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Theory U and individual entrepreneurial orientation in developing youth entrepreneurship in South Africa

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Abstract

This study investigated the applicability of Theory U and individual entrepreneurial orientation (IEO) in promotion of youth entrepreneurship in South Africa. Data was collected using a questionnaire completed during lectures by 380 first-year university students to determine the link between risk-taking (a factor of IEO) and co-initiating/co-sensing (factors of Theory U). In addition, the link between innovation (a factor of IEO) and co-inspiring (a factor of Theory U) and the link between pro-activeness (a factor of IEO) and co-creating/co-evolving (factors of Theory U) were investigated. The study also investigated the correlation between IEO and Theory U factors.

The findings indicated that the students had a relatively positive perception of taking risk and managing risky situations, were moderately innovative, and were particularly proactive. Participants indicated strong agreement that they operated from a generative response field. Theory U and IEO scores of male and female students were similar and age was not significantly related to Theory U and IEO scores.

It was concluded that Theory U and IEO can have a positive impact on the development of youth entrepreneurship. It is recommended that more research be done to explore how Theory U, entrepreneurial self-efficacy, individual entrepreneurial orientation, entrepreneurial intent and entrepreneurial activity can be utilised to enhance the initiation and ongoing success of new ventures by young entrepreneurs in South Africa.

Key phrases

co-creating; co-evolving; co-initiating; co-inspiring; co-sensing; entrepreneurial intention; entrepreneurial self-efficacy; unemployment; young entrepreneurs

1. INTRODUCTION

In 2016, the Global Entrepreneurship Monitor (GEM) Report on Youth Entrepreneurship in South Africa revealed that the country faced a 65% unemployment rate for youth aged 18 to 35 years across both genders (Herrington & Kew 2017:5). Interviewed at the 2017 national Lekgotla on Entrepreneurship, South African Deputy Minister of Higher Education Mduduzi Manana (Manana 2017:Interview) suggested that a possible reason for the low youth employment rate in South Africa is the negative perception that youth have about being an entrepreneur in South Africa, and that a possible link between low youth employment rates and the frequent unsustainability of start-up businesses is the uninformed perception that youth have what it takes to be an entrepreneur. He suggested that low youth entrepreneurship rates might be enhanced by raising young people's level of entrepreneurial self-confidence and better informing them of the realities of entrepreneurship.

According to the South African Press Association (Engelbrecht 2012:Newspaper) South African youth are less enthusiastic than their overseas contemporaries about entrepreneurship, and the 2016 GEM Report noted a number of challenges that face South African youth in the entrepreneurial process, including access to financial support from various supporting entities, lack of anchor investors for their ventures, and inadequate education and training.

Recent research on young entrepreneurs in Swaziland (Brixiová & Kangoye 2014:182) showed high costs involved in setting up a business and lack of skills as the main challenges facing young entrepreneurs today.

A study by Leslie and Finchilescu (2013:340-55) among 223 university students across all population and gender groups indicated that students viewed their future in South Africa as deteriorating and catastrophic. In addition, clinical research over the past six years by neurologists and psychologists in the emerging field of psychoneuro-endocrinology (PNE) has found that young people globally, and university students in particular, are experiencing feelings of hopelessness and helplessness (Weinberg 2015:8).

The South African Institute of Race Relations found that, in 2013, individuals in South Africa felt more anxious and pessimistic about the country's future than at any time since 1994 (Cronje 2013:Internet). Similarly, the 2016 GEM Report suggested that feelings of anxiety

and hopelessness might be related to fear of failure linked to social stigmatisation, low self-motivation and unrealistic expectation of what it takes to be an entrepreneur in South Africa. The lack of self-motivation could probably be explained by social and cultural attitudes, where a culture that is averse to taking risks discourages entrepreneurship (Herrington & Kew 2017:62).

Particular barriers that discourage entrepreneurship for South African students are: a) lack of interest in entrepreneurship; b) inappropriate syllabuses and content; c) inappropriate teaching and learning methods; d) lack of entrepreneurial support; and e) lack of exposure to the realities of what it takes to be an entrepreneur (Shambare 2013:449-59).

These barriers have a direct effect on the individual entrepreneurial orientation (IEO) of young people in general. This prompted an investigation to establish how South African youth perceive the degree of their own IEO and also to determine possible challenges they may face in the entrepreneurial process that relate to their IEO.

In this regard, Theory U can help youth entrepreneurs increase their IEO since it offers "support for doing things radically differently" (Aarhus Affairs 2013) which is essential to success of any entrepreneurship drive in South Africa. Theory U can be seen as a theoretical framework, a research methodology, or, in in its simplest form, as a social technology tool (Van der Westhuizen 2016:22).

Darsø (2013:98-108) states that the link between a person's internal and external orientation goes beyond the perfect business plan because Theory U makes it possible to work productively with a person's interests, passions and unique talents.

Darsø (2013:98-108) adds that young entrepreneurs should identify what they are good at and become more mindful of what is needed by the community, the nation and the world at large. In most educational institutions this link is absent. Most young people are not sure what they are good at or what they want to do with their lives. It is also difficult for them to see how best to use the particular skills they already have, or that they may potentially acquire.

2. OBJECTIVES

The primary objective of the research reported on in this article was to determine whether engaging with Theory U and with the concept of IEO, focusing on university students, has potential for raising the level of youth entrepreneurship in South Africa.

Secondary objectives that followed in turn were

- to determine the link between risk-taking (a factor of IEO) and co-initiating/co-sensing (factors of Theory U) focusing on South African students;
- to determine the link between innovation (a factor of IEO) and co-inspiring (a factor of Theory U) focusing on South African students;
- to determine the link between pro-activeness (a factor of IEO) and co-creating/co-evolving (factors of Theory U) focusing on South African students; and
- to identify the correlation between IEO and Theory U factors.

3. THEORY U

As described by Otto Scharmer, its originator, Theory U is "a social technology" that tries to co-operate and make connections for the greater good (Aarhus Affairs 2013). Scharmer and Kaufer (2013:16-17) describe Theory U as a conceptual framework, a method to lead profound change, and a way of being. They hold that whereas the educational system is based on an idea of industrial society, the labour market no longer resembles industrial society.

Education with a more holistic and sustainable perspective is needed that connects the internal and external orientation of an individual and encourages individuals to connect and work across the conventional academic boundaries. This is particularly necessary for entrepreneurs.

Figure 1 gives a diagrammatic depiction of Theory U and its five constituent elements: co-initiating, co-sensing, co-inspiring, co-creating and co-evolving.

Scharmer and Kaufer (2013:18-19) maintain that Theory U can help entrepreneurs to move from a reactive response field to a generative response field, especially in terms of "co-

inspiring" or "pre-sensing". In this process, conscious introspection enables entrepreneurs to connect with their source of inspiration and will.

The connection may in turn lead to innovation or conceptualisation of "the new", which can be new ideas and opportunities, new insights, or new motivation. The sensing stage is paramount because it enables the individual to break through old patterns by stepping into different but relevant experiences.

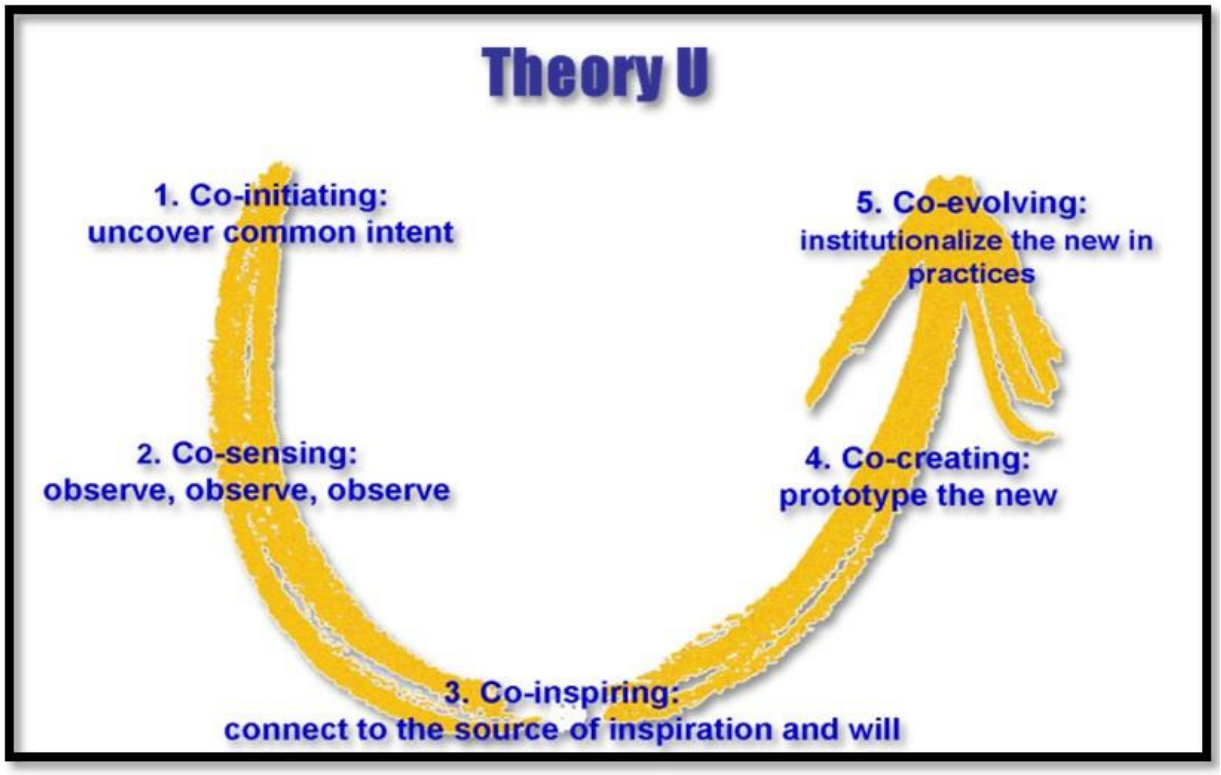

FIGURE 1: Five basic processes of Theory U

Source: Scharmer & Kaufer 2013:18

Sensing helps in building relationships with key stakeholders to obtain a system perspective of the environment and of relevant ideas. Judgement is discouraged; encouraged instead is connection with a sense of appreciation and wonder. It is also important to reach a stage of deeper connection with knowledge, where the individual connects with the source of inspiration; this then leads to a new level of understanding and a new grasp of ideas in which creativity and innovation can flourish. Head, heart and hand are then linked, with positive

effect on a person's entrepreneurial self-efficacy (ESE), entrepreneurial orientation (EO), entrepreneurial intention (EI) and entrepreneurial activity (EA) (Boyd & Vozikis 1994:63; Piperpoulos & Dimov 2015:970-85).

Theory U provides a model to facilitate profound change on a systemic level, starting with the individual entrepreneurs and how they interact with themselves. It indicates further how the individual entrepreneur interacts with other individuals on various systemic levels to bring forth change firstly within individuals and secondly at systemic levels.

Figure 2 illustrates how Theory U can enhance the activities of young entrepreneurs.

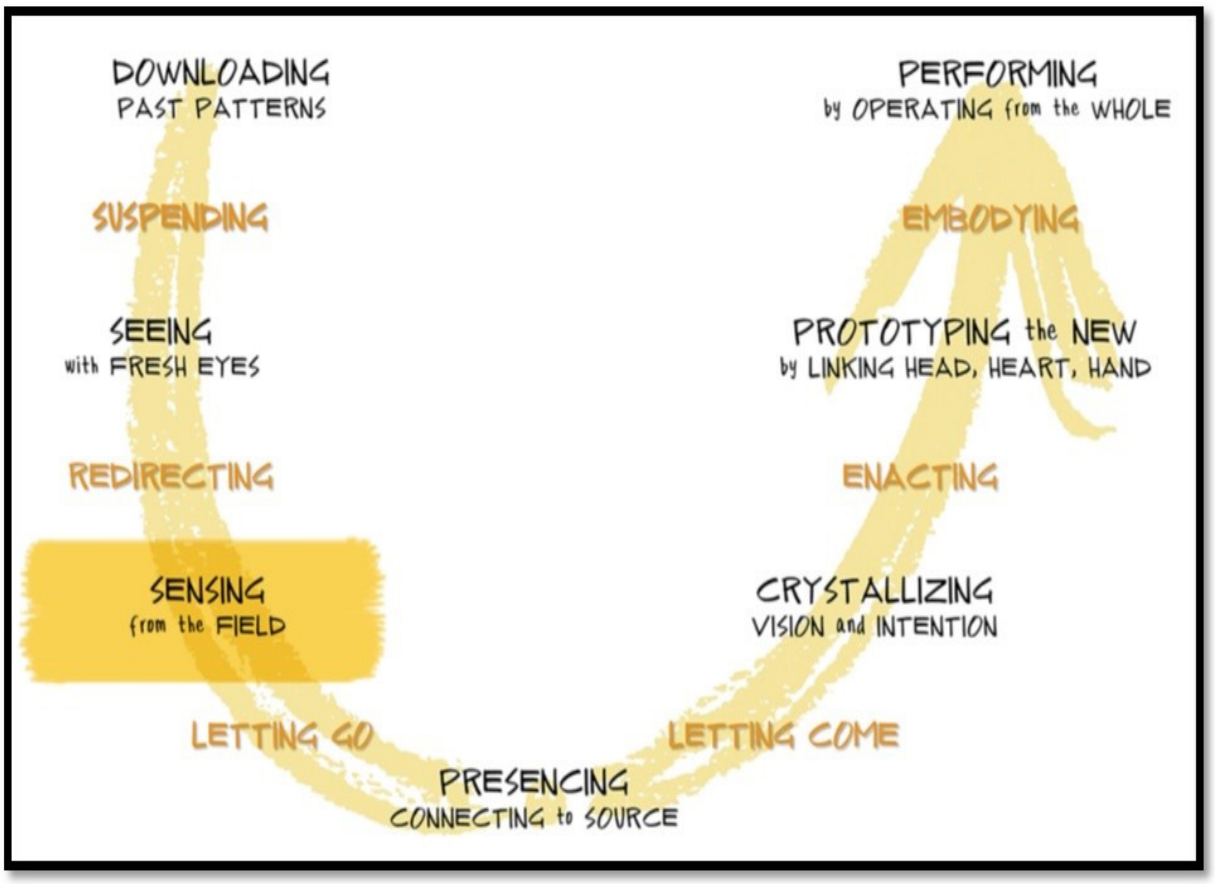

FIGURE 2: Theory U enablers for entrepreneurship development

Source: Scharmer & Kaufer 2013:22

4. INDIVIDUAL ENTREPRENEURIAL ORIENTATION

In the link between ESE and IEO, Ramkissor and Cassim (2013:30-31) explain that levels and dimensions of ESE will influence levels and dimensions of IEO. ESE can be explained as a person's belief in his or her ability to successfully launch an entrepreneurial venture (Ehrlich, De Noble, Jung & Pearson 2000:22; Zhao, Seibert & Hills 2005:1265; McGee, Peterson, Mueller & Sequeira 2009:965-88). It includes the person's capabilities for achieving success and tackling challenging goals in the business start-up process.

ESE has four task-specific types: 1) opportunity identification; 2) relationship aspects; 3) managerial aspects; and 4) tolerance (Bandura 1986:557-70; Barbosa, Gerhardt & Kickul 2007:86-104; Chen, Greene & Crick 1998:295-316; Ehrlich *et al.* 2000:Internet; Kickul, Gundry, Barbosa & Whitcanack 2009:439-53).

Belief in oneself is necessary in the development of entrepreneurship, and individuals with a higher degree of self-confidence are more likely to become successful entrepreneurs (Boyd & Vozikis 1994:63).

IEO involves the processes, practices, and decision-making activities that lead to entrepreneurship (Lumpkin & Dess 1996:135-72; Franke & Lüthje 2004:269-88). Franke and Lüthje (2004:269-288) note that the entrepreneurial decision-making process is influenced by external and internal domains. Internal domain factors for IEO include risk-taking, proactivity and innovation; external domain factors relate to society, the economy, technology, competition and politics (Zhao *et al.* 2005:1265; Van der Westhuizen & Saayman 2007:121-130; Langkamp Bolton & Lane 2012:219-33; Ramkissor & Cassim 2013:88) Risk-taking propensity is a behavioural dimension of IEO which may drive pursuit of opportunities; broadly, IEO leads the way for an individual's innovative actions, and reactiveness is associated with an individual's response to competitors or external stimuli (Lumpkin & Dess 1996:135-72; Ramkissor & Cassim 2013:88).

Activating or unlocking IEO requires a shift from a reactive response field to a generative response field. Neurologically, this shift involves access to information in the emotional and memory centres of the brain (Weinberg 2014:2-11). Two key emotional centres involved are the amygdala, which supports fear, anxiety, panic and anger and is also associated with emotional memory, and the *nucleus accumbens*, which supports pleasure and gratification

(Amunts, Kedo, Kindler, Pieperhoff, Mohlberg, Shah, Habel, Schneider & Zilles 2005:343-52; Weinberg 2014:3-15). Weinberg (2014:3-15) explains that neuro-anatomical integration has an impact on aspects of an individual's ESE and IEO, influencing entrepreneurial intention (EI) and entrepreneurial activity (EA).

A country's socio-economic development relates directly to individuals who make up the micro-systemic attitudes, activity and aspirations. For socio-economic development to occur through acts of entrepreneurialism it is necessary to develop individuals' ability to take risks, proactivity and degree of innovativeness. These propensities of development will require for individuals to connect with a much deeper level of knowledge. Deep action learning, especially to spark innovative thought in the field of entrepreneurship, might be necessary for successful socio-economic development. A possible tool to do so, might be Theory U (Van der Westhuizen 2016:37).

The links between these aspects are illustrated in Figure 3.

Entrepreneurial Self-Efficacy (ESE)	Individual Entrepreneurial Orientation (IEO)	Entrepreneurial Intention (EI)	Entrepreneurial Activity (EA)
Four task specifics: 1. Opportunity identification aspects 2. Relationship aspects 3. Managerial aspects 4. Tolerance aspects	1. Risk-taking aspects 2. Innovation aspects 3. Proactivity aspects	Combination of ESE + EO	ESE + EO + EI = EA

FIGURE 3: Elements of the entrepreneurial mindset

Source: Van der Westhuizen 2016:33

5. THEORY U AND IEO IN THE ENTREPRENEURIAL PROCESS

IEO and Theory U elements are related to one another in the entrepreneurial process as follows:

1. *IEO risk and Theory U co-initiating (CI^1)*: Co-initiation of IEO occurs on intrapersonal and interpersonal levels (Gardner 2003:1-14). Individuals find resources within themselves that inspire them to initiate the entrepreneurial process and they also engage with others in various environments and in the public domain to explore entrepreneurial options and possibilities. These inter- and intrapersonal processes occur in the brain's emotional and memory centres and psychoneuro-endocrinological (PNE) factors influence the level of ESE for each individual (Weinberg 2014:3-11). Level of ESE directly influences level of IEO in co-initiation of the entrepreneurship process.
2. *IEO risk and Theory U co-sensing (CS)*: According to Scharmer and Kaufer (2013:2-17), individuals observe and are influenced by actions and interactions in various systems around them and there are four levels of system that influence IEO: a) the micro-system (synonymous with an individual's mindset); b) the meso-system (direct environment where the individual is co-sensing the entrepreneurial process); c) the macro-system (local economic development field in which the individual is located); and d) the Mundo-system (the bigger economic picture on national and global scale) (Jackson 2003:10-15; Scharmer & Kaufer 2013:2-17). Systemic actions on all levels influence IEO, and in turn ESE, through deep-brain projections involving the thalamus (Weinberg 2014:1-11).
3. *IEO innovation and Theory U co-inspiring (CI^2)*: Intrapersonal and interpersonal integration potentially makes individuals more receptive to a source of inspiration (Scharmer & Kaufer 2013:2-17) or an 'aha' moment (Jung-Beeman, Bowden, Haberman, Frymiare, Arambel-Liu, Greenblatt, Reber & Kounios 2004:e97; Weinberg 2014:3-11). In neurological terms, the 'aha' moment occurs when inter-neurons are elevated to a higher level of apical representation, where there is PNE activity associated with a burst of gamma frequency in EEG (Weinberg 2014:3-11). When individuals are co-initiating and co-sensing, an 'aha' moment might be reached. According to Weinberg (2014:3-11), Scharmer's process of co-inspiring has a direct impact on levels of IEO; enhanced levels

of IEO might therefore be a direct output from enhanced levels of ESE, and low levels of IEO might be a direct result of low levels of ESE (Weinberg 2014:3-11).

In the Theory U process, co-inspiring is synonymous with pre-sensing (Scharmer & Kaufer 2013:21-24). The emphasis in this alternative term is on the birth of a creative and novel idea that can lead to innovation or an 'aha' moment. The part of the brain identified as reflecting the 'aha' moment is the anterior portion of the superior temporal gyrus of the non-dominant hemisphere and is associated with a short burst of 40 Hz Gamma EEG activity (Weinberg 2014:3-11). The profoundness of the innovation might relate to an individual's PNE engagement with their source of inspiration and will (Scharmer & Kaufer 2013:2-17; Weinberg 2014:3-11).

IEO proactivity and Theory U co-creating (CC): When IEO leads to entrepreneurial intention, the individuals concerned are engaging in the process of co-creation. This process can occur on an intrapersonal level, where the individual moves towards entrepreneurial activity. Interpersonal co-creations occur, where the individual moves towards more formal business friendships or entrepreneurial activities. Scharmer and Kaufer (2013:24) indicate that these co-creations often lead to prototyping, where the creative idea is developed into an innovative product that can be tested in the market. Prototyping of entrepreneurial intention may thus result in entrepreneurial activity (Weinberg 2014:3-11).

4. *IEO proactivity and Theory U co-evolving (CE)*: After developing a prototype, individuals might move into entrepreneurial activity either alone or through partnerships. According to Scharmer and Kaufer (2013:24), the extent of entrepreneurial activity marks the outflow intensity of the U process. In PNE terms, physiological generation of bursts of gamma EEG frequency influences the individual's entrepreneurial activity (Weinberg 2014:3-11). It can be represented as (CI^1) + (CS) + (CI^2) + (CC) = CE, where CE (co-evolving) is equivalent to entrepreneurial activity.

Similar points in relation to entrepreneurial innovation, inspiration, intention and activity were also the focus of an introductory spoken address (unpublished) by Marian Goodman at the South African Presencing Foundation Course Workshop in Cape Town, 25-28, March 2014.

The literature suggests that a possible way to boost youth entrepreneurship in South Africa is to develop levels of IEO. The processes outlined in Theory U offer a potential pathway for individuals to move from a reactive response field to a generative response field, with potential enhancement of IEO. Systemically, an initial focus on development of soft systems, starting on the micro-level of an individual's own entrepreneurial orientation, may then lead on to broader development nationally of hard systems on a meso-, macro- and mundo-scale (Scharmer 2007:20; Thompson & Bevan 2013:69; Townsend & Macbeath 2011:34).

6. METHODOLOGY

The target population was first-year students enrolled full-time at the University of KwaZulu-Natal in Durban, South Africa, in the School of Management, Information Technology and Governance. The rationale was to commence observation of IEO among these students at an early stage of their studies and continue monitoring their entrepreneurial development over the subsequent course of their studies.

The agency by means of which the monitoring was conducted was an entrepreneurship development programme entitled SHAPE (Shifting Hope, Activating Potential Entrepreneurship). This article confines its report to findings from the initial year of monitoring. Sampling was done among 1 615 first-year students. The required sample size for the sample was 310 (Sekaran 1992:246), and the researchers collected 380 questionnaires, which exceeded the required sample size. Non-probability sampling using the convenience sampling method was done by handing questionnaires to students during class time over a period of three weeks in February 2014. Each class was visited once only.

Data were collected using a questionnaire consisting of open-ended and closed-ended questions on a four-point Likert scale. Participants were tested for IEO scores on risk-taking, innovation and pro-activeness, and the five elements of Theory U.

The data were analysed with SPSS version 18. Frequency responses of participants to aspects of IEO factors were determined, and risk, innovation, and proactive scores were compared between male and female students using non-parametric testing for correlation of factors of risk-taking, innovation and proactivity.

7. RESULTS AND DISCUSSION

The results are indicated per research objective to show how the main objective and the secondary objectives of the research were achieved.

7.1 Research objective 1: Factors relating to risk-taking, co-initiating and co-sensing

Five statements were put to the participants to determine internal domains of the students' IEO in regard to risk-taking. The factor statements were related to Theory U factors of co-initiating (CI^1) and co-sensing (CS). Both IEO risk factors and Theory U factors of CI^1 and CS are construed as being reactive response field processes (see Figure 7).

The results indicated that, overall, participants had a relatively positive perception of taking risk and handling risky situations, as shown in a mean score of 14.39 (SD = 1.95) (see Figure 4). According to Theory U, participants thus had a somewhat positive perception of co-initiating and co-sensing new business concepts.

In PNE terms, the score range is influenced by external or internal stimuli to emotional or memory centres of the brain. Furthermore, the frequency distribution showed that most participants (≥70%) agreed or somewhat agreed to most of the statements presented (see Figure 4).

However, 54% of the participants disagreed that they would prefer working for the government rather than starting a business of their own. Participants also indicated that they would be reluctant to co-initiate and co-sense new business opportunities with government. A possible reason for this response might be a prior stimulus that influenced their reactive response field.

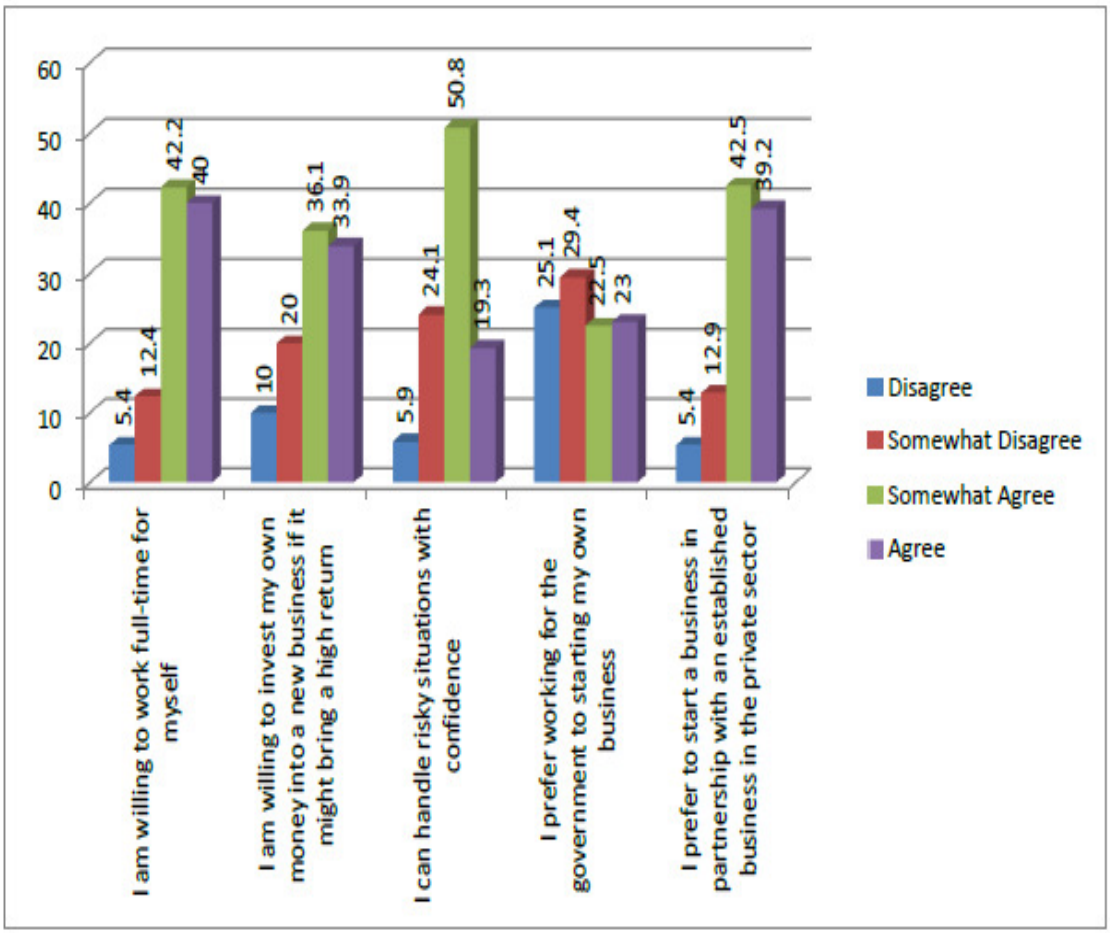

FIGURE 4: Risk-taking factors

Source: Calculated from survey results

7.2 Research objective 2: Factors relating to innovation and co-inspiring

Seven statements about innovation issues were put to the participants to determine their IEO in relation to innovation. In terms of Theory U, the statements related to co-inspiring (CI^2).

The results yielded an average score of 19.89 for innovation among the participants, indicating that they were moderately innovative. From a Theory U perspective, this implies

that in co-inspiring of innovation participants had moderate to open willingness to connect to a source of inspiration.

For example, 83.3% of the participants reported that they periodically tried new and unusual activities. In addition, most (87.2%) participants indicated that they preferred to try their own individual approach when learning something new rather than doing it like everyone else (Figure 5). Most indicated that they were willing to move from a reactive response field to a generative response field by connecting with the source of inspiration and then putting their own ideas into practice.

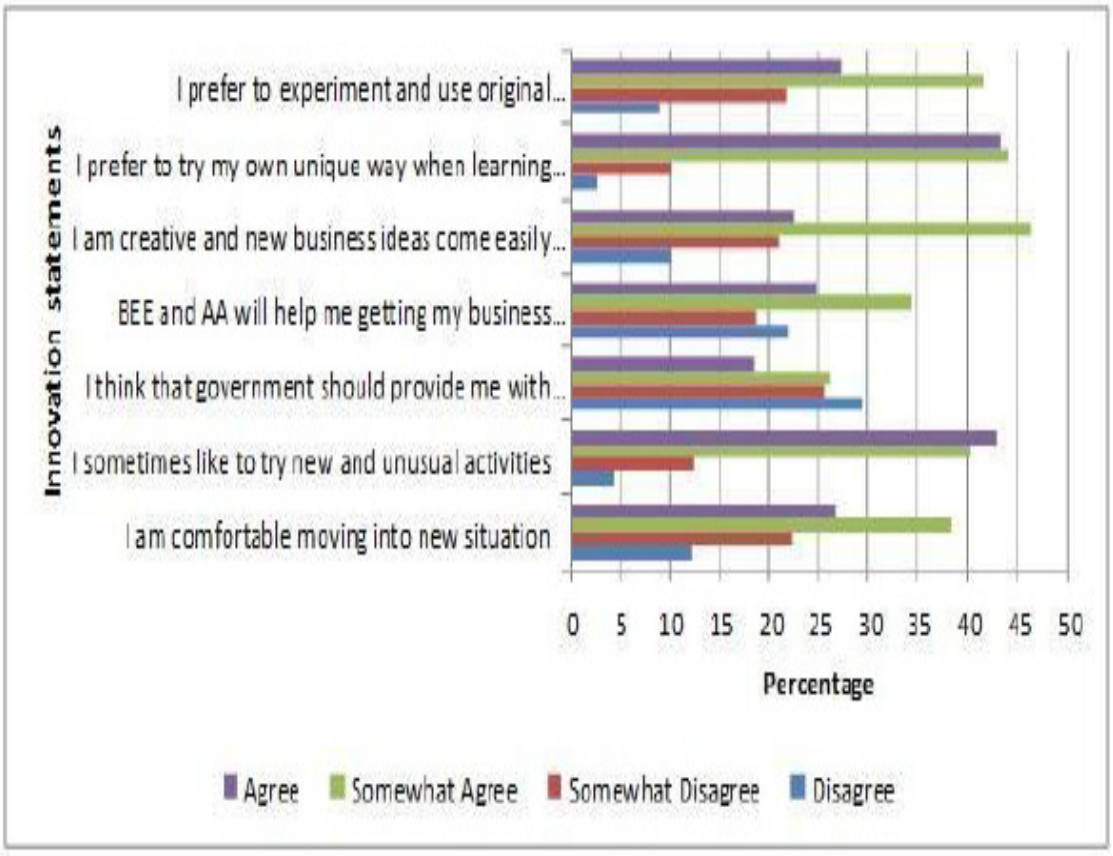

FIGURE 5: Innovation factors and co-inspiring factors

Source: Calculated from survey results

7.3 Research objective 3: Factors relating to pro-activeness, co-creating and co-evolving

Four statements were put to the participants to determine their IEO in relation to pro-activeness and the Theory U factors of co-creating (CC) and co-evolving (CE). The overall proactivity score of participants reflecting the extent to which they agreed with co-creating and co-evolving in the entrepreneurial process is shown in Figure 6

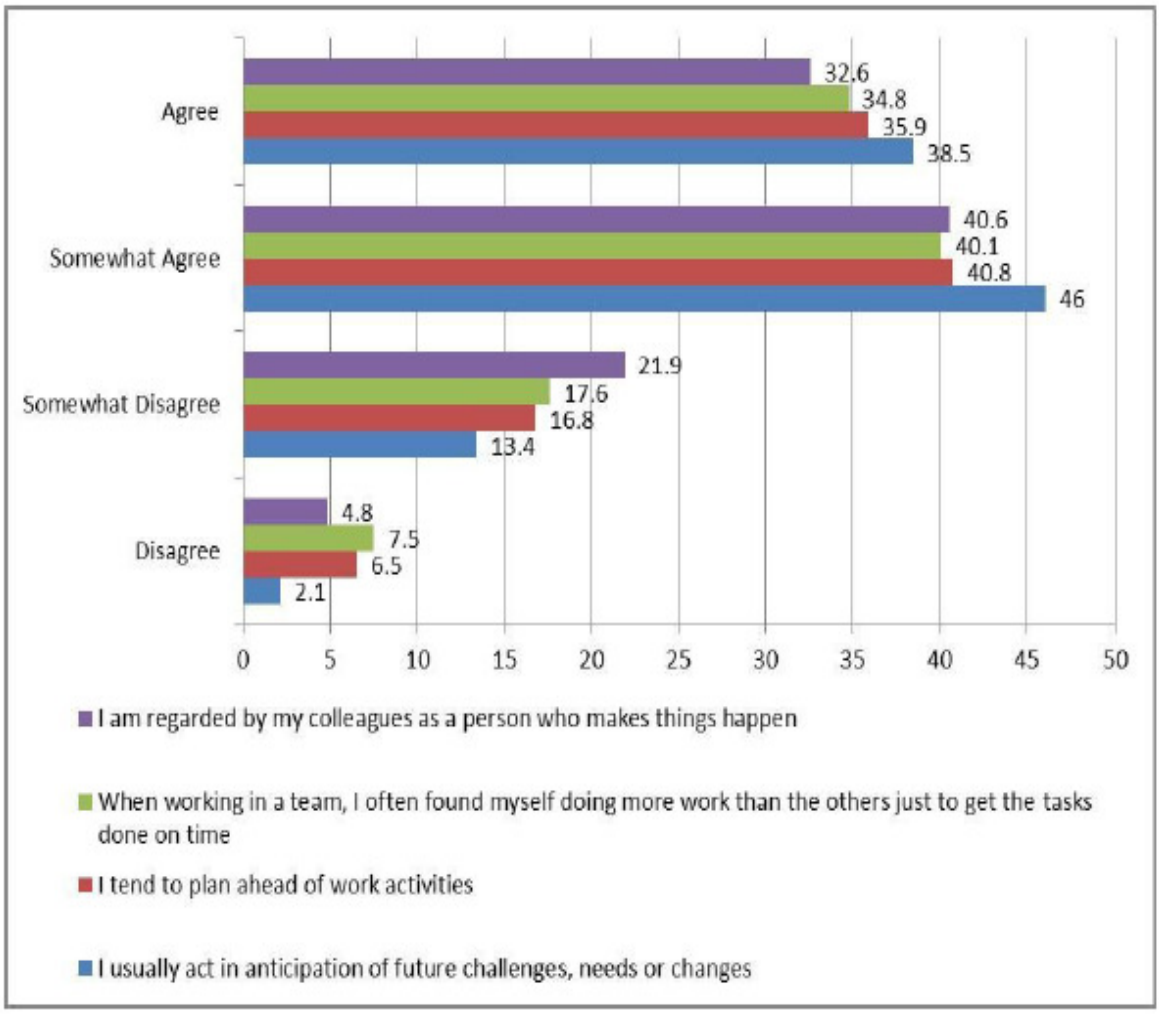

FIGURE 6: Proactivity, co-creating and co-evolving factors

Source: Calculated from survey results.

Average score for IEO in regard to being proactive (Theory U factors CC and CE) was 12.25 (see Figure 6). This indicates that participants were markedly proactive, implying strong willingness to operate from a generative response field. It was found that more than 70% of participants agreed or somewhat agreed to all the statements on being proactive (Figure 6).

7.4 Research objective 4: correlation between IEO and Theory U factors

IEO and Theory U factors were compared between male and female participants. Since none of the scores were normal (see Table 1), a non-parametric test was used.

TABLE 1: Kolmogorov-Smirnova and Shapiro-Wilk tests for normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	Df	Sig.
Risk, CI[1] and CS score	0.119	187	0.000	0.971	187	0.001
Innovation and CI[2] score	0.097	187	0.000	0.982	187	0.015
Proactive, CC and CE score	0.139	187	0.000	0.956	187	0.000

a. Lilliefors significance correction

Source: Calculated from survey results

The results showed that, overall, IEO and Theory U scores of male and female participants were similar. Both genders indicated similarities when moving from a reactive to a generative response field. It was also found that the age of the participants was not significantly related to IEO and Theory U scores (see Table 2).

However, there was statistically significant correlation ($p<0.01$) between IEO scores and Theory U scores. Theory U suggests that there should be a positive correlation between co-inspiring and co-initiating or co-sensing.

In addition, co-inspiring should be positively correlated with co-creating and co-evolving. The results showed that risk factors, which are part of Theory U's reactive processes of co-

initiating and co-sensing, were significantly related to innovation as a co-inspiring factor in Theory U, giving confirmation of Theory U interrelationships.

TABLE 2: Correlation test outcomes (Kendall's tau b test)

	Participant age	Risk, CI[1] & CS score	Innovation & CI[2] score	Proactive, CC and CE score
Age of students	1.000	-0.022	0.026	0.009
Risk, CI[1] & CS scores	-0.022	1.000	0.369**	0.250**
Innovation & CI[2] score	0.026	0.369**	1.000	0.256**
Proactive, CC and CE scores	0.009	0.250**	0.256**	1.000

** Correlation is significant at the 0.01 level (2-tailed)

Source: Calculated from survey results

It was also found that co-inspiring was significantly related to co-creating or co-evolving, giving further confirmation of Theory U interrelationships (Figure 7).

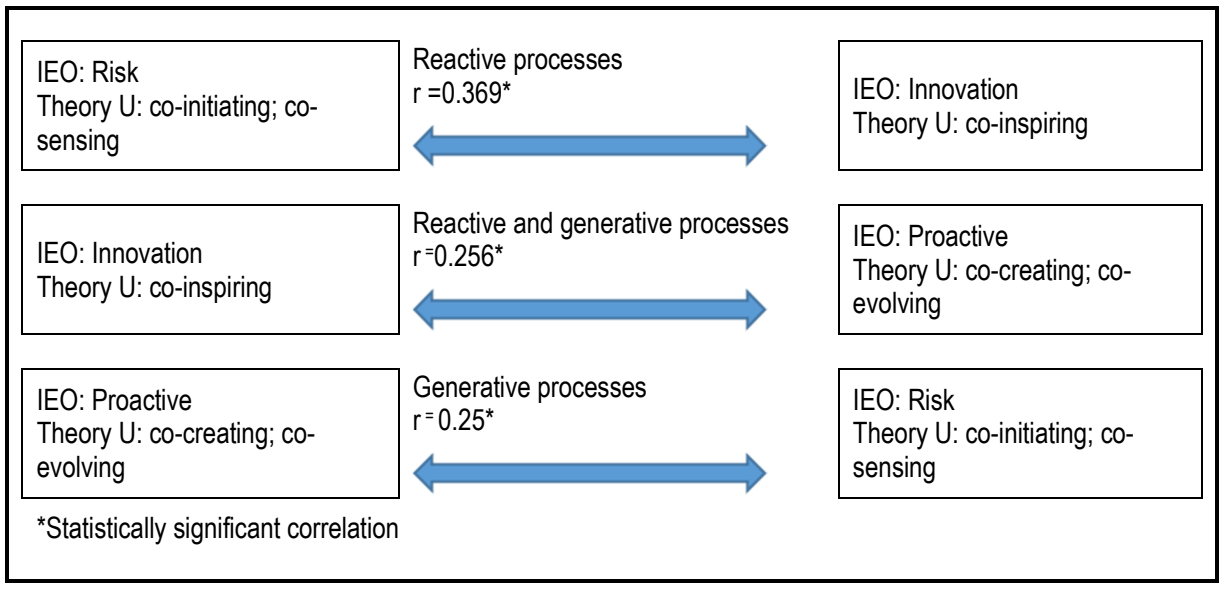

FIGURE 7: Relation between IEO propensities and Theory U

Source: Calculated from survey results

Figure 7 shows how Theory U can positively influence the development of entrepreneurship because it links IEO factors to the mind, heart and will of the entrepreneur. Conceptions about risk-taking factors are linked in Theory U to openness of mind and heart in suspending previously downloaded psychological patterns – which Scharmer refers to as downloading established habits and *ad hoc* solutions (Aarhus Affairs 2013:Internet) – and a reduction of inter- and intrapersonal fears, anxiety and panic. Innovation factors in Theory U that have a bearing on IEO involve openness in mind, heart and will in connecting with a source of inspiration and seeing ideas objectively, coupled with adaptability and willingness in attempting new activities. Likewise, proactivity factors in Theory U that influence IEO relate to opening mind, heart and will to see that which is new, crystallise vision and intention, and co-create the accepted new.

Factor scores of participants indicated that they perceived themselves as having a high IEO. Biographic and demographic information from participants indicated that they mostly came from rural areas. Furthermore, participants indicated that they had moderately high experience in connecting with a source of inspiration in their internal environment, but moderately low experience in connecting with a source of inspiration in their external environment. Their exposure to innovation was thus limited.

Demographic and biographic challenges in the participants' environment had restricted their exposure to co-creating or co-evolving entrepreneurial action, because of these environments were mostly socio-economically underdeveloped. Yet they nonetheless saw themselves as having the ability to take risks and be innovative and proactive, although without much experience of what these processes might involve and with little or no knowledge of how to progress from reactive response to generative response.

Here entrepreneurial education can crucially boost the development of youth entrepreneurship in South Africa, although traditional educational methods are likely to be inadequate to the task. Undertaken in collaboration with pertinent stakeholders, teaching and learning interventions need to be practical rather than just theoretical to impart the necessary knowledge, skills and experience. The key points of focus indicated by Theory U give important guidance for a closely directed development of IEO among the student population.

8. RECOMMENDATIONS

It is recommended that teaching and learning practices for training in entrepreneurship in South Africa be critically reviewed, as traditional approaches take insufficient cognisance of the entrepreneurial self-efficacy, the entrepreneurial orientation, the entrepreneurial intention and the entrepreneurial activity of the students as potential young entrepreneurs. Entrepreneurial education needs to foster understanding of the internal and external domains that affect entrepreneurship, of collaboration with stakeholders and of the linkages involved, and students must be encouraged to explore and develop the sources of their inspiration and to discover their individual passion.

A comparison of youth entrepreneurship education, development and research across educational institutions in South Africa could assist in identifying best practices and successes. It could also be used to develop an innovative new curriculum to stimulate head, heart and hand along the lines suggested in the previous paragraph. This extension of the research would enable evaluation and testing of teaching methods and learning skills and could, in particular, test the success of entrepreneurial education by tracking the success of new ventures created by students.

Provision should also be made for giving young entrepreneurs additional support to launch, manage and maintain their ventures. Young people commonly lack funding, networks and business experience. These can be provided by establishing entrepreneurial role models and networks of successful entrepreneurs, and exploring entrepreneurship from diverse angles (e.g. social entrepreneurship, techno-preneurship, mom-preneurship, tourism entrepreneurship) can help stimulate innovative business ideas and opportunities. These are all aspects that should be incorporated in entrepreneurial education.

9. LIMITATIONS

A non-probability convenience sampling was done by identifying all the different groups of students enrolled in the UKZN School of Management, Information Studies and Governance. Questionnaires were distributed over a period of two weeks when the practitioner visited all first-year groups from all the different disciplines in the school.

Although all classes and groups were visited, some students were absent from class, creating the possibility of bias in the sample. In future research, perhaps the entire group should be surveyed.

Questionnaires were distributed to undergraduate students in their first year. The result might be different if the pilot were done among different levels of undergraduates (second or third year) or postgraduates (honours, masters, doctorate and beyond).

The study was confined to students at the University of KwaZulu-Natal. Students enrolled at other universities or educational institutions were not taken into consideration. Young people other than students (employed or unemployed) were not taken into consideration.

10. CONCLUSION

South African students often face obstacles in the entrepreneurial process that discourage them from becoming entrepreneurs, to the overall detriment of youth entrepreneurship in this country. Higher education institutions can play an important role in strengthening the motivation of prospective entrepreneurs through training programmes that create a stronger bond between internal and external orientation for the individual student and encourage connections and activities across the conventional academic boundaries. Following the stages mapped out in Theory U can potentially develop the introspective capacity that the student needs to connect with his or her source of inspiration in a coalescence between head, heart and hand, which reinforces entrepreneurial self-efficacy, entrepreneurial orientation, entrepreneurial intention and entrepreneurial activity.

The research reported on in this article showed that cultivation of individual entrepreneurial orientation in terms of Theory U can indeed enhance the level of entrepreneurship among students in South Africa with positive consequences for youth entrepreneurship in general. More specifically, the connections identified in the research were between risk-taking in IEO and the co-initiating/co-sensing factors of Theory U, between innovation in IEO and the co-inspiring factor of Theory U), and between proactiveness in IEO and the co-creating/co-evolving factors of Theory U.

Further research is needed on exposure to the entrepreneurial process from a Theory U perspective as a way to cultivate the mental models that shape young people's thinking and

to build young entrepreneurs' capacity to progress from reactive response to generative response where ideas become actions. In this article, the focus has mainly been on the way that individual entrepreneurial orientation links to Theory U.

Further research could profitably make a closer investigation of the particular links between entrepreneurial self-efficacy, entrepreneurial activity, entrepreneurial intention and Theory U for more extended development of teaching and learning strategies for entrepreneurial education in South Africa.

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