A Study on Emergency Training Support System for Duet Rehearsal

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In musical performance, repeated practice is essential for a successful performance. However, even a lot of practice does not necessarily guarantee success. The environment is different between rehearsals and performances, and you never know what will happen until you are on stage. When the time comes to take the stage, the nerves can cause accidents that do not usually occur. For example, the tempo of the performance may sway, or mistakes may be made in the content of the performance, such as mistaking notes in a phrase. There has been little research on support for simulating these kinds of unexpected mistakes in the rehearsal stage. Although there are studies on emergency training support systems for individual solo piano players, there are few that assume a multi-person performance format. Therefore, this study investigates an emergency training support system for a duet format with a solo instrument and piano accompaniment.

The purpose of this study is to develop and verify the effectiveness of a system that can simulate an emergency in a performance during a rehearsal with a soloist as the support target. The name of the system is ArteMiss. The system focuses on mistakes made by the piano accompanist and allows the soloist to respond flexibly when these mistakes occur during the performance. In practice, it is difficult for a piano accompanist to intentionally make mistakes during rehearsals. This is undesirable because it may lead to the formation of strange habits. To compensate for this, this study uses a pre-recorded accompaniment sound source. When creating this accompaniment sound source, the score data of the accompaniment is prepared, loaded into ArteMiss, and converted into score data with mistakes. To avoid a pattern in the mistakes generated, the mistakes are mixed in at random points each time they are generated. By playing back this score data and having a soloist play while listening to the sound source, we can simulate a situation in which the accompaniment causes mistakes.

The proposed method simulates an emergency situation that could occur in a live performance by having a soloist perform while playing the accompaniment score data with mistakes generated by ArteMiss. We assumed a song of about 1 minute and 30 seconds in length, and included one tempo swing and one pitch error in each song. The mixing point is random, and a different point is mixed in each time it is generated.

The experiment consisted of three rehearsal runs, followed by one performance. The experimental group performed the first, third, and final performance with the accompaniment containing the mistakes, except for the second performance. The control

group performed only the final performance with the mistakes in the accompaniment. As a result, the experimental group tended to be more alert to mistakes in the accompaniment than the control group. Through the experiment, it was also found that there was a large individual difference in the degree to which the participants noticed the mistakes in the accompaniment.