

# **Participatory Games as an Effective Educational Tool to Road Safety Behaviour**

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## **Abstract:**

This research is to explore the learning effects of participatory games. We hypothesized that participatory games have a greater learning effect than traditional PowerPoint workshops. We test this hypothesis using a context of road safety. With road traffic accidents being one of the biggest occupational risks for humanitarian staff, the game that was developed for the research aims to increase knowledge about road safety and to change behaviour by addressing skills and practices of management and staff of aid and development organisations, operating in low and middle income countries. The learning effect of the game was tested against a traditional PowerPoint workshop and a control group and although statistical analysis did not find significant differences, the feedback of the gamers on the game experience shows us that games can be an effective tool.

## **Executive summary**

It is widely understood that the world is in the midst of a growing global road safety crisis, with WHO reporting over 1.2 million fatalities globally in 2002 (WHO, 2004). The majority of these crashes happen in low and middle-income countries, the operating environment for aid and development organisations. Studies, data collection and analysis have shown that traveling by road is one of the highest occupational risks for aid and development staff.

In 2005 Fleet Forum members recognized this risk and a Fleet Safety Toolkit was developed. The toolkit consists of a Fleet Safety Guide and PowerPoint training material. The training material aims to create awareness about road and fleet safety and to change organisational behaviour.

Fleet Forum has noticed that, although the trainings have a very positive short-term effect, the learning effect on the longer term is hard to sustain. Fleet Forum has also realised that during the training sessions participants acknowledge the need for personal and organisational road safety behaviour change, in reality only a few number of organisations have been able to make the change.

To address these lessons we conducted an experiment whether participatory tools like games can be an effective way to educate staff of aid and development agencies on fleet safety and if using these tools has a longer-term effect compared to traditional PowerPoint workshops. The questions that will be answered in the experiment are:

- Does a game improve understanding about road and fleet safety more than the traditional PowerPoint education?
- Will the game increase staff's understanding on occupational road safety risk more than the traditional PowerPoint presentation?

- Will the game increase staff's understanding on organisational performance more than the traditional PowerPoint presentation?

As to the best of our knowledge a game that is focussing on fleet safety management in humanitarian organisations did not exist we created Driving Force, a fleet safety management game that uses the elements of road safety knowledge, attitude and behaviour. Driving Force is a board game and aims to show the participants the relation between fleet safety management and organizational performance. In the thesis we describe the literature review on road safety education, organisational fleet safety climate and culture and the learning effect of games versus more conventional education tools. We also describe the development of the game and the results of an experiment that was conducted at the Fleet Forum Conference 2012. In the experiment we tested the knowledge, attitude and behaviour of PowerPoint participants versus the knowledge, attitude and behaviour of game participants, using a survey, both immediately after the activity as well as after 10 weeks. We also asked the participants to rate their experience during the activity. We learned during the experiment that the way that participants rate their experience is significantly different. Workshop participants thought that the activity was mostly educating and interesting whilst the game participants experienced the game as fun, active and engaging. In the follow up survey, which was sent out 10 weeks after the experiment the game participants also showed more engagement. The 'gamers' responded within the 1<sup>st</sup> two weeks versus 20% of the workshop participants. When the online survey was closed after 4 weeks 67% of the game participants filled in the survey versus 38% of the workshop participants. The difference in willingness to spend some time filling out the survey leads to the conclusion that the 'gamers' were more engaged in the activity than the 'workshoppers'.

Although there is no significant statistical evidence that the use of games is better or worse than more traditional education tools, this thesis has led to some useful insights for Fleet Forum and how the organisation can use the learnings from this experiment for future participatory tools:

- Game simulations can support learning, engagement and raising awareness about topics like fleet safety. The experiment showed that the participants who played the game experienced the game as a fun, active and engaging activity, had a higher retention on their knowledge and that they were more engaged, even several weeks after the game simulation.
- The advantage of the game simulation over the traditional workshop is that the game simulation stimulates active involvement of all participants whereas the traditional PowerPoint provides room for people to 'sit back and relax'.
- For future fleet safety implementations it would be recommended to look at the long-term retention of knowledge, attitude and practice and develop appropriate tools for measuring that. Tools that can be thought of do not only include follow up surveys but also tools to monitor and analyse observed behaviour as well as analysis of data on road traffic accidents.
- Fleet Forum has decided to incorporate Driving Force into their workshop portfolio and will actively promote the game as one of the tools to increase fleet safety within aid and development organisations. Furthermore Fleet Forum will develop a game strategy to support the focus areas: cost efficiency and environmental impact of fleets.
- Driving Force is currently aimed at fleet safety in aid and development organisations. As in many low and middle-income countries road transport is the main mode of transport the game is now adapted for commercial transporters and supply chain owners.