A Proposal of an SNS to Support Individual Practices in a Voluntary Community

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Abstract. Widespread popularization of social networking services (SNSs) prompted, for example, a voluntary community such as an orchestra club of a university to use an SNS to support their activities. However, it is not all-purpose and lacks functions to improve members' individual skills. Appropriate practice is a great help but we hardly find functions to motivate practices by, for instance, mutual evaluation, members' advice, and creating competing environment. In this paper, we focus on members' individual practices in an orchestra club and propose a SNS to foster and maintain their motivations to practice based on the analysis result of current conditions. As the first step of the system development, this paper introduces design of a prototype system and the results of a preliminary evaluation.

Keywords: Social networking service · Gamification · Voluntary community

1 Introduction

Recently, the number of voluntary communities such as local communities and university club activities are increasing. In these communities, such as orchestra clubs of a university, there are various types of members and there is usually little time to meet and practice together. Therefore, it is usually difficult to improve members' skill and motivation without their individual activities. Under this situation, most of these communities use SNSs. However, existing SNS offers few functions to support their individual activities, it is usually difficult to improve their skill [1–4].

In our past research, we proposed an SNS for voluntary communities using the concept of gamification [1]. We implemented the SNS for the orchestra club of Senshu University and showed the effectiveness of our SNS. However, we also found that it was still needed to support their individual activities based on the analysis of their current conditions.

2   Purpose of This Study

In this study, we purposed to implement new functions in the SNS to support members' individual practices in a voluntary community. We focus on the gamification methods since these methods can maintain and improve their motivation [5].

3   Analysis of the Current Conditions

First, we targeted the Senshu University orchestra club and analyzed the current conditions of their individual activities. Based on this analysis, we classified their activities into the following three types.

- Communication activity
- To share information with other members. This activity will be a starting point of Collaboration activity and Competition activity.
- Collaboration activity
- To share their individual practices with other members. This activity will be a starting point of Communication activity and Competition activity.
- Competition activity
- To compete for the outcome of their individual practices with other members. This activity will be a starting point of Communication activity and Collaboration activity.

4   Proposal of an SNS to Support Individual Activities

We proposed three functions to support above three types of activities by applying a concept of gamification. The functions we proposed were as follows.

1. Communication Bulletin Board to support Communication activity
2. Feedback System to support Collaboration activity
3. Ranking System to support Competition activity

4.1   Communication Bulletin Board to Support Communication Activity

First, we make a few topics that are often discussed when they practice with each other (e.g. a difficult part during practices, a set piece, etc.) in the Communication Bulletin Board. Additionally, users can post new topics that they would like to discuss. Users can post comments on these topics freely. It is possible to set a restriction on a topic so that only specific users can participate. Users can easily share information with other members by using this function. Moreover, users can create topics related to Collaboration activity and Competition activity thus facilitating those activities.
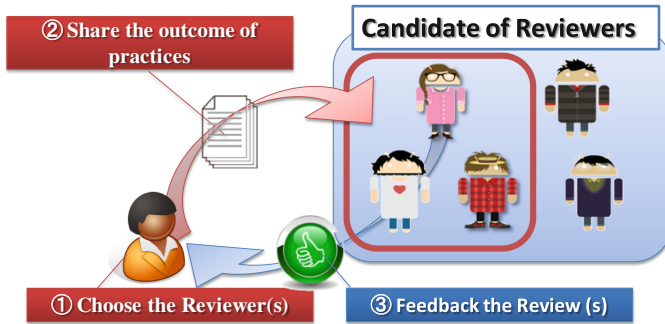
Fig. 1. Feedback System

4.2 Feedback System to Support Collaboration Activity

Figure 1 shows a rough sketch of Feedback System to support Collaboration activity.

A user who would like to seek advice can share his/her outcome of practices with the other user(s) (Reviewer(s)) who are chosen by the user. The reviewers evaluate his/her outcome of practices and give feed back to the user. The feedback contents are recorded in the user's account, and it is possible to check them anytime. By using this function, the user can practice collaboratively with other users. Moreover, users can conduct easily Communication activity and Competition activity related to the feedback content.

4.3 Ranking System to Support Competition Activity

Figure 2 shows a sketch of Ranking System to support Competition activity.

Users can participate in a competition by submitting outcomes of their practices. Ranking system calculates the competition score (CS) of their submitted outcomes as follows by using following two evaluation rules. α and β are weights.
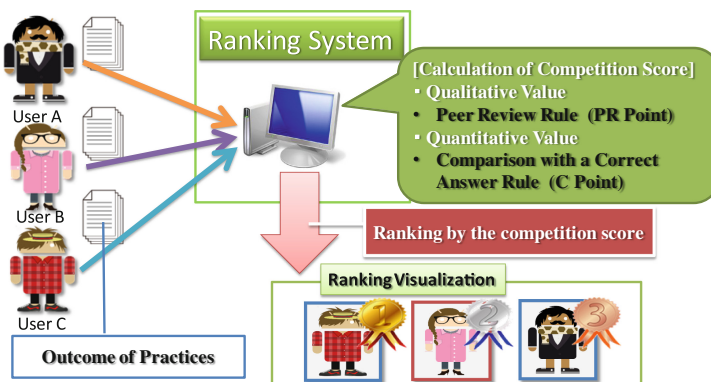

Fig. 2. Ranking System

$$CS = \alpha \,(\text{PR Point}) + \beta \,(\text{C Point}) \qquad (1)$$

- Peer Review Rule (PR Point)
  - All participants have to evaluate other participants (peer review) at five-point scale (min 1, max 5). This ranking scheme calculates peer review point (PR Point) based on peer reviews. PR Point is an average score of other participants' evaluation.
- Comparison with a Correct Answer Rule (C Point)
  - Best performance is provided for the music for the practice. In this ranking scheme, our system calculates comparative point (C point) based on comparing the best performance with the outcome of the user's practices. Comparative point is a product of the concordance rate and β.

Participants are ranked based on the competition score (CS). Top 3 participants are exhibited on the competition page. By using this function, it becomes possible for the users to compete easily with other members. Moreover, users can conduct easily Communication activity and Collaboration activity based on these results.

5   Prototype System

To test the feasibility of our proposal, we made a prototype system. Screen hierarchy and screenshots of our prototype system are shown below (Figs. 3, 4).

6   Preliminary Evaluation of the Prototype System

To evaluate our system, we conducted the following experiment for 3 weeks.

- Target: Keio piano club
  - 12 students (men 6, women 6), level: intermediate

As a result, we found that there were some users who use our system aggressively, but we also found that there were some users who use our system negatively and there were some users who do not use our system (Table 1).

Through analysis of this preliminary evaluation experiment results, we clarified the following two points for improvement.
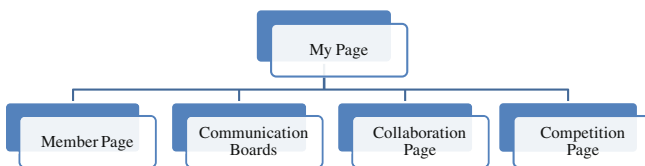

Fig. 3. Screen hierarchy of our prototype system

"My page"   "Competition page"

Fig. 4. Screenshots of our prototype system

Table 1. The type of the users

Use aggressively (Share the practice time, practice type…)	42 %
Use negatively (Just seeing)	25 %
Not use	33 %

- Improvement of the rate of utilization of our system
  - It is necessary to provide easy interface for the beginners of the system. We think that it will be effective to use methods which are used in social games. For example, at the beginning of the game, users' avatars, where the avatars are graphical representation of the users and are chosen by them, keep their levels which are easily increased at the start, so that users can easily realize the growth of characters in the game.
- Improvement of the sharing rate of the information
  - Some members did not share information. It is necessary to provide a new function which makes it possible to express information such as practice hour and contents easily.

However, there is no negative opinion about a concept of our proposal.

7   Conclusion and Future Works

In this paper, we proposed new functions to motivate members' individual practices in a voluntary community. We proposed three functions to support the three types (Communication, Collaboration and Competition) of activities based on the analysis of their current conditions. To examine feasibility of our proposal, we implemented a prototype system and conducted a preliminary evaluation.

Through the practical use of our prototype system, we clarified two points for improvement. However, there is no negative opinion about a concept of our proposal.

In our future works, we revise the prototype system and evaluate it in actual uses.

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