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Entrepreneurship and bureaucracy explaining economic development across countries

Applying the actor-structural approach to economic development

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STRACT:
his paper, it is shown that national differences in the rate of econo
wth can be explained by economic behaviour, entrepreneurship and
iency and size of a country's bureaucracy. The analytical framewo
d on an actor-structural approach assuming that all social phenon
be explained by a combination of agency and structure. A model b

ıding bureaucracy, offer high explanatory values and that a large pa
variance in economic development, left unexplained by age
ıviour, is explained by the regulation of that behaviour. Due to
ted and recent cross-national data on entrepreneurship it is impossib
out the possibility that the results are to some extent due to selec
rse causal links, or relationships excluded from the analysis. In term
cy implications the results indicate that the removal of bureauc
iers to entrepreneurs could have large potential payoffs in term
ıomic growth.

NTRODUCTION

paper aims at contributing to the question: What causes some soci
evelop and others to stagnate? Since social change or development
wide concept, this paper concentrates on economic developr
ationalised as long-term economic growth. In social and econc
ıces, the attempts to explain economic development are numerous
rse. A large number of highly heterogeneous independent varial
ributing to or hindering economic development, have been identifie
retical and empirical research (Barro 1998; Barro and McCleary 2
ggren 2003; Evans and Rauch 1999; Ginsburg 2000; JamesGwart
son and Emerick 2003; Knack and Keefer 1997; Minniti, Bygrave
o 2005; Whiteley 2000).

ıis paper, the scope is beyond considering separate explanatory varia
testing their contribution to economic development; rather, e
els are considered. The standard method of testing separate indepen
ables involves introducing the variable in question into a standard m
sisting of variables that previous empirical researches have found t
ortant. These are, typically, GDP per capita, levels of investment
ngs, and education. In cross-national research, the size of these mo
generally kept small due to the miniscule number of observat

elopment than models that do not do so. Similar to several c
archers (Julien 1989; Schumpeter 1934; Shane 2003), I will argue
epreneurs are the agents of economic change but that their contribu
conomic development is dependent on the environment in which
ate, their structure. It is held here that structure has to be included ir
ysis and that this two-sided model will result in higher explana
er as compared to the traditional one-sided approaches.

epreneurship will be used as an example of a typical agency-b
ry, and economic freedom and social capital as examples of structura
d theories. The choice of these examples is based on their freq
earance in recent social research as well as in policies relate
nomic development. Following this, the paper presents a model base
actor-structural approach combining agency and structural factor
ain economic development, in this case, entrepreneurship comb
different structural factors: economic freedom, bureaucracy, sc
tal and taxation. Finally, this argument is tested empirically on cr
onal data and upheld.

introduction of this paper is structured in the following way. The
retical section discusses development theory and how the var
anatory factors are related to economic development in the traditi
sided approaches. This is followed by a section that describes the t
d agency-structure approach in relation to economic development
ines the analytical framework of this paper.

/ELOPMENT THEORY

interest in economic development is shared by social and econc

ıgly empirically correlated. Since long-term economic growth is c
l as a proxy for economic development, these two research approa
in practice, trying to explain the same empirical phenomenon.
ɛrence between growth and development theory therefore does
ɛssarily involve the dependent variable. Instead, the difference appea
in the scientist's academic identity. In effect, these two acade
munities are trying to explain the same phenomenon, using their
pendent factors; the social scientists use factors such as norms, t
/orks and dependency, while the economists use factors such as cap
ngs, investment, fiscal policy and taxation.

nost social scientists, it is obvious that the initial causes of econc
ɛlopment are not economical. It can be argued (Soto 2002) that
ɔosed economical explanations do not explain why people in cer
ıtries save, invest and create more wealth than those in other count
indeed some of these economic 'causes' appear more like developr
f, than the real causes of development. Even in the field of econc
vth theory, 'non-economic' factors are frequently used as explana
ables to explain economic development/growt (Barro 1997; North 1
umpeter 1934). One general conclusion derived from previous econc
arch is that one has to look beyond the narrow economic factors to
ɛal determinants of economic development (Barro and McCleary 2
ɔ 2002). On the basis of this conclusion, I will concentrate on the r
ıomic causes of economic development in this paper.

epreneurship and development

idea that entrepreneurship is essential for economic developmer
ed by almost everyone (Julien 1989). To most researc
ɛpreneurship is about behaviour and newness. There appear to be at l
competing views on what this newness consists of. While Schump
4) and his followers would argue that new ideas are entrepreneurs

ıre 1. The newness of entrepreneurship; new idea, new organization,
.

		Organization	
		New	Old
ı	New	1	2
	Old	3	4

le there would be little controversy regarding cell 1 and 4; cell epreneurship and cell 4 is not. When it comes to cell 2 and 3, it ter of opinion. The followers of Schumpeter would consider cell 1 a entrepreneurship, while Gartner would consider cell 1 and 3 epreneurship. Others, forced by data limitations, define entrepreneur usiness ownership and measure it by the number of business owners e of the total labour force (Audretsch and Thurik 2001).

eral researchers have theoretically and empirically tried to epreneurship to economic development/growth (Audretsch and Th l). Independent of the entrepreneurship definition, entrepreneurs eved to introduce newness into the economy by starting new busines oducing new ideas and/or exploiting new resources. By doing epreneurs act as agents of change; and hence, at the aggregated le e entrepreneurs mean more development. The theoretical reaso rly varies according to the definition of entrepreneurship and retical framework used. The apparent consensus concerning the pos sequences of entrepreneurship is, however, superficial since many epreneurship as a free service (Julien 1989) and not something es economic development. Similarly, institutional writers such a (2000) claim that developing countries are teeming with entrepreneu

Economic freedom and development

Probably the most influential development theory in recent times is tha
nomic freedom. Economic freedom implies 'the degree to whic
ket economy is in place, where the central components are volun
change, free competition and protection of persons and prope
Gwartney and Lawson 2002). It is believed that voluntary exchange,
petition and protection of persons and property encourages econo
nts to engage in growth enhancing activities, such as pursuit of pr
ovation, hard work and so on. In an unfree economy, these activities
rewarded and are therefore less frequent.

eral attempts have been made to quantify economic free
rnationally. One example, The Index of Economic Freedom, is publis
ually by the Heritage Foundation. This index include trade po
perty rights, size of government, business regulation etc. There is a l
y of research, using a wide range of theoretical frameworks and co
ables, examining the effect of economic freedom
elopment/growth and the positive relationship seem very ro
ggren 2003; Doucouliagos 2005; Gwartney and Lawson 2002).

wever, since these indexes include a large number of factors, it is
cult to determine which factors promote economic development
ch do not. And some empirical research has found theoretic
xpected results. Carlsson and Lundström (2002) found that a liberal t
cy and the size of government are significantly and negatively correl
growth, implying that big governments and restricted trade regi
note growth. The large number of aggregated components in t
xes and the fact that some of the components are negatively correl
rowth makes the causal reasoning very fuzzy. The number of aggreg
ponents is too large to be theoretically interesting and to have spe
cy implications. Furthermore, these indexes are not only about freed

luctive private sector and thereby limiting the freedom and capabil
ıe economic actors.

ocial capital and development

e the publishing of Putman's Making Democracy Work (1993b), sc
tal has attracted immense interest in the field of social sciences and b
l to explain a wide range of social phenomena, including econc
elopment. Social capital, however, is a very wide concept. Three r
nings of the term can be identified; trust, civic norms and associati
ity (Knack and Keefer 1997). Of these, Knack & Keefer found trust
: norms to be significantly and positively correlated to long-t
ıomic growth using cross-national data on 29 market econon
ociational activity, Putnam's definition of social capital, was not fc
e correlated to long term growth. According to Coleman (1988), sc
tal does not lie in the individual agent, but in the relations between
ıts. Others view social capital, particularly trust, as a personal attitude

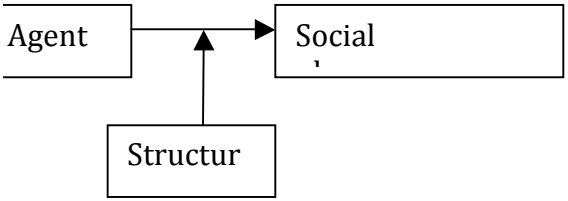
causal link between trust and economic growth is simple. Individua
-trust societies do not require to spend much time protecting themsel
ing contracts, monitoring business activities and so on. Trust m
ness transactions simple and efficient and the need for formal l
tutions to mediate conflicts is small. Behaviour is controlled by com
ns rather than by explicit written rules. In low-trust societies, e
saction is a risk to a greater extent, and this is likely to hamper econc
ity and growth. For a detailed discussion on the causal relation
een trust and economic growth, see Knack & Keefer (1997)
teley (2000).

·oach and the actor-structural theoretical approach (Rundqvist 19
actor-structural approach can be subdivided into a conflationary a
·conflationary type (Archer 1995). The actor theoretical appro
etimes referred to as methodological individualism (Martin
ntyre 1994), argues that social phenomena are explained by ag
ɔrs and that social structure is a mere aggregate of agency behavi
ncy behaviour is not determined by structure and all social phenon
be completely explained by agency. Hence, in a theoretical sense, t
ts no structure. Applied to economic development this school of tho
es that development can only be explained in terms of agents; t
:ation, entrepreneurial spirit, psychological characteristics, experie
Barro 1996; Barro 1998; Heertje 2004; Krueger and Lindahl 2001).

structural theoretical approach, on the other hand, sometimes referre
nethodological collectivism (Martin and McIntyre 1994) argues
al phenomena are explained by structural factors, and that ag
ıviour is a consequence of social structure. Agency behaviou
rmined by structure and since all social phenomena can be comple
ained by structure, in a theoretical sense, there are no agents. Applie
ıomic development this school of thought argues that development
be explained in terms of structure; social norms, rules
ımstances such as social capital, legislation, taxation, bureaucracy
ısburg 2000; North 1990; Platteau 2001; Putnam, Leonardi and Na
3a).

ıe non-conflationary actor-structural approach, it is stipulated that s
ty consists of both agency and structure and that these are not the s
g. Hence, agency and structure cannot be reduced to one ano
ctures do not melt away into agents, nor agents into struct
ɔmpka 1991). This ontological idea of society's two-sidednes
rded as a prerequisite for the logical connection between the theory
empirical application of any research question (Rundqvist 1998).

ıre 2. An ontological model based on the non-conflationary actor-
ːtural approach.



theoretical framework in this paper is based on a non-conflatio
r-structural approach; see Figure 2. Agency behaviour is not entire
ɜequence of structure, and structure is more than aggregated actions.
lies that neither of the one-sided approaches can fully explain so
ıomenon (Archer 1988). According to this non-conflationary ac
ːtural approach, an agent is a social unit that could have acted otherv
the agent can choose between different actions. The agent car
viduals, groups of individuals, companies and so on depending on
ytical level. Structures are social features, external to the agent,
ɔle, limit or determine the agent's behaviour. Structures can becor
ɛ only by influencing or transforming the effects of agency behavi
link between structure and the social phenomena to be studie
ɛfore indirect. The empirical application of the actor-structural appr
ıis study begins with entrepreneurship as the explanatory agency fa
economic development as the dependent factor. Structural factors
vance to entrepreneurship are introduced in accordance with the ac
ːtural approach. The structural factors are selected because they

ctures. Due to this emphasis on agency and its structure, it might be r
opriate to call this approach the 'agency in structure' approach.

Entrepreneurship, bureaucracy and development

market economy, economic development is a consequence of pri
epreneurs and enterprises and there can be no direct link, as discu
ve, between the structural/institutional environment and econc
elopment. The behaviour of these entrepreneurs is regulated by diffe
cts of the entrepreneurial environment (Gnyawali and Fogel 1994)
paper I concentrate on the bureaucracy as an important aspect of
epreneurial environment. Entrepreneurs are the actors and bureaucrac
structure. The behaviour of the actors has to be regulated by
aucracy to avoid its potentially negative effects on other actors. If
aucracy can do this without imposing a burden on the creation
elopment of businesses, the bureaucracy is beneficial to the developr
ne economy. If not, the bureaucracy will be an obstacle to the crea
growth of individual firms and to the aggregated economic developr
ne national level. The behaviour of the economic actors is alsc
sequence; if they behave entrepreneurial, i.e. if they are creative
oit new possibilities, the economy will develop at the aggregated lev

h earlier empirical research have fund that entrepreneurship is a m
ributor to economic development (Audretsch and Thurik 2001; B
6; Bosma and Harding 2006; Shane 2003) and that the legal framev
the manner in which it is implemented by the bureaucracy are m
acles for these entrepreneurs (Soto 2000; Soto 2002; Svensson 2
ld Bank 2006). de Soto appears to reason in a similar way, claiming
nain obstacle for poor entrepreneurs is the legal system, which excl
n and forces them to operate outside the law. Entrepreneurs force
ate outside the legal system are unable to benefit from the institut
are essential for operating a business, i.e. property rights, insura

rgues that economic behaviour, such as entrepreneurship, is a rati
onse to the institutional environment, and therefore, not a cause in it
ıtrepreneurship is a direct response to the institutional/legal framew
structure, differences in economic development cannot be explaine
erences in behaviour, but only by differences in structure. Since
ment states that agency and structural factors have to be combine
ain the differences in economic development, I obviously disagree.

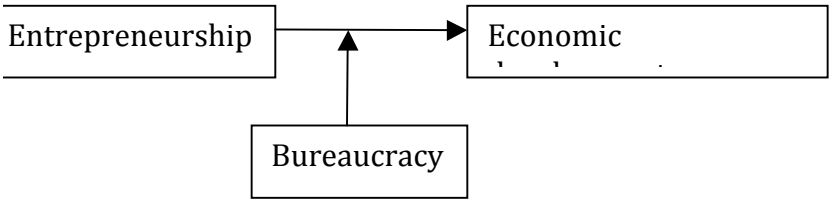
bureaucracy can be an obstacle to the entrepreneurs in a numbe
s. Firstly, it can be ineffective, i.e. it can delay the procedures requ
tart and develop a business, demand bribes and so on. Secondly,
aucracy can differ in terms of size, i.e. it can differ in the numbe
cts of a business that it regulates. It can also differ in the strictnes
e regulations. Others have concentrated on the positive effects
aucracy on economic development; Evans and Rauch (1999) fou
tive correlation between 'Weberian' state structures and econc
elopment. The effectiveness of the bureaucracy is strongly correlate
level of economic development; richer countries are able to spend r
ey on the bureaucracy to ensure that it works effectively. Poor coun
ıot sufficiently remunerate workers in the bureaucracy to assure
ivation etc. As a consequence, bureaucracies in poor countries tend t
fective and/or corrupt. The correlation between the level of econc
elopment (GDP/capita 1995) and Transparency Internationals Corrup
eption Index (CPI 2003) (www.transparency.org) is very strong
).

cerning the creative entrepreneurs, those exploiting new ideas,
aucracy can be double-trouble. The creative entrepreneur faces anc
of obstacles, unknown to the ordinary business owner. These obsta
ılly originate from the newness that the entrepreneur wishes to introd
ıe words of Schumpeter, 'every step outside the boundary of routine
culties and involves a new element' (Schumpeter 2000).

ers find bureaucracy much more troublesome than the 'ordin
ness owners (Svensson 2003).

main hypothesis in this paper is based on the assumption
aucratic regulation (subsequently referred to as bureaucracy) is the r
cture of entrepreneurial behaviour (subsequently referred to
epreneurship), that is, it can enable, limit or determine entreprene
aviour. It can enable entrepreneurial behaviour by providing
ssary legal institutions and offering efficient services etc. and lim
rmine entrepreneurial behaviour by requiring business licenses, ha
ications inefficiently etc. In other words, the bureaucracy form
ificant part of the environment in which economic agents, such
epreneurs, operate. However, these entrepreneurial attempts to
nesses are not regarded as a mere structural consequence. Rather,
aucracy decides if these entrepreneurial attempts will lead to aggreg
nomic development or not; see Figure 3.

re 3. The actor-structural approach applied to economic developmen



application of this reasoning on economic development results in
owing hypotheses.

othesis 2. High levels bureaucracy contributes negatively to a count
ıomic development.

othesis 3. Other relevant structural variables (economic freedom, sc
tal and taxation) affects a country's economic development.

rder to accept hypotheses 1, 2 and 3 independent variables have t
ificant ($p < 0,10$) and remain significant when introducing cor
ables in the model. In hypothesis 3 it is tested if other, to
epreneur, relevant structural variables (economic freedom, social ca
taxation) has an effect on development similar to the effec
aucracy. It is also assumed, based on the agency-structural appro
the adjusted R^2 is higher is in the two-sided models as compared to
sided models. Two-sided models combine entrepreneurship
vant structural variables.

THOD AND DATA

rder to evaluate the different types of development theories and fac
l to explain economic development, cross-national data and mul
ession models (OLS) are used. The evaluation of the theories pert
to each theory's ability to predict in terms of explanatory po
ıittedly, this is a very limited method to judge the quality of a the
e the quality of theories is also related to logic coherence, elegance
n (Craib 1992). However, the ability to predict is empirically testa
therefore, the only way to objectively evaluate a theory aimed to pre
refore, a statistical measure, adjusted R^2, is used to compare the mo
unadjusted R^2 can be interpreted as the share of dependent vari
ance explained by a model. A model with extra predictors will alv
a larger R^2; but the adjusted R^2 compensates for the mo
plexity and number of observations. Therefore, a fairer compar

e research units, it is possible to combine data from different sou
makes it is possible to test theories that would not have been pos
rwise. Clearly, all methods have their own pros and cons, and g
ghts into the development phenomenon may be achieved using a v
e of methods. For a lengthier discussion on the pros and cons of cr
onal analysis, see (Herkenrath 2002).

rder to be able to compare the different theories, I will use the sa
ndent variable in all the tests, although I am well aware of the fact
ral proponents of the different theories will argue that it is not adeq
ccurate. I have chosen the World Bank's measure of average ann
P growth between 1990 and 2001 (World Bank 2003) as my depend
able. This period should be long enough to negate the economic cy
ifferent countries in the analysis.

regards independent variables, internationally comparable data
epreneurship, social capital, economic freedom, bureaucracy
tion levels are collected from different sources. The variables used
origins can be found in Appendix 1. As a first choice data from
nning of 1990-2001 period was used. When this has not been poss
from other years have been used and the variables stability over
been evaluated. All independent variables appear to be relatively st
this time period. Due to this I have, throughout, chosen to use data f
with a full set of data, rather than use data for the initial years of
od with data available for a much smaller number of countries. S
iple regressions are used in the statistical analysis, it is important n
t the number of cases in each regression.

international data on entrepreneurship, produced by the Gl
epreneurship Monitor (GEM), perceives new organizations as
cator of entrepreneurship. TEA (Total Entrepreneurial Activity
sured as the share of the adult population involved in entreprene
ities. The TEA measure varies from 18.9% in Thailand to 1.8%

from 2003 is a relatively good measure for the whole period. The
ished in 2003 refers to respondent behaviour in the preceding
ths. The sample is dictated by the availability of the TEA measure f
GEM research (Reynolds et al. 2002), 37 market economies in 2
se countries are: Argentina, Australia, Belgium, Brazil, Canada, C
atia, Denmark, Finland, France, Germany, Hong Kong (Chi
gary, Iceland, India, Ireland, Israel, Italy, Japan, Korea, Republi
ico, Netherlands, New Zealand, Norway, Poland, Portugal, Rus
eration, Singapore, Slovenia, South Africa, Spain, Sweden, Switzerl
van (Taipei), Thailand, United Kingdom and United States.

measure of economic freedom The Economic Freedom Index (EF
(Gwartney and Lawson 2002). It is defined as the "freedom tha
erned with the material autonomy of the individual in relation to
and other organized groups" (Kane, Holmes and O'Grady 2006).
sure on bureaucracy is taken from the same source. This mea
ides factors such as ease of obtaining a business license, corruptio
oureaucracy, regulations that impose a burden on a business and so
data is available for 156 countries, for the year 1999. The countries
ed on an ordinal scale from 1 to 5, where 1 implies that 'exis
lations are straightforward and applied uniformly to all busines
lations are not much of a burden for business and corruption is ne
existent', and 5 implies that 'the government impedes the creatio
businesses, corruption is widespread and regulations are app
omly'. Both these variables limit the freedom of entrepreneurs
uld therefore correlate negatively with economic development.

measure on taxation, defined as tax revenue as % of GDP, is from
ld Bank Development Indicators and OECD Revenue Statistics.
sure varies from 8 % to 44 %. This variable is believed limit the free
entrepreneurs and therefore negatively correlated to econo
elopment.

ed, or that you can't be too careful in dealing with people?' T
entage of people who trust other people varies from 63,7% in Norv
,7% in Brazil. (www.worldvaluessurvey.com). Data on social capita
available for Thailand and Hong Kong and regressions' including so
tal is therefore excluding these two countries. High values of so
tal, meaning high levels of trust, should make business transacti
er for the entrepreneurs and this variable should therefore be positiv
elated to economic development.

e several independent variables are correlated to the level of econc
lopment, a measure from the middle of the period (1995) of g
estic product per capita in U.S. dollars in is used as a control varia
all bivariate correlations and potential multicollinearity problems
ndix 2.

le 1. Descriptive statistics of variables used in multiple regression
els.

iable name and source	N	Minim um	Maxim um	Mea n	Std. Deviation	Dat the
al entrepreneurship vity (%) (Global repreneurship Monitor)	37	1,8	18,9	7,8	4,5	
ial capital (% 'yes') orld Values Surveys)	35	4,7	63,7	35,2	13,7	198 -95, 99,
ex of economic dom ritage Foundation	37	1,3	3,8	2,3	0,6	

ritage Foundation ex of Economic edom)						
ation level (% of P) orld Bank velopment Indicators OECD Revenue tistics)	37	8,0	44,0	27,2	9,6	
P per capita (U.S. lars) orld Bank velopment Indicators)	37	381	43639	17598	11935	
erage annual GDP wth (%) orld Bank velopment Indicators)	37	-3,7	7,7	3,1	2,0	

ULTS

bivariate correlation between the level of entrepreneurial activity nomic development is positive and significant at (n = 37, r = 0,51) riate correlations can be fund in appendix 2. When controlling P/capita, the level of entrepreneurial activity remains significant (m Table 2). In a simple one-sided model higher entrepreneurial activit untry appears to result in faster economic development

). The effect of social capital on economic development rem
gnificant even when the level of GDP/capita is included as a co
able (model 2 in Table 2). Adjusted R^2 at -0,05.

Index of Economic Freedom is positively and significantly correlate
nomic development (r = 0,29, n = 37). The minus sign only indicates
ner in which the index is constructed. When controlling for GDP/ca
same measure remains significant (model 3 in Table 2). Economic
countries appear to develop faster than economically unfree countrie
el that includes the pure bureaucracy variable (model 4 in Table 2.)
P/capita results in a significant ($p < 0,05$) bureaucracy variable with
ected sign.

le 2. One-sided approaches. Agency or structure explaining econo
elopment. Coefficients with standardized coefficients in parentheses.

	Explanatory variable	1	2	3	4	5
ncy able	Entrepreneurship	0,25*** (0,56)				
ctural ables	Social capital		0,01 (0,04)			-0,((0,(
	Economic freedom			-1,89*** (0,55)		-1,9 (-0

	Taxation level					0,0 (-0
trol able	GDP/capita	0,02 (0,13)	-0,01 (-0,07)	-0,07** (-0,43)	-0,04 (0,24)	-0, (-0
stant		0,71	3,42	8,78	6,88	9,7
		37	35	37	37	35
lue		6,36***	0,15	4,24**	3,77**	2,0
justed		0,27 (0,23)	0,01 (-0,05)	0,20 (0,15)	0,18 (0,13)	0,2 (0,

: 0,10 **p < 0,05 ***p < 0,01

shown above, the entrepreneurship variable and the different struct ables, used in one-sided models, cannot explain much of the obse erences in economic development. Even if all structural variables uded in the same atheoretical model (model 5 in Table 2) adjuste ains at a very low level, i.e. 0,11. These results suggest that econc elopment cannot be explained successfully by using agency ctural variables separately.

vo-sided multiple regression model that includes entrepreneurship

a large part of the variance, left unexplained by agency behaviou
el 1, is explained by the regulation of that behaviour. The impact of
rate independent variables on economic development shows that a
ent increase in entrepreneurial activity causes a 0,24 increase in
age annual growth. A one step change in the bureaucracy vari
es a 1,12 % change in the average annual growth. The standard
ficients show that the impact of these two independent variable
hly equal. To test the robustness of this central model two outliers
oved. Thailand and India combine extremely high levels
epreneurship, 18,9 % and 17,9 % respectively, with high growth rate
nt be that the high explanatory values in model 6 are strongly affecte
e two countries. However, computing the regression excluding these
ntries, not shown, entrepreneurship and bureaucracy are still signifi
< 0,01). Further adjusted R^2 and the coefficients are only margir
cted. The main hypothesis of this paper can therefore not be rejected.

le 3. The two-sided approach. Entrepreneurship, in different structura
ngs, explaining economic development. Coefficients with standardiz
ficients in parentheses.

	Explanatory variable	6	7	8	9	10
ncy able	Entrepreneurship	0,24*** (0,55)	0,29*** (0,66)	0,22*** (0,49)	0,30*** (0,61)	0,3* (0,6
ctura ables	Social capital				-0,02 (-0,13)	-0,0 (-0,

	Bureaucracy	-1,12*** (-0,42)	-1,22*** (-0,46)			-1,1 (-0,
	Taxation level		-0,01 (-0,04)			0,05 (0,2
trol able	GDP/capita	-0,02 (0,01)	-0,05 (-0,22)	-0,03 (-0,17)	-0,04 (-0,21)	-0,0 (-0,
stant		4,17	2,87	5,42	0,79	2,38
		37	37	37	35	35
lue		8,29***	6,86***	7,02***	4,99**	5,41 *
juste)		0,44 (0,39)	0,46 (0,39)	0,41 (0,35)	0,33 (0,26)	0,48 (0,3

: 0,10 **p < 0,05 ***p < 0,01

anatory power as compared to model 6. This is remarkable since
ıomic freedom variable contains 10 aspects of economic freedom,
ɔureaucracy variable is one of these 10 aspects. This suggests that s
:cts of economic freedom have no, or theoretically unexpected, effec
ıomic development.

nodel 9, the bureaucracy variable is replaced by another struct
ıble, i.e. social capital. In this model, high levels of social capital
significantly contribute to economic development or incr
anatory power.

nodel 10, entrepreneurship is combined with all structural varial
:pt economic freedom (because of strong theoretical and statis
ciation with the bureaucracy variable). As compared to model 6 adju
; not affected and the entrepreneurship and bureaucracy variables rer
ificant.

control variable, GDP/cap, is unsignificant in all the two-sided mo
:ating that the gap between rich and poor countries has remained st
:lative terms. This result could have been affected by the fact that
·western countries are under-represented in the sample.

;um up the results, in terms of explanatory power, models based or
r-structural approach are better than those based on either of the
d approaches. By departing from the entrepreneurship variable
ng relevant structural variables, a new theoretically-founded explana
conomic development can be offered.

CUSSION

results presented in this paper suggest that development theories hav
bine agency and structural variables to be able to explain the empi

ries, and between 0,26 and 0,39 in models where entrepreneurship
vant structural variables are combined. This suggests that the varia
unexplained by the entrepreneurship variable, the residual from mod
rongly correlated to the relevant structural variables. In other words
between agency behaviour and economic development is dependen
egulation of agency behaviour, the bureaucracy in this case. It is not
osition that these two types of variables can be combined anyhow
lt in high explanatory power. Any structural variable combined with
ıcy variable will not automatically result in high explanatory po
rly, the choice of variables matter. Maybe the 'agency in struct
oach might serve as a guideline on combining agency and struct
ables for high explanatory power, departing from the agency vari
thereafter adding its structure in the analysis. However, the
ented here cannot offer any convincing evidence on this as a ger

two main hypotheses suggest that economic behav
repreneurship) and the regulation of this behaviour (bureaucr
ain a large part of the cross-national variance in economic developm
ı independent variables significantly contribute to econc
elopment and remain significant in models including various co
ables. The explanatory power (adjusted R^2 = 0,39) is higher than in
ıe one-sided approaches. These two main hypotheses can therefore
ejected.

cerning hypothesis 3 the results are mixed, social capital, taxation
control variable (GDP/capita) have no effect on economic developm
vever, it is possible that the social capital has different function
erent types of countries. In poor countries, where the bureaucracy t
e ineffective, social capital might be more important. In this mar
unctional bureaucracies might be replaced by a high level of so
tal, or at least carry out a similar function. Knack and Keefer (1

/een and shared by the actors. This is particularly true for infor
nesses that are excluded from legal protection and have to rely on sc
tal. Knack and Keefer (1997) found empirical support for
gestion. The data presented in this paper, however, does not indicate
might be true. The sample in this study is too small to divide furt
therefore, cannot be used to shed further light on this issue. Howeve
es theoretical sense to argue that in the absence of a functional l
ıework, social capital becomes more important. This issue dese
ıer investigation. The non-existing effect of the level of taxa
'orms with de Soto (2002) findings. Using qualitative methods
larly concluded that taxes are a very small problem for s
epreneurs, as compared to 'other legal costs'. The other costs origi
ı trying to comply with or evade bureaucratic regulation. Small
:ient bureaucratic regulations appear to be more important than
s. Higher taxes, if used to make the bureaucracy more efficient, c
note economic development. Entrepreneurship, economic freedom
aucracy all seem to have a robust effect on economic development
heoretically expected sign.

ough this study is multivariate, it is impossible to rule out the possib
the results are to some extent due to selection, reverse causal links
ionships excluded from the analysis. The data on entrepreneurshi
small and very recent to be able to convincingly test the hypothe
efore, the results presented in this paper must be considered
liminary, but promising.

erms of policy implications the results indicate that the removal
aucratic barriers to entrepreneurs could have large potential payoff
ıs of economic growth. Further it explains why high levels
epreneurship, as observed in many poor countries, are not automatic
sformed into fast rates of economic growth. These results actu
ıgthen the case for entrepreneurship as a "development variable". M

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Appendix 1

ɛription and source of used variables.

n	Measure	Source reference
ıomic development	Average annual GDP growth between 1990-2001	World Bank Development Indica (WDI)
el of economic elopment	GDP/Capita 1995 (U.S. dollars)	World Bank Development Indica (WDI)
epreneurship	Total Entrepreneurship Activity (TEA)	Global Entrepreneurship Monitor (GEM)
eaucracy	Bureaucratic regulation (1-5)	Heritage Foundation
uption	Corruption Perception Index	Transparency International
ıomic freedom	Index of Economic Freedom	Heritage Foundation Index of Economic Freedom
al capital	Can people in general be trusted (%)	World Values Surve
ation	Taxation level (% of GDP)	World Bank Development

endix 2

ıriate Pearson correlations and significance (two-tailed) between pendent variables used in multiple regression models.

		Social capital (% "Yes") Can people in general be trusted (%)	Index of Economic Freedom 1999	Bureaucratic regulation 1999	Taxation level (% of GDP) 1998 World bank development indicators	GDP per capita 19 in 1995 U dollar
Entrepreneurship ity (%) 2003	Pearson Correlation	-,119	,107	,104	-,557	-
	Sig. (2-tailed)	,497	,529	,541	,000	,
	N	35	37	37	37	
al capital (% "Yes") people in general be ed (%)	Pearson Correlation		-,412	-,054	,109	,
	Sig. (2-tailed)		,014	,757	,535	,
	N		35	35	35	
x of Economic dom 1999	Pearson Correlation			,736	,018	-
	Sig. (2-tailed)			,000	,918	,
	N			37	37	
aucratic regulation	Pearson Correlation				,077	-
	Sig. (2-tailed)				,650	,
	N				37	
tion level (% of GDP) World bank lopment indicators	Pearson Correlation					
	Sig. (2-tailed)					,
	N					
per capita 1995 in US dollar	Pearson Correlation					
	Sig. (2-tailed)					
	N					


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Are traditional Western ethical theories still elevant in a cross-cultural and entrepreneuria business world?

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ɔduction

cs is an area of business largely left to the imagination. Typically, agers are guided by the company code or culture, or at least have a on higher up the hierarchy that they can refer to when faced with a sion containing ethical dimensions. Entrepreneurial managers, being

nmas. In seeking to resolve these, entrepreneurs must usually rely or
· own judgment to determine 'what is right'.

e moral choices have a significant impact on business decisions, and
n the fact that entrepreneurs usually make those choices without
esting advice from people well-versed in ethics, it is important to kn
ther or not they are likely to have ethical bias or particular orientatio

litional Western ethical theories recognise three bases for ethical cho
ely virtues, rules and/or consequences. This paper assesses the ethica
ntations of managers with entrepreneurial intentions by means of a
tionnaire administered to Master of Business Administration candida
hina and Australia, who either have or do not have the intention to
me entrepreneurs.

research problem is two-fold, namely:

1. To determine whether entrepreneurially-inclined managers a
more oriented than their corporate counterparts toward any of the
three ethical theories when making decisions.

2. To determine whether there are any differences in ethical
orientation between Chinese and Australian entrepreneurially-incli
managers.

entrepreneurially-inclined manager is defined as one who is an
olished manager and who has entrepreneurial inclinations, whether
ady realised or not. This means either that they are currently managin
· own business or considering entrepreneurship as a future endeavour
er way, they are self-proclaimed entrepreneurs in the psychological

)usiness-related responsibilities typically remain his/her priority at all
s. there is usually little time for any matters that fall outside of the re
usiness ownership and management. This usually results in the
epreneur being totally absorbed by work-related issues, which makes
cult to discern where business ends and other aspects of his/her life f

ntrepreneurs continuously pursue opportunity (Stevenson 1983), they
be faced with opportunities where they are compelled to make choic
/een alternatives. They typically face aggressive competition in the
ketplace and extra-ordinary financial risks. Sometimes none of the
ces appear appropriate to them, or more than one appears equally
rable. In addition, they are usually unable or unwilling to consult wit
rs about the decision, so they must rely on their own judgment to
rmine 'what is right'.

hypothesised that entrepreneurially-inclined managers will tend to b
e biased toward consequentialism (as opposed to deontology and virt
their corporate counterparts and that there are differences in ethical
ntation between Chinese and Australian managers with entrepreneuri
ntions.

rature Review

earch that addresses entrepreneurs' motivations in a direct manner
rly shows that entrepreneurs are not just single-minded profit
imizers who appropriate the value created by other people's work,
ded to in economic theory (Hebert & Link, 1988: 48). When asked ab
start-up motivations they state a range of economic and non-econon
ing forces. The top two motivators tend to be the desire to be one's o
, and the compulsion to bring an idea they may have nurtured for son

lund, Davidsson & Delmar (2003) in their longitudinal study of ongo
ll businesses demonstrated that expectations concerning the effect of
ness growth on employees' well-being are far more important than th
ct of growth on the entrepreneur's income stream alone, which indica
non-economic concerns can influence entrepreneurial decision maki
iewing a range of research studies, Sapienza, Korsgaard & Forbes
)3) specifically discuss entrepreneurs' characteristic self-determinatio
n important enough motivator to overshadow even potential financial
s. Delmar (2000), while conceding that there are some generalisation
nade about entrepreneurs, concludes that there is no typical profile.

ording to the literature, entrepreneurs appear to be as heterogeneous a
other group, in the psychological, demographic and socio-economic
e. Thus, we might expect that they are not inherently a special breed
rds ethical issues either. Although Bucar, Glas and Hisrisch (2003), i
of the few studies devoted to entrepreneurial ethics, found difference
veen entrepreneurs and corporate managers in their attitudes towards
aviours that might be seen as unethical, those results are better explai
ituational characteristics rather than innate differences of character
veen entrepreneurs and non-entrepreneurs.

uld now like to touch on the most salient aspects of Western ethical
ry, as well as the Chinese perspective, before venturing to describe th
ain of entrepreneurial ethics.

n one asks the question "What is the right thing to do?" it usually me
he is searching for the most appropriate moral action. In our ever-pre
r search for 'right', we are consciously or unconsciously engaging in
s, which in its most basic form is simply 'the philosophical reflectio
al issues' (Robinson D, 2002).

if morality changes over time, with societal norms and regulatory
ites, then how can one know for sure what is moral? Certain minimu

- Morality as responsibility, i.e. acting in accordance with oth people's concerns, rights and expectations. That means not only refraining from doing things that cause harm to others, but also actively pursuing their welfare – it implies the imperative to do as say and believe.

- Morality as concern for others, i.e. understanding how other experience a loss, for example, which compels us to not want to impose a loss on another.

- Morality as reason, i.e. they should be justifiable according an objective set of criteria

- Morality as consistency, i.e. similar cases are treated similar without double standards.

- Morality as universality, i.e. the same conditions must be applied to all concerned.

above five form a convenient checklist for entrepreneurs who wish t ıre that their decisions are ethical. Problems occur when one or more ıbove conditions do not appear to be fulfilled by an anticipated busin sion. Entrepreneurs need to choose the best under the circumstances. do entrepreneurs make the best choice?

way to do so is to seek out an applicable rule, norm, value or examp ollow, then he/she seeks to apply normative ethics. Normative ethics ıranch of philosophy concerned with moral obligation and intrinsic e in the actions and character of human beings (boylan 2000). Two n ches of western normative ethics are virtue ethics and rule-based eth

ue ethics

rtue is a relatively stable character aspect that disposes a person to ac

s, the culture was propagated that morality should be formed as part
s character (negri 1988), such that it should then be unnecessary to
ose any particular theory of morality on ourselves or others, but we
ld be morally equipped to act always in accordance with our persona
es, which would be trustworthy because they would have been forme
nd a right moral value system. There is sufficient evidence of crime a
uption all around us in this day and age to show that we do need rule
laws to guide and direct people's behaviours if we are to enjoy a fair
society. Perhaps it is precisely because of the multiplicity of rules an
s that ethics per se is today a seldom discussed topic, which seems on
rface when rules or laws are indeed transgressed and the offending
ies are found to be 'unethical'. Ethics should not be about judging
luct after the event. More appropriately, ethics should be the little vo
le everyone, calling them to reason and pre-meditated accountability
actions.

ue ethics cannot provide absolute guidelines to individuals and
munities, because of cultural differences and the process of adaptatic
ri 1998). Although some hypothetical concept of a virtuous person, a
e legal concept of the reasonable man, may be useful in assessing the
al-appropriateness of human behaviours, where no absolute measure
ts, the entrepreneur would still require a comprehensive description c
t constitutes a virtuous person, and it would seem improbable that su
ription could cover every eventuality. As virtue ethics emphasizes th
s of character and reason, perhaps all we need describe is what it mea
e reasonable and of good character, but again the application of those
ls would be subject to the entrepreneur's own interpretation. The lacl
r guidelines gave rise to more prescriptive forms of normative ethics,
red to as rule-based ethics.

e-based ethics seeks to evaluate moral considerations against a set of s that constitute a moral theory, which determines what is regarded as ptable behaviour. Two rules may be applied, namely:

- Consequentialism, under which actions should be judged according their consequences, and
- Deontology – under which the opposing view is assumed, i.e that the judgement of rightness or wrongness of any action is not dependent on consequences, but rather on the intrinsic goodness o the action, in and of itself.

sequentialism

most popular approach to consequentialism is utilitarianism – the be "an action is morally right when that action produces more total utili he group as a consequence than any other alternative does" (Boylan): 66). The goal of utilitarianism is often stated as the greatest good f greatest number (Boylan, 2000; Rachels, 1993; Rossouw, 2002). We 3) extends the utilitarian concept to business by going beyond the itional, idealistic definition of 'greatest good for the greatest number' oducing the following tenet (Weiss, 2003: 80): An action is morally r he (immediate and future) net benefits over costs are greatest for all cted". Such an approach to morality is similar to the cost-benefit anal is commonly used in business decision-making. Weiss thereby attem ake the utilitarian label fit into a pragmatic business context, but the ghing of benefits against costs cannot qualify as a normative ethical oach to decision making unless it simultaneously complies with all o conditions for morality. Since the cost-benefit approach can be utilize e independently of any ethical conscience, the entrepreneur is still lef out any real method of ensuring ethical correctness.

ıediate personal pleasure is unlikely to lead to long-term happiness (e
·obber becomes a fugitive or a prisoner). An astute risk taker might
gh-up the probability of being caught and decide to go ahead and rob
ː anyway. So, a form of consequentialist reasoning is found in ethica
sm, where conflict of interest between what is good for oneself and v
ɔod for society is resolved by the individual simply placing his own
ɔiness first. Egoism cannot be propagated as a universal moral princi
contradicts many of the minimum conditions for morality, such as
onsibility and concern for others. Alternatively, altruists regard conc
ɔthers as more important than concern for themselves. Based on the
ve, it seems important to know whether or not entrepreneurs tend to r
onsequentialist-type reasoning when faced with ethical decisions.

ntology

ntology, by contrast, focuses purely on the intrinsic rightness of an
ɔn, without regard for its consequences. Deontologists believe in the
ɔlute necessity of duty, irrespective of the rewards or punishments tha
follow. So, for example, the deontologist would not tell a lie, even if
oing he/she might save the lives of many people. Immanuel Kant (17
4) insisted that two concepts, in particular, are necessary for consisten
al behaviour, namely human reasoning and goodwill. He defined
dwill as "the will that obeys the universal moral law" (Rossouw, 200
As some duties are absolute, e.g. the duty to tell the truth, others are
the duty to exercise, there are two forms of imperative - the categori
erative is a universal moral obligation that is not dependent on anythi
the hypothetical imperative is a conditional moral obligation. Kant's
ːgorical Imperative requires people to always act in such a way that th
at the same time, wish that everyone would act in that way. For

ıously at all times. The main difference is that it seeks to prescribe m
es by promoting an imperative to act morally, assuming that people v
of themselves, always act in virtuous ways. It supports most of the
imum conditions for morality, in particular responsibility, concern fo
rs, consistency, universality, and reason. Entrepreneurs, however,
les in a world where they obtain their highest value from being differ
ı others, i.e they seek to be the first, the best, the quickest, the cheape
nost innovative, so it is unreasonable to expect them to base their
sions on what everyone else would do.

ı the advent of a 'global village' and the resultant exposure to differe
ures, people are now realizing that "what is right in one culture is not
ssarily right in someone else's" (Rossouw, 2002: 66). This has given
to cultural relativism. Adapting to the cultural mores of a foreign
ıtry with which one is attempting to conduct business was once
ıidered a moral duty but certain countries have recently declared it a
ıtionable practice. How then can cultures ever agree on what is ethica

Chinese perspective

iness Ethics in China is deeply affected by Chinese traditional culture
cially by Confucianism. Confucianism advocates a number of impor
es that underpin human relations and interactions, but its substance is
red on four unique yet inter-related concepts (Tu Wei-ming, 1995). T
of these is the central value of goodwill (ren), which identified the
ıcity of the human person to extend generosity and compassion to all
anity. It promotes reflection on one's allegiances and maintains that t
nate allegiance is not to one's state, but to the human community thro
dwill. The second is protocol (li), which means that every person sho

g) that teaches an appreciation of central virtues that achieve the
ssary balance between extremes. It is believed that if people adhere t
doctrine of the mean they achieve the desired harmonious balance, w
nsidered essential for a harmonious society.

ıe Chinese business system, these classic perspectives affect Chinese
epreneurs' thinking when they make decisions. Thus, their search for
ımum solutions must satisfy not only economic interests, but also thos
ementioned societal principles. These principles become manifest as
re to respect the mean, regard humanity as the basic element, and
cern for honesty, morality, and harmony. In addition, business leader
upon themselves the burden of 'reflourishing' China through their
stry as they consider the economic well-being of their country to be
responsibility (Qizhong Zhu, Chuanqing Wu,1996). They also hope
their companies have constant, consistent long-term development an
ainability as a result of applying these universal principles.

ddition to the above, Guanxi takes on a special role in Chinese cultur
nxi can be defined as a principle encompassing "pre-existing
ionships of classmates, people from the same native-place, relatives,
riors and subordinates in the same workplace, and so forth" (Y.H.
ıg, 2000). Since these relationships define how members of society
ıve in relation to each other, an appreciation of guanxi is essential to
erstanding Chinese business behavior. Although guanxi is based on a
etal system that arguably has its origins in Confucian thought, still
y, guanxi describes a an invisible network of personal relationships t
and do invariably provide the most efficient way of getting anything
e.

re are five guanxis, namely:

- elder-younger brother and
- friend-friend.

hierarchy of relationships, not unlike W. D. Ross's (1930) prima fa
es, a 20th Century adaptation of deontological responsibility theory,
ates the appropriate social status and responsibility of a person in the
ety (Pablos, 2001). From Chenting Su and James E. Littlefield's poin
(2001), there are two types of guanxi prevalent in mainland China,
ely favor-seeking guanxi that is culturally rooted, and rent-seeking
nxi that is institutionally defined. Notwithstanding this modern-day
nction, the fostering and nurturing of personal relationships is a
lamentally important social behavior in the life of the Chinese people
duo, 2005).

reality might be that in the Chinese business system there is no singl
sion-maker. Rather, it may be the network itself, i.e. guanxi, that is th
nate, collective 'decision maker' (Ford, 1997). Thus when Chinese
epreneurs make any decisions, and more especially a decision contain
thical component, they will undoubtedly think about whether it will
it their own social relationships. It follows that Chinese people prefe
their relatives and the ones with whom they are already familiar. This
the origin of Chinese renqing (translated 'favor') and 'kinship cultur
ngrui Zhu, 2005). So to Chinese entrepreneurs, guanxi is another
ortant influencing factor in the decision making process. The underly
ef is that good guanxi will certainly bestow a company with rich prof
reas without guanxi, or with a bad guanxi, entrepreneurs would be
tly limited in their ability to accomplish anything.

ard an entrepreneurial ethic

· control and forced their behaviour in a direction that clashed with th
or generally accepted ethical standards (cf. Cialdini, 1988, on the
cts of 'Authority'). In addition, as the key decision makers they are
y to frequently face complex and novel decisions, involving tradeoff
ethical implications and for which no satisfactory, predefined soluti
t. This realisation renders ethical issues very pertinent to entrepreneu
and Carrol (1999) found that entrepreneurs exhibit moral reasoning
s on a higher level than either middle-level managers or the general
ılation. This appears logical considering that entrepreneurs have to
me responsibility for difficult decisions more often than their corpora
ıterparts.

ging from the above review it is clear that the situation entrepreneurs
ıselves in differs markedly from that of most other people, and this in
f renders them a particularly interesting group to study form an ethics
t of view. It is therefore important to discover whether or not the gro
eople we delineate as entrepreneurially-inclined have any natural,
scious or unconscious, bias toward one or other ethical orientation.

hodology

ıestionnaire – Ethics in Business – was developed, consisting of thirt
n questions. Of these, four had definitive short answers and were bas
mini case designed to examine respondents' attitudes towards ethica
siderations in sales, inter-personal matters, administration and compa
ıre, while the remaining thirty-three required responses based on a
otomous Likert scale consisting of five options ranging from 'strongl
gree' (SD) to 'strongly agree' (SA) with a neutral point (N) between
ee' (A) and 'disagree' (D). Options were scrambled to negate repetiti

ber of options for each of the three theories, both as acceptance/rejec
tions and as trade-off questions, thus negating instrument bias (see
endix 1).

Ethics in Business questionnaire was administered to business mana
ustralia and China. These included mature age MBA students with
ificant managerial experience, who consider themselves
epreneurially-inclined, some established entrepreneurs as well as a
ple of corporate managers of for-profit companies and managers of n
profit companies. Within the sample are participants from MBA scho
hina and Australia. Although the Australian group contains students
n China or other Asian countries, and both business school groups
ain a small number of students from Europe, the fact that identificati
not compulsory has meant that it was impossible to separate those
tionnaires, thus limiting the analysis, yet providing a higher response
in the aggregate.

nalysing responses, points were allocated according to the degree of
ptance/rejection (positive vs. negative points) or the trade off betwee
osing theories (both positive). Thus, three points were allocated to
ngly agree (SA)' or 'strongly disagree (SD)' responses and one poin
e/disagree (A)/(D) responses. Points were tallied (with positives and
atives netted, where applicable) and aggregated per participant and th
aged for the group, showing clearly the average nett preference of ea
p for each particular theory. Results were tabulated and then analyse
neans of Chi Square statistics (Mathbeans Project, 1999) to test
otheses.

Findings

ɔonses were summarized and are described in Table 1:

le 1: Mean Aggregated Responses by Cultural and Participant Group

ıp	Virtue	Conseq.	Deontol.	Utilitarian	Altruism	Ego
ıa IMBA ıp 1	11.3	2.0	6.4	2.1	1.9	- 0.9
ıa IMBA ıp 2	10.2	4.2	7.4	1.5	1.2	0.5
ıa epreneur/ ıager ıp)	10.5	4.8	9.4	3.1	0.3	0.3
tralia A ıp (30) epreneur -total)	23.0	- 0.5	4.4	1.7	1.3	- 0.5
	55.0	10.5	27.6	8.4	4.7	-0.6

ɔorate ıp (10)	19.2	1.4	4.5	2.3	2.1	0.2
tralia ·for ït Group	16.2	0.0	4.0	2.0	2.0	0.0
ɔorate ·total	35.4	1.4	8.5	4.3	4.1	0.2
	78.1%	3.1%	18.%	50.0%	47.7%	2.3%
ıl (188)	90.4	11.9	36.1	12.7	8.8	-0.4
	65.3%	8.6%	26.1%	59.1%	40.9%	0.0%

n be seen from the table that, in general. virtue ethics enjoyed the mc
ɔort (65.3%) with deontology second (26.1%) and consequentialism l
%%). When forced to evaluate consequences, respondents rated
tarianism (59.1%) above altruism (40.9%) and placed least importanc
goism (0.0%). When only the entrepreneurially-inclined managers ar
ıidered, the picture remains similar:

- Virtues 59.1%, Deontology 29.6% , Consequentialism 11.3%

Whether or not there is any significant difference between epreneurial and corporate managers with respect to ethical orientatio Chi Square statistic was 6.01 with 2 degrees of freedom. As this is ter than 5.99, the null hypothesis can be rejected with a 0.05 error ability, or 95% confidence level. It is therefore concluded that there gnificant difference in ethical orientation between entrepreneurially- ned and corporate managers. The corresponding contingency table is vn in Appendix 2.

Whether or not there is any significant difference between Chinese and tralian entrepreneurially-inclined managers in the distribution of thei cal orientations. The Chi Square statistic was 11.5 with 2 degrees of dom. As this is greater than 9.21, the null hypothesis can be rejected only a 0.01 error probability, or 99% confidence level. It is therefor cluded that there is a significant difference between Chinese and tralian entrepreneurially-inclined managers in the distribution of thei cal orientations. The corresponding contingency table is shown in endix 3.

t things become evident from these results:

he aggregated responses definitely did not favour consequentialism ve virtue ethics or deontology. All cultural groups were oriented mos ard virtues, then deontology, and placed consequentialism last. ilarly, all cultural groups preferred utilitarianism above altruism wit sm last).

significant difference in ethical orientation was found between the t ural groups.

ggregated results ignore the sensitivities of individual respondents, a e complete picture is presented when one looks at the range of ntation, as shown in Table 2:

Table 2: Range of Responses by Cultural Grouping

ıp	Virtue		Conseq.		Deontol.		Utilitarian		Altruism		Egoi
	high	low	high	low	high	low	high	low	high	low	high
ıa A ıp	30	-4	15	-7	13	-2	9	-3	9	-1	3
tralia A ıp	34	11	6	-8	22	-8	7	-1	5	-2	2
tralia ɔorate ıp	39	5	10	-16	20	-6	9	-3	9	-3	4
ıa eprene roup	25	-4	20	-10	29	-3	9	-2	5	-4	7

itations

validity of this research is limited by the following factors:

- The possible cross-over of values and ethical orientation between cultures, especially where some of the Australian particip may be of Asian origin;

- The use of MBA students pursuing entrepreneurship studies and relying on their own perception of themselves as 'entrepreneurially-inclined' as the main criterion for inclusion in tl study. This is especially relevant to the China group, where the ter 'entrepreneurially-inclined' may have been interpreted differently from the established meaning in English first language countries;

- The possibility of respondents choosing answers they percei as 'correct' cannot be discounted, even though the instructions stat clearly that there were no right or wrong answers;

- This study has only considered the three major ethical theoretical bases, namely virtues, deontology and consequentialisn Since entrepreneurs inhabit a world of opportunity, which often requires expedient action, it follows that there may be little time in their day to day lives for reflective ethical consideration, which rai the possibility that the indications of ethical orientation found in th study may not carry through to the real worlds of respondents;

- In the light of hypothesis 2 being confidently rejected, it is possible that the rejection of hypothesis 1 could be influenced by t fact that the corporate group were all Australian and the entrepreneurially-inclined group were mainly Chinese;

- Finally, even though the hypotheses tested returned definitiv results, the reliability of the research is limited by the fact that the

clusions

re is little doubt that ethical reasoning remains a complex mosaic of
ıe ethics, deontology, and consequentialism (Robinson D, 2002), and
ı any attempt to typecast entrepreneurs or even define an entrepreneu
: may indeed be futile. Nevertheless, this study has identified that the
entrepreneurs decide what is ethically appropriate is not, as sometim
ɛved, based on selfish, egoistic or even consequentialist bias, in the
ı. The findings that entrepreneurs' chief orientation is to virtues appe
ıing and counter-intuitive, and suggest the existence of a more sensiti
ching, inner soul beneath the apparent hard-nosed, business-oriented,
ıic image of the typical entrepreneur, as current parallel research has
gested (Robinson, Davidsson, van der Mescht and Court, 2006).

striking difference between the entrepreneur and others is that the ar
ıeir lives are not easily delineated. Their dilemmas therefore extend t
onal, business, and family matters, and these are more likely to be
mingled than their corporate counterparts. Since moral choices are
voidable in business, we would have to agree with Megone's (2002: 2
rtion that the real challenge, where entrepreneurs are concerned, is "t
e the ethical component of business decision-making explicit so as to
e it better". Given the strong indication that entrepreneurs, like their
orate counterparts, regard virtue ethics highly, future research could
sed on ways to ensure they are equipped to make business decisions
out violating any personal principle or value. In this regard, the Busi
cs Synergy Star (BESS) (Robinson et al, 2006) will no doubt prove a
able tool.

now return to the main question and title of this paper - Are tradition
tern ethical theories still relevant in a cross-cultural and entrepreneu
ness world? This research has shown that there are significant

businesses are brought into existence, it is probable that the nature o
sion-making will continue to change significantly and rapidly. There
an urgent need for the establishment of a modern-day ethic that
ɔmmodates both Western ethical theories and the traditional Chinese
:s, including Guanxi, which do not appear in principle to be at confli
each other. While it is unlikely that a single, universal business ethi
ever prevail, and probably undesirable that it ever should (as any
ɔlutistic system would limit creativity and all but erase valuable cultu
:ages), the challenge remains to make ethical decisions and conduct
ness in ways that are considered morally acceptable to all parties
:erned.

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ınovation Center: A Climate for Attracting a Developing Creativity

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tract

ıtivity has been defined as the ability to make or bring into

ected that in this synergic environment, the innovations will find their way to market through the establishment or olvement in technology companies.

paper reports on the development of Innovation Center in d Science & Technology Park (YSTP). Based on theories of tivity and innovation, a supportive structure model was gned. The required services to foster the innovative creativity osphere were identified. The designed model was lemented in the Park and the preliminary results show siderable success.

1. Introduction

concept of creativity is being increasingly recognized as having its ial side". Creativity can be interpreted as an interaction between an vidual and the immediate socio-cultural context, therefore being an personal phenomenon [1]. The beneficial or detrimental aspects of al facilitation of creativity are situational, but it seems clear that the ence and behavior of others is having an effect on creativity and its efits. So definition of creativity should be based on the context in whi flourished. Creativity has been defined as the ability to make someth , whether a new solution to a problem, a new method or device, or a tic objects or form. Creativity can be recognized as a combination of and Action whereas innovation shows the combination of creativity mercialization of product [2].

definition of innovation states that Technological product and proces P) innovations comprise implemented technologically new products a esses and significant technological improvements in products and esses. A TPP innovation has been implemented if it has been introdu

ificantly technologically improved products or processes during the od under review.

uis paper a structure is proposed to foster creativity and innovation ng creative individuals or teams. Supportive structure's concept was d on the theories of creativity and innovation. This supportive structu ides unique opportunity for young creative innovators and enables th evelop their ideas in one hand and help SMEs to access creative vators on the other hand[3].

pporting Hi-Tech SMEs are known as macro scale duties of STPs, porting creativity and innovation among individuals and teams can be sidered as the micro scales duties. Following are the main activities th s can do to provide an innovative environment [4]:

enhance ability to commercialize and make social use ur scientific, technological and creative ideas;

contribute to political, technological, environmental, ealth and social priorities;

build on the economic importance of creative industri nd service sectors;

extend work patterns to account for an ageing society

foster a greater public awareness of the importance o cientific and technological change;

invest in long term benefits of cross-disciplinary ducational activity;

make more efficient use of material resources and uman capital; and

arding the definition of creativity, different viewpoints can be found iterature [1, 2, 4]:

John Haefele (CEO and entrepreneur): Creativity is bility to make new combinations of social worth

Carl Rogers (psychologist and writer): Creativity is mergence of a novel, relational product, growing out of the uniquene f the individual.

Henry Miller (writer): Creativity is occurrence of a omposition which is both new and valuable.

Newell, Simon, & Shaw (Team of logic theorists): Creativity is a special class of problem solving characterized by novel

H.H.Fox (scientist): Creativity is any thinking proces which original patterns are formed and expressed

E.Paul Torrance (Educator, Academic, Creativity nvestigator): Creativity is Fluency , flexibility, originality, and ometimes elaboration

Rollo May (writer, philosopher): Creativity is the proc f bringing something new into being...

Roger von Ouch: Creative thinking involves imaginin amiliar things in a new light, digging below the surface to find reviously undetected patterns, and finding connections among unrela henomena

Carnevale, Gainer, Meltzer (innovation Interpreter): Creativity is ability to use different modes of thought to generate new ynamic ideas and solutions.

fall under this category. For instance, adaptive creativity might involve studying an invoicing system, identifying what is wrong w that system, and fixing it.

2. Innovative creativity, in which something new is created. In case of the invoicing system, for instance, “someone who is more inclined toward innovative creativity would not try to correct the system. Rather, he or she would throw out the system and create a new one”. The concept that is considered in most of creativity stud is innovative creativity.

rovide an environment that encourages innovative creativity, it is ssary to develop a system. This system is recognized as processes wh n creation demand that unique ideas find inviting homes. Ideas must s lopment, production, refinement before they reach fruition and ifestation and for others to see their beauty or their worth. This proce s time and energy as creators become consumed with the tasks of tak s and making them visible, audible or usable. Adjacent to a focus on tive and innovative individuals, a group or team focus has been olished in research and practice. [2]. Therefore supporting creativity a vation means providing support for individual and team efforts in a ematic scheme.

ording to a study [7], systematic creativity is constructed from 5 leve l level having its own characteristics. By fostering individuals' creativ creativity level will go to higher levels. The first three levels of tivity can be attained by anyone who is motivated and who has istence enough to see projects and ideas through. The last two levels be unattainable to all but those who are highly gifted creatively, or e who are naturally creative geniuses:

imitive and intuitive expression: This first level of creativity rporates the primitive and intuitive expression found in children and

cademic and technical level: The second level of creativity is the lemic and technical level. At this level the artist learns skills and niques, developing a proficiency that allows creative expression in iad ways. The academic artist adds power to expression through the tery of craft.

ıventive level: Many artists experiment with their craft, exploring :rent ways of using familiar tools and mediums. This heralds the leve ntion. Breaking rules is the order of the day, challenging the boundar :ademic tradition, becoming increasingly adventurous and experimer :ntors use academic tradition and skills as a stepping-stone into new tiers.

ınovative level: At the level of innovation the artist, writer, musician, ntor, thinker is more original. Materials and methods that are out of t nary are introduced. Now the creator breaks the boundaries. The lemic or inspirational foundation remains as a substructure of ɔnscious thought guiding these creative efforts.

enius level: The fifth level of creativity is characterized as genius. Tl ndividuals whose ideas and accomplishments in art and science defy anation. Genius is arguably the one level that is unexplainable and aps unattainable for most of us, something that an individual is born .

ering rules, Creative human resources and supportive structure are ıitive needs of creative systems. Systematic creativity cannot lead to vative creativity without integration of these parts.

ules for Fostering Creativity

:e are some simple rules in fostering creativity among individuals

reativity grows among friends and celebrations, and withers among nies and confrontations.

reative ideas are often fragile -- like children creative ideas and peop rve protection.

reative successes are often preceded by failures -- for explorations, ings, daydreams, flights of fancy, trial and error are the natural panions of creativity.

reating is a distinctly human trait. Exploring and fulfilling one's creat t is a sacred trust -- a potential given not just to selected individuals, l humans.

iolating someone else's creativity is an assault on the very essence of her's inner being.

eedback on creative ideas and products should be supportive, and sho d on strengths, never concentrate solely on weaknesses.

ften born from internal or external chaos, dissonance, strife, or quilibrium, creative production can be a way of creating order, dealir anger or grief, or solving problems as individuals seek to regain nce.

eing creative can be exhilarating, even addictive, and the creative spi be wonderfully contagious.

f one wishes to observe, appreciate and encourage creativity in ones others, one must learn to be quiet and still, to listen, and to watch, an with the heart as well as the eyes.

reative Human Resources

ls is far more elusive. The characteristics of creative human resources
ıs follows [6]:

ıdividual human talent is non-replicable.

he output of human capital is infinitely reusable.

he value of knowledge stocks is cumulative and exponential.

eturns to creative capital are tangible and intangible.

ed, improvement attempts to enhance the quality of creative human
urce can make all efforts much productive [7]. Productivity of creativ
em goes higher by considering following individual creativity
acteristics [8].

isplay a great deal of curiosity about many things; are constantly ask
stions about anything and everything; may have broad interests in ma
lated areas. May devise collections based on unusual things and
ests.

enerate a large number of ideas or solutions to problems and questio
ı offer unusual ("way out"), unique, clever responses.

re often uninhibited in expressions of opinion; are sometimes radical
spirited in disagreement; are unusually tenacious or persistent -- fixa
n idea or project.

re willing to take risks, are often people who are described as a "high
taker, or adventurous, or speculative."

isplay a good deal of intellectual playfulness; may frequently be caug
ısizing, imagining or daydreaming. Often wonder out loud and migh
d saying, "I wonder what would happen if. . ."; or "What if we chang
'an I manipulate ideas by easily changing, elaborating, adapting,

isplay keen senses of humor and see humor in situations that may no
ear to be humorous to others. Sometimes their humor may appear
rre, inappropriate and irreverent to others.

re unusually aware of his or her impulses and are often more open to
ional within him or herself. May freely display opposite gender
acteristics

xhibit heightened emotional sensitivity. May be very sensitive to bea
visibly moved by aesthetic experiences.

re frequently perceived as nonconforming; accept disordered of chao
ronments or situations; are frequently not interested in details, are
ribed as individualistic; or do not fear being classified as "different."

Criticize constructively, and are unwilling to accept authoritarian
ouncements without overly critical self-examination.

upportive Structure for Innovative Creativity

ative system needs a supportive structure to integrate all necessary
ors for innovative creativity to be flourished. Setting up and developi
vative results from creativity, drive and commitment of creative
viduals are affected by the supportive structure. In this respect, it is
ortant to investigate relationship between creativity and innovation [9

porting creativity and innovation processes means (simultaneously)
iding support for individuals and for teams as well as for convergenc
divergence (describing phases in creativity and innovation). Providin
port for creativity and innovation carried out through processes of
itating activities during those phases [9, 10].According to pioneers'
ies, enterprises are required to demonstrate creativity and innovation

›vation goes beyond mere invention to mean the creative application nologies, processes or ideas to some useful purpose. Innovation is ›ming a highly valued commodity, viewed as key to economic growt competitiveness. As a result, pressure is increasing to identify areas t ent the greatest opportunity for innovation and to develop models to lerate the pace of innovation [12].

›vation is defined in different ways [13, 14, and 15]. Schumpeter, Pav Tidd defined innovation as a process encompassing the development ideas into marketable products/processes. In line with the foregoing nition, Freeman described innovation as a process comprising technic gn, manufacturing, management, and commercial activities of new (c roved) products. Major studies on the innovation development proces epts are as follow:

ers believe that; the innovation development process comprises of six es: (a) problem definition, (b) research (basic and applied), (c) elopment, (d) commercialization, (e) adoption and diffusion, and (f) sequences

innovation development process of the manufacturing industry based per and KleinSchmidt theory comprises of: (a) Preliminary assessme letailed investigation (problem definition), (c) development, (d) testi validation, and (e) commercialization

e & Rosenberg represents the chain-link model the process of ›vation-a set of linked activities that may occur in a variety of sequen odel includes the innovative activities as well as the elements of arch, knowledge, and market.

nooklerto believes that development of technological innovation nds on the evolution of the market demand. The pull from the dema influences the development of the product life cycle in technological

bold, Tekie 2004) [16]. Creativity and innovations contain higher lev
ıbjectivity than other aspects of business and therefore training for
tivity and innovation are often avoided in “hard” business training
orted by Van Vuuren 1997) [17].

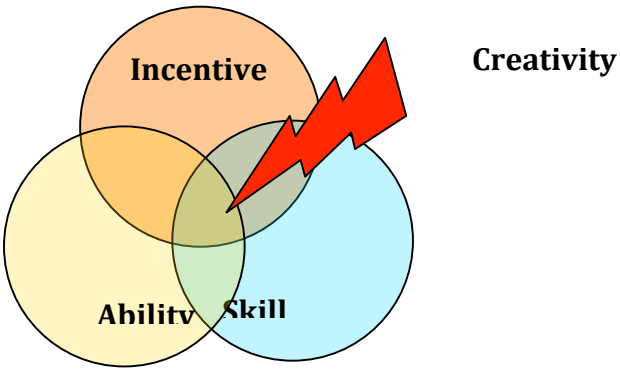
word innovation implies creativity, without which there would not b
vation. Also, innovation often requires or results from invention, wh
rtainly creative. Creativity is necessary but not sufficient for success
vation. There must also be a good plan or strategy and good leadersh
uccessful innovation coming from an individual or team, particularly
n it has large financial or social impact. It was hypothesized that peo
high levels of self-evaluated creativity will have high levels of
lementation with regard to innovation. Individual persons initiate,
ribute to and evaluate all parts of creativity and innovation processes
ir individual efforts and achievements are the basis for creativity and
vation [12, 18].

eover the role of intrinsic motivation in creativity and innovation wa
lly supported by an interview study of 120 scientists by Amabile and
skiewicz (1987). They found that "the single most frequently mentio
acteristic of highly creative work was intrinsic motivation - being
ivated primarily from within, from the scientist's own interest in the
k itself and not from external pressures. In this study as in most of
ıbile's research, intrinsic motivation is seen as a characteristic of the
vidual more than of the task [1].

terature, there is a plenty of anecdotal evidence for the significant rol
ıdividuals in innovation processes. Also promoting creativity and
vation in a team is another clearing important issue. Picking creative
ɔle with wide experience and knowledge, putting them in a supportiv
ronment and challenging them with an interesting project with
hasize on creativity more than productivity cause creation of disrupti
nologies in comparison with sustaining technology [3, 5, 10].

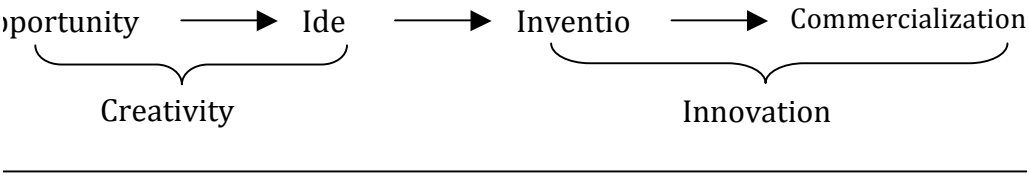
ing point of innovation, which gets into motion a series of events
ıinating in the entrepreneurial event.

ıtivity among individuals working in particular fields comes from a
bination of ability, skill, and incentive/strong interest in those fields.
is to be creative and innovate successfully in a particular area, he/she
t be at the forefront of the field and, as well, have a strong desire to
vate. These features often require creativity of a kind that does not
ribute directly to the innovation but certainly is important for its succ
vation supportive center must promote technological creativity and
vation culture by training creative people based on spreading incenti
ınding abilities and developing skills among creative individuals.
ıtivity Hybrid Triangle shows relationship between these concepts [2



ıre1. Creativity Hybrid Triangle

ı regard to the application of innovative creativity in the
epreneurship domain, the first step of the process is for the potential
epreneur to recognize an opportunity to innovate. To recognize an
ortunity to innovate, the entrepreneur must participate in a creative
/ity [22]. After an opportunity is recognized, the entrepreneur must
elop alternative courses of action to take advantage of this opportunit
ıis point, ideas need to be enhanced, theories explaining the observec
ortunities used to be developed, alternatives need to be compared,
ria established, problems defined and hypothesis and plans formulate
The process has been shown in Figure 2.



ıre 2. The Creativity-Innovation Process

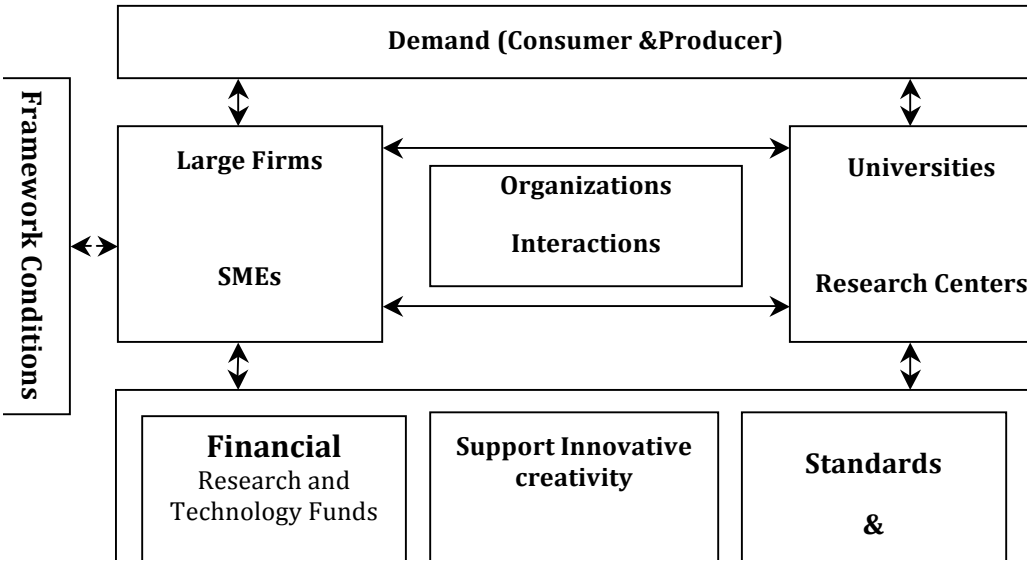
successful innovation needs an integration of creativity, in-house
arch activities, production activities, marketing, and interorganizatior
ionships.

STP Innovation Center, a Model for Fostering Creativity

innovation among creative individuals [15]. A gap analysis was appl
is architecture to achieve a system for supporting creative and
vative individuals. Innovation center was the result of the gap analys
its duties were defined in accordance with YSTP objectives.

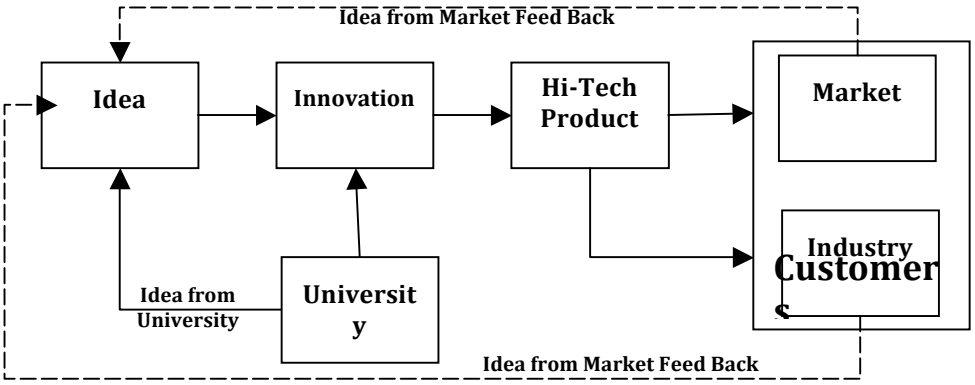
theoretical contributions to the NIS literature have outlined the
ortance of institutions. Moreover, Francois Moreau has argued that a
ıer theoretical development of the elements of NIS is necessary in or
ıccess of other parts [23]. Owlia et al studied the emergence of
vation center as an infrastructure in Iranian science parks. Figure 3
vs the relations between Iranian NIS elements [24].

vation center is a supportive structure for Iranian creative individual
adult innovators, comprising of 9 key elements of environment in wh
ıdividual innovator works. Supporting facilities and services which a
ided for innovators was carefully considered and its outcome was
uated and its feed back was used to correct the implementation of
vation supporting system to make this process productive.



ovation center admits every individual with novel ideas. This center ourages individuals from university as well as markets and industry. ence of this center shows that it has not been established based on lin n link between ideas to markets. Ideas from market and industry help vators to get feedbacks and improve the linear chain from idea to the ket. Figure 4 shows the different steps of innovation process from ide narket formed by theoretical aspects and experiences. Dashed lines v the idea originated in the market or in industry and come to the vation center and flow in the idea chain (Idea- innovation- Hi-Tech luct-Market/Industry). This idea is originated because of market pull, reas the ideas come from universities will cause developing an vative product or process based on knowledge push.

ed on our observation the best creative individuals leave innovation er after their accomplishment of their task to take higher academic ee or establish their own business rather than working for other panies. YSTP innovation center develop Hi-Tech SMEs by supportir ng creative individuals, potentially be able to become successful epreneurs.



ıpportive Infrastructure for Fostering Innovative Creativity

ıe demographic characteristics as well as features of the way in whicl
vators pursue their creative innovation-as individual entrepreneurs; v
ıidered in addition to conventional focus on grants, awards and direct
ıcial support. The most important key elements that make YSTP
vation center a place interesting for innovators and creative individu

- Direct or indirect validation of innovation

Public recognition, attendance in events and participating in nation
and international innovation festivals and exhibitions, interaction v
other innovators and media coverage which exposes innovators to
general public are utilized to validate what innovators do.

- Technical and business training opportunities

Even though university-based technological programs come
immediately to mind when thinking about innovation training, our
research show that innovators also get important amounts and type
training and professional development from a range of other sourc
both formal and informal. Moreover it was experienced that trainir
of business skills are not typically available in conventional univer
trainings.

- Access to financial resources, equipments and materials

Cost is the fundamental barrier to accessing equipment. Sharing
equipment typically brings down the cost. Innovators get access to
most equipments and laboratories devices by building networks an
collaboration. Team work is another grouping format which enable
them to use shared equipment more efficiently.

- Data resources

technology is only created by accessing to more advanced knowle and the latest researches.

- Creating a market for innovative products

Innovation center has a remarkable duty in marketing the innovati products. In one hand innovation center joints with HI-Tech indus and government and on the other hand adjacent to multi tenant companies of YSTP cause creation of a hybrid market in which young innovators can involve by their projects and sell their innovations.

- Inward and outward connection to other innovators and non innovators(network of innovation)

Communities and networks are vital to an innovators carrier. They facilitate access to training and professional development, materia resources, information databases and IP registration. Networks can both internal and external with national and international scope.

- Award and grants

Awards and grants, in addition to being important validation mechanisms, provide financial and/or in-kind resources (such as residency, new chance to involve in new project and etc). Even a small grant can have a large impact on an innovator ability to work

- Physical environment

Innovators' need for workspace must be distinguished with other groups. Creative space can have a great impact on the quality of innovation. Meanwhile it is so important factor in attracting young innovators. Through the use of light colors, soft textures and eleme of nature, a sense of calm emerges in the great historical interestin

orking Processes of Innovation Center

king processes of YSTP innovation center is constructed on the basis ules of fostering creativity and needs of creative individuals stated re.

dmission

vation center process is commenced with admission of creative peop a brilliant idea and continued with training creativity among innovat nission process starts by filling application form and presenting a posal. In most situations, assessment of creative proposals and ideas cerns applicability, usability, practicality, and cost of implementation as we are aware of obstacles and barriers in front of applicants, ission criteria is not fixed to these factors.

stions that are considered in interview session are as follows:

- Is it an improvement over what is presently done or used?
- Is it financially feasible?
- Is it only "cosmetic" and a "cover up" of the problem, or wil correct the difficulty or issue of concern in any field?
- How long will it take to implement?
- Does it have potential for sustained success or positive chan in proposed field?
- Is it compatible with existing knowledge/technology?
- Is it in line with the context of any admitted SMEs?
- What is the potential market?

k is so crucial. Most of ideas which take long time will failure becaus
loose their interest and disappointed easily. Sense of urgency was
ted by following steps in YSTP innovation center:

1. Set goals: goal channel energy toward the target.

2. Set time line: time line create a healthy level of pleasure tha
prompts people to act faster

3. Tie the reward to the outcome, no outcome no reward.

4. Frequently remind all involved that time is running out from
minute you set your watch

5. Along the way the existing innovation process looking for w
to create and even faster better one.

don't want the young admitted individuals to be a Gutenberg or Edis
enerate creative ideas. We want them to devote the time to creating n
vations.

other most frequently mentioned environmental factor associated wi
creativity was freedom. It was "a sense of control over one's own w
own ideas. It has long been known that complete freedom is not likel
to satisfactory outcomes (e.g., Andrews and Farris 1967)[25, 26].
essful creative teams are characterized by high levels of trust, freedo
ect for personality differences, tolerance of ambiguity and willingnes
ge. They also require low levels of direction, formal hierarchy and
aucratic control. It was convinced that technological innovation in th
s ahead will be dependent on the creativity of those working in the
arch laboratories around the world.

reativity Training

ause today's advanced nations depend heavily upon novel technologi

ything. Innovative people might not have a possible solution in mind
n they go in search of an innovation, but they have an approach to ho
ok for a solution.

eadership Training

lers are individuals who lead, as opposed to managers who manage.
uture, only leaders with a proven track record and clear vision will b
n responsibility to lead teams developing novel technologies [27, 28]
er's track record must provide evidence of individual creativity and
ained performance along with strong emphasis on delivery, or the abi
ove from concept to successful implementation. These requirements
as strict if the individual is part of a team that has a leader who does l
haracteristics. One characteristic that is valuable for a team leader is
ier capability to encourage, enable and motivate the team members ir
innovative efforts.

elping to Form Multidisciplinary Teamwork and hot groups

e cooperation and interaction among team members working on the
elopment of novel concepts must take place from the very beginning
roject [29, 30]. Teams should be established early, so that each mem
have a chance to contribute to, and participate in, creating the invent
y involvement of the entire team will help it to focus on simplicity ar
ufacturing. This will be extremely important, given that the complex
ie multifunctional products will increase over time.

vitt and Lipman-Blumen offer the following suggestions for creating
ips [31]: "Make room for spontaneity; encourage intellectual intensity
grity and exchange; value truth and the speaking of it; help break dov
iers; select talented people and respect their self-motivation and abili
use information technology to help build relationships. YSTP innova
er gather young talent around each other and try to encourage teamw

nwhile Mentoring is essential for young inventors to shorten their ence in innovation center successfully. Innovation center held variou nical courses in different field such as IT & Computer, Electronic, otechnology, Robotics and etc.

team or individual completed his innovation successfully he may inue his cooperation with innovation center. These technicians whicl killful in their field transfer their tacit knowledge to the new admitte vator and help fruitfulness of their mind. Also these individuals can k on YSTP project.

ssessment

tive innovation is evaluated by the committee of experts in compani admission committee to see the result of admitted novel idea. This mittee investigates the results and outcomes of creative individuals o ns and gives some comments about the failure or success of innovato comment is used as lessons for future admission and assessment.

egistration of Innovation

lly their innovative products or services are supported to apply for stration in IP office. This helps to formalize the innovation and to esent them in the potential market.

onclusions

Innovation Center Model was depicted according to the experiences porting creative and innovative people in Yazd Science and Technolo . They were based on international background as well as the hological and cultural characteristics of young creative Iranian peopl main points that can be concluded are:

innovations more than university oriented innovations that are based
knowledge push.

Creativity among individuals or teams, working in particular fields
mes from a combination of ability, skill, and incentive/strong interest
ose fields. To prevent fading novel ideas by young creative minds, a
stem must be developed to convert creativity into innovation. Fosteri
es, creative human resources and supportive structure are primitive
eds of creative system. Systematic creativity cannot lead to innovativ
ativity without integration of these parts. These basic factors are
tracted from creativity literature.

Supportive infrastructures for fostering innovative creativity are cru
innovation process. They could comprise direct or indirect validation
ir innovation, conventional and lifelong training opportunity for you
novators, access to financial resources, equipments and materials
novators need for their work, data resources which they require to fos
ir innovation, creating a market for innovative products of innovator
d encouraging business owners to use their products, inward and
tward connection to other innovators and non-innovators, awards and
nts, and appealing physical environment.

Although bureaucratic processes may hinder the flow of innovation,
ar and easy-going process is required to assure that innovation stages
llowed completely. Working process of an innovation center could
volve admission, project control, making creativity atmosphere,
dership training, helping to form multidisciplinary team works, helpi
creation of hot groups, mentoring, assessment, and registration of
novation.

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Investigating Entrepreneurship Capabilities among Agricultural Students of Tehran University

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TRACT

g stratified proportional random sampling, 250 persons were selected
y. For data collection from students a structured questionnaire was us
ı collected by use of questionnaire which its validity (Face validity) v
ined by a panel of experts and university professors. Reliability
sured by Cronbach-Alpha coefficient was tested and α=.82 showed th
bility of the questionnaires. The criteria such as mean, standard
ation were calculated. In addition, Analysis of Variance (t Test) and
in SPSS/win 13 software were used for data analyzing, and factor
ysis method was employed this research were used for analyzing mea
erences among groups. The findings indicated that it is disagreeing of
studies, that risk taking capability of female students (B.Sc & M.Sc)
er than male students. Instead, capabilities of creativity (M.Sc) and
ievement motivation (Ph.D) of male students are higher than female
ents.

words: Achievement motivation, internal control, risk taking,
pendence, creativity.

RODUCTION

e the mid-1970s, concerns have been rising over the socio-economic
ıtion of young people in many countries and the prospects of creating
tional livelihood opportunities for them (Mkandawire, 1996; 1997;
); Schnurr, 1998; Bennell, 2000; Curtain, 2000; Bakilana and de Waa
2; Temba and de Waal, 2002). The world contains approximately on
on women and men who are in youth ages. This represents about 18
ent of the world's population. Of these, the International Labor
anization (ILO) in its World Employment Report 1998-1999 Estimat
60 million are in search of work.

ent, notes the report. Even in Developed countries, the Organization
nomic Cooperation and Development (OECD) has observed that with
exceptions, youth unemployment is in double Digits. However, the s
ario regarding to unemployment especially in the agricultural sector
g in Iran. According to Iranian Islamic republic Administration and
ning organization (AOP), unemployment rate has increased from 9.1
996 to 14.2% in 2001 (APO, 2002). In fact, lack of balance between
or demand and supply is supposed to be the main reason. Labor supp
that its increase rate during 1996 to 2001 in compare with 1.5 times
period of 1966-1996. Unemployment crisis will affect all economica
ural and social aspects of a society and sometimes will be source of
nediable bad effects. Experiences have proved this crisis and its
equent social effects neither don't have spontaneous, ideological and
cal solution, nor is it possible to eliminate it integrally and in a short
. Entrepreneurship has been announced as one of the solutions of this
s by lots of countries (Mashayekh, 2002). Coming to English vocabu
ohn Stewart Mill in 1848.

the field of entrepreneurship, one of the important contributions is th
Mansfield, McClelland, Spencer & Santiago (1987). They sustain that
tification of relevant Entrepreneurial capabilities should provide insi
the field of entrepreneurship, and such capabilities might predict
ness formation and success within and across cultures. Other studies
epreneurial capability have been conducted by Chandler & Jansen
2), Chandler & Hanks (1994), and Man & Lau (2002) in order to
tify which Capabilities are crucial in starting and maintaining a busir

stad (1985) suggested a set of fourteen skills to be developed through
epreneurship education. Some of these skills included creativity,
iguity tolerance, opportunity identification and venture evaluation,
er assessment, deal making, networking, and ethical assessment. By
nining six European entrepreneurship educations and training progra

od & Young (1993) maintain that four primary areas must be develop
ntrepreneurial success. These areas focus on content, skills and
aviors, mentality and personality. By asking 100 leading entrepreneu
chief executive officers (CEOs) in America's fastest-growing
epreneurial firms. Hood & Young (1993) found that content areas of
wledge are those mainly addressed on business education, such as
nce, cash management, accounting, and marketing. Leadership, oral a
ten communication, and human relations are the most important skill
uccessful entrepreneurship (Hood & Young, 1993).

eover, mentality factors include creativity, opportunistic thinking an
on. The fourth area refers to personality traits, which are usually belie
e more stable and therefore, less likely to be changed (Hood & Young
3). Brockhaus (1982) found that entrepreneurs have greater internal
s of control than the general population; therefore, entrepreneurs beli
the outcome of a business venture will be influenced by their own
rts.

result of research of Reynaldo et al. (2002) showed students were
kest in Opportunity Seeking, Risk Taking, and Self-Confidence.
ticing entrepreneurs were weakest in Risk Taking. Generally,
abilities of students do not significantly vary by school, age, gender, c
level. Capabilities of practicing entrepreneurs considerably differ by
tion and age, but are not discriminated by gender, number of years in
ice, and product type. In this research of recently two decade of 20
ury, five properties, Achievement motivation (Delmar, 1996; Johnso
); Miner, 1994, 1992; Bellu et al., 1995), Risk taking (McClelland et
); Heath et al., 1991), creatively (Druker, 1986; Rissal, 1992),
pendence (Brockhaus, 1982; Vesper, 1990) and internal control
lliams, 1987; Perry et al., 1988; Hood et al., 1993; Gatewood et al.,
5) have attracted more attention. According to recently done research
noting these properties will result in entrepreneurship capabilities

ll business conducted in India and in the USA in 1969. The results
ved evidence that Achievement Motivation Training significantly
oves small business performance, provided that there is some minim
ort from the economic infrastructure in the form of available loans,
ket opportunities and the lab our force. The result of study accomplis
Leynaldo et al. (2002) showed the students were weakest in Opportun
cing, Risk Taking, and Self-Confidence. Practicing entrepreneurs wer
kest in Risk Taking. Generally, capabilities of students do not
ificantly vary by school, age, gender, or year level. Capabilities of
ticing entrepreneurs considerably differ by location and age, but are
riminated by gender, number of years in service, and product type. T
ose of this study is to Investigated Entrepreneurship capabilities of
ersity students, by focusing on 5 above named (Achievement, Risk
ng, Creatively, Independence and Internal control) characteristics,
veen all agricultural students of B.Sc., M.Sc. and Ph.D university of
ran.

oses and objectives

main purpose of this study was Investigating Entrepreneurship
bilities among Agricultural Students of Tehran University. The spec
ctives of the study were:

Identification of ranking Entrepreneurship capabilities among
ondents;

nvestigating of Entrepreneurship capabilities among respondents, fro
ducational levels;

Gender Analysis of Entrepreneurship Capabilities among all the
cultural students (B.Sc, M.Sc, and Ph.D);

hodology

purpose of this study was to investigate entrepreneurship capabilities
ng agricultural students in the University College of Agriculture,
versity of Tehran in Iran. This study was performed in 2007-2008.
ole population was all agricultural students of B.Sc, M.Sc and Ph.D th
e 2200 persons. By using stratified proportional random sampling 25(
ons were selected for study. For data collection from students a
ctured questionnaire was used. The questionnaire consisted of
dardize tests of Hans risk taking, Torence creatively, Ratter internal
rol, Bahargava achievement motivation and Hisreach independency.
Clelland & winter, 1969; Johnson, 1990; Heath & A.Tuersky, 1991;
u & Sherman, 1995; Galbraith, 2002; Howard, 2004). For data collec
n students a structured questionnaire was used.

n collected by use of questionnaire which its validity (Face validity) v
ined by a panel of experts and university professors. Reliability
sured by Cronbach-Alpha coefficient was tested and (α=.82) showed
bility of the questionnaires. The criteria such as mean, standard
ation were calculated. In addition, Analysis of Variance (t Test) and
in SPSS/win 13 software was used for data analyzing, and factor
ysis method was employed this research were used for analyzing mea
erences among groups.

le (1). Reliability coefficient for the major variables

iable	Number of items	Items dropped	Cronbach alp
ievement ivation	1-12	10	0.82

ependence	37-48	12	0.77
ativity	49-60	14	0.81
otal alpha=0.82			

ılts and discussion

racteristics of the respondents

ording to data collected in this study, statistical society was consisted
% B.Sc, 30 % M.Sc and 18 % Ph.D students from among all the
cultural students (B.Sc, M.Sc, and Ph.D) were consisted of 64%, 47%
28% female students and 34%, 53% and 72% male students. The
ority of 17.2 percent of this society had studied "Agronomy and plant
ding" and the minority of 4.4 percent was "animal science" students.
er fields involved in this study were irrigation and drainage, food scie
industries, horticulture, extension, pedology, plant pathology and
cultural machineries, respectively. 87.6% of study society had never
ed any entrepreneurship educational levels, 6.4% had passed only on
se and the remaining had participated in more than one course (table

le (2). Frequency and frequency Percentage of respondents

Frequency Percentage	Frequency	Training course gender
		B.Sc
66	85	male
34	45	female

		female
		Ph.D
28	13	male
72	32	female

n rank distribution of respondents according to their entrepreneurshi
ıbilities

neasure entrepreneurship capabilities of agriculture students of
ersity of Tehran (UT), five variables Achievement motivation, Risk
ıg, creatively, Independence and internal control were chosen. Criter
e was computed from average score of each variable in each
stionnaire. As it can be seen from table (3), these five capabilities are
nal control, risk taking, independence, creativity and achievement
ivation, respectively. However, comparing criterion score, only risk
ıg and creativity of students were above criterion.

le (3). Main rank distribution of respondents according to their
epreneurship capabilities

Ranking	C.V	Standard deviation	Mean	Entrepreneurship capabilities
1	0.241	0.878	43.02	Risk taking
2	0.251	0.942	37.50	Achievement motivation

5	0.312	1.01	38.76	Internal control

epreneurship and educational levels

dentify the differences between entrepreneurship capabilities
idering the education level (table (4)), F-test was used. It was found
e is not any significant difference between entrepreneurship capabilit
ng students (B.Sc., M.Sc. and Ph.D) and educational levels.

le (4). Advertising of Entrepreneurship capabilities among all
icultural Students, from of educational levels

Entrepreneurship capabilities educational levels	Mean	Standard deviation	F	Sig.
Achievement motivation				
B.Sc	39.6	0.870	1.035	0.31
M.Sc	35.9	0.971		
Ph.D	36.9	0.987		
nternal control				
B.Sc	25.92	0.969	0.416	0.52
M.Sc	45.48	1.030		
Ph.D	44.88	1.050		
Risk taking	46.44	0.867		

Ph.D				
ndependence				
B.Sc	28.68	0.942	1.630	0.2(
M.Sc	47.40	0.903		
Ph.D	46.32	0.954		
Creatively				
B.Sc	28.56	0.830	0.019	0.8(
M.Sc	48.86	0.889		
Ph.D	49.98	0.866		

der Analysis on Entrepreneurship Capabilities of Agricultural Studer

trepreneurship capabilities among Agricultural Students (all), from
ler

result of table (5) according to, in order to identify the differences
veen entrepreneurship capabilities considering the gender, T-test was
l. Contrary to previous studies, this comparison revealed that female
ents showed a higher risk taking ability ($p<0.01$) and Achievement
ivation ($p<0.01$).

le (5). Entrepreneurship capabilities Comparison of male and female
ents (all).

Entrepreneurship capabilities	Mean	Standard	T	Sig.

male female	37.10 38.00	5.101 3.962	1.101-	0.001
Internal control male female	37.08 32.52	8.686 8.082	3.769	0.092
Risk taking male female	41.52 44.28	5.883 4.133	**3.241-	0.002
Independence male Female	40.32 35.28	8.361 7.918	3.654	0.220
Creatively male female	36.54 31.22	6.705 5.631	*4.355	0.003

trepreneurship capabilities among Agricultural Students (B.Sc), from
ler

result of table (6) according to, this comparison revealed that female
ents (B.Sc), showed a higher risk taking ability ($p<0.01$) than male
ents (B.Sc).

Sig.	T	Standard deviation	Mean	Entrepreneurship capabilities gender
0.242	-2.330	 0.970 0.989	 35.70 37.00	Achievement motivation male female
0.103	-1.380	1.080 0.964	44.52 46.32	Internal control male female
0.006	-2.773**	0.895 0.855	39.12 42.12	Risk taking male female
0.318	-1.003	0.933 0.910	49.56 35.28	Independence male Female
0.853	-0.185	0.806 0.840	49.28 49.56	Creatively male female

ents (M.Sc). Versus male students (M.Sc), showed a higher creativel ty ($p<0.05$) than female students (M.Sc).

le (7). Entrepreneurship capabilities Comparison of male and female ents (M.Sc).

.	T	Standard deviation	Mean	Entrepreneurship capabilities gender
76	0.563	0.649 0.596	35.90 34.60	Achievement motivation male female
25	-0.525	0.564 0.528	45.00 45.72	Internal control male female
01	-1.550**	0.725 0.354	38.04 40.68	Risk taking male female
13	-0.901	0.606 0.495	46.44 47.76	Independence male Female

trepreneurship capabilities among Agricultural Students (Ph.D), from
ler

ause the number of male students (Ph.D).is lower of 30, therefore at f
as performed One-Sample Kolmogorov-Smirnov Test; That Test
ibution to become Normal. Then T-test was used. The result of table
rding to, male students (Ph.D), showed an Achievement motivation
ty ($p<0.01$) than female students (Ph.D).

le (8). Entrepreneurship capabilities Comparison of male and female
ents (Ph.D).

Sig.	T	Standard deviation	Mean	Entrepreneurship capabilities gender
0.005	-0.742**	0.680 0.657	37.60 35.90	Achievement motivation Male female
0.117	0.413	0.755 0.622	44.76 43.56	Internal control Male female
0.756	-0.222	0.524	38.64	Risk taking

				Independence
0.862	-0.249	0.589	48.48	Male
		0.567	49.02	Female
				Creatively
0.749	-0.227	0.483	47.74	Male
		0.412	48.16	female

clusions and recommendations

e results of tables (3, 5 & 8) according to, factors of risk taking and evement motivation, had explained the highest factors of epreneurship capabilities among agricultural students of Tehran versity. Therefore, seem that there are leisure crisis in agricultural fie of security of occupation, variety and spreading activity fields in cultural sector, the proximity of agricultural colleges of Tehran versity to the ministry, organizations, business companies of agricultu peratives and agricultural major centers of the country that to be ralized in Tehran, there was possibility of a facile access and also ents to refer to obtain information for this organizations, to be existe epreneurship center in Tehran University and purposeful visits from essful entrepreneurship projects entrepreneur in to increase of tender udents to risk taking and achievement motivation are affecting to ors other.

e findings (table (4)) indicated that in according to educational levels e weren't significant different among students (all) in entrepreneursh

ent to promoting fields appearing entrepreneurship and encourageme
support of scientific and research plans of students more than before
s. For the appearing entrepreneurship capabilities among all the
cultural students, requires basic review in content of present courses,
hing methods, more cooperation between universities and ETC and
cted educational programs all the agricultural courses in to trained
epreneurship capabilities among students.

e results of tables (5, 6 & 7) according to, in contrary to previous
ies, such as Galbrit (2002) and Agha (2002), this study revealed that
ale students of UT Agriculture College showed a higher risk taking a
ievement motivation abilities than male students. It seems that since
ales have a lower chance of finding job in governmental sectors and
sidered increasing women unemployment rate and job insecurity, fem
ents showed a higher risk taking tendency. This problem to cause
earing of risk taking and achievement motivation (table (8)) in female
ents to male students. Therefore there were factors affecting in femal
ents' entrepreneurship capabilities, such as: celebrate entrepreneurshi
ing shops and to get accustomed with women self-employment
egies, training courses of business products cultivation and conferen
o get accustomed with obtained conditions of self- employment loan
culture, rules of supported related to increasing female students'
epreneurship capabilities.

according to (table 4), in doctorial course achievement motivation
bility male students the more than female students. the proximity of
cultural colleges of Tehran University to the ministry, organizations,
ness companies of agricultural, cooperatives and agricultural major
ers of the country that to be centralized in Tehran, there was possibi

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A Discriminant Model for Assessment of Prospective Entrepreneurs for Financing and Success of Entrepreneurial Venture

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tract

entrepreneurial quality and management competence of the entrepre
s an important role in the success of an enterprise. The evaluation of
epreneur is therefore a prerequisite while appraising a project for

ıe eastern part of India have been used to develop the Discriminant lel. It has been postulated in the research that entrepreneurial success tion of entrepreneurial traits, attitude and business skills. The riminant Model obtained by the use of SPSS package was able to sify 96.2% of the entrepreneurs correctly as "successful" or uccessful" entrepreneurs. The value of Wilk's Lambda (0.176) gesting good discriminating power of the model. The Standardized onical Discriminant Function Coefficients for entrepreneurial traits 51), attitude (-0.059) and business skills (0.647) suggests that epreneurial traits and business skills are better predictor between cessful" and "unsuccessful" entrepreneurs. The Discriminant Model eloped herein can be used as a quantitative tool to assess entrepreneu ide financial assistance to the right kind of entrepreneurs and thereby ce the chances of loans becoming Non Performing Assets.

Words

Performing Asset (NPA): A loan or lease that is not meeting its state cipal and interest payments. Banks usually classify as nonperforming ts, any commercial loans which are more than 90 days overdue and a umer loans which are more than 180 days overdue and generally, an t which is not producing income.

erve Bank of India (RBI) is the central bank of India, and was olished on April 1, 1935 in accordance with the provisions of the erve Bank of India Act, 1934. The main objectives of RBI are to func ıonetary authority, regulator and supervisor of the financial system, ager of exchange control, issuer of currency, developmental role and ed functions.

SSI units: A small scale unit is considered as sick when (a) if any of

ımulated losses to the extent of 50 per cent of its net worth during the
ious accounting year, and (c) the unit has been in commercial
luction for at least two years.

ll Scale Industries: Industrial undertaking in which the investment in
d assets in plant and machinery, excluding land whether held on
ership terms or on lease or on hire purchase, does not exceed Rs. 10
ion.

E (Small & Medium Enterprises): As per the Micro, Small and Mediu
rprises Development Act of 2006, the government of India has defin
Es as entities that have an investment of above Rs 10 million and belo
00 million in plant and machinery.

oduction

ll Scale Industries (SSI) occupies a place of strategic importance in t
an economy in view of its considerable contribution to employment,
luction and exports. They are extremely important for the health of a
ıtry. In most developed and developing countries, the small scale
stries have played a critical role in industrialization and economic
elopment. They are the major contributors to the social and economic
efits for any country. Today, governments worldwide recognize the
ortance of Small & Medium Enterprises (SMEs) and their contributio
conomic growth, social cohesion, employment and local developmen
Es account for over 95% of enterprises and 60-70% of employment a
erate a large share of new jobs worldwide (www.oecd.org).

small firms are seen as vehicles for employment generation in most
countries. The small-scale sector in India has now been identified by

ly 40 % of gross value of output in the manufacturing sector and 35 ‘
)tal exports from the country. The SSI sector comprising of 3.20 mill
s has provided employment to about 18 million people
w.smallindustryindia.com).

)ite of all the initiatives taken by the government and support institut
:omote the entrepreneurs, the sickness in the SSI sector in India has b
ually increasing and it is a matter of concern and debate. Large numb
SI units are sick with little scope for any improvement in the near fut
ness in the industrial sector results in locking up of resources, wastag
apital assets, loss of production and rising unemployment in the coun

ording to the information compiled by Reserve Bank of India (RBI)
1 scheduled commercial banks, as of 31st March 1999, there were
,013 sick/weak units consisting of 3,06,221 units in the SSI sector an
2 units in the non-SSI sector. The number of total sick SSI units has
eased from 2, 21,536 units in 1998 to 3, 06,221 units in 1999. There i
verall increase of 38% in the total number of sick/weak SSI units. Th
bank credit blocked in the sick units has increased from Rs. 156.82
on (as of March 31, 1998) to Rs. 194.64 billion (as of March 31, 199
small-scale sector has Rs. 43.13 billion (22.20 %) blocked in its unit
w.indiabudget.nic.in).

:e has been a gradual increase in the number of sick units and Non
orming Assets of banks and financial institutions. The Non Performi
ets of banks blocked in the SSI sector was Rs. 102.85 billion as of
ch, 31, 2001 and it is 18.78% of the gross NPA. There have been
eeable improvements in the financial health of banks in terms of asse
ity. The net NPAs have continually declined from 14.46% in 1993-9
% in 2000-01 due to the tightening of prudential norms in the
sification of NPAs by banks (Reddy, 2002).

ved at 25 – 30% of the outstanding dues and the paying capacity of th
ower.

has been postulated in the research that effectiveness of entrepreneu
nction of entrepreneurial traits, attitude, business skills and the
ronmental forces affecting business success. Assuming that governm
omoting the entrepreneurs by providing the requisite support facilitie
in spite of that sickness is increasing in the SSI sector. It becomes
erative to probe whether the entrepreneurs possess the requisite
epreneurial traits, attitude and business skills required for business
ess? Therefore it is of utmost importance to assess the entrepreneur i
s of his/her entrepreneurial traits, attitude and business skills to ensu
ness success, prevent financial resources getting converted into Non
orming Assets and providing financial support to those entrepreneurs
possess the requisite entrepreneurial traits, attitude and managemen
petence required for business success.

even the best formulated project or evaluation can ensure the success
oject without adequate management expertise and entrepreneurship o
project proponents. The management competence and the entrepreneu
ity have to be assessed properly and a judgment be rendered whether
ect proponents indeed have the competence to run the enterprises
othly and efficiently. Evaluation of entrepreneurs is the most vital in
he success of business enterprise. It is the backbone of a project from
aisal stage to successful implementation and future growth. It is the
agerial skills and entrepreneurial qualities that make the difference
veen success and failure of an enterprise. A good promoter or manage
improve the prospects of a project and may show excellent results.
vever, in the hands of a weak entrepreneur even a sound project migh
er badly.

efore, crucial importance is attached to the individuals behind the

from security oriented lending, the importance for application of aisal techniques has increased.

le evaluating loans, most banks employ purely judgmental appraisal edures. A banker collects information regarding the borrower's city, character and collateral being provided by the entrepreneur for being sought. However, in pure judgmental analysis, the banker ectively interprets the information in the light of the bank's lending elines and accepts or rejects the loan. Up-till now no quantitative ods for appraisal of entrepreneurs for financing is being used especi dia. Most Indian banks do a qualitative assessment of the entreprene d on their interaction. A quantitative approach for evaluation of the epreneurial quality and managerial style of the entrepreneur is therefo damental requisite in the appraisal of a project for financial assistan

part of the research study on the influencing factors on effectiveness epreneurs, research data pertaining to some "successful" and successful" entrepreneurs of Jharkhand state situated in the eastern pa dia has been used to develop the Discriminant Model. It has been ulated in the study that success is a function of entrepreneurial traits, ude and business skills. Three predictor variables namely entrepreneu s, attitude and business skill were taken in the study to develop the riminant Model to classify the entrepreneurs under the category of cessful" or "unsuccessful" for financing decisions.

rature Review

ealing with the review of literature for development of the Discrimin lel for assessment of prospective entrepreneurs for financing and ring success of the entrepreneurial venture, the present exercise draw tion in the areas of understanding the entrepreneur and identifying th butes under entrepreneurial traits, attitude and business skills which ributes to business success.

epreneurs have strong beliefs about a market opportunity and are wil
:cept a high level of personal, professional, or financial risk to pursue
opportunity and offer a new or existing product or service into an
ting or a new untapped market. The prime motive is to create wealth
ide employment opportunities in the vicinity. An entrepreneur is also
on who is willing and able to convert a new idea or invention into a
essful innovation (Schumpeter, 1950).

epreneurs are tough, pragmatic people driven by the need for
pendence and have a high need for achievement and they believe in s
loyment and do not submit themselves to authority (Collins & Moore
)). To others, entrepreneurship is all about taking risks and putting or
er and financial resources on the line of the idea being pursued by the
epreneur and spending his/her time in an uncertain venture (Drucker,
) ; Knight , 1967).

eral researchers have focused on the personal characteristics and trait
ndividual. The traits of the entrepreneur have been classified into
hological factors such as need for achievement, locus of control,
ensity for risk and tolerance for ambiguity, and personality factors su
elf confidence, opportunism and ambition (Jennings, 1994). Several
ors have classified entrepreneurs based on important traits such as de
hieve, hardworking, nurturing quality, accepting responsibility, rewa
ntedness and optimism (Burch, 1986).

wth oriented firms are established by educated, bold and socially awa
epreneurs who are adaptive, alert to environmental opportunities and
ily achieve improvements in market size, product mix and productio
nods (Smith, 1967). A vast literature studying the entrepreneurial
onality has found that certain traits seem to dominate in the case of
epreneurs. The entrepreneur is primarily motivated by an overwhelm
l for achievement and has a strong urge to build (McClelland, 1961).

ıing, and the social awareness of the entrepreneurial ventures achukwu, 1990).

second approach to entrepreneurship study is focusing on the attitud ntrepreneur. Attitude is a persistent tendency to feel and behave in a icular way towards some object. Attitudes are characterized in three s: firstly, they tend to persist unless something is done to change ther ndly attitudes can fall anywhere along a continuum from very favora ıfavorable and thirdly, attitudes are directed towards some object abo ch a person has feelings and beliefs.

ı personality and attitudes are complex cognitive processes. The mair erence is that personality is usually thought of as the whole person, reas attitudes may make up the personality. In the entrepreneurial ext our attitude determines how we look at setbacks. To a positive ker, it can be a stepping stone to success and to a negative thinker; it stumbling block (Luthans, 2002).

e factors which determine the attitude of an individual are environm cation and experience known as the triple Es (3Es) of attitude. The ronment consists of home, school, work, cultural, religious backgrou itions, beliefs, social environment and political environment. All of th a direct bearing in the entrepreneurial context. In a positive ronment, a marginal performer's output goes up. In a negative ronment, a good performer's output goes down (Khera, 1998).

results of a survey on entrepreneurial traits found that varying degre rive & energy, responsibility and optimism are required by the SSI epreneurs to develop a competitive edge and survive in the market pl ilarly the attitude was also studied and it was found that to be success SSI entrepreneurs must possess, a high level of persistence in problen ing, need for achievement, moderate risk taking attitude, must deal w

ormances of the SSI units may be related to the business skills of the
epreneurs: under and/or mismanagement, one man show, no compete
essionals, informal procedures, weak reporting system, no planning a
rol and lack of marketing skills. Small business owner managers requ
verse range of skills. These include functional or task-based skills (su
arketing, accounts and administration abilities); strategic, analytical
king and planning abilities; and people skills, both within and beyond
usiness.

d management techniques, financial management, marketing strategi
ivational strategies for stakeholders and hiring the best are some of th
s for business success (Filey & Pricer, 1991). Strategic planning
ributes to long running success for businesses (Costa, 1994).

iors Dyke, Fisher and Reuben are of the opinion that management
erience may be a significant factor in achieving success in the small
ness sector (as cited by Shonsey & Gulbro, 1998). Key success facto
e managerial competence, innovation and creativity which were foun
er managers/ entrepreneurs (Chagnati, 1987).

ording to Zetlin (as cited by Shonsey & Gulbro, 1998) there is a gene
ng among the entrepreneurs that having a good product is the most
ortant factor for success but other means of achieving success is
mitment to quality, being a customer centric organization, innovation
keting strategies, maintaining good relationship with the customers,
liers and hiring people who can be empowered.

udy by Lussier and Corman (as cited by Shonsey & Gulbro, 1998) ha
d that successful firms used better professional advisors than non
essful ones. Variables used in their study were capital, recordkeeping
ncial control, industry experience, planning, professional advisors,
cation, staffing, product/service timing, economic timing, age, partne

irm will survive. Also, dependency on a single customer or only a fe
omers is a major factor affecting firm failure.

ording to Sommers & Koc, Boyle & Desai and Lussier (as cited by
nen, 2005), the small business entrepreneurs were unable to attract a
n competent people and this may be one of the major reasons of failu
ciated with the small business sector. Other factors not identified by
y researchers were procrastination, negative influence, stressed life, a
al competition.

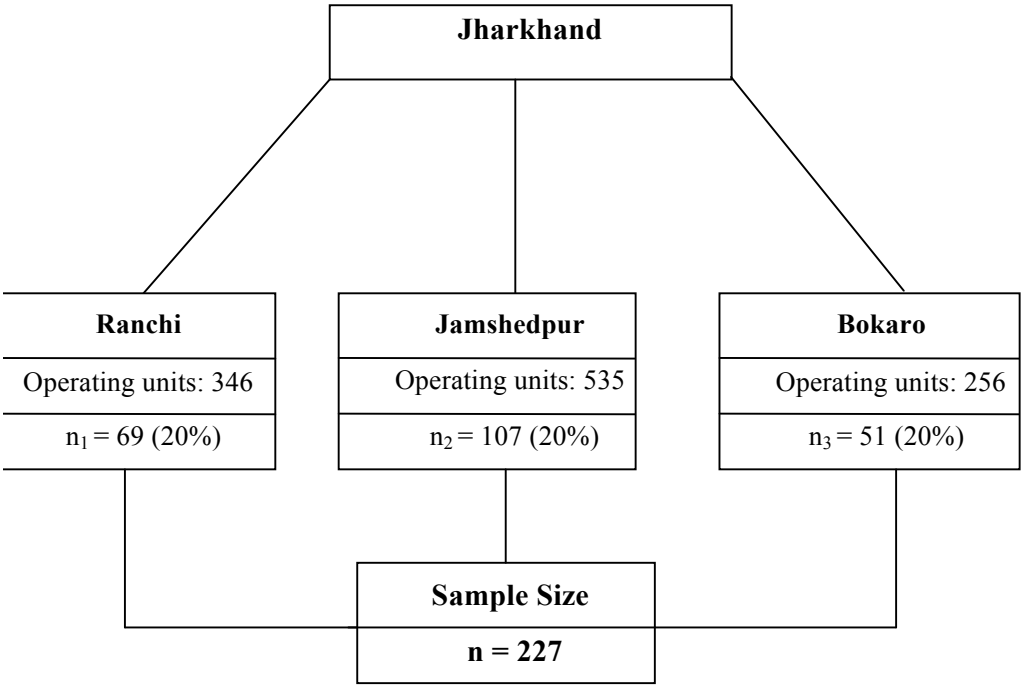
earch Design

study is empirical in nature and information has been gathered acros
e study locations namely Ranchi, Jamshedpur and Bokaro districts of
khand state to understand the different unresolved riddles in connecti
the factors influencing business success and failures. Jharkhand is a
in eastern India. It was carved out of the southern part of Bihar state
November, 2000 and there are twenty two districts. Jharkhand is fame
ts mineral wealth and forestry products. The industrial city of Ranchi
apital. Some of the other major cities and industrial centers are
shedpur, Bokaro, and Dhanbad that was once a part of West Bengal.

se cities were selected because most of the small scale industries of
khand state are highly concentrated in these regions. In choosing the
ll scale units under this exercise, the consideration has been made on
e SSI units where the government is encouraging, promoting and
sting their growth and viability.

pling Plan

le choosing the sample, a list of industries was prepared from the
austive list of the total number of SSI units existing in the study locat
chi, Jamshedpur and Bokaro. The list of the SSI units operating in the



ıre 1: Distribution of samples across the study locations

ple size

anchi district the number of operating SSI units was 346, in Jamshed ict it was 535 and in Bokaro district it was 256 respectively. The tot ber of SSI units in these industrial areas was 1137 which constituted population under the study. A sample has been drawn from each stu tion namely Ranchi, Jamshedpur and Bokaro which constitutes abou f the total population. Thereby a total number of 227 sample SSI unit e chosen under the study by adopting 'Simple Random Sampling' nique.

business skills of the entrepreneurs that were influencing the success
ıre of the sample business enterprises. In gathering the information u
ɛrent heads and sub heads of the questionnaire, the statements have b
ıged on a 5 - point “Likert Scale”. After finalization of the
ɜtionnaire, a pilot study was undertaken to test the appropriateness an
dard of the questions brought under the data gathering tools. As per t
l reality, the questionnaire was redesigned and finalized for the study
comments and suggestions of the respondents were incorporated in t
l questionnaire.

ɔndary data were also taken from brochures, pamphlets, reports,
azines and other government publications. These multiple sources of
collection were resorted to increase the validity and reliability of the
y. The detailed description of the different heads under the final
ɜtionnaire has been mentioned here as follows:

ten variables analyzed under entrepreneurial traits were: drive and
gy, responsibility, persistence, self confidence, initiative, need for
pendence, tolerance for uncertainty, optimism, innovativeness &
tivity and perseverance.

thirteen variables analyzed under attitude were: long term commitme
istence in problem solving, attitude to risk taking, dealing with failur
ɔf feedback, seeking assistance, flexibility, need for achievement, pr
ıtedness, integrity, resolving issues without procrastination, positive
ıence and self resolution of entrepreneurial stress.

twelve variables chosen for analysis under business skills were: sett
s, developing business plans, delegating, dealing with work disputes,
ıing subordinates, dealing with customers, dealing with government
ɛials, keeping financial records, talent acquisition, marketing skills ,
ɾring to multiple customers and ethical competition.

istical Tools

anced statistical tools ANOVA, Multiple Regression and Discrimina
lysis were used in the present study. In calculating ANOVA, Multipl
ression and to develop the Discriminant Model, SPSS 12.0 package h
ı used. Simple descriptive statistical tools like percentages and means
pare the variables selected under entrepreneurial traits, attitude and
ness skills were also used.

ı Analysis and Interpretation

health of the SSI enterprises was categorized under the heads: "Clos
t Viable", "Average", "Good" and "Very Good" on a scale of 1 – 5.
se entrepreneurs who had cited the health of their enterprises as "Ver
d" and "Good" were classified as "successful" entrepreneurs in the
y whereas those entrepreneurs who were of the opinion that their
ormances were "Average" were classified under the category of "not
essful" entrepreneurs. Those SSI entrepreneurs who were of the opin
their enterprises were "Not Viable" were considered as "unsuccessfu
epreneurs in the study. The closed SSI units were not considered in th
y.

Table: 1 Health of the sample enterprises in the study locations

lth of the Unit	Study Locations			
	Ranchi	Jamshedpur	Bokaro	Total
d (Successful)	21 (30.43%)	71 (66.35%)	13 (25.49%)	105 (46.25%
rage (Not so essful)	43 (62.32%)	27 (25.24%)	26 (50.98%)	96 (42.29%
Viable successful)	05 (7.25%)	09 (8.41%)	12 (23.53%)	26 (11.46%
	69	107	51	227

data in Table 1 shows that there are 105 SSI units whose health has b
l as “good”, 96 of the SSI units are “average” performers whereas 26
SSI units are “not viable”. The data pertaining to 26 “successful” and
successful” entrepreneurs have been taken in the study to develop the
riminant Model. For classification purposes “successful” entrepreneu
been put under category 1 and the “unsuccessful” entrepreneurs hav
put under category 2. Three predictor variables namely entrepreneu
s, attitude and business skills of the entrepreneurs have been taken in
y to classify the entrepreneurs under these two categories.

Table: 2 Classification Results of Discriminant Analysis

			Predicted Group		
		Category	**1.00**	**2.00**	**Total**
riginal	**Count**	1.00	25	1	26
		2.00	1	25	26
	%	1.00	96.2	3.8	100.0
		2.00	3.8	96.2	100.0

le: 2 Classification Results of Discriminant Analysis

n the classification matrix as represented by Table 2, it can be inferre
the Discriminant Function obtained from the study was able to classi
% of the 52 objects correctly. It also, shows that out of 26 cases
icted to be in Group - 1, 25 were observed to be Group I and 1 in Gr
Similarly for Group -2, out of 26 cases predicted to be in Group -2, 2
e found to be in Group -2 and 1 in Group -1. Thus on the whole 2 cas
of 52 cases were misclassified by the Discriminant Model, thus givin
sification (or prediction) accuracy level of 96.2%.

	0.176	84.370	3	.000

le: 3 Statistical Significance of the Model

value of Wilk's Lambda ranges between 0 and 1 with a lower value
cating better discriminating power of the model. The magnitude of
c's Lambda as observed from Table 3 stands at 0.176 which is very
l; being close to 0 and less than 0.5 suggests that the Discriminant
lel has very good discriminating power. The probability value p = 0.(
hi Square test is less than the value of α = 0.05 which again reinforce
l discriminating power of the model.

le: 4 Standardized Canonical Discriminant Function	
	Function
	1
raits	.751
tude	-.059
kills	.647

le: 4 Standardized Canonical Discriminant Function Coefficients

values of the Standardized Canonical Discriminant Function
fficients as observed from Table 4, for the three predictor variables
: entrepreneurial traits (0.751) followed by business skills (0.647) ar
ude (- 0.059). The Standardized Canonical Discriminant Function
fficients suggests that the variables entrepreneurial traits (0.751) and
ness skills (0.647) are better predictor between "successful" and

	1
Traits	1.856
Attitude	-.124
B_Skills	1.821
(Constant)	-12.140

le: 5 Canonical Discriminant Function Coefficients

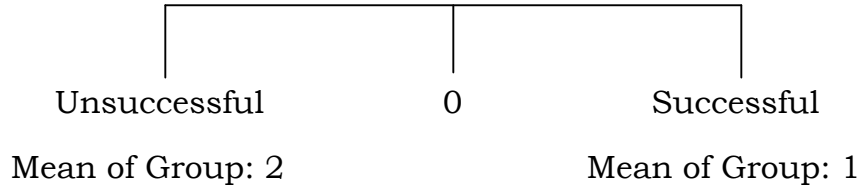
lassify a prospective entrepreneur under the two categories, data
aining to Un-standardized Canonical Discriminant Functi
ole 5) was used. The Discriminant Function obtained was D = -12.14
$6X_{traits} - 0.124X_{attitude} + 1.821X_{buinsessskills}$. "Successful" entrepren
e classified under category 1.00 and "Unsuccessful" entrepreneurs we
sified under category 2.00. The Discriminant Score (D) for a prospec
epreneur can be obtained by inputting data from the Self Rating Form
gned for the Discriminant Model.

Self Rating Form measures the perception of the entrepreneur on the
e predictor variables namely entrepreneurial traits (10 variables), attit
variables) and business skills (12 variables).

Table: 6 Functions at Group

	Function
Category	1
1.00	2.125
2.00	2.125

n Table 6, the Functions at Group Centriods for category 1.00 was +
5 and for category 2.00 it was – 2.125. “Successful” entrepreneurs ha
ı classified under category 1.00 and “Unsuccessful” entrepreneurs un
gory 2.00.



2 Decision rule for classifying prospective entrepreneurs

e discriminant score of any potential entrepreneur falls to the right of
point, he/she will be classified as a “successful” entrepreneur and if i
to the left of the midpoint, he/she will be classified as an “unsuccess
epreneur.

clusion

Discriminant Model developed herein can be used by banks, financia
tutions and sponsoring agencies for screening potential entrepreneurs
help banks, financial institutions and sponsoring agencies to classify
epreneur in terms of his/her inherent entrepreneurial traits, attitude ar
ness skills under two categories namely “successful” and “unsuccess
epreneur. This assessment will help the banks and financial institutio
et a fair picture whether the prospective entrepreneur will be successf
s/her venture or not?

application of the Discriminant Model implies that the prospective
epreneur will have to fill a Self Rating Form which has been designe
d on literature review for the three predictor variables namely

epreneur will get classified under any of the two categories namely cessful" or "unsuccessful" entrepreneur.

e prospective entrepreneur gets classified under the category of successful" entrepreneur, an analysis of the predictor variables is des lentify the serious deficiencies in his/her entrepreneurial traits, attituc business skills. An analysis of the deficiencies will help the banks, ncial institutions and sponsoring agencies to assess whether the ciencies can be removed through training or some other intervention/ e deficiencies are found to be very serious in nature then these agenc be in a position to decide not to finance the entrepreneur. It will help cs and financial institutions to finance the right kind of entrepreneurs have the potential for success and thereby reducing the chance of loa oming Non Performing Assets.

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Do Human Capitals make Entrepreneur more Entrepreneurial? An Empirical Data from Small and Medium Enterprises in Malaysia

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tract

ıan capital theory has gained attention in entrepreneurship study. ently, Westhead, Ucbasaran, and associates' works have enhanced th 'est on the effect of human capitals on entrepreneurialism of the

epreneurs in term of their entrepreneurship. Entrepreneurship in this y includes personality traits, social competence, cognitive traits, and egic capabilities of small and medium enterprises (SMEs). Primary onses from the entrepreneurs in SMEs are collected through tionnaire. 365 usable responses were obtained. Analysis of the data g SPSS version 15 indicated that education level of the entrepreneurs er than experiences are the critical factor in determining the level of epreneurship. From the findings, policy makers are recommended to ngthen the education level of entrepreneurs in order to strengthen the epreneurship development in the country to ensure sustainable future elopment of SMEs.

oduction

Recently, human capitals, which measure the experiences and cation level of the entrepreneurs (Rauch & Frese, 2000) have captured arch attention, especially after the publishing of a series of papers by thead, Ucbasaran, and their associates (Ucbasaran, Westhead & Wrig 3; Ucbasaran, Westhead, Wright & Bink, 2003; Westhead, Ucbasaran ght, 2005; Westhead, Ucbasaran, Wright & Bink, 2005). Rather than sing on the impact of the human capitals of entrepreneurs on ormance of the firm, they distinguished their works by focusing on th ct of human capitals on the behaviour of the entrepreneurs. The appro is group of researchers has given the solution to the problem on leve ysis. In previous approach, independent variable that is the human tals of the entrepreneur focus on individual as level of analysis while endent variable that is the performance of the firm has taken the nisational level as level of analysis. Although this might be the comm oach in entrepreneurship studies (e.g. Dyke, Fischer & Reuber, 1992

asaran and associates might have opened a new direction to study the
of entrepreneur's human capitals in entrepreneurship stream of resea

A closer review on the four papers published by Westhead, asaran, and associates indicates a wide area for extending the idea int r area of interest. Previous studies have highlighted the background riences of the entrepreneurs as influential factors to determine the epreneurialism of the entrepreneurs (Rauch & Frese, 2000; Llewellyn son, 2003). However, in Westhead, Ucbasaran, and associates studies only focused on entrepreneurial experience that is to categorised the epreneurs into novice entrepreneur, serial entrepreneur, and portfolio epreneur to analysed the significant of differences among them towar ous entrepreneurship dimensions (see for Ucbasaran, Westhead & ght, 2003; Ucbasaran, Westhead, Wright & Bink, 2003; Westhead, asaran & Wright, 2005; Westhead, Ucbasaran, Wright & Bink, 2005) r critical dimensions in measuring the human capitals of the epreneurs such as industrial experience, managerial experience, and cation level of the entrepreneurs (Dyke et al., 1992; Lee & Tsang, 20 nes, 2003) have yet to be analysed. In addition, these studies have on red mainly the opportunity identification, development, and nisational capabilities of the entrepreneurs as measure for epreneurship. Even opportunity has been a very crucial part of epreneurship (Venkataraman, 1997; Shane & Venkataraman, 2000; chvili & Cardozo, 2000; Alvarez & Busenitz, 2001; Dimov, 2003; hardt & Shane, 2003; Alsos & Kaikkonen, 2004; Baron, 2004; Van leren, 2004; Liu, 2006; Sanz-Velasco, 2006), entrepreneurship mean e than that. This study in extra looks into personality traits (Green, id, Dent & Tyshkovsky, 1996; Littunen, 2000; Littunen & Storhamm); Rauch & Frese, 2000; Korunka, Frank, Lueger & Mugler, 2003; gelsdijk, 2007), social skill (Baron, 2000; Baron & Markman, 2000, 3), and ability of firm in capitalising the flexibility and adaptability to efit from accidental discovery within the firm and changes in the

iew of Literature

Entrepreneurship stream of research has developed significantly ov
/ear, but, thus far, there have no generally acceptable definitions of th
ı entrepreneurship itself (see for Cunningham & Lischeron, 1991;
kataraman, 1997; Green et al., 1996; Shane & Venkataraman, 2000;
vellyn & Wilson, 2003). In view of this, Gartner (1989) requested the
archers to provide own definition of entrepreneurship in respective
y. This study defines entrepreneurship as examination of the quality
er-manager in becoming the strategic resource thus generating strate
ıbilities for improving the competitiveness of the firm. This definitio
'der than Venkataraman (1997) and Shane and Venkataraman (2000)
ıition of entrepreneurship.

In distinguishing entrepreneurs from small business owners, Carla
'. Hoy, Boultan, and Carland J. A. C. (1984) highlighted innovation,
l for achievement, internal locus of control, need for independent, ne
'esponsibility, and need for power as crucial characteristics associate
. entrepreneurs. Following the bubbled of personality traits in
epreneurship study (Llewellyn & Wilson, 2003), only need for
evement, internal locus of control, and risk taking propensity survive
epreneurial traits (Littunen, 2000; Rauch & Frese, 2000; Korunka et.
3; Beugelsdijk, 2007). However, previous studies argued risk propens
ıore associated with ownership of the business rather than
epreneurship (e.g. Schumpeter, 1934; Brockhaus, 1980; Carland et al
4). Recently, cognitive approach (Venkataraman, 1997; Shane &
kataraman, 2000; Alvarez & Busenitz, 2001) and social competence
'on, 2000; Baron & Markman, 2000; 2003) emerged as another
ıising stream of entrepreneurial traits (Baron, 2000). In addition to th

d for Achievement

Need for achievement is developed by McClelland (1961) to study
ivational bases of human behaviour (Spangler, 1992). Persons with a
need for achievement tend to set demanding targets for themselves a
proactive and bold in setting about accomplishing objective
ugelsdijk, 2007; Cromie, 2000; McClelland, 1961). They tend to have
erence over challenging tasks of moderating difficulty rather than tak
onal responsibility for one performance, seek feedback on performan
look for new and better ways to improve their performance (Rauch &
e, 2000). Thus, need for achievement is always been associated with
epreneurship (Lee, 1997; Littunen, 2000; Rauch & Frese, 2000; Gürc
un, 2006).

rnal Locus of Control

Locus of control developed by Rotter (1966), on the other hand,
sures extend to which people feel in charge (Beugelsdijk, 2007).
viduals who believes in control over one's own life by influencing th
omes through one's behaviour, permanent characteristics, skills, abil
effort is said to have internal locus of control (Kaufmann, Welsh &
nmarin., 1996; Littunen, 2000; Littunen & Storhammar, 2000; Tweng
ng, & Im, 2004). Individuals with an external locus of control are sai
eve in external forces such as actions of others, fate, luck, chance or
r factors that are beyond their control to have control over the outcor
ufmann et al., 1996; Dollinger, 1999; Littunen,, 2000; Littunen &

al Competence

Social competence is a crucial element in running a business (see f
ch, Huse & Senneseth, 1999; Park & Luo, 2001; Greve & Salaff, 200
ar & Abdul-Aziz, 2004), especially for SMEs (Jones, 2003). Thus, th
al network and capability of the entrepreneur in forming and managi
ork relationship is crucial (Taylor & Pandza, 2003). In fact, the soci
ork for SMEs is highly depending on the personal network of the
epreneur (Dollinger, 1999; O'Donnell, Gilmore, Carson & Cummins
2; Taylor & Pandza, 2006). Therefore, social competence of the
epreneur, which measure effectiveness of the entrepreneur in interact
others is important in predicting the long term success of the firm
on & Markman, 2000) since the social network required by firm cha
time (Greve & Salaff, 2003). Thus, the capability to build and mana
ocial capital of the firm determines the quality of entrepreneur to be
egic resource for the firm.

ortunity Sensitivity

Venkataraman (1997) and Shane and Venkataraman (2000) definit
ntrepreneurship as the scholarly examination of how, by whom, and
t effects opportunities to create future goods and services are discove
uated, and exploited, has strengthen the cognitive trait in
epreneurship study. The development of this stream of study can be
eved back to the Austrian Market Process (e.g. Schumpeter, 1934;
ner, 1973). Scholars in resource-based view have mainly focused on

sure the sensitivity of the entrepreneur in identifying, evaluating and
loping the opportunity. Thus, opportunity sensitivity is a process of
vation, which has been listed as the first factor to distinguish
epreneur from small business owner by Carland et al., 1984).

k

Flexibility and adaptability of SMEs has been identified as the
ngth of the firm (Yu, 1999; Fiegenbaum & Karnani, 1991; Wicks, 20
/ever, in static environment, firm will gain from efficiency of operati
ade off with the flexibility (Grant, 1991) in order to be benefited fror
nomic of scale. This is because stability in the environment does not
ire firm to response to uncertainty. Oppositely, in the dynamic
ronment, where the environment is more uncertain, flexibility and
otability of the firm are important (Fiegenbaum & Karnani, 1991; Pil
weg, 2003; Wicks, 2005). These strategic capabilities give SMEs gre
ty to response to environment and organisation routine (Wicks, 2005
st output of the firm to match the fluctuation in demand (Fiegenbaun
nani, 1991), and spot and response to new customer's demand.
efore, it is logic to conclude that flexibility and adaptability can only
ed into the organisation strength under uncertainty. Since uncertainty
predictable, thus the concept of luck or serendipity is very much
icable (Ma, 2002).

For clarification, luck in this study does not referring to purely luc
nts. Rather, luck is defined as the capability of the firm to gain benefi
n unpredicted events due to greater alertness, flexibility, and adaptabi
ne firm. Therefore, this study examine characteristic of the firm to
rmine the likelihood for firm to gain luck from the perspective of

According to the framework developed by Ma (2002), can be resul
ı internal accidental discovery within the organisation or from
ɛrtainty in the environment in which firm operates. Internally, firm ca
ntially gain from useful weeds and skunk works (Ma, 2002). To do tl
m has to encourage innovation and creative works that can possibly
te luck for the firm by maintaining flexibility in organisational struct
allow employees for self-initiated actions, experimentations,
ɔovisation, encouragement for employees to take risk, tolerating
akes and errors, and rewarding employees for their creativity. To be
ɛfited from these activities, the firm has to be proactively alert on thes
ntial lucks and seek opportunity to commercialise them (Ma, 2002).
ɛrnally, a firm can potentially induce luck through possession of
nmetric information and unique historical events by staying alert to
ıges in social cultural trends, technology, customer taste and demand
government regulatory, faltering competitors, and becoming a dream
ɛditor (Ma, 2002).

epreneur's Human Capital

Human capital measure individuals' knowledge and experiences
ıch & Frese, 2000). Human capital can determine the quality of an
ɛpreneur (Dollinger, 1999) and make individual more efficient in
nising processes and in attracting customers and investors (Rauch &
e, 2000). In this study, the interest of entrepreneur's human capital is
ɛation and experiences. Education level measures academic qualificat
ıe entrepreneurs. Various scholars such as Praag (1996), Lee and Cha
'8), Lee and Tsang (2001), and Casson (2005) have discussed the
ɔrtant of the education background towards entrepreneurship.
ɛriences of the entrepreneurs can be segregated mainly into manageri

: extended the entrepreneurial experience to examine the differences
veen novice, serial, and portfolio entrepreneurs.

Experience can generally be defined as events that occur in an
vidual's life that are perceived by the individual (Quiñones, Ford &
:hout, 1995). In the perspective of entrepreneur, experience is mainly
e up of entrepreneurial experience, managerial experience, and
strial experience (Lee & Tsang, 2001). Entrepreneurial experiences
:erns about the number of previous start-up and the management role
ed in such ventures (Stuart & Abetti, 1990; Lee & Tsang, 2001; Hay
3). Industrial experience refers to the experience in the same industry
:urrent business venture. Managerial experience, on the other hand, is
otal experience in holding managerial position regardless of the indu
hich the experiences are gained (Lee & Tsang, 2001).

Extending on the entrepreneurial experience, studies have been
sing on novice, serial, portfolio, and habitual entrepreneurs (Ucbasar
thead & Wright, 2003; Ucbasaran, Westhead, Wright & Bink, 2003;
thead, Ucbasaran & Wright, 2005; Westhead, Ucbasaran, Wright &
:, 2005). Novice entrepreneur refers to self-employed individual with
epreneurial experience while those with experience are known as
tual entrepreneur. Habitual entrepreneur can be further segregated in
ıl entrepreneur, who are self-employed individual with entrepreneuria
:rience but has ceased from the previous business, and portfolio
epreneur, self-employed individual owning a stake in more than one
ness ventures. Business ownership can be acquired through founding
riting or purchasing majority or minority stake in a business venture
sthead, Ucbasaran & Wright, 2005; Westhead, Ucbasaran, Wright &
:, 2005).

cts of Entrepreneur's Human Capital on Entrepreneurship

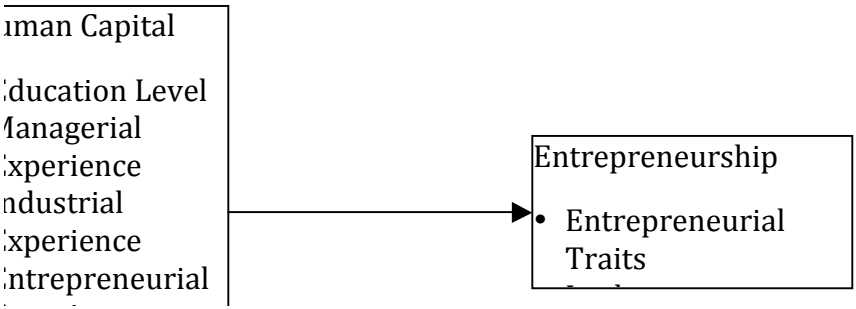
egic resources according to the framework of resource-based view
ney, 1991; Peteraf, 1993), Alvarez and Busenitz (2001) have recogni
ious learning and knowledge of the entrepreneur enable entrepreneu
erate heterogeneity in the firm through converting homogenous input
heterogeneous output, ability to be an opportunity exploiter in acqui
urces (Alvarez & Busenitz, 2001), and ability to arrange the resource
action (Akio, 2005). Previous learning and knowledge are acquired
ugh either experiences or education of the entrepreneurs.

Association between education and entrepreneurship is inconclusiv
cation level of individual is found to be positively correlated with
epreneurship and success (Lee, 1997; Casson, 2005). According to L
97), university level of education affect need for achievement since
ess in university level of education enhances confidence of the
vidual to seek greater challenges and recognitions. However, the
ionship between entrepreneurial talent and year of schooling is not
ar. An intermediate level of education in vocational school with high
cation in science stream appears to build most entrepreneurial talent
ag, 1996). A contradictory finding suggests that university graduates
likely to venture into entrepreneurship career compared to those
ndary school drop-outs (Lee & Chan, 1998). Lee and Tsang (2001)
ing indicate that education level of the entrepreneur is crucial in situa
re highly complexity and greater need for planning and knowledge.

Experience with previous firms can be in term of industrial experie
managerial experience (Dyke et al., 1992). Both industrial experienc
managerial experience can enhance an individual's capability to iden
exploit opportunity (Haynes, 2003; Casson, 2005). Besides, industria
erience would strengthen the entrepreneur's decision in selecting
urces (Hart, Stevenson & Dial, 1995) to build the core competency fo
firm (Haynes, 2003). All these will potentially make entrepreneur mo
epreneurial and more strategic in making decision. However, the risk

Entrepreneurial experience has been highly discussed in previous ature in entrepreneurship in its contribution towards entrepreneurialis ıe individual entrepreneur (e.g. Stuart & Abetti, 1990; Lee & Tsang, l; Haynes, 2003; Ucbasaran, Westhead & Wright, 2003; Ucbasaran, thead, Wright & Bink, 2003; Westhead, Ucbasaran & Wright, 2005; thead, Ucbasaran, Wright & Bink, 2005). Evident from previous stuc shown the differences among entrepreneurs with different level of epreneurial experience. Entrepreneurial experience can affect the ıviour in searching and developing opportunity and resources owned ntrepreneur (Ucbasaran, Westhead & Wright, 2003; Ucbasaran, thead, Wright & Bink, 2003; Westhead, Ucbasaran & Wright, 2005; thead, Ucbasaran, Wright & Bink, 2005). Habitual entrepreneur, cially portfolio entrepreneurs with accumulated entrepreneurial eriences in term of skills, competencies, and resources are better able in equity stake in subsequent ventures because they are more optimis opportunistic (Ucbasaran, Westhead & Wright, 2003; Ucbasaran, thead, Wright & Bink, 2003). Thus, greater level of entrepreneurial erience make entrepreneur more entrepreneurial.

From the arguments above, the following research framework is ılated to testify the effect of entrepreneur's human capitals on epreneurship.



earch Methodology

stionnaire Development

Questionnaire is developed to empirically examine the research
ıework and thus to provide an answer to the research question. Table
w indicates the variables in entrepreneurship. Questionnaire for need
evement, locus of control, and social competence are adapted from
ious studies as indicated in the table. The instrument for opportunity
itivity and luck are self develop since the available published instrum
not fully fit the concept intended to be measured in this study. Thus
ument is constructed by referring to the sources of literatures as
cated in the table 1. All the items in these concepts are measured usin
oint Likert Scale ranging from strongly disagree to strongly agree.

nstructs / ncepts	Operational Definition	Sources of questionnaire
ed for hievement	Reflects a person's need to strive hard to attain success	Green (1973).
cus of ntrol	Measures the extend to which people feel in charge and able to influence over the outcome	Kaufmann et al (1996); Levenson (1974, 1981).
cial	Measures individual social	Baron and Markman (20

ısitivity	in identifying, evaluating, and exploiting an opportunity	(2000); Ardichvili, Cardo & Ray (2003), Eckhardt Shane (2003); Pech & Cameron (2005); Sanz-Velasco (2006); Schwart Teach, & Birch (2005); Shane & Venkataraman (2000); Stevenson & Jari (1990); Ucbasaran, Westhead, Wright, & Bir (2003); Ucbasaran, Wrig & Westhead (2003); Westhead, Ucbasaran, & Wright (2005); Westhead Ucbasaran, Wright, & Bi (2005).
ck	capability of the firm to gain benefit from unpredicted events due to greater alertness, flexibility, and adaptability of the firm	Cunha (2005); Fine & Deegan (1996); Ma (200

le 1: Sources of questionnaire for entrepreneurship

The instrument for the independent variables that is entrepreneur's an capital is measured using nominal scale. Instrument for education l of the entrepreneur measures require the entrepreneur to select their est level of education. The choices include no formal education, prin secondary level, professional certification, diploma and degree, and graduate. For managerial experience, industrial experience, and

ght & Bink, 2003; Westhead, Ucbasaran & Wright, 2005; Westhead,
asaran, Wright & Bink, 2005), the entrepreneurs are segregated into
ce, serial, and portfolio entrepreneurs according to their entrepreneu
rience and number of business currently owned. Novice entrepreneu
epreneur without previous business ownership experience and curren
own one business. Serial entrepreneur is individual with previous
epreneurial experience but has ceased from previous venture and
ently only own one business. Portfolio entrepreneur is the entreprene
ownership in more than one business currently.

sure of goodness for the instrument

The instrument developed is sent for expert review for face validit
experts are made up of Doctorate degree holders and Doctorate degr
ents in the related field of research interest. Expert review is very
ortant for initial validity of the instrument especially for the self deve
ument. Then, the questionnaire is sent for pilot study. The questionn
nt to entrepreneurs funded by Centre of Commercialisation and
noprenuer Development (CCTD) of Multimedia University and
epreneurs parked under Incubator of Knowledge Economy, Malacca.
onses were collected and analysis of internal consistency indicated th
bility of the instrument for each of the variable as the Cronbach's Al
e for all the concepts is higher than 0.70 (Llewellyn & Wilson, 2003)

pling Plan and Data Collection Method

The unit of analysis in this study is the individual entrepreneur

y is mainly drawn from SMEs in Klang Valley, participants in trade bitions, and listed enterprises in the Multimedia Development oration Sdn. Bhd. (MDeC) database.

In view of the low response rate from previous studies in Asia ıtries, non-probability sampling is preferable over probability sampli udy of SMEs. It is hard to obtain a truly representative, up-to-date, a prehensive sample of SMEs in Malaysia (Sulaiman & Hashim, n.d.). uiring the list for sampling from government associations like SMID artment of Statistics, Ministry of International Trade and Industry, a eration of Malaysian Manufacturer represents bias to the other SMEs are not registered with these associations (Sulaiman & Hashim, n.d.) Es that are not registered with those bodies might have different acteristic.

The primary responses from the entrepreneurs in SMEs are obtain ugh several methods. First, email is used to contact the Malaysian pendent entrepreneurs in MDeC database with contact information. ıl of 2572 entrepreneurs were contacted through personal email with 1575 of the emails have successfully reached the targeted responde ı a follow up email, 152 usable responses were collected, which esents about 10% effective response rates. Approximately another 5 epreneurs were approached face-to-face through personal visit to thei ness premises in Klang Valley and various trade exhibitions. Throug e methods, another 204 usable responses or about 40% response rate e elicited. This make up the final usable responses to 365.

ı Analysis

The primary data collected is analysed using SPSS version 15

ɛrent between entrepreneurs with and without managerial experience,
.strial experience, and entrepreneurial experience is tested through
pendent sample t-test. Independent sample t-test enables empirical
parison between entrepreneurs with and without the relevant experie
ıe degree of entrepreneurialism of the entrepreneurs themselves as w
ıe entrepreneurship of the firm. Finally, entrepreneurs are segregated
the group of novice entrepreneur, serial entrepreneur, and portfolio
ɛpreneur according to their entrepreneurial experience and number of
ness currently own.

Frequency analysis is conducted to study the background of the
ondents in this study. Table 2 indicates the profile of the respondents
ɪrding to respective type of human capital. Table 3, table 4, and table
ɛate the statistical analysis of the impact of human capitals on
ɛpreneurship.

ɪiable		Frequency	Percentage
ustrial ɔerience	Yes	319	88.1
	No	43	11.9
nagerial ɔerience	Yes	278	76.8
	No	84	23.2
repreneurial ɔerience	Yes	142	39.6
	No	217	60.4
	Novice	53	14.8

ıcation ˈel	No Formal Education	5	1.4
	Primary or Secondary	83	22.8
	Professional Certification	33	9.1
	Diploma or Degree	188	51.5
	Post-graduate	55	15.1

le 2: Background information on human capitals of the respondents

From the frequency analysis on the background of the entrepreneu ɔrity of the respondents have work in related industry as their current ness venture (88.1%) and holding managerial role in their previous jo 8%). However, only 39.6 percent of the respondents have epreneurial experience. Further segregation of the entrepreneurs into ce, serial and portfolio entrepreneurs found that 14.8 percent of them ce entrepreneurs (no entrepreneurial experience and currently own o business), 34.9 percent of them are in the category of serial entrepren h entrepreneurial experience and currently own only one business), e another 49.3 percent are portfolio entrepreneur (currently own mor one business). From their level of education, majority of the ondents are found to have high level of education with 51.5 percent o ı have diploma or degree, 15.1 percent with post-graduate qualificati another 9.1 percent have professional qualification.

d for achievement		1.074	0.282	-0.352	0.725	2.064	0.040
rnal Locus of trol		2.657	0.008	0.898	0.370	0.984	0.326
ortu	Identification	2.102	0.036	-0.259	0.796	0.560	0.576
sitivi	Evaluation	0.667	0.505	-0.416	0.678	1.868	0.063
	Development	0.723	0.470	-1.232	0.219	0.727	0.467
al npet	Perception	0.608	0.544	0.897	0.370	-0.141	0.888
	Adaptability	1.078	0.283	-0.807	0.420	1.119	0.264
	Expressiveness	-1.403	0.162	-0.354	0.725	0.184	0.854
tegic abili	Endogenous Luck	1.332	0.184	-1.237	0.217	-0.823	0.411
	Exogenous Luck	1.623	0.105	-0.960	0.338	-0.367	0.714

le 3: Independent sample t-test for impact of experiences on epreneurship

Table 3 shows the results of independent sample t-test for the impa

the significance difference between these two categories of
epreneurs in term of entrepreneurship.

From the results, managerial experience is found to have significar
act on internal locus of control (t=2.657; p<0.05) and opportunity
tification (t=2.102; p<0.05). Entrepreneurs with experience in holdin
agerial position are more confidence with their own capabilities in
uencing the outcome of their efforts and are stronger in identifying
ortunity around them. Entrepreneurs with managerial experience also
d to have higher mean score in all the dimensions in entrepreneurshi
pt for expressiveness in social competence. However, the differences
not statistically significance.

Industrial experience seems to have negative impact on
epreneurship. Although not statistically significance, entrepreneurs w
erience working in the similar industry as their current business ventu
ound to be weaker in need for achievement, opportunity identificatio
ortunity evaluation, opportunity development, social adaptability,
essiveness, endogenous luck, and exogenous luck. They are only fou
core higher in internal locus of control and social perception but not
stically significance.

On the other hand, experience as entrepreneur prior to current
ness venture is found to have strengthened the achievement need of t
epreneurs (t=2.064; p<0.05). Entrepreneurial experience has also exis
uild stronger internal locus of control, opportunity identification,
ortunity evaluation, opportunity development, social adaptability, and
essiveness but not statistically significance. However, not statistically

		F	Sig.	Type of Entrepreneurs		
				Novice	Serial	Portfolio
ed for Achievement		0.789	0.455	4.869	4.760	4.862
rnal Locus of Control		1.086	0.339	5.113	5.005	4.957
portunit sitivity	Identification	0.460	0.632	5.119	5.108	5.176
	Evaluation	1.034	0.357	5.094	5.007	4.940
	Development	0.268	0.765	4.948	4.918	4.873
ial mpeten	Perception	0.208	0.812	4.400	4.331	4.386
	Adaptability	0.702	0.496	4.524	4.486	4.599
	Expressiveness	0.225	0.798	3.877	3.782	3.806
ategic bability	Endogenous Luck	0.312	0.733	4.664	4.755	4.761
	Exogenous Luck	0.497	0.608	4.535	4.650	4.665

4. ANOVA for impact of type of entrepreneurship on

epreneurship. Entrepreneurs are divided into three categories accordi
ıeir entrepreneurial experience and number of venture currently own.
ılts of ANOVA do not indicate significant of different among the thr
ıps of entrepreneurs on any of the dimension in entrepreneurship.
erring to the mean values alone also does not reveal any indication th
folio entrepreneurs are more entrepreneurial than serial and novice
epreneurs. However, novice entrepreneurs are found to score highest
ı of need for achievement, internal locus of control, opportunity
uation, opportunity development, social perception, and expressivene
folio entrepreneurs on the other hand are found to score highest in te
pportunity identification, social adaptability, endogenous luck, and
genous luck. Serial entrepreneurs are not found to score highest in an
ategory in assessing the entrepreneurialism.

Although not statistically significant, the findings above are surpri
ving the signal that novice entrepreneurs to some extent are more
epreneurial than serial and portfolio entrepreneurs, especially in term
onality. One possibility is this group of "new" entrepreneurs are mor
itious and might be too optimistic towards their entrepreneurship car
ddition, since they are new to the entrepreneurship career, with relati
ted resources they have (Ucbasaran, Westhead & Wright, 2003;
asaran, Westhead, Wright & Bink, 2003; Westhead, Ucbasaran &
ght, 2005; Westhead, Ucbasaran, Wright & Bink, 2005), they are
ired to evaluate and executive the opportunities they foreseen. Thus,
ıt lead them to score highest in term of opportunity evaluation and
ortunity development. Compare with the entrepreneurs at another
eme, portfolio entrepreneurs, the latter are shown to be less
epreneurial in term of personality but are found to be stronger on
ding the strategic capability for their firms and also more adaptive to
erent social situations. This might be due to their experience as

erience to serial entrepreneurs thus making them less entrepreneurial pare with either extreme of the entrepreneurs.

		F	Sig.	Education Level				
				No	Pri. /Sec.	Prof. Cert.	Dip. / Deg.	Po gr
d for ievement		4.611	0.001	4.533[1]	4.667[2]	4.818	4.816	5. [,2]
nal Locus of trol		2.132	0.076	4.600	4.898	5.091	4.982	5.
ortu	Identification	4.486	0.002	4.567[1,2,3,a]	4.988[1]	5.177[2]	5.164[3]	5.
itivi	Evaluation	2.012	0.092	4.400	4.938	5.024	4.969	5.
	Development	2.329	0.056	4.280	4.843	4.994	4.868	5.
al	Perception	2.573	0.038	3.760[1,2,3]	4.178	4.412[1]	4.433[2]	4.
ıpet	Adaptability	3.918	0.004	4.000[1,2]	4.374	4.894	4.524[1]	4.
	Expressiveness	1.632	0.166	3.720	3.668	3.976	3.873	3.
	Endogeno	7.20	0.00	4.733[1]	4.354	4.964	4.826[1]	4.

, [a,]* indicates the pairs with significance of difference

le 5: ANOVA for impact of education level on entrepreneurship

The effect of education level of the entrepreneurs on entrepreneurs
:amined using ANOVA. Entrepreneurs are grouped into with no form
:ation, primary or secondary level of education, professional
ification, diploma or degree level of education, and postgraduate leve
:ation. ANOVA is used to test for significance of different among the
ips in term of entrepreneurship. Results from the ANOVA reveal that
:ation level of the entrepreneurs to have significant effect on need for
evement (F=4.611; p<0.05), opportunity identification (F=4.486;
.05), social perception (F=2.573; p<0.05), opportunity adaptability
3.918; p<0.05), endogenous luck (F=7.207; p<0.05), and exogenous l
9.287; p<0.05). Further more, the effect of entrepreneurs' education l
nternal locus of control (F=2.132; p=0.076), opportunity evaluation
2.012; p=0.092), and opportunity development (F=2.329; p=0.056) ar
ıd to be crucial even not statistically significant at 95 percent confide
l. For the results with significant different, follow up pos hoc test is
lucted using Duncan test. Overview of the pos hoc results indicates th
epreneurs with higher level of education are found to be significantly
e entrepreneurial than entrepreneurs with lower level of education. Fı
general trend of the findings, entrepreneurs with tertiary level of
:ation; professional certification, diploma or degree, or postgraduate
ification, are significantly more entrepreneurial than entrepreneurs w
ormal education level and entrepreneurs with only primary or second
l of education.

:ussion of the Findings

rience does indicate the sign that industrial experience has actually kened the entrepreneurialism of the entrepreneurs. This might show t y of Haynes (2003) on the possibility for industrial experience to cre lity for entrepreneurs whereby the entrepreneur tends to follow know els in problem solving and are less adaptive to new environment nes, 2003). Thus, this has made them less entrepreneurial as well in of their own personality and in managing the firm. Besides that, epreneurial experience has also found to have negative impact on ogenous luck and exogenous luck, the two dimensions measuring the bility and adaptability of the firm. This can be explained by their ious entrepreneurial experience, especially the "unhappy experience" leads to the ending of previous venture, might has made the epreneurs more cautious thus impose greater control to ensure that ything is in order. This might eventually sacrifice the most valuable egic capability of SMEs. Managerial experience might be the most nising type of experience among the three types of experience stigated in this study in making the entrepreneurs more entrepreneuri

Categorising of entrepreneurs into novice, serial, and portfolio to nine the impact on entrepreneurship does not found to be conclusive . None of the category is found to be significantly different from the r in the level of entrepreneurialism. This finding is obviously contrad Ucbasaran, Westhead and Wright (2003), UcBasaran, Westhead, ght, and Bink (2003), Westhead, Ucbasaran, and Wright (2005), and thead, Ucbasaran, Wright, and Bink (2005). A closer review on thead, Ucbasaran and associates papers found that they are studying ct on the type of entrepreneurs with each of the items in a variable rat the variable as a whole. Thus, data revealed in this study is suspecte nsufficient to conclude that habitual entrepreneurs, which made up of l and portfolio entrepreneurs, are more entrepreneurial that novice

Education level of the entrepreneurs is found to be significance in aining the entrepreneurialism of the entrepreneurs. The general trend esults indicates that entrepreneurs with higher level of education are e entrepreneurial. This finding has supported Lee (1997) argument th ess in school will enhance the confidence of the students in facing lenges in their entrepreneurship career. In addition, the analytical and nical skills of the entrepreneurs that are enhanced through education & Tsang, 2001) might also improve their capabilities in decision ing thus boosting the confidence of them to manage a more flexible a table organisational culture. Furthermore, the liberalisation and alisation of the world economy might have increase the complexity o nvironment. Information and technology communication has also m ustomer to be more demanding thus impose greater requirement for to stay competitive (Wee, 2003). All these factors might make cation a critical factor in determining the success of the firm resulting n increasing complexity that required greater competence and greater epreneurialism from the entrepreneurs (Lee & Tsang, 2001).

cy Implications

This study is to assist government in encouraging more entreprene e country and directing the right person into the entrepreneurship car results of this study indicates that previous experience working in lar industry, experience in holding managerial position, and experien ntrepreneur do not show to be relevant towards enhancing the epreneurialism of individuals. Analysis of data collected also does no al significance of difference among novice, serial, and portfolio

ce since they are lacking in social network during the start-up proces
is because directing the funds to this group of individual will better
bjective of the government in balancing the wealth distributions in t
ıtry. Moreover, providing assistant to those with good track records a
ot guarantee greater chances of success as these track records do not
e them more entrepreneurial.

The significance of education level of the individual towards level
epreneurialism might be good news to the government as Malaysia is
ıg the problem with unemployed graduate. Government might take
ative to push this group of individuals into entrepreneurship career.
/ever, government is still advised to take initiative to provide additio
nical training to them before approving the financial assistance. This
ıuse one of the possible reasons for these graduates to remain
nployed is lacking of competency. Thus, they may not be as compete
as entrepreneurial as the respondents in this study who might be pull
entrepreneurship career due to the opportunity they have perceived.
cy might solve the problem with unemployed graduates but in term o
lth distribution, this policy might improve the well being of middle c
er than the lower class income residents. Therefore, the author urges
ernment to take into consideration of establishing an Entrepreneurshi
ege for school dropout to learn technical skills and managerial skills
same time. This will help in building entrepreneurs and in transformi
craftsmen into entrepreneurs. Furthermore, assisting the school dropo
balance the wealth distribution of the country since this group of
viduals are more likely to struggle for a living in this increasingly
wledge based economy if no assistance is provided. In addition, the
epreneurship College also provides the second opportunity for the
ol dropout to further their study to improve their entrepreneurialism.
/ever, the Entrepreneurship College should be designed in the way th

This study builds on the works of Westhead, Ucbasaran, and
ciates (Ucbasaran, Westhead & Wright, 2003; Ucbasaran, Westhead,
ght & Bink, 2003; Westhead, Ucbasaran & Wright, 2005; Westhead,
asaran, Wright & Bink, 2005) with more comprehensive reviews
sing on the dimensions of human capitals and entrepreneurship. Resu
the multiple analyses do not give any obvious indications of the effe
various experiences on entrepreneurialism of the entrepreneurs.
hermore, it is surprisning to observe that industrial experience might
have negative impact on entrepreneurship. Besides, categorising the
epreneurs into novice, serial, and portfolio entrepreneurs (Ucbasaran,
thead & Wright, 2003; Ucbasaran, Westhead, Wright & Bink, 2003;
thead, Ucbasaran & Wright, 2005; Westhead, Ucbasaran, Wright &
, 2005) does not yield the expected results. No significant difference
been detected among the three groups of entrepreneurs. However,
er level of education has proven to be crucial in building the element
epreneurship on the individual entrepreneurs. Thus, policy makers
uld try to enhance the education level of the citizens as long term poli
rengthen the entrepreneurship in the country. This will likely to ensu
ainable future and development of entrepreneurship especially in the
ext of Malaysian SMEs.

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