A Study on Internet Platform College Students' Team Innovative Learning Model

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Abstract. As the backbone of the country's future, it is of great importance for college students to improve their innovation ability. On the basis of the actual investigation and theoretical analysis, this paper firstly points out the problems of teamwork and innovation in the process of Internet + college students' innovation, and summarizes the corresponding Internet and TRIZ theory. Secondly, the characteristics and the demands of college students’ innovation are analyzed against the background of internet. Finally, through a real college students’ innovation project, conclusion has been drawn that learning model of college students’ innovation has practical value.

Introduction

Along with the rapid development of Internet, from the first generation to the second generation of the Internet and mobile Internet, the Internet information technology greatly promotes the innovation in various fields. The collaboration of Internet information is proved to achieve great improvement in learning, social networking, e-commerce website. However, the basic subject of innovation is people. In order to constructing auxiliary students’ innovative learning mode, the understanding of the characteristics and demand of the college students as the main body of innovation is of the first priority.

College students face many problems in the process of innovation. There are two big problems which may refer to the function of the Internet and TRIZ theory, namely the teamwork efficiency problem and innovation method. However, the basic subject of innovation is people. College students may face many problems during the process of innovation among which, the efficiency of teamwork and innovation method issues appear to be more prominent. By reading literature, innovation practice and research, it is found that college students' teamwork innovation methods, due to the collaboration of its own school period and different interests, is lack of the knowledge in this field, leading to the shortage of effective creation processes and tools.

This paper will focus on the analysis of two specific problems, team collaboration and innovative method, in the process of college students' innovation. Firstly, the problems existing in college students’ innovation process under the background of Internet will be pointed out, and TRIZ theory will be summarized. And then, detailed analysis of characteristics of college students' innovative and requirements under the background of Internet. According to the requirements, college students’ innovative auxiliary learning mode will be constructed under the background of the Internet by using TRIZ theory. Finally, practical value of college students’ innovative learning model is obtained through a real case study of college students' innovative project.

Internet and TRIZ Theory

The Internet mainly outlines the long tail theory, cognitive surplus, network effects and fragments from four aspects. Six characteristics of the "long tail" are presented in literature [1]. In literature [2], we can understand the cognitive surplus of the Internet era from the following four aspects, the
scale of the cognitive surplus, opportunity and motivation. Besides, Network effects and fragmentation are also important features of the Internet.

TRIZ theory started in 1946 by the Soviet Union scholar Archie Schuler. It cost a large number of manpower each year to set up a problem solving theory and method with complete system, on the basis of research on the world high level patents. It included technology system and the eight evolution, creative thinking method, 40 invention principle, 39 engineering parameters and contradiction matrix and separation principle of physical contradiction, matter-field analysis and standard solutions of invention problems in invention problem solving algorithm, scientific knowledge base and so on[3]. What TRIZ theory Shows is not only a kind of thinking, but also reflects the rigorous logic structure from the aspects of process, which will guide people more effectively in the process of innovation for the solution.

Demand for team collaboration, the Internet platforms are able to master the innovation cycle, stimulate the intrinsic motivation of innovation, realize the maximization of the innovative value through the mass media to gather the best team, eliminate barriers to space, effectively avoid the negative impact of members of the loss at the same time, which will ensure the whole innovation process successfully completed. Open platforms can collect mass innovation problems, and at the same time, to collect a lot from small audience, innovation workers can utilize the long tail to find innovation project in accordance with their own interests. Innovation case and creative thinking will be enriched constantly because cognitive surplus, and will make the follow-up of innovators more efficient. Valuable innovation process and the result will transmit in a quick and wide range, which will accelerate the process of innovation and has a positive role in promoting innovative achievement transformation. Team cooperation will develop from the passive participation into passive to active participation in active development

According to the needs of innovation method, TRIZ theory, which is complete in innovation logic, makes the entire innovation process traceable, efficient and quick in problem rising, problem analysis and problem solving. TRIZ theory is of detailed content and strong operability. According to TRIZ theory, practice teaching experience can be used to design effective learning mode as following steps: first to establish question situation, inspire interest and participation guide; And then to guide target, drive task and achieve participation; At last, to evaluate innovation, motivate instantly and ensure the right of participation[4].

Through comprehensive research and practice at home and abroad, it is scientific to consider the three aspects, the individual consciousness, ability and personality factors, as the internal structure of innovative quality[5]. In this paper, the innovation quality including innovation consciousness, innovation ability, innovation personality [6]. Innovation consciousness is as individual awareness of innovation, can be triggered by creative emotional responses, and prepare for the innovative activities. All the innovative ideas from person's idea [7]. About the creative efforts and creative attitude[8], the creative attitude for adults is as: the openness of novelty, the confidence to one's own creativity, tendency on problem solving, willingness to accept challenge, attitudes to change, tendency on learning and thinking, problems solving and catching hold of chance, as well as the identification of the work and create value[9].Innovation ability including the innovative thinking ability, innovation practice ability. Factors that affect innovative ability include internal factors and external factors. Internal factors include personality, skills, cognitive styles, motivations, values and others. External factors include organization, management and the way of work and study. Innovative personality, is one of the main causes to determine the success or failure of the innovation, mainly including independence, critical, flexibility, insight and sense of responsibility, curiosity, strong will, suffered setbacks good mentality, and so on[10] [11]. In this paper, analysis is made mainly from aspects of innovation preparation, learning, innovation personality and lack of innovation quality.

The Building of Auxiliary Innovation Learning Mode

For the demands that college students in need of help from team collaboration and innovation methods, innovative learning model is to be built to promote teamwork via the Internet while
improve college students' innovative thinking ability by TRIZ theory. The building process of learning model will mainly take the following steps. Firstly, main consideration lies in the Internet learning pattern design level and the application of TRIZ theory. Based on innovation, a structure of thinking and the organic combination of Internet and TRIZ is to be designed and built. Secondly, according to the design idea and model structure, the hierarchy of learning model, the relationship between layer and layer and the relations between the applications of the same level are to be determined. And then to refine application function based on the characteristics of college students' innovation. Thirdly, in the aspect of learning model operating level, combined with the user experience and circulation management methods, service operation feasibility of design ideas and management methods are to be provided.

Innovative learning model takes time inconsistency in teamwork, space constraints, the contradiction between efficiency and creativity in innovative ways and resource constraints into consideration. This is a systematic problem and the best ideal solution is in need. Fortunately, optimal ideal solution is one of the core concept of TRIZ theory. Learning model is a system innovation so that it is possible to apply TRIZ theory to find the optimal solution that can be used to design a model of innovation problem with combination of TRIZ theory and the Internet.

Combined with T-N-P structure and other platforms, learning model of overall architecture is divided into three levels: learning model access layer, learning model application layer and learning model resource layer, as shown in figure 1.

![Figure 1. Structure of college students’ auxiliary innovation learning model.](image)

**Practical Verification**

Based on team innovation project "micro-college", for example, the differences between traditional and learning-model-based innovation process are presented which indirectly proves that the learning model for the college students' auxiliary innovation is of practical value. Contrastive analysis of teamwork mainly focus on the three aspects, team adjustment, innovative value and innovation commercialization, and then points out that in the process of learning model aided innovation, team work will be improved correspondingly. Contrastive analysis of innovative methods concerns mainly about innovation efficiency and individual innovation ability, and then points out that in the process of Learning Models aided innovation, innovation methods will be of benefits in the above-mentioned two aspects. Difference contrast analysis are to see the following form:
Table 1. Contrastive analysis of team collaboration.

<table>
<thead>
<tr>
<th></th>
<th>Learning Model Flow</th>
<th>Traditional Process</th>
</tr>
</thead>
<tbody>
<tr>
<td>Team Adjustment</td>
<td>High Efficiency of Teamwork</td>
<td>Low Efficiency of Teamwork</td>
</tr>
<tr>
<td></td>
<td>Long-lasting Impetus</td>
<td>Short of Power</td>
</tr>
<tr>
<td></td>
<td>Low Risk of Change</td>
<td>High Risk of Change</td>
</tr>
<tr>
<td></td>
<td>Quantitative Measurement of Members</td>
<td>Ambiguous Measurement of Members</td>
</tr>
<tr>
<td>Innovative Value</td>
<td>Innovation Development</td>
<td>Conservatism</td>
</tr>
<tr>
<td></td>
<td>Stick to Original Intention of Innovation</td>
<td>Change of Value</td>
</tr>
<tr>
<td>Innovation Commercialization</td>
<td>Expand Relationships</td>
<td>Lack of Interpersonal Relationship</td>
</tr>
<tr>
<td></td>
<td>Ideal Development</td>
<td>Slow Development</td>
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</tbody>
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Table 2. Contrastive analyses of innovative approaches

<table>
<thead>
<tr>
<th></th>
<th>Learning Model Flow</th>
<th>Traditional Process</th>
</tr>
</thead>
<tbody>
<tr>
<td>Innovation Efficiency</td>
<td>Targeted</td>
<td>Blindness</td>
</tr>
<tr>
<td></td>
<td>Abundant Methods and Measures</td>
<td>Lack of Methods and Measures</td>
</tr>
<tr>
<td>Personal Ability to</td>
<td>Effective Cultivation of Innovation Method</td>
<td>Insufficient Cultivation of Innovation Method</td>
</tr>
<tr>
<td>Innovate</td>
<td>Desired Innovative Personality</td>
<td>Weak Innovative Personality</td>
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It can be seen that the learning model make full use of the Internet collaborative interaction, the function of information transmission as well as the method of TRIZ innovation features of strong logicality and good operability. The team collaboration and innovation in the process of college students' innovative methods of learning has practical value, which can solve problem of the college students' teamwork inefficiency and the problem of insufficient innovation methods.

Conclusion

In the Internet environment, this paper builds auxiliary college students' innovative learning model based on the theory of TRIZ. Firstly, the problem to be studied is proposed, and the corresponding Internet theory and TRIZ theory are summarized. And then, in the analysis of analyzing the innovative characteristics and creative auxiliary requirements of the college students' innovative process, T-N-P structure is utilized to solve problems on the basis of the theory and needs. Corresponding to the structure design of college students' innovative activities, learning mode is proposed to solve the problem of structure design. Finally, through the case study of college students' innovative projects, proposed learning model is proved to be of practical value for college students' auxiliary innovation.

In addition, this paper, from the perspective of social and interactive, innovatively combined the theory of TRIZ theory and the Internet, rather than separately using TRIZ as innovation method, but
innovative social circle in the innovation as a kind of social elements. Through the Internet social platform, the innovation of the study and application is realized. Based on its own innovative research problem, T-N-P structure is proposed. TRIZ theory object-field analysis is directly applied to find the solution to the problem of college students' auxiliary innovation and T-N-P structure is achieved. The obtained learning model is naturally presented as the staged achievements of this paper and further applied to build the learning model.

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References