christie, 1992), action learning (Antonities, 2001), computer assisted learning (Teubner, 1992), artificial intelligence (Kirchoff and Teubner, 1992), or fieldtrips and videos (Klatt, 1988). More recent developments include the use of work-based learning and blended learning (Gillingham, 2005) and whole-brain thinking (Bragg, 2005).

Researchers have postulated that personality

style has the potential to make a significant contribution to the study of entrepreneurship (Mitchell et al., 2002; Baron, 1998; Busenitz and Barney, 1997; Allinson et al., 2000; Allinson and Hayes, 1996). For example, an individual's personality style may influence the preference for different types of learning, knowledge gathering, information processing, and decision making, many of the critical behaviors with which an entrepreneur is confronted on the daily basis. Kickul et al. (2007) concluded that individuals who prefer the intuitive style of information processing, reported higher entrepreneurial self-efficacy, which was significantly associated with their entrepreneurial intentions.

However, individuals with the divergent preferred mode of thinking reported less confidence in their capacity to identify and create a new idea or opportunity. Ulrich and Cole (1987) found that entrepreneurial learning preferences tended toward active experimentation with some balance between concrete experience and abstract conceptualization. Zaidatol et al. (2007) studied students' learning strategies in entrepreneurship teaching. Results revealed that lecturers should understand students' learning strategies to help them improve their teaching and learning process. Routamaa and Miettinen (2006) concluded that there were some psychological types that tended to more likely become entrepreneurs, than others. Based on a data of 2930 occupations in Finland et al. (2006) used Jung's and Myers-Briggs typologies to differentiate between entrepreneurs and non-entrepreneurs.

The theory of psychological types advanced by Jung and operationalized by Myers and Briggs, through the development of the Myers-Briggs Type Indicator (MBTI®), provided the theoretical framework and research base for the study. The MBTI® is used to understand personality difference and basically describes various behavior patterns. These behavior patterns in turn affect how we function in the world. This system of understanding different patterns of behavior is grounded in the idea that people are unique individuals and are born with preferences. The word preference refers to the ways in which individuals naturally prefer to do certain things (Baron, 1998).

Gregorc (1985) suggested that 95% of individuals had specific learning style preferences. If true, Gregorc's has major implications in entrepreneurship education. Entrepreneurship educators should focus on matching their teaching style with that of students' personality styles. Furthermore, Cano et al. (1991) concluded that not all students learn the same; therefore, entrepreneurial educators need to be cognizant of personality style differences and teach in such a way in which all personality styles are considered.

Despite the amount of related research regarding personality styles in the United States, entrepreneurship educators in Iran may be unable to fully utilize

the results for two reasons. First, because Iranian students have never been the subject of any MBTI® work, it is truly unknown until the undertaking of this study if Iranian students could align themselves with the MBTI® profiles. Secondly, evidence was not found which extrapolated or indicated that Iranian students were, or were not, similar or dissimilar to any other students elsewhere in the world.

Procedures

Population and Sample

The target population for the descriptive study was senior students in Department of Agricultural Extension and Education who have completed an introductory entrepreneurship course during the academic year, 2007 (N = 1076). The entrepreneurship course is an optional course offered by the College of Agriculture at Razi University to increase the number of students having enough knowledge about small enterprises, self-employment, and entrepreneurship.

An up-to-date list of seniors who completed an introductory entrepreneurship course was obtained from the Department of Agricultural Extension and Education in the College of Agriculture at Razi University and served as the frame of the study. A sample of 280 students was randomly drawn from the population of senior students. The sample consisted of 155 females and 125 males. The sample size (n = 280) was determined using Krejcie and Morgan's (1970) table of sample sizes, specifying a 5% margin of error.

Instrumentation

The Myers Briggs Type Indicator (MBTI®), Form G (Myers, 1977) was used in this study. As a Persian language version of the MBTI® did not exist, the authors engaged the back-translation technique as suggested by Sperber et al. (1994). The English version of the MBTI® was first translated into Persian. Then the Persian version was back translated into English. A panel of experts in the Department of English compared the original version with the back translated version in an effort to solve discrepancies. Finally, the MBTI® was completed by a different student, who found no problems in understanding and answering the questions.

The model developed by Myers-Briggs is based on Jung's theory about perception and judgment, and the attitudes in which perception and judgment are used by different types of people (Myers, 1977). The Myers-Briggs model lists four different pairs of opposite preferences (Extroversion – Introversion; Sensing – Intuition; Thinking – Feeling; Judging – Perceiving). These preferences can be combined to form 16 different “types.” By taking one preference from each pair, a four-letter code is established that defines an individual's personality type. For example, one student may be an ESTP (extravert, sensing, thinking, perceiving) while another can be INFJ

(introvert, intuitive, feeling, judgment). For individual descriptions of each of the 16 different types, the authors recommend the reader see the manual by Myers and McCauley (1985).

MBTI® Validity and Reliability

The MBTI® has been described and validated through almost 40 years of research (Cano and Garton, 1994) and has been accepted by researchers throughout the world. Split half reliability coefficients computed on continuous scores run between .80 and .92 across all four dimensions for groups aged 15 through 60 plus years (Myers and McCauley, 1985). Test-retest reliability coefficients have been estimated based on the percent of agreement between personality type profiles over time intervals from five weeks to six years. The test-retest coefficients run from .69 to .92 across all personality type profiles (Myers and McCauley, 1985).

Entrepreneurial Intention Questionnaire

The Entrepreneurial Intention Questionnaire (EIQ) (Linan and Chen, 2009) was used to analyze students' intention towards entrepreneurship after their completion of the introductory entrepreneurship course. Entrepreneurship intention was measured with six items using a Likert-type scale of 1 (total disagreement) to 7 (total agreement). The items were translated into Persian language using back translation method described for the MBTI®. An expert panel was used to determine the instrument's face and content validity. The instrument was pilot tested with a sample of 25 agricultural students. Post hoc reliability analysis of the pilot instrument resulted in a Cronbach's alpha of 0.84.

Data Collection and Analysis

The MBTI® and EIQ were administered during the academic year 2008. Both instruments were administered by one of the researchers during class sessions of the introduction to entrepreneurship class. The MBTI® was hand scored by one of the researchers. Frequencies, percentages, means, and standard deviations were used to describe students' personality type preferences and entrepreneurial intentions. A Pearson product-moment correlation coefficient was used to describe the relationship between personality type preferences and entrepreneurial intentions. An alpha level of .05 was used. The aggregate data were analyzed using SPSS.

Results

Table 1 denotes the findings relative to the dimensions. The data indicate that the Extroversion, Sensing, Thinking, and Judging (ESTJ) were the dimensions with the greatest percentages. A gender analysis revealed that all four dimensions were more predominant among female students than their male counterparts (Table 3).

Table 1. Frequency and Percent of MBTI® Dimensions (n=280)

Dimension	f	Percent
Extroversion (E)	171	61.1
Introversion (I)	109	38.9
Sensing (S)	161	57.5
Intuition (N)	119	42.5
Thinking (T)	171	61.0
Feeling (F)	109	39.0
Judging (J)	172	61.4
Perception (P)	108	38.6

The MBTI® function indicating preferred style of perception was obtained from the MBTI® personality type profiles. The MBTI® personality type profiles of the students indicated that 32.1% preferred ST, 29.0% preferred NT, 25.4% SF, and 13.5% preferred an NF style of perception (Table 2). A gender analysis indicated that male students were predominantly ST whereas female students showed a tendency to be more NT, SF, and NF (Table 3).

Table 2. Frequency and Percent of MBTI® Function Indicating Preferred Style of Perception (n=280)

Function	f	Percent
Sensing - Thinking	90	32.1
Intuition -Thinking	81	29.0
Sensing - Feeling	71	25.4
Intuition -Feeling	38	13.5
Total	280	100.0

The students who completed introductory entrepreneurship course during the academic year 2007 reflected all 16 personality type profiles measured by the MBTI®. The most common profiles among students were ENTJ (19.64%), ISTJ (15.36%), ESFJ (12.50%), and ESTP (6.80%). Nearly 55% of students had a profile of ENTJ, ISTJ, ESFJ, or ESTP. The least common profiles were ENFJ (1.1%), INFJ (0.7%), INTJ (2.5%), INTP (3.6%), and ENTP, and ISFP, which accounted for 3.2% each. A gender analysis (Table 3) indicated that among ENTJ students, 10.7% were female whereas 8.92% were male. There were more male (8.21%) students with ISTJ personality type than their female (7.14%) counterparts. The ESFJ personality type was more prevalent in female students (6.78%) than male students (5.71%). The ESTP personality type was almost evenly distributed among male (3.57%) and female students (3.21%).

The students in the sample who completed an entrepreneurship course in College of Agriculture showed a moderate level of entrepreneurial intention ($\mu = 4.10$, $SD = 0.86$).

The relatively small standard deviation was also an indicator that, indeed, there was a small deal of variation in students' intention to become an entrepreneur. Next, relationships between personality style of students participated in entrepreneurship

Table 3. Rank Ordered of Frequency and Percent of MBTI® Personality Type Profiles (n=280)

Profile	Male		Female		Total		Cumulative Percent
	f	%	f	%	f	%	
ENTJ	25	8.9	30	10.7	55	19.6	19.6
ISTJ	23	8.2	20	7.1	43	15.4	35.0
ESFJ	16	5.7	19	6.8	35	12.5	47.5
ESTP	10	3.6	9	3.2	19	6.8	54.3
ENFP	9	3.2	11	3.9	20	7.2	61.5
ISTP	9	3.2	4	1.4	13	4.6	66.1
ESFP	6	2.1	9	3.2	15	5.4	71.5
INFP	6	2.1	7	2.5	13	4.7	76.2
ESTJ	5	1.8	10	3.6	15	5.4	81.6
ISFJ	4	1.4	8	2.9	12	4.3	85.9
ISFP	4	1.4	5	1.8	9	2.9	88.8
ENTP	3	1.1	6	2.1	9	3.3	92.1
INTP	2	0.7	8	2.9	10	3.6	95.7
INTJ	2	0.7	5	1.8	7	2.5	98.2
INFJ	1	0.4	1	0.4	2	0.7	98.9
ENFJ	0	0.00	3	1.2	3	1.1	100.0
Total	125	44.5	155	55.5	280	100.0	

course and their intention to become entrepreneurially involved were analyzed.

Table 4 presents the results of the ANOVA model tested in this investigation. No significant differences in entrepreneurship intention were manifested in relation to the dimensions of Judging-Perceiving or Thinking-Feeling. A significant main effect did emerge in relation to the Extroversion-Introversion dimension, ($F = 5.20, p = 0.02$) and Sensing-Intuition dimension, ($F = 4.80, p = 0.03$). Students with Extroversion and Sensing personality types, or cognitive styles, had higher level of entrepreneurial intentions than students with Introversion and Intuitive styles. In other words, E and S personalities were more motivated to start their own business.

Table 4. MBTI® Personality Types and Entrepreneurial Intention

Source	df	SS	F	p
Extroversion-Introversion	1	526.70	5.20	0.02
Thinking-Feeling	1	132.85	1.31	0.26
Sensing-Intuition	1	498.89	4.80	0.03
Judging-Perceiving	1	176.41	1.74	0.16

Conclusions, Recommendations, and Practical Importance

The MBTI® results indicated that the majority of the students were ENTJ, ISTJ, ESFJ, or ESTP, ISTJ and ESFJ were also predominant among a sample of agricultural students at Ohio State University in the United States studied by Kitchel and Torres (2006). Characteristics of ENTJ include being frank, decisive, and leaders in activities. Individuals with ENTJ personality type profile are good at anything that requires reasoning and intelligent talk, such as public speaking. ENTJs develop and implement compre-

hensive systems to solve organizational problems. Moreover, ENTJs are usually well informed and enjoy adding to their fund of knowledge.

Characteristics of ISTJ include seriousness, quiet, and gain success through concentration and thoroughness. ISTJ individuals are practical, orderly, matter-of-fact, logical, and realistic. Individual with an ISTJ personality type see to it that everything is well organized and make up their mind as to what should be accomplished and work toward it steadily, regardless of protests or distracters.

Characteristics of ESFJ include being warm-hearted, talkative, popular, conscientious, cooperative, and active committee members. ESFJ individuals need harmony. Individuals with an ESFJ personality type profile are always doing something nice for someone and work best with encouragement and praise. In addition, ESFJ individual's main interest is in things that directly and visibly affects people's lives.

Characteristics of ESTP include quickness, ingenious, and good at many things. ESTP individuals are able to do almost anything that interests them. They are quick with a solution to any difficulty and ready to help anyone with a problem. Individuals with an ESTP personality type profile often rely on their ability to improvise instead of preparing in advance. They are good at finding compelling reasons for whatever they want.

The dimensions (EI, SN, TF, JP) data indicated that the majority of the students were E (61.1%) followed by T (61.0%), J (61.4%), and S (57.5%). The dimension of E indicates that individuals are interested in people and things in the world around them. The T dimension describes a preference for making rational judgments by using rational analysis. The J dimension shows a preference for acting by organizing, planning, and deciding. The S dimension indicates that an individual is more objective and enjoys concrete learning. Interestingly, the E, T, J, and S personality type preference were more dominant among female students.

The MBTI® function (ST, NT, SF, NF) data indicated that the majority of the students were either ST (32.1%) or NT (29%). This finding is in direct agreement with the Barrett et al. (1987) findings. Barrett et al. (1987) found that many colleges of agriculture students exhibited an "action" learning style. The Sensing mode of cognitive perception involves attending to concrete reality and focusing on things that are tangible, practical, and

observable. Persons with a preference for this style exhibit a tendency to restrict their attention to matters with which they are immediately confronted and tend not to think a great deal about future circumstances and events.

Moreover, the findings in this investigation connect in interesting ways to findings in the learning style literature. Those connections begin to suggest important relationships between MBTI® personality type profiles and learning style preferences of students (Cano and Garton, 1994). According to Barger et al. (1994), the combinations of Sensing/Feeling (SF), Intuition/Feeling (NF), Sensing/Thinking (ST), and Intuition/Thinking (NT) can be used to describe learning style, with Feeling (F) being very consistent with field-dependence, and Thinking (T) being very consistent with field-independence.

Therefore, the ST and NT students are said to be field-independent learners because T individuals in the study are related to field-independent learners. This is in agreement with the study of Cano (1999) and Torres and Cano (1994) in which they found the learning style of incoming freshmen and senior students in the College of Food, Agricultural, and Environmental Sciences tended to lean towards the field-independent learning style. Moreover, Miller et al., (1990) found that Asian students in the College of Agriculture at Ohio State University exhibited field independent learning styles.

This study revealed that those students who have completed a course in introduction to entrepreneurship have moderate intentions in a new business start-up. Miettinen (2007) in an international survey of collegiate entrepreneurship across 14 countries found that the relationship between students' entrepreneurial intentions and their participation in entrepreneurship courses was weaker than expected. Although researchers have found a positive impact of entrepreneurship education on entrepreneurial intention of students (Fayolle and Gailly, 2004; Fayolle, 2003; Kolvereid and Moen, 1997; Tkachev and Kolvereid, 1999; Noel, 2001; Varela and Jimenez, 2001), this study has not provided further evidence that entrepreneurship courses facilitate the formation of greater level of entrepreneurial intentions among students.

The lack of support in this study found for a greater level of entrepreneurial intentions as a result of the courses might be due to the fact that the students' entrepreneurial intentions before the beginning of course was not measured, so it may be premature to reach a conclusive result. However, the results of this study clearly indicate that there are some psychological types that tend to become entrepreneurs more likely than others. As could be seen, the Extroverted-Introverted and Sensing-Intuition preference was highly correlated with entrepreneurial intentions. This pattern may hold significant implications for entrepreneurship education. First of all, the results suggest that

entrepreneurship educators should recognize the distinct contribution of personality styles in their efforts to support the entrepreneurial development of students. Educational programs should not adopt a "one style fits all" (Kickul et al., 2007) approach and must take into account the variety of personality styles in the classroom.

Currently, a vast majority of the teaching of entrepreneurial skills tends to be technical, with insufficient attention paid to the personality and belief systems of the entrepreneur (Allinson et al., 2000). This is evidenced by the many entrepreneurship courses that focus on commonly identified entrepreneurial management and planning skills, but ignore the impact of personality style in the acquisition and development of entrepreneurial skills, including innovation and risk-taking.

The current research also suggests the importance of supporting would-be and nascent entrepreneurs in understanding their own personality styles, allowing them to recognize what particular stages of the entrepreneurial process their modes of thinking may preclude. The point is to teach the value of all the stages in new venture creation, so as to maximize the likelihood of future entrepreneurs' success.

In practice, there are generally two groups into which teaching techniques/methods fall into. There are group teaching techniques and individualized teaching techniques. The group teaching techniques would be suggested to use with students who, according to their MBTI® profile, included either SF or IF. The individualized teaching techniques would be recommended more-so for students with a MBTI® profile which included IT or NT.

Group teaching techniques work best when students have common needs and the knowledge, skills, and dispositions being taught are teachable in group settings. Examples of group teaching techniques include lecture, discussion, demonstrations, field trips, role playing, and resource people to name a few. Individualized teaching techniques are more individually centered than group centered. Some suggested basic individualized teaching techniques include supervised study, experiments, and independent study, and information or job sheets.

One implication that would make for an interesting classroom experiment is to assess personality style, and then require students to focus on those stages that they would seem to prefer the least (e.g., for extroverted: the opportunity identification stage, and for sensing students: the planning and marshaling stage). In this way, as educators we may be able to strengthen those cognitive processing modes that are most needed for each group of students to succeed in entrepreneurial endeavors. Moreover, in the entrepreneurship education classroom, creating a learning environment that offers students appropriate supports and challenges that match their personality styles may measurably increase their self-efficacy throughout their program.

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