

The Cogitation on Innovative Talent Common Indicator System Based on Connotation Analysis

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Abstract

In recent years, the emphasis of innovative research and practice has turned to the indicator system construction from the value exploration in early times. But the researchers do not have the common consensus about the concept connotation of the innovative talent until now and it is even extremely tough to form the common consensus about the construction and implementation of the indicator system. This article tries to make a detailed explanation about the connotation of the innovative talent and tries to build the innovative talent general indicator system and to illustrate its application as well based on the early researches.

Key words: Creative talents; Indicator system; Primary education

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1. THE RETHINK ON THE CONNOTATION OF CREATIVE TALENTS

Innovative talent is a kind of the talent and qualified by the word “innovation”. The author believe that the talent is the people who are prominent and performance significantly in one or some aspects and who mainly promote the contribution to the social development and progress in specific populations and fields of activities.

The author also argue that the so-called innovation is the first unprecedented useful new thing for the problem solving and human development; it is not only the performance of personal traits in the course but also the behavioral outcomes in specific situations under pressure. As for what is innovative talent, the author advocates: the so-called innovative talent is the individual who has innovative thinking, outstanding ability and performance significantly in particular area and who can be the first one to create a number of unprecedented useful new things and who mainly promote the contribution to the problem solving and social development and progress compared to peripheral populations. The specific connotation includes as follows:

(1) The People Who Are Able to Create Innovative and Useful Things

When it comes to innovative talent, the primary and core meaning is the ability to create both new and useful things. These new, useful things can be both constructive and new concepts, new ideas, new theories, and they can also be novel and valuable things with the breakthrough of new technologies, new processes and new products.

(2) The People Who Can Be Creative in One or Some Aspects of Specific Areas

Because of the relative extension of human practice and the relative limitation of the individual practice, the innovative behavior of any individual or group is always confined to one or some areas. Besides, because of the rich connotations and diverse positions of some professional or vocational fields, the individual can usually do some innovation in one or some aspects.

(3) The People Who Are Much More Innovative than Peripheral People

Innovation and the innovative talent should both be a relative concept but not an absolute concept. In the

meantime, for the most people, the relative crowd should be the people that work around rather than the entire country and the whole world.

(4) The People Who Has Innovative Thinking, Outstanding Ability and Significant Performance in Surrounding and Specific Population

The innovation of individual in the surrounding population is mainly reflected in the innovative thinking, outstanding ability and significant performance in the process of problem solving.

(5) The People Who Make a Larger Contribution to Problem Solving, Career Development and Even to the Social Progress

The author consider that in accordance with the difference of innovation quality and contribution, the innovation talent can be further break into three levels as top innovative talent, outstanding innovative talent and innovative talent. The top innovative talent has great high quality achievements and can be helpful to solve the fundamental problems and also promote the social progress and development enormously, then followed by the outstanding innovative talent and the innovative talent last.

2. THE CONSTRUCTION IDEAS AND PRINCIPLES OF THE INNOVATIVE TALENT GENERAL INDICATOR SYSTEM

(1) Overall Construction Ideas: Interpretation of Layers as “Connotation—Modules—Features—Indicator—Indicator System”

The essence of this idea is that the construction should be gradually extended from connotation to denotation. Therefore, it is to make a further modular decomposition of connotation as the first step, and extract the characteristics that could distinguish the different modules effectively afterwards, and then select some key

points of the features as indicators, and next combine all the indicators into a complete index system, and try to illustrate the specific meanings of some indicators so as to form a complete index system ultimately.

(2) Specific Construction Ideas: Construct Layer Upon Layer and Revise Repeatedly

Construct layer upon layer from the whole to the part. Faced with a large number of scattered targets after connotation analysis, in accordance with the module ideological and layered thoughts, it is the first step to divide the innovative talent indicators into several large modules and regard these modules as the Level One Indicator for the convenience of calculation; and extract the characteristics which could distinguish the different modules effectively as the Level Two Indicator afterwards; and then find the key points which is essential for the innovative talent from various features and regard these modules as the Level Three Indicator and try to illustrate the connotation and judging standard of these indicators; and make the three level indicators into a clear table in accordance with inclusive level and form the index system ultimately.

Construct repeatedly from theory to practice. The index system that constructed based on the connotation analysis and existing data reference may be difficult to stand the text of practice and it is also hard to establish the corresponding weight. Thus, the construction of innovative talent index system is a dynamic “theory—practice—theory” process with the on-going amendments, repeated building and gradual improvement.

(3) Core Constructive Principles: Versatility

The author argues that take the versatility as core and take the principle of scientific, independence, feasibility and simplicity into account.

3. A VIEW AT THE GENERAL INDICATOR SYSTEM FOR INNOVATIVE TALENT

Table 1
General Indicator System for Innovative Talent

Level one indicator	Level two indicator	Level three indicator		
		Key indicator	Main connotation	Judging standard and method
Personality psychology A	Awareness of Preferences A ₁	Innovative cognitive A ₁₁	The awareness level of necessity to work and study with innovation	Open-ended questions testing
		Innovation prefer- ences A ₁₂	The preference of using innovative ideas and ways to solve problems	Explore the interest scale
		Risk tendency A ₁₃	Would take the risk of innovation failure rather than stay in a rut	Risk attitude test
	Quality Of Thinking A ₂	Divergent thinking A ₂₁	Could think and solve problems from multiple aspects or not	Creative thinking test
		Convergence A ₂₂	Good at selecting the high-value information form large amount of data or not	Information managing test
	Spirit A ₃	Dedication A ₃₁	The love degree to the a particular industry, the crowd and the discipline	Family background, experience, etc.
		Questioned Criticism A ₃₂	Whether to dare to and good at challenging the judgment of authority	Learning styles test
		Struggle and tenacity A ₃₃	Whether get the self-confidence and determina- tion to overcome the barriers to innovation or not	Frustration tolerance test
Knowledge and skills B	Knowledge stock B ₁	Basic knowledge B ₁₁	Science and technology in the broadest sense and basic humanities knowledge	Brief knowledge test
		Business knowledge B ₁₂	Basic knowledge of professional and related disciplines	Qualifications and achievements, etc.
		Experience B ₁₃	Professional and related work experience	Practice and work experience
	Knowledge stock B ₁	Methods B ₁₄	A variety of innovative techniques to understand the situation	Innovative techniques testing
	Capacity basis B ₂	Predictive ability B ₂₁	The capacity to predict the things how to develop	The use of relevant capacity scale and the innovation ability scale
		Questioning ability B ₂₂	The ability to find a new question	
		The capacity to make decision B ₂₃	The capacity to develop the effective plans to solve the problems	
		Ability to learn B ₂₄	The ability to learn quickly and to grasp new things	
		Coordination capacity B ₂₅	The ability to organize and coordinate the relationship between the old and the new	
		Ability to respond B ₂₆	The ability to response to the change of environ- ment and results	
		Areas of expertise B ₂₇	Which type of problems of the business areas are good at solving	
Business performance C	Research and developing results C ₁	Theoretical results C ₁₁	The amount of published papers, monographs, published textbooks	Quantity, grade, quality
		Technological achievement C ₁₂	Technological inventions and patents, process or method transformation	Quantity and economic benefits
	The effects of practice C ₂	Individual perfor- mance C ₂₁	Using new ideas, techniques and methods to improve personal performance	Visit to relevant personnel, col- lecting the performance data
		Team performance C ₂₂	Using new ideas, techniques and methods to improve team performance	

4. DETAILED EXPLANATION ON THE INNOVATIVE TALENT GENERAL INDICATOR SYSTEM

(1) The Set up Basis and Connotation Instructions of Indicators of All Levels

The evaluation indicator of the universal innovative talent has totally set up three Level One indicators, seven Level Two indicators and twenty-three key Level Three indicators.

The three Level One indicators break the innovative talent into the “personality psychology (A)”, “knowledge and skills (B)” and “business performance (C)” three modules with the standards that “whether have the innovative psychology, potential and performance”. Among them, the indicator A refers to the individual psychological quality which is much more stable and conducive to innovation and which is based on congenital heredity and combined with the environmental impact, and also focuses on examining whether an individual has the psychological quality such as awareness, preference, thoughts, dedication spirit, willpower which is helpful to innovation or not. The indicator B refers to the knowledge and ability that the individual possesses in study and practice and also focuses on examining whether an individual has the potential innovation capacity in one or some fields. The indicator C refers to the innovation achievements that the individual had got and focuses on examining the innovation ability that individual performed in the theory study and practice.

The seven Level Two indicators are formed and derived by extracting the main features of three Level One indicators. Among them, the indicator A breaks into the three Level Two indicators as “Awareness of Preferences (A₁)”, “Quality of Thinking (A₂)” and “Spirit (A₃)” and were used to examine whether an individual has a sense of innovation, creative thinking and innovative spirit; the indicator B includes two Level Two indicators as “Knowledge Stock (B₁)” and “Capacity Basis (B₂)” and were used to examine whether an individual has the knowledge required for innovation and capacity basis; the indicator C includes two Level Two indicators as “Research And Developing Results (C₁)” and “The Effects Of Practice (C₂)” and were used to examine whether an individual has the ability to make theory innovation, practice innovation or comprehensive innovation.

The twenty-three Level Three indicators are formed and derived by further extracting the main features of seven Level Two indicators and are expressed by general words.

(2) The Overall Description About the Judging Basis and Method of Three Level Indicators

For the better understanding, grasp and use of judging basis and method of the key indicators of the Three Level indicators, the author has made a brief description as follows:

First, based on the mature scale indicators developed at home and abroad, the evaluators could make brief amendments for the adjustment or even use the Chinese version directly.

Second, because of the lack of the indicators of mature scale at home and abroad, the evaluators could develop a brief scale test with the expert advice if it is necessary.

Third, when it comes to the unnecessary indicators or indicators which are difficult to develop indicators measurement scale, the evaluators could collect the data by visits and surveys if it is necessary.

(3) The Description of the Assignment and Calculation for the Weights of All Level Indicators

The reason why author gave no assignment of weights to all the indicators is that the assignment of weights should be given based on the dynamic change and the need of innovation subjects involved according to the principle of flexibility. As for the method of calculation, it is recommended that adopt the method of classification and consolidated approach to sum up and judge.

5. APPLICATION GUIDE FOR INNOVATIVE TALENT INDICATORS SYSTEM

(1) Application Range

First, it could be directly used to test the general potential of the innovation of an individual.

Second, it could be directly used for the general assessment about the overall innovation potential ranking for the people in different academic and vocational fields.

Third, in order to determine the innovation potential of an individual in the specific areas or the sort of innovation potential of a certain group of people, it is the first step to make an appropriate adjustment of the connotation, weights and test questions of indicators in different levels with the combination of the unique requirements and content of the innovation talent in this field, and then transform into the specific Asia Innovative Personnel Indicator System, and used for testing ultimately.

(2) Application Steps

First, determine the testing objectives and decide whether to use the indicator system or not. If not, it is necessary to carry out the conversion.

Second, according to the characteristics of the test objectives, test objects and test innovation, try to determine the general weight of each indicator in turn according to the method of classification on the basis of seeking the expert advice as widely as possible and trying the test in a certain group of people.

Third, select or develop the test questionnaires or questions of the specific indicators of the Level Three indicators.

Fourth, specific implementation.

Fifth, make the statistic and data aggregation by the method of comprehensive calculation.

Sixth, check the testing process and the statistical process and try to amend and eliminate the inaccuracy as well.

Seventh, draw the conclusions of the assessment.

(3) Notes and Attentions

First, if it is applied to individuals directly, it is possible to determine a person's overall innovation potential situation roughly which stand for the innovation probability and it does not mean this person neither will not able to be innovative in the future nor the specific innovation potential situation of this person.

Second, if it is applied to groups directly, it is possible to determine the overall innovation potential ranking for this group of people and it does not mean neither the ranking will not change nor the innovation ability ranking of this group of people in the specific areas.

Third, this indicator system cannot determine the innovation ability of people in the specific areas directly, but it is supportive to the use of the innovation indicator system in specific areas after transformation in order to increase the reliability and validity of the test results and to further clarify the innovation degree of a particular person or group.

6. CONCLUDING REMARKS

This article tries to build the innovative talent common indicator system initially through the connotation analysis. Except the specific evaluation questionnaire or questions of the three level indicators are yet to be developed, whether the system can stand the test or not is still need a large amount of repeatedly tests and interviews further to be verified and corrected. In the same time, how the

indicator system transform and apply to the assessment of innovation talent in specific areas is still need further clarification through cases.

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