HOW WOULD YOU MEASURE CREATIVITY AND INNOVATION? WHY?

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ABSTRACT

This article represents various and reliable trials to measure creative and innovative abilities of people and organizations or countries. Underlining the necessity and applications of creativity and innovation metrics, I supplied with several opinions of researchers and limitations of some measurements which are far from being dealt with.

Key words: *Creativity level, measurement scope, creativity and innovation, capacity for creativeness, traditional measurement, intelligence checking tests, assessment system, divergent thinking, creative thinking, employee promotions, flexibility, fluency, elaboration, originality, measuring innovation, rote memory, ICT usage, "Innova" method, reliability of the tests.*

Introduction

The developing world is calling for people to be more or less creative and innovative, to look at the problem from another angle, and to take a different approach to tackle it. Hence, to thrive in this era every individual is using their creativity in a different way. There is no single area which does not require divergent thinking. Growing interest in the creativity level led to the enhancement of the measurement scope for creativity and innovation. It is truly said that there is no exact measurement of creativity which means everybody is creative in their own way, and one measurement cannot properly expose their capacity for creativeness. In this article, I will provide with the reasons why assessment is needed, some ways of measuring the level of creative and innovative thinking and limitations of assessing them.

The need for Specific Measurement of Creativity and Innovation

Conventionally, intelligence checking tests were used to indicate people's gifts. However, these kinds of traditional measurements do not require the application of divergent or creative thinking. It focuses on convergent thinking (Lubart, 2016) which means to give correct answers to standardized tests like multiple-choice tests. This hypothesis led to form separate measures to check intelligence and creativity. Besides that, measuring innovation and creativity is widely negotiated by several companies to yield some basic indexes. Particular assessment system is needed for Human Resource in the process of hiring employees or educational institutions to reform their curriculum. In the organizations innovation level metrics enable employers to make up their minds in terms of employee promotions and rewards.(Mitchell & Goffin, 2010). For being able to evaluate project team's innovation or creative performance, it is apposite for companies. However, there are only a few measures designed for organizational team work level. Several companies are implementing manifold activities, such as whiteboard for generating ideas, group workshops and coffee corners to boost their innovation performance (Kahlfuss, 2013). Most importantly, there is a need for enhancement of innovation culture in every country (Coy, 2015). They have to analyze which countries manage this task successfully, and measure their level to flourish. Whether it is certain organization or learning institution or even country, it needs special measures of creativity and innovation level to evaluate its current status, learn shortcomings and predict its future prospects.

Alternative Measurements of creativity and innovation

Creativity is not immutable. As a person gets old, it also advances only if it is worked on and practiced (Barbot, 2019). There are some measuring tasks, based on divergent thinking, which were opted for by various training studies. For instance, the application of the same task over time can be one of the effective creativity measurements. For doing this, respondents are asked to think about distinct uses of any object and after some time they are retested giving the same questions to check whether there is regression or progression in their creativity. Moreover, this task can be used in

a different way by changing the next questions at a follow-up occasion. The latter testing can expose participants' real change after comparing the first test's results. Another measurement is called "Multi-Trial Creative Ideation" which focuses on stimulus-dependency. In this test, respondents are given 12 various items divided into 4 groups 3 objects in each and assigned to produce a single alternate application. This test makes them generate unique ideas maximizing the likelihood of novelty and originality. The other metrics of creativity, Paul Torrance test put emphasis on problem-solving aspect. It was renewed 4 times dividing into two forms: verbal and non-verbal (figural), and translated into approximately 35 languages (Kim, 2006). It tests creativity with words or pictures that is appropriate for pre-schoolers through high school students to examine four different capacities: flexibility, fluency, elaboration and originality. The former form comprises of six activities based on making up questions, guessing the pictures and describing other usages. Each section is assessed according to fluency, flexibility and originality. The latter form sets three activities, such as drawing lines to make a single shape, or complete a picture with lines and generating a wide range of pictures as possible applying the same figure. This form is scored for elaboration, originality, fluency, titles' abstractness and being able to be open to not closed figures (Ker & Stull, 2019). It should be mentioned that particular measurements should be chosen depending on what aspect is going to be examined (ability, creative performance and so on).

When it comes to measuring innovation, we can conclude it as a challenging process. Some scientists, such as Huberman and Havelock (1997) even acknowledged how complex the innovation process is, and defined it consisting of outcomes and processes with three dimensions. In order to formulate the measurement for innovation scientists made a lot of efforts learning every dimensions of innovation and produced an electronic questionnaire, named "Innova" considering some factors. It contained 2 sections which cover educational institutions' innovational quality and particular creations and selections of organizations related to the innovation. This test examines

individuals' capacity for absorption and dynamism. The questions addressed to worker-initiated, smaller solutions and scored for fluency (Halasz, 2017).

Besides that, to measure the innovation level of countries, some people are offering " Bloomberg innovation index" (Coy, 2015) whilst others apply "Innovation Capacity Indicator"(Lopez-Claros & Mata, 2012). The former method ranks countries based on their capacity for innovation using six 100 scored metrics: Research & Development, Manufacturing, High-tech companies, Postsecondary education, Research personnel and Patents. The latter methodological tool examines organizations or countries according to five pillars: its environment, ICT usage, research and development, regulatory and legal framework, and human capital, training and the presence of social inclusion. Next, Summary Innovation Index(European Innovation Scoreboard) measures states depending on two perspectives: input(the penetration and expenses of ICT, Research and Development and tertiary education) and output (trademarks and patents, high-tech exports and employment, and new product sales). Last but not least, Country Policy and Institutional Assessment evaluates public administration quality and financial sector efficiency (Lopez-Claros, 2009).

Limitations

The first method employed to assess creativity (using the same test over time) is likely to end up with the same results owing to repeated exposure. Although this task enables to measure numerous cognitive aspects, it is said that novelty is provided only in the initial participations in the test. As test-takers call on their rote memory by responding questions with already generated outputs, the effect of the test to measure the change can drops and it clouds actual transformation. To avoid this failure, alternate-forms can be utilized. By contrast, surveyors of creativity tests report the reliability of these tests rarely, and usually this kind of tests depend on small-sized samples.

Measuring innovation, as mentioned above, is complicated since innovation is a product or process or outcome. "Innova" method created the possibility to examine students' creativity and compare different groups of educational units. Producing

single instrument which can be employed in the entire subsystems of the education system, from kindergarten till university, was the primary difficulty of designing the research instrument.

Conclusion

These dimensions can examine participants' and countries' creativity level from different angles. However, innovation-based tests which seem to be complicated at the contemporary knowledge are still in need to be explored and developed. Moreover, by growing up, creativity tests become a choice. Torrance test may not be sufficient to adolescents' needs, though. Existing ones have to be critically analyzed to find out problematic sides to cover plausible resolutions. Surveyors should passionately carry on ascertaining new methodologies not relying on previous researches. These problems can be tackled with giving a try to leave behind conventions and not to satisfy with prevailing outputs.

REFERENCES

1. *Barbot. B. (2019). Measuring Creativity Change and Development.*
2. *Coy, P. (2015). The Bloomberg Innovation Index.*
3. *Goffin, K., and Mitchell, R. (2010). Innovation management: Strategy and implementation using the pentathlon framework (2nd ed.).*
4. *Halasz, G. (2017). Measuring innovation in education: The outcomes of a national education sector innovation survey.*
5. *Kahlfuss, B. (2013).Partizipative Innovation: Ein Konzept zur Schaffung nachhaltiger Wettbewerbsvorteile.*
6. *Ker, B. A. and Stull, O. A. (2019). Measuring creativity in research and practice.*
7. *Kim, K. H. (2006). Can we trust creativity tests? A review of the Torrance. Tests of Creative Thinking (TTCT).*
8. *López-Claros, A., and Mata, Y.N. (2012). Policies and Institutions Underpinning Country Innovation: Results from the Innovation Capacity Index.*
9. *Lubart, T. (2016). Creativity and Convergent Thinking: reflections, connections and practical considerations.*
10. *Lopez-Claros, A. (2009). The Innovation Capacity Index: Factors, Policies, and Institutions Driving Country Innovation.*