The newly developed user interface for radiography training simulator simulates an actual X-ray test, improving the effects of mock training and repetitive learning. Since not all variables that may occur during the image printing cannot be configured, the location data of the model device and camera were used to lead to correct testing methods and positions, thus minimizing errors.

IV. CONCLUSION

The radiography imaging simulator control method in the training simulator offers the same benefit as training with an actual radiography equipment without being exposed to radiation. In particular, since no radiation is used, students that play the role of a patient, as well as the equipment operator and students can undergo training without concern over radiation exposure and related risks.

Positions, angles and directions of imaging can be saved in the image data base to be displayed when students who take part in the training enter matching imaging conditions, anatomy, position or angle. This can offer the same benefit to students as viewing an image that had actually been taken by the student himself, leading to improved training effects. In addition, since an adjusted image is produced and displayed in accordance with the voltage and current entered by the students, the simulator offers students an opportunity to learn whether the voltage or current entered was optimal or erroneous.

Furthermore, the behavior ability of the students can be evaluated by using the examination condition and the exposure condition setting values inputted from the User Interface and the position information value collected from the model detector. The camera and voice recording device installed in the simulation room can perform the patient response evaluation and the image evaluation based on the images outputted on the User Interface.

Therefore, the educational radiography training simulator not only maximizes the effectiveness of learning through simulation training and iterative training, but also evaluates the level and skill of learning by objectively evaluating the ability of the student. In addition, if applied to the practical ability evaluation of the license test, it will be possible to induce the education that strengthens the practicality through the behaviour-based evaluation. As a follow-up study, technological development using object recognition and 3D data to recreate various scenarios will be conducted.

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