

Service VR Training System: VR Simulator of Man-to-Man Service with Mental/Emotional Sensing and Feedback

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Keywords: Virtual Reality, Training System, Service Simulation, Mental/Emotional Feedback.

ABSTRACT

In this paper, we introduce our concept and preliminary implementation of service VR training system. For training services, emotional skills are very important. Thus, our service VR simulator consist of mental/emotional sensing devices, estimating algorithm and intervention approaches.

1 INTRODUCTION

For service industry, quality of customer service skills and customer satisfaction are very important topic. However, it is difficult to learn and master this kind of service skill without on-the-job-training (OJT). In this research, we propose a service VR simulator in which user can train man-to-man service by using VR technologies.

For service skill, it is important not only physical behavior and valval skills which can be learn by using manual, but also emotional control and sensing skills. Thus, to training the emotional skill on man-to-man service, we propose and construct preliminary service VR simulator to master emotional skills.

2 SYSTEM CONCEPT

Conventional VR system consist of sensing and display devices. VR system sense user's physical behavior by using head/motion tracking, data grove, etc., and present generated visual/auditory/haptic sensation according to user's physical behavior.

For training services, emotional skills are very important. Thus, our service VR simulator consist of mental/emotional sensing devices, estimating algorithm and intervention approaches. (Fig.1)

2.1 Mental/Emotional Sensing

At first, to sensing mental/emotional state of trainer, we developed vital sensor attached HMD (Fig.2). By sensing vital signal, such as heartbeat and respiration, we can estimate mental/emotional state of trainer during VR training.

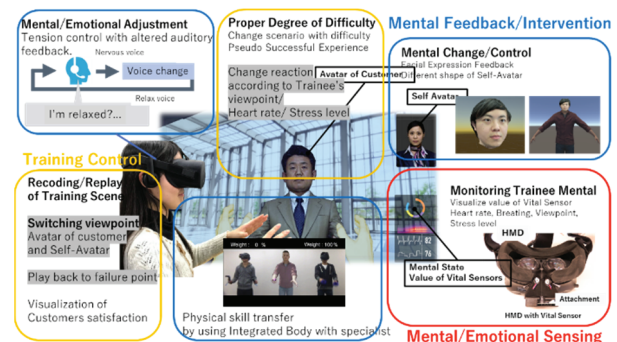


Fig. 1 Concept of service VR training system

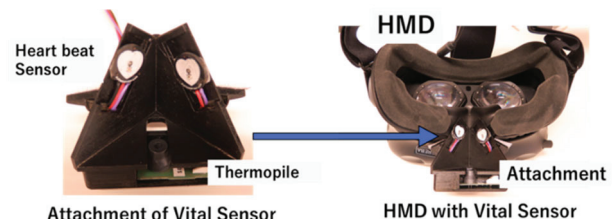


Fig. 2 HMD with Vital Sensor

2.2 Mental/Emotional Feedback

Next, we also develop mental/emotional intervention which can induce emotion of users. For example, we can alleviate user's tension with altered auditory feedback. Finally, our proposed system can control difficulty of training according to trainer's mental state and skills. Combining these mental/emotional sensing and feedback technologies enables effective training of emotional control and expression skills.

2.3 Control of Training

In addition, by utilizing advantage of the characteristics of VR, our system can be expected to be more effective than training conducted on actual sites. For example, by switching to customer's viewpoint from trainer's own viewpoint, trainer can find and understand his/her problem easily. Also, by replaying and rewinding man-to-man service simulation, trainer can try and error and find solution during training by his/herself.

3 PROTOTYPE SYSTEM

Based on this concept, we developed preliminary prototype system to show effectiveness of service VR training system. (Fig.3)

Figure 4 shows trainee's view. Trainee interact with customer's avatar with his/her speech. Our system detects trainee's speech and behavior and change customer's reaction. (Fig.5) When trainee mistake in service scene, trainer play back before making mistake and trainee can go back and try again. By this trying and error, trainee understand well what is important in customer service.

And trainee can check self avatar's facial expression by looking upper-right sub-window. It is important that trainee recognize how customer are seeing his/her for customer service training.

4 CONCLUSIONS

Current prototype system provides limited choice in speech. In future, we will implement intelligent avatar by using AI technologies and customer services data. For this purpose, we are logging many kinds of training data, such as motion capture data, voice, facial expression, etc., which captured in real training scene. By accumulating huge amounts of data, we can realize natural interaction with virtual customer avatar.

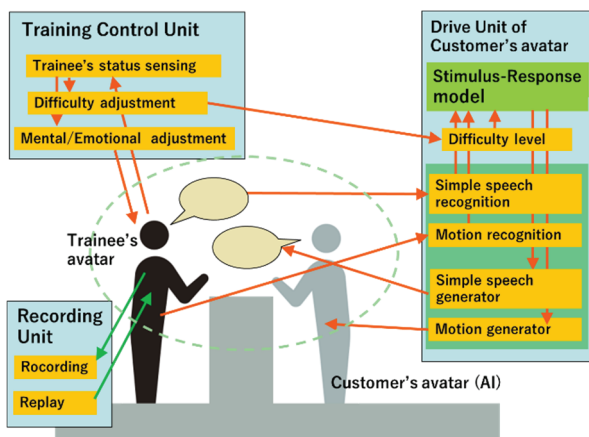


Fig. 3 System diagram of service VR training system

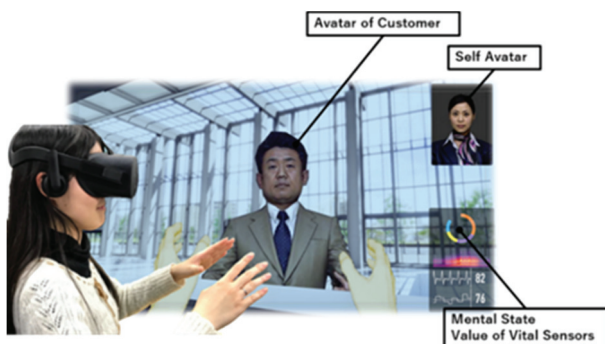


Fig. 4 Trainee's view of service VR training system



Client visit check-in counter



Client cream about his sheet



Trainee choose her dialogue



If her dialogue is wrong, client anger to her

Fig. 5 Test scene

ACKNOWLEDGMENT

This work was supported by Council for Science, Technology and Innovation, "Cross-ministerial Strategic Innovation Promotion Program (SIP), Big-data and AI-enabled Cyberspace Technologies". (funding agency: NEDO)

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