

# Developing Scientific Working Groups for Universities in Vietnam

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**Abstract** Teamwork helps to enhance the productivity and efficiency of the work. Therefore, teamwork has been studied in some aspects as: model of development stages, roles of individual and psychology in a group. The scientific working group (SWG) is a science-friendly environment where scientists can exchange expertise, join forces, and work together to reach and settle new problems of science. SWG can attract near-discipline scientists to develop intensively an academic environment, or to attract scientists from different domains to focus their ability to solve together an interdisciplinary problem. Scientists face many difficulties in forming research groups, one of which is the lack of teamwork skills. The paper consists of three parts: an overview of model on development stages, the roles of individual in a research group and psychology in the group; Research directions on SWG and recommendations for Vietnamese universities to develop research teams.

**Keywords:** *teamwork, scientific working group, skills, Vietnamese universities, solutions*

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## 1. Introduction

In universities, scientific research is closely linked to training. Training through scientific research can reach the pinnacle of knowledge, and then can educate with high quality, high level. The appearance of research groups in universities is natural and indispensable. Therefore, the reputation of major universities in the world is often associated with the stature of science projects and the reputation of scientists. A scientist who wants to develop a scientific idea, build up his scholarly school, or solve an interdisciplinary scientific problem, must establish partners and students, that is, to build a scientific working group (SWG) [1].

Scientific research is the most conducive scientific environment for scientists to exchange academically, gather forces and work together to resolve new scientific problems. Scientific research can draw near-discipline scientists to develop intensively an academic environment, or to attract scientists from different domains to focus their ability to solve together an interdisciplinary problem [1]. However, the problems that arise in a teamwork model are often related to the tasks assigned, the work process and the teamwork process itself. Without the attention to this process, the effectiveness of the group will not be promoted, and vice versa, with a appropriate management, the model of teamwork will be several times more effective than an individual [2].

Theories related to team building as well as the development of skills needed for effective teamwork have been studied for a long time [3]. However, until now, there are just some researches related to the research group's model in Vietnamese universities.

Based on the above reasons, the article aims to provide recommendations for training and retrain skills for scientists to develop research groups in Vietnamese universities. The content of the paper consists of three parts: an overview of model on development stages, the roles of individual and psychology in the group; Research directions on SWG and recommendations for Vietnamese universities to increase human resources for scientist groups.

## 2. Content

### 2.1. Overview of Model on Development Stages, the Roles of Individual and Psychology in the Group

#### 2.1.1. Tuckman Model

Bruce Wayne Tuckman (American psychologist) was introduced the 5-phases model of group development that use widely since 1965 [3].

*Forming Stage:*

This is the stage where members start to know, explore and learn about each other. Each person has a different

personality, skill, and knowledge, and they need time to express themselves and understand others. However, because everything is new so people are still shy, nervous, cautious, less sharing. The relationship between the group members remains loose and unorganized.

#### *Storming Stage:*

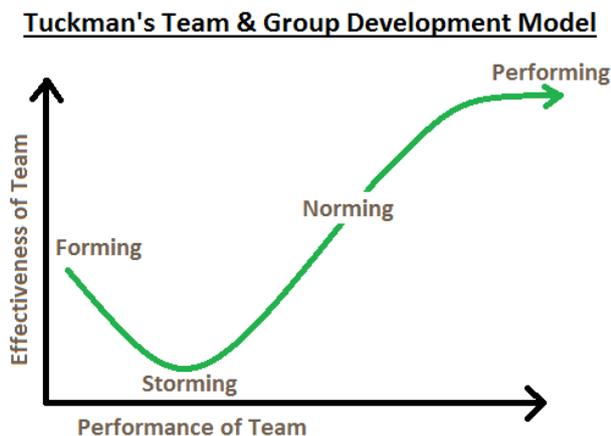
This stage occurs when members begin to express themselves and may break the rules of the group that have been set up from the beginning. This is the most difficult and complicated phase because conflicts can easily explode in almost every group problem. At this stage, conflicts can be appeared between members due to different reasons such as: working style, behavior, controversy over issues or solutions, culture, etc. During this period, members have not enough focus on work towards a common goal. However, they also begin to understand each other better. The importance at this stage is that the team must identify and confront its status.

#### *Norming Stage*

At this stage, members start accepting each other, differences, try to resolve conflicts, they recognize others' strengths, and respect one another. Members begin to communicate more smoothly, consult each other and ask for help when needed. Teamwork become gradually into stability, begin to open, share, trust, cooperate among members. This is the starting point for group affiliation

#### *Performing Stage*

This is the most effective stage in the work (Figure 1). The main spirit at this stage is the team spirit. The team can easily reach high consensus. This is a stage that not all groups can reach. At this stage, the rules are followed without any difficulty. The mutual support mechanisms in the group promote good effect.



**Figure 1.** Development Stages of a group according to the Tuckman model (Source: Tuckman, Bruce W. (1965))

#### *Adjourning Stages*

Tasks and objectives are completed. Members are no longer bound or dependent on each other. They can evaluate together and learn experience for future cooperation in new groups [4].

### 2.1.2. Belbin Model

The Belbin model, also known as the SPI or BTRSPI model, is essentially an individual assessment test that applies to teamwork. It was discovered by Meredith Belbin, a British theorist and researcher. Belbin's group model is especially useful for analysis in any situation, or

to create a group to complete a task that requires certain skills and the coordination of roles [5,6].

With a brief description of the ability of each team member to meet one or more roles, any role which is sub-standard or over-performing in the group may be eliminated. If necessary, the leaders may use this information to change the responsibility of the group. The assessment will make each member which can find out their strengths and weaknesses. This can be exploited or edited as appropriate, the outcomes will be more flexible and therefore the team will be stronger.

9 roles in a group as following: *Shaper, Implementer, Completer/finisher, Coordinator, Team worker, Resource Investigator, Creator/Inventor and Specialist.*

### 2.1.3. Psychology of Group

According to Do Hai Hoan (2010), understanding human psychology helps us to understand ourselves, to understand others and thus to have the right behaviors to be more successful in life and in work [8]. Scientists study the phenomenon of human psychology based on two objects: individual and social group. Understanding group's psychology, assessing, evaluating, and judging the group behaviors will help us to behave appropriately and to resolve any situation or problem that may arise in the group [8].

#### *2.1.3.1. Phenomenon of psychological spread*

Psychological spread is the process of spreading the emotional state from one person to another quickly and beyond the level of consciousness. This is a psychological phenomenon formed on the basis of unconscious imitation, when emotions encroach on consciousness which bring about unexpected actions. We often see the phenomenon of psychological spread most clearly in a crowd or a group of people who are doing the same purpose. In a group, psychological spread occurs in the course of communication between individuals, or between individual and groups. Understanding this mechanism, each member who wants to bring benefits to the group should has positive emotion to create a healthy and safe environment and to limit, prevent negative emotion, not giving it the opportunity to develop, affect the atmosphere of the group and the effectiveness of the work [8].

#### *2.1.3.2 Public opinion in the group*

Public opinion in the group is the opinion, reviews and comments of the majority of people in the group about events, phenomena, behavior during group's activities. Public opinion has a strong impact, can even change the thoughts, attitudes and behavior of people. Therefore, leaders and team members can take their advantage to probe the public opinion and influence this opinion to strengthen, develop the group [8].

#### *2.1.3.3. Group's pressure*

Pressure can be generated from the group's side or be raised from the individual's own perception. The perception includes recognition, judgment, and coping ability. Because the perception depends on each people, one problem may be the pressure on one person, but it is normal for the other. During the teamwork, the pressure usually comes from specific factors such as time pressure, work complexity, interaction pressure, the conflict of roles among members, working conditions, personal psychology,... [8].

## 2.2. All Kind of SWG in Universities

Since Bertalanffy's "General Theory of Systems" was published in 1956, the term "system" - refers to how people construct the notion of reality around them - has been used in natural science, social science as well as in engineering [8]. Systematic thinking is also an approach to solving problems. In fact, this approach plays an important role in the history of the development of sciences, because the process of specialization in production is accompanied by a tendency to divide knowledge into components to study. In the early days, many scholars had a general knowledge in their time, such as Michelangelo (1475 - 1564) and Leonardo da Vinci (1452 - 1519). However, after the 16th century, the knowledge of the world developed so rapidly, so scientists could only study specially a particular field. Humans begin develop the specialization and split different disciplines. But in the end of the twentieth century, a single discipline of science not only can't solve the problem but also bring about new difficulties. Therefore, to solve problems in practice, scientists not only use the knowledge of only one disciplinary, they must use multidisciplinary, interdisciplinary and transdisciplinary knowledge [8]. Thus, depending on the purpose of the study, the research can be a monodisciplinary, multidisciplinary, interdisciplinary and transdisciplinary (Table 1).

## 2.3. The Researching Direction of the Scientific Working Groups

### 2.3.1. Certain Researching Directions on the Scientific Working Group around the World

According to the Annual International Conference of Science of Team Science (SciTS Conference), the current researching directions of the scientific working groups are:

- What factors affect the productivity and effectiveness of the scientific working groups?
- Does management style and leadership affect the effectiveness of the scientific working groups?
- How does ownership and promotion policy now recognize and encourage researchers to join the scientific group?
- What factors affect the productivity and effectiveness of research organizations?

The types of organizational structures, policies and resources needed to promote the scientific working groups operating effectively in research institutes, research centers, industry, and others [9].

### 2.3.2. Researching Directions on the Scientific Working Group in Vietnam

In practices, Vietnam have formed scientific working groups in universities, however in a very individual, systematic and largely spontaneous way. There are many scientific working groups, which operate effectively, but in the course of operation, they have encountered many difficulties and problems that need to be supported in terms of policy.

Some universities have proactively set up scientific working groups to develop their research directions. According to statistics by 31/12/2016, the number of significant scientific working groups (representative) of some universities and universities in Vietnam as presented in Table 2.

Based on the results of the survey, it is found that the number of scientific working groups in each higher education institution is different. In multi-disciplinary universities such as Vietnam National University Hanoi and Ho Chi Minh City, Da Nang University, the universities have established research groups, significant research groups. These research groups have a clear research direction, which are invested in terms of staff, facilities, and funding. In addition, the member universities also have potential research groups, research teams managed by the University.

Table 1. Comparison of Research groups

No	Criteria to compare	Single disciplinary Researches (or closed disciplinary)	Multi-disciplinary researches	Inter-disciplinary researches	Trans-disciplinary researches
1.	Identify	The field of knowledge or the scope of specialized research is narrow	The field of knowledge is combined from more than one disciplinary	Finding problems to solve in which the results could only be achieved through the linkage of parts of settled disciplines with a new science disciplines.	Knowledges is used to explain aspects of one discipline but also can use in another ( including a research strategy that cross industry boundaries to create a comprehensive approach
2.	Compare		Similarity: there is no methodological transformation or inter-sectoral cooperation. However, the difference is that there is more than one disciplinary when researching a particular topic.	There is a mix of each industry regulations and assumptions.	Unlike inter-disciplinary, in the Trans-disciplinary, the boundaries between sectors are penetrated but there is no exchange of methodology or ideas.

Table 2. Number of scientific working groups of some Vietnamese higher education institutions

No	Name of universities	Number of scientific working groups established and managed by University-level	Number of scientific working groups established and managed by college level
1	Vietnam National University Hanoi	25	
2	Vietnam National University Ho Chi Minh City	55	
3	Danang University	10	
4	Hanoi University of Sciences and Technology.		180
5	University of Education 2		5
6	University of Education and Technology Hochi Minh City		11
7	Ton Duc Thang University		46

(Source: Authors' survey and statistics through university data reports).

For universities such as the Hanoi University of Sciences and Technology (HUST), Ton Duc Thang University, they have a large number of scientific working groups, especially Ton Duc Thang University which has the participation of international scholars.

The researches about developing scientific working groups in Vietnam currently has been not analyzed or studied deeply by many authors, and only been published in scientific journals and seminars. Most notably, the articles by Truong Quang Hoc of Vietnam National University, Hanoi on scientific research and the quality determinants of science-technology and post-graduate training. The author argues that scientific working groups are a popular form of organization for carrying out scientific and technological activities and postgraduate training. The author argues that in today's society, when interdisciplinary and trans-disciplinary are understood not only in science and technology, but in all social activities, it has to work in collaboration: Teamwork / team working, Team building, Group work culture. The philosophy of working in a group is the mass effect (rather than the mass), which is the effect of succession and progression. If a group of people work together, synergy is more effective than individual work and will be progressive over time. At that time, the strength of each person will be maximized according to the mutual resonance, and weakness is compensated [10]. On the other hand, the article by Vu Thi Thu Thanh, from the Southern Institute of Social Sciences, titled "Teamwork Skills in Study and Research", the author mentions phases of development Group development: stage of creation, storm phase, stage of stability, stage of expression and conclusion [11]. The authors have suggested the formation of a team with teamwork skills, international experience in team development and lessons learned for universities in Vietnam.

In another perspective of the research, it must be named the article of the author Ha Cong Hai: "Policy on the development of research groups in science and technology organizations (case study of some research groups under Vietnam National University Hanoi)". The topic is conducted in 4 basic contents: (1) Theories about the research team; (2) International experience in developing research teams in universities; (3) Situational analysis of research groups within Vietnam National University, Hanoi and other universities in Vietnam; And (4) Policy orientations for the development of university research groups in Vietnam [12].

In a more academic perspective of the research, authors Phan Thi Thanh Truc and Nguyen Thi Ngoc Loi (2016) compiled the results of a survey of 173 trainers at universities and colleges in Tay Nguyen in order to search for barriers of forming the scientific working groups. The result shows that the faculty members themselves neglected the role of teamwork, lack of positive attitude as well as recognition of group interests. As for the team, faculty members are not aware of the research team's goals and how they are the main barriers. In addition, the aspects of the universities such as facilities, lack of cooperation with departments, despite administrative procedures, lack of financial management support ... also prevented the scientific working group to develop [13].

## 2.4. Recommendations for Vietnamese Universities to Develop Researches Groups

On the basis of the above analysis, it could be affirmed that the scientific working group has the same characteristics as the working group. In addition to the mechanisms and policies for creating a conducive environment for the development of research groups, the universities in Vietnam need to foster teamwork skills for their scientists

### 2.4.1. Forming Schools of Scientific Research

The universities need to build strong scientific working groups with the formation of research schools, called science working groups (SWG), especially to build interdisciplinary research groups to develop the strength of communication and cooperation of the universities. To form the scientific working groups, it is necessary to:

+ *Issue criteria and structure of the research team:*

Firstly, each research team needs to have team leader and members. The leader of the research team must be a leading scientist who is passionate about science and has the capacity to organize research. Team members are highly qualified instructors, researchers, active young scientists, and may include post-graduate students and Ph.D. candidates led by team members.

Secondly, the research team must have sufficiently strong conditions in terms of equipment and operators and make good use of research equipment.

Thirdly, the research team must occupy a large number of topics with the spirit of cooperation within organization and with domestic and foreign agencies; associated with teaching, research and service.

Among the above criteria, the most important factor is leadership, followed by the participation of post- graduate students who are young and dynamic with scientific ambition.

+ *To create a source of lecturers and researchers who are scientific leaders of research groups*

Firstly, to set criteria and requirements for the contingent of lecturers and researchers in the domain source.

Second, determine the size and academic structure, qualifications of staff in source; apply temporary recruitment to keep the source.

Thirdly, develop and implement training plans, training courses, challenges and periodically evaluate faculty and researchers in the source.

Fourthly, to apply forms of training and fostering, regimes and policies and preferential treatment for lecturers and researchers who are leading scientific cadres (priority concentrated on training in and out the country, creating conditions for training, research ...).

Fifthly, priority should be given to the source of lecturers and researchers who are leading scientists in key basic sciences, high technologies and key economic and social branches.

### 2.4.2. Fostering Teamwork Skills

As there is four stages: creation, break-out, stability, completion, therefore, initially, it seems that the group does not work as effectively as an individual. As a result,

certain individuals who are have good ability and enthusiastic, are overworked or embrace the work of the group, and consequently, the accomplishments of the group are due to the efforts of one or few people which gradually will lead to group disbandment. Conversely, if the groups know teamwork effectively, after the break-out phase, the team will stabilize and promote the strength of the whole team, overcome the limits of individuals to achieve the common goal that all members in Groups can enjoy the benefits brought by the group. A team needs skills: personal communication, conflict resolution and team leader.

#### 2.4.2.1. Communication skills among individuals

To accomplish common activities, each team member should have the following skills apart from the general consensus of the group's attitudes and goals: listening, questioning, persuading, respecting others, helping, sharing, and working together. In which listening is the most important skill as team members must listen to each other's opinions? This skill reflects the respect (or build up) of opinions among members. Implementing listening skills in the working group is closely linked to the concern the group needs to address. Listening not only receives opinions but also analyzes and selects opinions. Be attentive when listening with gestures, eyes and posture. When the speaker expresses his or her opinion and feel the attention of the audience, he/she will be more confident and excited. The team members should express their attitudes with real attention.

#### 2.4.2.2. Skills for team leader

A team leader needs skills that is able to see the strengths in others, instructional skills, misuse to reinforce and strengthen teamwork, establish and maintain regular contact, The skill foresees and communicates a good future and promotion skills.

*The leader of the research team needs to firmly grasp the stages of development of the group and the way to do the corresponding work: i) Inception phase: orienting the group's objectives; ii) Turbulent Phase: Organizing group activities to resolve conflicts, understanding conflicts is necessary to advance the cohesion of team members; iii) Standardization phase: information processing and quality improvement; iv) high performance stage: meeting the set objectives of the team and team members all have the same role; v) Closing phase: review and development of new targets.*

#### 2.4.2.3. Skills to resolve conflicts

Conflict is a common problem in workgroups. The reason for the conflict comes from differences in qualifications, experience, cultural background, or disagreement about opinions, rights, responsibilities. Conflict can create motivation, but it can also be a factor in disrupting teamwork. Therefore, in order to ensure good team work, it is necessary to quickly and actively resolve the conflict. Avoid putting small conflicts into major conflicts, or create new conflicts.

### 2.4.3. Fostering Skills in Using Executive Tools, Group Management

Group management tools are often used such as brainstorming techniques, using problem trees, using mind maps, using log frames, and techniques for using fish pots. Applications such as Bitrix24, Asana, MindMeister,

FreshDesk and GroupMe are workgroup applications that are highly valued for their efficiency, usability and customization.

### 2.4.4. Creating Environment and Conditions for Faculty Member to Develop Their Capacity

*- Open short-term training courses on complementary skills for faculty member such as soft skills, information technology and foreign languages.*

Frequently open training courses on complementary skills, foreign languages, information technology as well as training courses on the application of information and communication technologies in research, equipment and means of modern research techniques. At the same time, to build a comprehensive digital data system for teaching and research.

*- Establishment of a teaching and science research club*

The school establishes teaching and scientific research clubs and regularly organizes club activities which facilitate the help of lecturers, young researchers or lecturers and researchers to meet the standards of teaching and research activities with experienced lecturers and researchers. Encourage the implementation of interdisciplinary research activities among faculties and disciplines within the school.

*- Promulgating policies for trainers who are sent for training and fostering*

There are policies to reduce the labor norms, assign scientific topics, allocate funds, ... The training and fostering have the combination of creating conditions of the unit with the efforts of individuals, in that individual movement is especially important.

## 3. Conclusion

It can be affirmed that the scientific working group has the similar characteristics as the working group. In order to analyze and find specific characteristics of the scientific working group, further research is needed. On that basis, university administrators could recommend policies for the development of a scientific working group that fits their organization. Forming and fostering skills for scientists is an important solution for the development of research teams in Vietnamese universities.

## References

- [1] Nguyen Dinh Duc (2014), Vietnam National University, Hanoi: Development of strong research groups, Journal of Science and Technology of Vietnam,
- [2] Harvard Business School Press (2006), Tran Bich Nga, Pham Ngoc Sau, Nguyen Thi Thu Ha (editor), Building Effective Teamwork – Harvard Business handbook, Ho Chi Minh City General Publisher.
- [3] Tuckman, Bruce W. (1965), Developmental Sequence in Small Groups Psychological Bulletin, 63, 384-399.
- [4] Tuckman, Bruce W., and Mary-Ann C. Jensen (1977), Stages of small-group development revisited, Group & Organization Studies Vol 2 (No. 4), 419-427.
- [5] Belbin, R. M. (1981), Management Teams: Why They Succeed or Fail, Butterworth Heinemann, Oxford.
- [6] Belbin, R. M. (1993), Team Roles at Work, Butterworth-Heinemann, Oxford.

- [7] Vu Dinh Hoe, Vu Van Hieu (2007), *Approaching the system in environmental research and Development*, Vietnam National University Hanoi Hanoi Publisher.
- [8] Do Hai Hoan (2010), *Lectures on teamwork skills*, Institution of Posting and Telecommunication Technology.
- [9] *Proceedings of the Annual International Symposium on the Science of the Year (2016, 2017) (Science of Team Science - SciTS Conference)*.
- [10] Truong Quang Hoc (2014), *About the team building*, *Journal of Science and Technology Vietnam*, No. 14, pages 6-9.
- [11] Vu Thi Thu Thanh (2016), *Teamwork skills in learning and research*, *Science for a Better World Journal*.
- [12] Ha Cong Hai (2016), *Policy on development of research groups in S & T organization (case study of some research groups under Vietnam National University, Hanoi)*. Scientific research project at the Institute of Science and Technology Policy and Strategy.
- [13] Phan Thi Thanh Truc, Nguyen Thi Ngoc Loi (2016). *Solutions to develop scientific working groups in universities in Tay Nguyen region*, *VNU Science Journal*, 02, 111-134;
- [14] Bennett LM, Gadlin H, Levine-Finley S. (2010), *Collaboration and team science: a field guide*. Bethesda, MD: National Institutes of Health; 2010. Accessed May 28, 2010.
- [15] Pham Van Thuan (2016), *Fostering Professionalism of University Lecturers to Meet The Professional Competency Framework*, *Journal of Science, Hanoi National University of Education*, No. 3, volume 61, pages 45-55.