International Variations in Divergent Creativity and the Impact on Teaching Entrepreneurship

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This study addresses cultural approaches to divergent creativity. Students from the United States, Ireland, Sweden, France, Nigeria, Croatia, Kenya, Kyrgyzstan, Honduras, and China were given a divergent thinking creativity exercise and a creativity survey. Results were compared as to number of ideas generated (fluency), range of ideas given (flexibility), use of creative approaches, comfort level with the divergent thinking exercise and self-perception of creativity. Results were compared using the individualistic/collectivistic orientation. Significant differences were found between individualistic and collectivistic cultures in regard to fluency, flexibility, and comfort level, but not in perceived creativity. Implications for the classroom are discussed.

INTRODUCTION

Creativity in business and entrepreneurship has received increasing attention. Timmons (1994) argues that creativity is central to entrepreneurship education. A 2010 American Management Association study identifies creativity and innovation as one of the four critical skills needed for business success today and in the future. A study of CEOs lists creativity as the number one leadership competency of the future (Bronson & Merryman, 2010). The importance of creativity is also recognized internationally. The European Union designated 2009 as the European year of Creativity and Innovation and held conferences and supported creativity programs. Enhancing creativity and innovation is listed as one of the five skills in which more training is needed by entrepreneurs in Malaysia (Josoh, Ziyae, Asimiran, Kadir, 2011). China has also shown an increased interest in developing creativity (Phan, Jing, Abrahamson, 2008). While countries appear to agree on the importance of creativity, do they also agree on how to approach creativity?

There are two types of creativity, divergent and convergent. Divergent creativity is the generation of ideas and involves both the number of ideas one can generate (fluency) and the variety of ideas one generates (flexibility/range). Congruent creativity generally follows divergent creativity and focuses on combining these ideas into the best result. Much of the focus in United States entrepreneurship classrooms has been on convergent thinking (the final project) (Schmidt, Soper, Bernaciak, 2012).

However, Penaluna, Coates, and Penaluna (2010) contend that creativity, innovation and opportunity recognition, essential skills in entrepreneurship, are reliant on divergent creativity. As divergent thinking/ creativity usually occurs in problem finding/solving stage at the beginning of the process, differences in approaches to divergent thinking could create problems or misunderstandings that might hinder international participants from even developing or generating ideas together.

Research has already suggested there are differences in approaches to creativity among fields. Berglund and Wennberg (2006) found in comparing engineering students and business school students (both groups in entrepreneurship programs) that while they had similarities in creativity test scores, they differed in approaches to creative problem finding/solving and the fields (engineering, business) emphasized different creative issues and methods. Similarly, different cultures (based on different values) can approach problem finding/solving differently (Choi, Koo, & Choi, 2007). One dimension on which cultures are frequently compared is individualism/collectivism. Individualistic cultures focus on the goals of the individual (personal goals) over group goals, while collectivistic cultures emphasize both equally or give preference to group goals (Triandis, 1989; Hofstede, 2010). This orientation can affect how people approach generating and developing ideas (divergent creativity) (Kim, Triandis, Kagitcibasi, Choi, &Yoon, 1994; Basadur, Pringle, Kirkland, 2002).

If differences exist, why would these differences be important to the field of entrepreneurship and entrepreneurship education? One answer found in the 2010 AMA study is the reasons given for the increased importance in creativity in the future come from changes in the nature of work, global competition, pace of change and organizational structure. In order to meet these challenges of an increasingly international marketplace where global rather than national organizations exist, the ability to recognize and adapt to other's ways of problem finding and idea generation will become be needed and should be reflected in the entrepreneurship classroom.

CURRENT STUDY

This study examines whether there are differences in divergent creativity performance in generation of ideas (fluency), the range/variety (flexibility) of ideas, and use of creative approaches between U.S. students enrolled in an entrepreneurship class and those from other countries/cultures. Additionally the effect that individualism/collectivism orientation may have on generation of ideas, comfort with divergent thinking, and perception of self-creativity is analyzed. The following research questions are advanced.

Research Question 1- Do students from different countries vary in the number (fluency) and range (flexibility) of ideas generated?

Research Question 2- Do students from different countries vary in their creative approaches used?

Research Question 3- Do students from individualistic cultures differ significantly from those in collectivistic cultures in the number of ideas generated (fluency), range of ideas (flexibility), their self- reported perception of creativity and comfort level with divergent thinking exercises?

METHOD

Sixty-four students enrolled in the first course of an entrepreneurship minor at a mid-western university in the U.S. were given a divergent thinking exercise and survey on creativity. The same instrument was given to students in either entrepreneurship or business courses from universities in Ireland (n=11), Sweden (n=3), France (n=1), Nigeria (n=19), Croatia (n=14), China (n=1), Kyrgyzstan (n=6), Honduras (n=1), and Kenya (n=9).

The divergent thinking exercise is a picture-word test. Students are shown a picture (Exhibit 1) and asked to write down as many words and ideas they can associate with the picture in one minute. Students also completed a survey about how comfortable they were doing the assignment using a scale from 1 (not

comfortable) to 10 (extremely comfortable); how much creativity they think they possess using a scale from 1 (not creative) to 10 (extremely creative); and to indicate from a list of fifteen activities the frequency of the times from 1 (never) to 10 (always) they use the activity when they encounter a problem or need to develop a new idea.

The picture-word tests were evaluated by counting the number of responses generated (fluency) and the range/variety (flexibility) of the responses. To assess range/variety (flexibility), responses were coded in the following eight categories: simply repeating the images on the picture; identifying action in the picture such as walking, running, etc.; creating a story as to what was happening in the picture such as going to meeting or interview, etc.; creating a broader meaning or metaphor for the picture; identifying a feeling such as sad, happy, fearful, etc. or stating a personal feeling such as I like this; identifying colors or shapes ; identifying a time frame (past, night, etc.); expressing a sensory experience such as seeing (blurry), hearing (loud), tasting (sour) or touching (rough).

The degree of individualism/collectivism of the country was determined using Hofstede's 2010 Individualism Index of countries. Countries with scores over 60 were classified as individualistic; countries with scores below 40 were classified as collectivistic. For the countries responding the degree of individualism/collectivism rating was: United States 91, France 72, Sweden 71, Ireland 70, Croatia 33, and China 20. There were no specific listings for Kenya, Nigeria, Honduras or Kyrgyzstan. However, the African scale from both East and West ranges from 20-27, the scale for Central and South America countries ranges from 6 to 30, and the scale for Russia, Bulgaria, Serbia lists 25 to 39, so these countries were included in the collectivistic category. Although only singular responses were received from France, China and Honduras, these results are included as they provide directional insight. The dominant idea types of the sole respondents tend to reflect their culture type, with France as individualistic and China and Honduras as collectivistic. T tests were conducted to determine significance between individualistic and collectivistic cultures.

RESULTS

Research Question 1 - Do students from different countries vary in the number (fluency) and range (flexibility) of ideas generated? Students from the ten different countries did vary in fluency and flexibility of ideas generated (Table 1). Students from the United States and Ireland demonstrated both the highest number of ideas generated and widest range of ideas than students from any other countries.

In addition to the total range (flexibility) for each country the two dominant approaches in the range were also identified (Table 1). Students from United States, Ireland, Sweden, France and Croatia and Kyrgyzstan tended to generate ideas that gave meaning to the picture (such as success, business, etc.) to stimulate creativity. Respondents from Nigeria, Kenya, Honduras and China tended to identify feelings or create a story such as "a man on his way to a successful meeting". Nigerian respondents identified feelings, particularly making statements about feelings such as "I like this" or "This is a handsome man." Other student responses did not make such direct statements or expression of personal feelings.

TABLE 1
INTERNATIONAL VARIATIONS ON CREATIVITY EXERCISE

Country	n	Sample %	Culture Type*	Idea Fluency	Idea Flexibility	Comfort	Self-perceived creativity	Dominant Idea Types
United States	64	50%	I	10.55	3.95	8.34	6.94	Giving Meaning Repeating Something
Ireland	11	9%	I	6.75	3.88	6.64	5.82	Giving Meaning Repeating Something
Sweden	3	2%	I	3.66	2.00	5.00	5.33	Giving Meaning Repeating Something
France	1	1%	I	1.00	1.00	1.00	1.00	Giving Meaning
Nigeria	19	15%	C	1.50	1.42	6.28	6.94	Identify Feelings Giving Meaning
Croatia	14	11%	C	4.77	2.77	5.86	6.36	Giving Meaning Repeating Something
Kenya	9	7%	C	1.25	1.25	5.67	6.89	Creating Story Repeating Something
Kyrgyzstan	6	5%	C	2.00	1.33	7.83	7.83	Giving Meaning Creating Story
Honduras	1	1%	C	2.00	1.00	8.00	8.00	Creating Story Identify Feelings
China	1	1%	C	1.00	1.00	9.00	9.00	Creating Story

*-- C = Collectivistic I = Individualistic

Research Question 2- Do students from different countries vary in their creative approaches used? Of the 15 possible approaches to creativity, students were more similar than dissimilar in identifying their top three creative approaches. Table 2 highlights the top three approaches used for each country. The most dominant choices were internet and talk. Internet was listed by all respondents from all countries; 4 as first choice, 3 as second choice, and 1 as a third choice. Talk was listed by students in 7 of the 8 countries responding; 1 as first choice, 5 as second choice, and 1 as a third choice. There was variation in

these responses. For example, students from the United States more commonly talk as their initial approach, followed by conducting an Internet search, followed by listening to music. African respondents on the other hand, take a more reflective approach. Nigerians reported that they read, then talk with others, and do an Internet search. Four respondents from Kenya reported using other more reflective approaches more commonly which included "creating simulations", "have an inner chat with myself", "imagine myself and try to solving problem from my personal understanding", and "pray".

TABLE 2
APPROACHES TO PROBLEM SOLVING AND CREATIVE THINKING

Country	Culture Type	Approach 1	Approach 2	Approach 3
United States	Individualistic	Talk	Internet	Music
Ireland	Individualistic	Brainstorm	Talk	Internet
Sweden	Individualistic	Internet	Talk	Read
Nigeria	Collectivistic	Read	Talk	Internet
Croatia	Collectivistic	Internet	Talk	Brainstorm
Kenya	Collectivistic	Internet	Mind Map	Talk
Kyrgyzstan	Collectivistic	Internet	Talk	Mind Map
Honduras	Collectivistic	List	Internet	Talk
China	Collectivistic	Sleep/daydream	Internet	Word Assoc

Top three approaches rated on 1 to 10 likelihood of use scale; France omitted (non-response), Honduras and China based on single responses

Research Question 3- Do students from individualistic cultures differ significantly from those in collectivistic cultures on the number of ideas generated (fluency), variation in types of ideas (flexibility), their comfort level with divergent thinking exercises, and their self- reported perception of creativity? Students from individualistic cultures evidenced significantly greater fluency in idea generation vs. their collectivistic counterparts. The average number of ideas generated by students from individualistic cultures (e.g., US, Ireland, Sweden, France) was 9.75 compared to 2.5 generated by those from collectivistic cultures (e.g., Nigeria, Croatia, Kenya) ($t = 11.06$, $p < .01$). Flexibility, or the range of ideas, differed significantly with a mean of 3.82 different types of ideas (e.g., giving meaning, repeating something, identifying feelings, creating a story), in individualistic cultures, vs. 1.76 for collectivistic cultures ($t = 8.05$, $p < .01$). Students from individualistic cultures were significantly more comfortable with the exercise, 7.87 vs. 6.33 ($t = 3.43$, $p < .01$). Interestingly however, there is no significant difference in perceptions of one's own creativity based on culture type (Table 3).

TABLE 3
SIGNIFICANT DIFFERENCES IN CREATIVITY BY CULTURE TYPE

Creativity Variable	Individualistic Mean	Collectivistic Mean	*T*	*Df*	*P*
Fluency	9.75	2.50	11.06	104	.000
Flexibility	3.82	1.76	8.05	66	.000
Comfort	7.87	6.33	3.43	124	.001
Self-perceived creativity	6.64	6.88	No significant difference		

DISCUSSION

This study examines similarities and differences in divergent creativity, approaches to creative problem finding, and perception of one's creative potential across cultures as well as the possible effect of the cultural value of individualism/collectivism on these areas. Students from different cultures did have differences in both the number of ideas generated (fluency) and in the range of ideas (flexibility). Additionally, these differences were significant when comparing students from individualistic cultures with those from collectivistic cultures indicating that students from individualistic cultures score higher on this divergent creativity test. This finding is consistent with earlier studies in which Western cultures scored higher on creativity picture word tests (Jellen and Urban, 1989).

In examining the responses, particularly in the range of ideas (flexibility), there were also similarities. Students from all countries chose developing a meaning whether it was providing a metaphor/meaning or in creating a story as one of their top two choices in expression of ideas (flexibility). The difference was that the students from collectivistic cultures generally only evidenced two types of approaches to explain the picture, whereas those from individualistic cultures used more approaches.

One explanation for these differences might be comfort level with this type of picture word test. As the findings indicated, students from individualistic cultures felt significantly more comfortable with this type of exercise than did students from collectivistic cultures. One explanation might be that individualistic cultures value self-expression more than collectivistic cultures in which the norm is on the group rather than the individual. Therefore, students from individualistic cultures may be more prone to feeling comfortable developing ideas in this type of arena and sharing initial responses (even when these responses may not appear related or well thought out) then students from collectivistic culture would.

Additionally, creativity itself may be more valued in some cultures than in others and the perception of what is creative could differ depending on cultural values. Perhaps this type of divergent thinking exercise might be more biased toward the expressions of creativity of individualistic cultures than other cultures (Zha, et al, 2006). For example, even though the test results indicated differences in creative potential, there were no significant differences in the students' perception of their own creativity. Independent of the individualistic/collectivistic cultural orientation, all students felt they were more creative than not (basically a 7 out of 10 on the scale).

Just as in the examination of the options chosen for the range of creative approaches, there were similarities among students in approaches to generating creative ideas to issues/problems. Despite this overall similarity there was a distinction between individualistic/collectivistic cultures in the use of talk. Talk was listed as the first or second approach by students in all the individualistic cultures, but talk was not listed in first place by any of the students from the five collectivistic cultures, listed in second place by 3 groups and in third place by 2 groups. Furthermore, the type of talk envisioned may vary substantially given the differences in fluency and flexibility. An example of these variations is the talk referred to by the Kenyans as having "an inner chat with myself" or praying which is different from the group or interpersonal talk mentioned by U.S. students. Although not asked in this analysis the use of the internet may also vary. For example is the internet used to check a fact or to stimulate thinking such as looking at pictures or reading blogs?

RECOMMENDATIONS

What does this suggest for the classroom in teaching divergent creativity in the context of a global society?

1. In teaching faculty should emphasize that cultural orientation may be a factor in how people generate ideas. Reinforce the idea that creativity is culturally bound and develop students' awareness of how their culture may influence what they see as creative and how they develop/express creativity. Have students practice using other methods such as reading, mind mapping, lotus blossom, silence, etc. to understand the process can affect the type of idea is generated.

2. Develop an appreciation for differing approaches to divergent creativity, help the student see how their approach is similar/ or dissimilar to other cultures, and identify ways in which they may have to adapt to different cultures. For example, using the findings in this study on fluency, flexibility, comfort, and creative approaches, have students identify what practices might be good for a person with an individualistic orientation operating in a collectivistic society and what practices might be good for a person with a collectivistic orientation operating in individualistic society. The following are some suggestions of students drawn from such a class exercise.

   Suggestions:

   For individualists in a collectivistic culture, brainstorming or throwing out a large number of ideas might not be perceived positively. This behavior could be perceived as self-important or communicating that none of the ideas really matter. Additionally, talking before researching or reflecting may be perceived as thoughtless of others' time and imposing your will on them.

   For collectivists in an individualistic society, trying to develop the best one or two ideas and share them might not be positively seen by individualists. This behavior could be perceived as hesitant or unsure and reflective of one who is unable to develop concepts. Additionally, not engaging in talk until you have reflected might be perceived as holding back the progress of the group.

3. Be aware of the importance of valuing others. Remember although the fluency and frequency varied between cultures *all students independent of culture thought they were creative*.

LIMITATIONS AND FUTURE RESEARCH

All surveys were administered in English which could have potentially posed a problem with clarity in directions for those for whom English is a second language. Although the directions regarding the picture exercise stated "*Take a look at the picture below. Type as many words or ideas that you can which you associate with the picture. You have one minute*" this may have been confusing for some students. Additionally most of the surveys of international students were administered online, while most of the surveys of US students were administered in paper format in the classroom. This difference could have affected performance and comfort level.

Finally, there was small sample size in China, France and Honduras. Future research should focus on data collection from additional countries representing both individualistic and collectivistic cultures to see if results are similar with larger sample sizes. Further, incorporating a self-response scale on individualism/collectivism to compare with the Hofstede index would allow for investigating individual differences within cultures. Future research opportunities also include asking students how important they perceive creativity to actually be in business development. This would facilitate the assessment of variations in cultural perceptions toward the value of creativity, particularly as applied to business settings and problem solving.

CONCLUSION

This study demonstrates the importance of culture in divergent creativity as well as the growing similarities between approaches and ways of expressing ideas among cultures and the importance of discussing these in the classroom. In the world of global interconnections, particularly driven by the internet, students will need to be more aware of these connections to communicate more effectively and build more successful organizations.

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EXHIBIT 1