

Development of a Game-Based Educational Program to Enhance Disaster Information Literacy: Improving Judgments of Misinformation and Disinformation on Social Media

*Reo KIMURA¹, Mai NAGAMINE¹

1. University of Hyogo

In recent major disasters, misinformation and disinformation have spread rapidly via social media, posing a serious challenge for disaster response and public decision-making. Although information education is widely implemented in schools, there remains a lack of teaching materials that specifically address information literacy in disaster contexts. This study developed an educational program to strengthen learners' ability to evaluate the credibility of disaster-related information and examined its effectiveness. Program development followed the ADDIE instructional design framework (Analysis, Design, Development, Implementation, and Evaluation). In the Analysis phase, we conducted Ward's hierarchical cluster analysis of 67 learning objectives extracted from existing resources. Four clusters emerged: (1) sender behavior in disasters, (2) receiver behavior in disasters, (3) critical evaluation of disaster information, and (4) foundational concepts and the current landscape of disaster information literacy. Based on these results, we designed an 80-minute program to fit either one university class or two high-school periods. We also developed an original board game, Dis/Misinformation Sugoroku (a sugoroku-style roll-and-move game), as a core learning material.

We implemented the program with 56 students at the University of Hyogo and 40 students at Hyogo Prefectural Maiko High School. Effectiveness was evaluated using pre-post questionnaires comprising eight items aligned with the four learning-objective domains. All eight items showed significant pre-post improvements ($p < .01$), indicating that the program enhanced perceived disaster information literacy. Qualitative feedback further suggested that many participants came to view credibility judgments as personally relevant (i.e., "my own issue"), highlighting increased self-relevance. Future work will refine the program and expand its use beyond schools to community workshops for diverse age groups.

Keywords: Disaster education, Disaster information literacy, Instructional design (ADDIE model), Game-based learning, Disinformation, Misinformation



図 作成した「偽・誤情報すごろく」と大学・高校での実践のようす

Figure; The 'Dis/Misinformation Sugoroku' Board Game and Its Implementation in University and High School Settings