

# AN ONLINE COLLABORATION PROCESS DESIGN FOR THE STUDENT ORGANIZATION

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## ABSTRACT

The student organization plays an important role in the university. With the increasing competitions among students organizations, the organizers in the associations have to devote significant amounts of time to the meetings, which is often inefficient and hurting the working passion. In this study, we have applied facilitated collaboration theories and methods for student organizations to solve problems occurring in the online teamwork of university students' organizations. Our aim is to provide a more efficient process of collaboration which helps cutting down the time used for the meeting, as well as improving the quality of the teamwork. First, we have designed an online collaboration process for students' organizations for their collaborative work. Then, a pilot testing has been conducted successfully in a China university with the application of our designed process. The results show that it is useful for time decreasing, quality improving, effectiveness increasing and ideas generating.

**Keywords:** *Student Organization, Process Design, Facilitation, Online Collaboration*

## 1. INTRODUCTION

Student organization is a kind of non-profit organizations in the university which is made up of young students who have common interests. Participation in these organizations can not only richer the student's college experience, but also better overall educational experience [1]. To organize the associations well, the members have to collaborate frequently including making some meetings. However, collaboration is not easy. Through a dozen years of research, Nunamaker et al [2] found that groups might not be able to overcome the challenges of collaboration without special training or guidance. Moreover, students associations' main features, such as equally, autonomously and voluntarily, make the collaboration even more difficult. In the meanwhile, the failure of collaborative efforts can be expensive in time and money, can erode strong working relationships [3], and even can lead to dissolution.

There are various studies which focus on how to make the collaboration smoothly to accomplish a task. Chris and Alison [4] recognized the leadership as an important ingredient in successful collaboration by building a contingency model of collaborative leadership. It is reported that some collaboration failures may be due to technical reasons, but the majority will fail because they cannot generate effective collaborative processes among participants [5]. Fjermestad and Hiltz [6]

provided some research and field experiments to prove that support for collaboration processes such as facilitation and GSS (Group Support System) technology could improve the efficiency and effectiveness of collaboration in organizations. Facilitated collaboration can help teams collaborate flexibly and effectively in order to reach the success of the collaboration [7]. Therefore, by applying facilitation methods and design a collaboration process for the student organization, it is also possible to facilitate the members' collaboration, improve the activities' quality and eliminate the bad influence of the poor leadership.

Facilitation collaboration mainly requires two parts: professional facilitators [8] and group supports systems (GSS) [9]. Recently, an increasing number of the students' organizations would use information technology to support their work which makes the facilitation collaboration easier. However, it is hard for the student organization to get an expertise facilitator. So we will use collaboration engineering (CE) to train participants to be able to conduct one specific well-designed collaboration process without necessarily developing expertise in designing new processes for themselves or others [10]. In other words, the members of the student organization just demand to execute the designed collaboration process during their regular work.

The organizers in the student organization require collaborating frequently. Nevertheless, there is little



research about what kind of facilitation process would benefit the student organization collaboration especially in the background of GSS in China. Therefore, our research question is what kind of collaboration process could help the student organization collaboration online. In order to answer the research question, this paper aims to design a facilitation process based on the context of the student organization activity and evaluate the process in a pilot testing of a China university.

This paper is consisted of four main parts: the first part will give more detailed descriptions of the theoretical background, followed by the second part which will show the research methods and design models. Then we will talk about the facilitated collaboration process in the pilot testing. The conclusion, limitation and future work will be given in the final section.

## 2. THEORY AND BACKGROUND

### 2.1 Online Collaboration Research and GSS

With the advancement of computer and network technology, students can collaborate online regardless of the time and place. Ransbotham and Kane [5] used empirical research and data analysis to show that some online tools such as blogs, wikis, and social networks could have significant effects on collaborative outcomes. Studies show that usage of Group Support Systems (GSS) [2, 6, 8, 11] and other collaboration technologies (collectively groupware) can substantially improve group efficiency and effectiveness [11] and gain the better results.

A GSS is a suite of software tools for focusing and structuring group deliberation while reducing the cognitive costs of communication and information access among teams making a joint cognitive effort toward a goal [8]. Since there exists a number of collaboration tools which support specific group activities such as audio video conferencing (e.g. Skype), shared document editing (e.g. Google Docs or Baidu Wenku) and communication platform (e.g. QQ Group or Powermeeting), it is common to use them now. Moreover, Poltrock and Handel [12] suggested that collaboration technologies would be more effective and more readily adopted and accepted if collaboration technology development were guided by models of collaboration.

### 2.2 Facilitation and Collaboration Engineering

To improve the efficiency of the collaboration, facilitation method is a useful way. Kolfschoten et al [10] had summarized the facilitation task including preparing tools and techniques before the

meeting, supporting the collaborative process, encouraging participation, facilitating interaction during the process, and capturing results after the process. The facilitation could be more helpful with the assistance of a professional facilitator [8]. A facilitator is a person who gives instructions that guide the group members in their activities and help them focus on task outcomes [10]. A large number of researches have explored what facilitators do or should do. However, trained facilitators assume a large set of tasks and responsibilities to help organizations optimize their productivities [13] requiring them to have complicated skills and extensive training. So the expertise facilitators are not feasible for some groups including the student organizations. As a result, some researchers turn to the collaboration engineering field to find the solution.

Collaboration engineering (CE) is an approach to create sustained collaboration support by designing collaborative work practices for high-value recurring tasks, and transferring those to practitioners to execute for themselves without ongoing support from professionals [14]. It could be just considered as a combination of a facilitation, and design that aims to create collaboration processes that can be supported with collaboration support tools such as GSS. So we can use the CE approach to design the practices supporting the student organization collaboration.

### 2.3 ThinkLets and Collaboration Process

One of the key concepts in Collaboration Engineering is the thinkLet—a codified facilitation technique that creates a predictable pattern of collaboration [15]. The initial conceptualization of thinkLet which comprised three components: a tool, a configuration and a script was created by the Briggs and Vreede [16]. It has more meaning now and serves both design patterns and practitioners [17]. There are over 70 kinds of thinklets now. By combining different thinkLets together, we can design various kinds of collaboration process.

The collaboration process design should consist of a structured systematic approach to design purposeful interaction within the context of a sequence of steps that helps the group to achieve its goal. The design of a collaboration process has been described in the literatures [7, 17]. We will basically use the six patterns including generate, reduce, clarity, organize, evaluate and build consensus to design our collaboration process for the student organization. These facilitated collaboration pattern is developed by Briggs and Vreede [18].



### 3. RESEARCH METHOD AND MODELS

#### 3.1 Method

In this study, we mainly use Design Science Research (DSR) approach [19] to design the collaboration process for the student organization collaboration based on the literature research. The approach is often used to analyze problems and give the evaluation. To validate the effective of the design, we use the pilot testing method [20], which is a simple, small-scale implementation of the collaboration process that helps to assess the quality of the process [21]. This validation will reveal whether the process can be successfully executed with the given resources and whether it will accomplish high-quality results. Our pilot testing aims to find out whether the designed collaboration process is useful for the student organization. Finally, we will interview the participant and do surveys to validate and improve the process.

#### 3.2 Collaboration Process Model Design

##### 3.2.1 The collaboration process

The theoretical model for process design in this paper is based on the collaboration process in teamwork, which is designed by Kolfschoten and Vreede [21]. There are five parts in their model, including task diagnosis, activity decomposition, task-thinkLets choice, agenda building and design validation. They are connected each other closely and the result of the previous step is the input of the next step. Considering the real situation of the student association, we have designed a new collaboration process, which has shown in Figure 1.

In the new collaboration process, we divided the steps of student organization collaboration into five

parts. Firstly, they are required to choose a controller, which is different from the facilitator since the controller need to do more controlling after the discussion and additionally, the controller doesn't require much professional knowledge in the facilitation field. The controller is required to understand the complete process. Secondly, the controller will do some preparations including the task/objection, the limitations (time, members' abilities and available recourses) and making a discussion time table.

Then the facilitation process can start. At the beginning of the facilitation process, the controller should clarify the task limitation and discussion time table to the members and then controller will act as a facilitator which means he or she will master thinkLets methods to intervene the facilitation process. In this step, the controller is required to complete the details of the plan and make a time table.

After all discussions ended, the controller has not yet done the job, which also including controlling and get the feedback. That is to say, the controller has to pay attention to the each step to see if the activity has been done as planning. If there are some change or tasks required to modified again, return back to the facilitation process. In that case, the controller would asked the student organizations' leader to doing a meeting again. Since our whole facilitation process could be done by the GSS, so it is easy to do a discussion again.

Finally, the controller required to catch the feedback and accumulate experience for the next collaboration process.

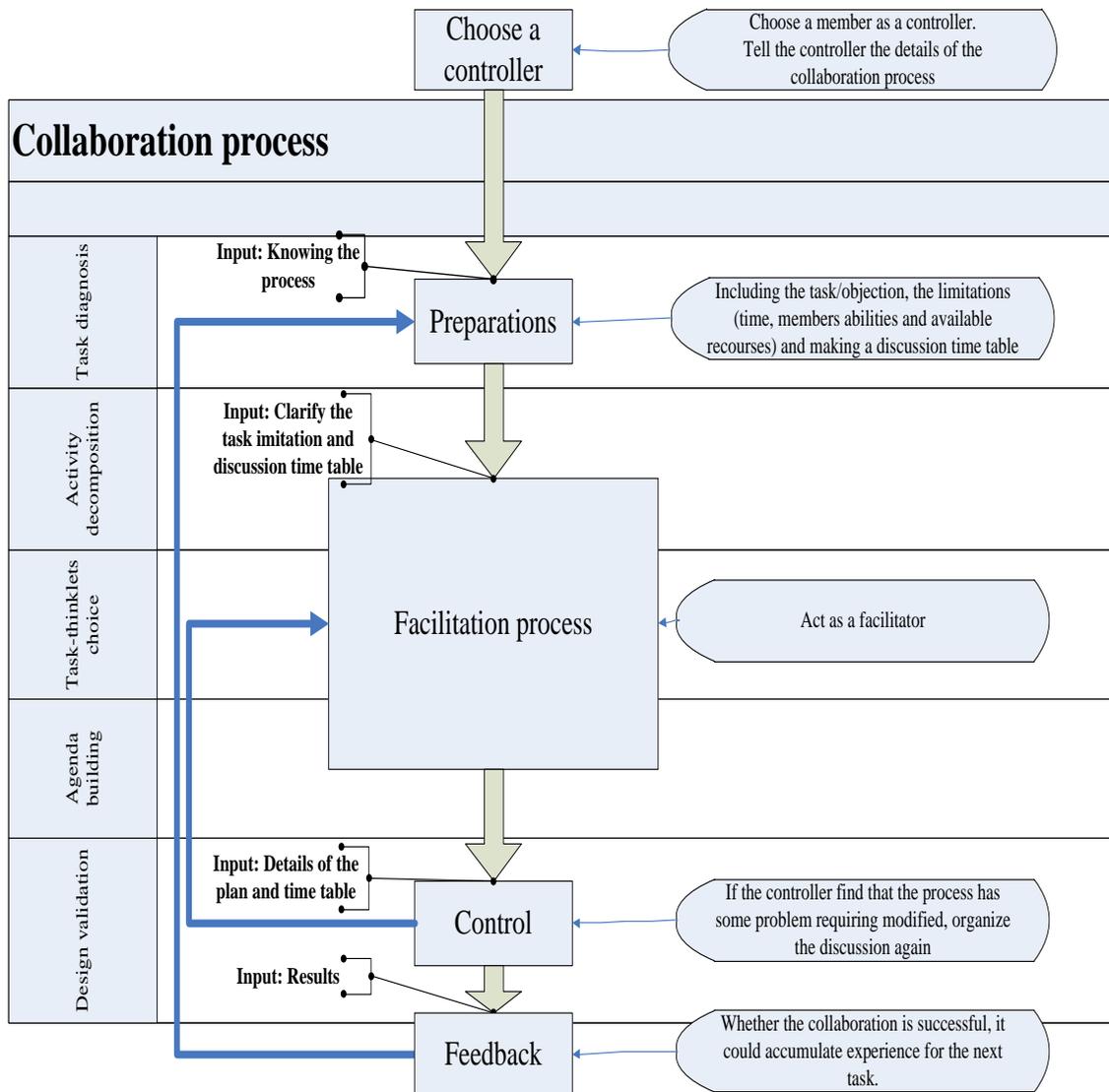


Figure 1: The Collaboration Process Model

### 3.2.2 The facilitation process

The theoretical model for facilitation process is based on another model, which is designed by Briggs and Vreede [18]. There are six parts in their model including generate, reduce, clarity, organize, evaluate and build consensus. Just as we have done in the collaboration process, we will design a new facilitation process especially for student organization collaboration.

In the facilitation process, the participants are required to do two tasks about the activities. One is what to do and the other is how to do it. The first output is the input of the second parts. That is to say, the first part need to find some ideas about

what to do and in the second part, the participants need to discussion how to make these ideas come true. Our facilitation process has shown in Figure 2.

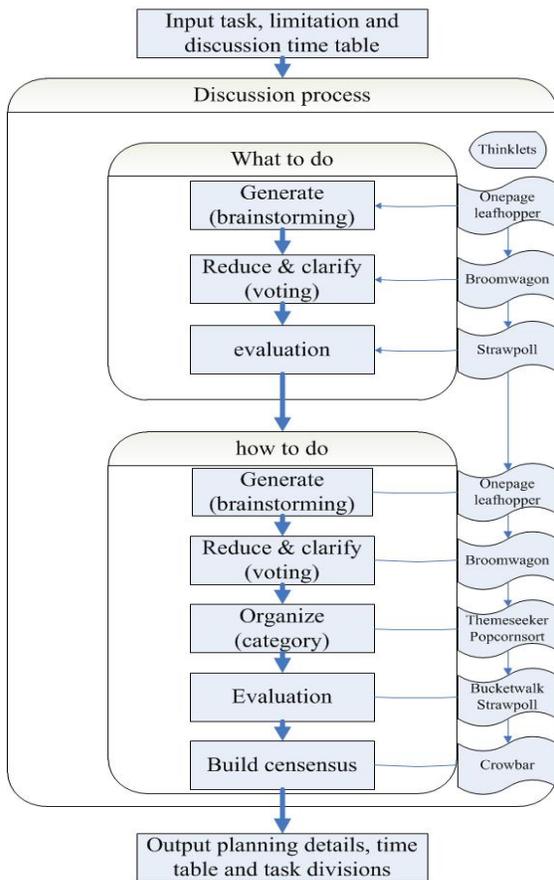


Figure 2: The Facilitation Process

The new facilitation process adopts eight thinkLets units to design the collaboration process. They are clearly described in the following table.

Table 1 : Thinklets Introduction [22]

ThinkLets	When to use	How to use
Onepage	To generate some ideas on one topic	Raise up as many ideas as possible and collective them in one page.
Leafhopper	To generate some ideas on several topics at once.	Expected to work on the topics most interesting.
Broomwagon	To reduce the items to the key items only.	Vote each idea to show what the most outstanding ideas on the list are.
Strawpoll	To assess or evaluate the items.	Express positive or negative attitude to items.
Themeseeker	To summarize the topics of discussion in a brainstorm.	Find the relationships between the items and raise up the category.
Popcornsort	To category the items.	Category the items following the relationships they have found in the Themeseeker step.
Bucketwalk	To validate the results of Popcornsort.	Ask the participants whether the classification is correct and why it's correct

Crowbar	To provoke a focused discussion about issues where the members have a low consensus.	or not. The participants are asked what reasons might exist for somebody to rating this item quite high and what reasons might exist for others to rating this item quite low and finally get the agreements.
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#### 4. EXPERIMENT TEST AND VALIDATION

##### 4.1 Experiment Case

We decided to run our collaboration process design for different kinds of student organization to do the case studies. Nevertheless, in this paper, we have only do a pilot testing to find whether the process could improve collaboration efficiency. In our pilot testing, we chose a student organization at a university in China participated in the evaluation. There were eight participants who were all the organizers of the activities in the association. They often had to collaborate together to organize activities for their club members. We selected them to do the pilot testing to find whether there were some problems in the new design collaboration process. The participants would use this process to fulfill this collaborative work.

These participants were received a simple training to use the PowerMeeting [23], which was the main tool when they follow the process. In the meanwhile, they could also use some other internet tools to communicate with each other to fulfill the work (such as RenRen, QQ group, and Weibo, etc). To begin with, they were asked to choose one student to be the “controller” who would control the whole collaboration process had been designed. This group project required the team of associations to create a new activity for their clubs’ members and give the appropriate planning and task divisions of the identified activity. The controller didn’t have to be the leaders of associations but the one should pay attention to the whole process, control each step and capture the results.

In this pilot testing, these participants required to organize an attractive party for the available members to make friends with each other. A controller was chosen and she was in charge of clarifying the task objection, resource limitation and making a time table for the facilitation discussion.

The first time facilitation discussion was limited to one hour. These participants should think about a creative theme for the party, decide what kind of interesting programs should be shown in the party and finally give the executive time table and work division table. After the participants understood the

task objection and the time limits, the controller let them raise as many ideas as possible and collected those in one board in the PowerMeeting. After about 10 minutes, the Onepage step finished. When the controller had cleaned up the similar ideas to make a list, the participants began to vote each idea to show what the most outstanding ideas on the list were. The controller selected the top ones to make a new list and repeated the thinkLet again until the amount of good ideas was less than acceptable number. Then the participants expressed their positive or negative attitudes to each item when the controller said the Strawpoll began. After the evaluation, the organization got a good idea to organize a make-up party which was based on movie theme. The controller then guided everybody to do the Onepage and Broomwagon steps again about how to hold a party. When the Themeseeker, Popcornsort, Popcornsort and Bucketwalk had done, the participants knew what main work to do. However, the controller found that there were items hard to gain consensus. So the participants were asked what reasons might exist for somebody to rating this item quite high and what reasons might exist for others to rating this item quite low and finally got the agreements.

After the activity had obtained a success, these participants were asked several questions including how they felt about the process. They were also required to finish a score table after that.

The core of the collaboration model is based on the actual situation analysis. This study is mainly based on the true environment of the students associations to design the collaboration process in order to help them achieve the association goals more effectively and attract more members to join in.

#### 4.2 Data Collection

The primary goal of this study was to test whether a common manager could successfully execute the controlling work practice without complex training. Satisfaction is also an important consideration when we interviewed the users. To determine the problems of the process, we focus on the interviews' responses to each step. The main questions we asked during the interviews are showed as following:

- Do you think the collaboration process is easy to use or hard to catch up?
- Do you think the collaboration process is useful of not? Why?

- What do you think are the problems of the collaboration process?
- What do you think are the strengths of the collaboration process?
- What kind of thinkLets do you think is useful or effective?
- What kind of thinkLets do you think is useless or need to be improved?
- What do you think of the process and tools compare to other process and tools you have used before?

After the interview, the participants need to finish a score survey to show whether he or she think the process is useful. The score range from 1 to 7 and the score 1 represents strongly disagree and the score 7 shows the strongly agree. The score table is shown in Table 2.

Table 2 : Process Score Table

Score	1-7
1、	I think the controller had done enough preparations.
2、	I agree that the controller have played an important part in our discussion.
3、	I think that the controlling process is necessary.
4、	I think the feedback process is useful.
	The facilitation process evaluation
5、	I think the facilitation process is useful and effective.
6、	I think the facilitation process could cover the whole process in your common meeting.
7、	I think the Onepage is useful.
8、	I think the Broomwagon is useful.
9、	I think the Strawpoll is useful
10、	I think the Themeseeker is useful.
11、	I think the Popcornsort is useful.
12、	I think the Bucketwalk is useful.
13、	I think the Crowbar is useful.
14、	I think the PowerMeeting is useful.

#### 4.3 Results and Discussion

In this paper, in-depth interviews were conducted in our research. The true organizers who have participated in the process are interviewed. We finally got 5 in-depth interviews for this pilot testing. In the handling of the interview data, we gave each dialogue of each organizer a detailed number first. After that, we extracted critical statements of the interview and the keywords. Then we classified these keywords and draw the conclusion. Due to space limitation, The Table 3 shows a part of the analysis process.

Table 3 : Part Of The Analysis Process

Theme	Interviewee ID	Coding Key Words	Conclusion	Examples of Comments
About the new process	1	Efficient Minimize the time	Improve the efficient and cut down the necessary time	Yes, the new process can make our discussion and preparation more efficient.
	3			We followed the time table and focused on each part with time limitation.
	4			I found we cut down our meeting time nearly a half. I like it since it could minimize the time and maximize the satisfaction.
	2	Easy to build the sense of identity, Effective	Effective to build consensus	Since the final ideas were often got the highest voting, it is easy to build the sense of identity.
	4			Everybody would discuss the final idea, it is effective. It resolved conflict of opinion between us
	1	Easy to find the problem and solve	Effective to find problems	When we make a meeting, it often consumes lots of time since problems are too much.
	4			You know, the orderly process was really helpful to find the problems and the controller collected them which would be solved in a block time.
	1	Comprehensive Simple and clear Orderly Reasonable Sequence Organized Optimization design Follow a line Fresh Practical	Well designed	I think it is easier to understand the process. It is simple and clear.
	2			The five modules of the collaboration process are comprehensive and well organized.
	3			It is orderly.
	4			The process has a reasonable sequence; we often do such tasks when we need to organize an activity.
	5			I love the new things since it is an optimization design and cut down the necessary time.
	1	Obtain more Good ideas Maximize the Satisfaction Creative Larger scale	Compare to the process they have used before, did more contributions to the result	It is a new collaboration process rather than what we have done before, it is so fresh.
	2			The whole thing followed a line and it is practical.
	3			The Onepage method could obtain as much good ideas as possible.
				We got so many creative ideas and some of them were really interesting.
				I like it since it could minimize the time and maximize the satisfaction.

We can draw some conclusions about the new collaboration process during the analysis of the interview data.

Firstly, the new process can make the collaboration efficient and minimize the necessary time which can give the organizers more time to do other work. These participants just required to follow the controller's facilitation and focus on the sub issues. Compared to the meeting they have made before, the new facilitation process is highly efficient. Additionally, by using some online tools, for example, PowerMeeting and QQ group, it is easy for the organizers to discuss whenever and wherever.

Secondly, through the collaboration process, it is effective to build consensus on the plan and also effective to find the problems to solve. The students organizations often consist of organizers with different background which make the discussion process is always chaos. The organizers sometimes

would be divided in different ideas. However, the new process makes an evaluation and voting every time to ensure that the final result is reasonable and reduce the collaboration risks such as confliction of views. Moreover, the facilitated process is a good way to help participant to find the problems during the process and solve them in a block of time.

Thirdly, the new process is well designed, which is not only cover the whole process in organize an activity but also practical and orderly. In addition, the new process is simple and clear to understand as well as fresh to use. Compared to the process they have used before, it is well organized. As a result, it could obtain more creative ideas and more completed details of the plan, which could maximize the satisfaction of the participants.

Then we collected the interview data to find which kinds of steps are most useful. You can see the results in the following Table 4.



Table 4 : Most Useful Steps

Theme	Interviewee ID	Coding Key Words	Conclusion	Examples of Comments
Most useful steps	1	Onepage	Onepage gains the most useful method.	I haven't used the brainstorm method before, it is significantly useful.
	3			I love the first step in the discussion; you can find many interesting ideas. Sometimes it is unbelievable.
	4			The brainstorm step, well, which you call Onepage, is the most useful.
	5			
	1	Broom-wagon	Most of participants think it is effective.	The PowerMeeting is very useful when we need to voting.
	3			It resolved conflict of opinion between us.
	5			The voting could guild us to reach a good outcome.
	3	Category	Others are necessary but not the most important.	I think category method could help us prepare the activity in a logical way.
	5			I think all steps are useful, it will less effective cut out any.
	4	Preparations	Compare to the process they have used before, did more	The preparation and controlling are so important step for a good student organize. But many organizations may ignore them.
	5			I like the feedback of this party, we learn a lot.
	1	Controlling	contributions to the result.	Yes, we used most of the method in our meetings when we prepare for the party and the controlling work had done a good job.
	5			
	5	Feedback		

We then analyzed the score surveys results, finding that all of items have got the score above 4. To further find out the difference, we select the items which are above score 6 to find the useful steps and we also choose the items which are below score 5 to find less useful steps. You can see them in Table 5.

By analyzing the table 4 and 5, we can find that the Onepage, Broomwagaon and the Crowbar are the most important and most effective method during the facilitation process, which means that the brainstorming, voting and the building the consensus are the core part contributing to the collaboration success.

Table 5 : Process Score Table Result

		Score
Above 6	7. I think the Onepage is useful.	6.5
	13. I think the Crowbar is useful.	6.4
	1. I think the controller had done enough preparations.	6.2
	5. I think the facilitation process is useful and effective.	6.2
	6. I think the facilitation process could cover the whole process in your common meeting.	6.2
Below 5	4. I think the feedback process is useful.	4.8
	10. I think the Themeseeker is useful.	4.8
	11. I think the Popcornsort is useful.	4.8
	14. I think the Powermeeting is useful.	4.4

In the meanwhile, we can find some problems from the pilot testing as well as useful suggestions from the participants. In general, there are two problems in the whole test. One is that while the software Powermeeting could be useful to support the collaboration process but it required high internet speed which is make the meeting unstably which remind us to use the ThinkTank or other online tools to make test. The other problem is that the voting may not be able to be used in all activities, since it may appear some situations that the voting result is nearly equal, which is suggested that the Themeseeker and Popcornsort show be done before the Broomwagon that could make the voting more concentrative.

## 5. CONCLUSION, LIMITATION AND FUTUREWORK

This research has designed an online collaboration process for the organizers in the student organization. A pilot test for this process is also conducted in the case of a student organization in a China university who has used this facilitated collaboration process. Interviews results show that the process could decrease the learning time, increase the effectiveness of finding the problems, build consensus, improve the quality of the activity and create more ideas for the plan.

On one hand, this research will contribute to the collaboration process design and the research in the CE. On the other hand, it will also provide



suggestive process for the student organization to improve effectiveness and also for the software and system development.

Nevertheless, several limitations have to be considered concerning the results of this study. Firstly, this is only a single pilot testing case which may not be enough to have the conclusion. While the participant came from different backgrounds, it still couldn't prove that the process is effective in other fields of the students' organizations. In addition, the experiment is done in this special context and thus not be able to validate in other contexts. Moreover, we can't find whether the process can be used in a sustain time. However, we will improve the collaboration model and do more case studies to gain enough data as well as evidence in the future research. By using the multiple cases and feedback, we will improve our process model to be better. As a result, this designed online collaboration process which has a strong theoretical and practical implication could then be suggested to other social organizations.

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