Exploration and Management of Internet Innovative Team for College Students

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Keywords: Team management, Innovation, Team operations.

Abstract. In modern society, innovation becomes vital to economic development and quality of life improvement and innovative teams are encouraged and supported by universities authorities. Therefore, it is important to manage and run them well with the help of good advisers. The paper introduces the development of an Internet innovative team for college students. Besides, it introduces some experiences and problems of an innovative team when managing. After staying and running a team for years, we draw some conclusions about coping with some complicated problems and find some ways to make Internet innovative teams develop better.

Introduction

Since people realize the importance of innovation, innovative activities exist around us. University also takes action. School authorities carry out innovative activities in the ways of holding corresponding science contests, innovative compositions shows and cultivating innovative teams at school. Competitions and shows influence students' innovative sense greatly and instantly while cultivating innovative teams [1] has a long-term impact.

Innovative teams for college students are cultures of a university, whose scale and management reflect the innovative levels of the university [2]. There are two kinds of innovative team indeed. One is self-operation team, which means team members work with their own resources and it is not subject to restriction and management of schools or faculties. Another belongs to faculty or school and they have room or devices school provided. No matter whether they belong to the school, they have their own goals, management styles and team cultures. A majority of students would like to join them for learning modern technology or earn money. There still some teams that has mature management and capital establish a company and seek fortune. Anyway, it is not an easy thing to manage or run an innovative team for college students for special individual characters, resources of distribution, cooperation ways and so on. Members of good teams get along well with each other and they feel enjoyable when working while members of inferior teams might argue all the time and have low work efficiency. Consequently, exploring the way of managing a team is essential.

Exploration of Innovative Team

Creating and Preparation

Generally, there are two ways of establishing student innovative teams. One is that some students who have ability to conduct projects or do outstanding performance in science contests get together and have group work. Another is a professor or adviser aggregate students to accomplish projects [3]. However, there remain many conditions needing considering. They have to think about operating funds, work fields, attracting human resources, division of work and so on. In some sense, those who
grouped by professors are predominant because adviser will consider work field and capital for the innovative team. Self-operation teams have to rent room and get sponsorship.

The paper introduces the exploration of an Internet innovative team in Faculty of Mathematics and Computer Science, Guangdong Ocean University called Chuangshu Software Team. It is an adviser-operation team starting two years ago. The faculty provides them with working fields and adviser provides a little capital and software project. The original members are the adviser and some students recruited in class. They study and work for project after class and on weekends. It started as a small team and was unnamed.

**Original Achievements and Contributions**

Before running and management, they should learn about what they have and what they can do. Adviser Rui Fan put forwards and provides the modeling Extenics theory for them [4]. He also puts forward self-adaptive software formalization method for developing innovative software and research of Extenics theory [5]. Adviser Rui Fan would like them to head for academic research. According to the theory and methods, original team members developed Extenics innovative software in android operating system [6]. Guided by the adviser, they study Extenics [7] in combination with mind mapping and solved some problems in practice. For instance, problems of marketing plan [8] and excess ingredients in hotel [9] are deduced and solved by Extensive deduced trees. Although study research is one of the developing directions of the team, there remain some problems. Academic research lasts long time and achievements are uncertain. Besides, publication fees of papers cost much and they need to find the source of capital. On the other hand, they should develop their own software product and be familiar with all the procedures of software engineering.

**Attracting Human Resources**

At first, the team recruited by recommending classmates. The way might make them cooperate well with familiar and trust people. Problems happen when they begin to graduate. It is hard to hand over the tasks and current problems to the next grade for most original members' departure. Later on, the team attracted human resources in experimental classes and the students there have greater practical abilities. Then students major in different majors join the team to keep the human structure relatively stable. From then on, recruitment became normal by interviewing and tasks assessment. However, lack of experiment and other rivals make it tough. The team developed in academic research and web development whose structure of personnel shown in Figure.1.

![Figure 1. Structure of Personnel Diagram.](image)

**Time and Project Management**

Time management is not an easy thing in an innovative team for college students. As we know members takes different course in different time. It is required that members are supposed to be
present at working field without courses in class time on weekdays. Everyone who is late for work will be punished ten Yuan and asking for work-off frequently is not allowed. According to the regulation above, rota is made.

Each project group includes a front-end developer, a back-end developer and a product manager. In general, product manager are to work for requirement analysis, work coordination, software testing and delivery. Developers should also accomplish the operation and maintenance after delivery. However, time is hard to control in the whole procedure of software engineering especially the student team in the university. On the one hand, every member is under pressure of schoolwork. They also join some student union department or other organizations and too little time for teamwork. There are other urgent tasks like project application and some competitions. On the other hand, everyone has different personalities. Some developers hardly accept advice by others and make troubles. In the case, it depends on the coordination work of product managers.

Share and Communications

There are two ways of share and communication of the whole team. One is regular meeting once a week. Another is team activities like graduation celebration. General meeting performs a review for the old week and plans of a new week. In the meeting, everyone reports the tasks responses of each project and new work is distributed for the new week. Members also discuss whether to participate some competitions and the leader who will take over each task. Nevertheless, distributed tasks can't be accomplished in general and members make an excuse that they are busy in school work or something else. Some matters discussed at the meeting will fade out after promise. It is essential to have regular meetings, but managing the meetings well is more important.

As for team activities, having meals together might be the most frequently team activity. Another is participating in contest like mathematics contest in modeling. During these activities, team members can have a good chat or gossip with each other without stress of work. Such extra curriculum activities make them cooperate better when working.

Problems and Solutions

From the introduction above, we know that team meetings have management disorder, causing the delay of the project and ignorance of some decisions. After analyzing the general meetings, we found that three parts need improving.

The minutes are unclear and short. No one takes responsibility for writing down minutes, causing some decisions of the meeting fading out. The division of work unclear for lack of minutes details. To solve the problem, a meeting recorder is necessary. What's more, the minutes should include starting time, deadline, each flow of work, leader of each project, and each decision of meeting. The minutes should update twice a week in public. In this way, each task is clear and managing the team becomes easier.

It is unclear when talking about starting a new affair. They discuss without a clue and even no decision whether they began the affair after a long-time discussion. We consider the way of 5W2H [10] works well in the problem. It makes the team think over the problem in the seven aspects. Shortcomings are found soon after analyzing. The way in the team meeting is simple and easy to understand, which has enlightening significance. Besides, it is helpful in the project carrying out to find out the defects.

It is hard to find out the solution when the team is in trouble. Sometimes members would effected by some team troubles like capital, which makes them in low efficiency when working. We think the brainstorming [11] works well in this part. In the way of meetings, it makes members talk about without any limitation. Members will be easy to find out the solutions after encouragement and association. Then according to the recorded minutes, innovative thoughts and solutions can be found. The procedure of brainstorming for team can be shown in Figure.2.
Conclusions

To run and manage the innovative team well, the following three ways are vital.

Utilize the current resources. Some senior members work outside after graduations have rich resources. They can share the experience and technology of their work in the enterprise. Moreover, they can provide some projects or outsource that offer some capital and partnership, which is essential for the development of the team.

Select a convincing and devoted leader. Members prefer to do work distributed by a convincing leader. A devoted leader might deal with each details of work carefully, which helps teams win more prizes and he would spend more time managing the team.

Share and communicate with each other frequently. Contradiction often exists among developers especially between product managers and developers as the requirement changes. Speaking their minds aloud helps much to get closer.

Acknowledgement

Thanks to Faculty of Mathematics and Computer Science in Guangdong Ocean University who provides working field and support to Internet innovative team for college students. The research is supported by Guangdong Province Innovation and Entrepreneurship Training Program for College Students(CXXL2018171) and (201810566090).

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