**Abstract – V1 – 284 words**

In 2021, Ireland set a target of reducing greenhouse gas emissions by 4.8%. In reality, Ireland produced an increase in greenhouse gas emissions of 5%. This example highlights the problem of a knowledge action gap towards climate change, and specifically, towards reducing individual carbon footprints.

The difficulty with achieving this shift in reducing individual carbon footprints comes from the fact that there is limited societal motivation to do so. Psychological theories offer insights into the reasons contributing to limited societal motivation to reduce individual carbon footprints such as the Inclusion Model for Environmental Concern and self-determination theory.

To facilitate an environment which addresses these psychological theories to increase societal motivation towards reducing individual carbon footprints, a mobile application has been built in this project. Having been proven to satisfy psychological user needs, gamification has been implemented through this mobile application, where users receive points after logging their food and transport emissions, and use these points to compete and cooperate through individual and team leaderboards, with the objective being to increase societal motivation towards reducing individual carbon footprints, and thus actually reduce such footprints.

With 10 participants having trialled the application over a 7 day period, the results indicate that the gamified social mobile app effectively increased environmental motivation levels in participants, resulting in reduced individual carbon footprints in the majority of participants. Those who did not experience increased motivation and thus a reduction in their carbon footprints, highlight the dangers in assuming the same gamification principles and message frames have an equal impact on all users and that certain approaches motivate certain users. These positive results indicate that a gamified social mobile app can reduce the environmental knowledge-action gap towards reducing individual carbon footprints.

**Abstract – v2 – 241 words**

In 2021, Ireland set a target of reducing greenhouse gas emissions by 4.8%. In reality, Ireland produced an increase in greenhouse gas emissions of 5%. This example highlights the problem of a knowledge action gap towards climate change, and specifically, towards reducing individual carbon footprints.

Psychological theories such as the Inclusion Model for Environmental Concern and Self-determination theory offer insights into the reasons contributing to limited societal motivation to reduce individual carbon footprints.

This thesis aims to reduce this knowledge-action gap towards reducing individual carbon footprints by building a gamified social mobile application which addresses these psychological theories. After receiving points by logging their food and transport emissions, users use these points to compete and cooperate through individual and team leaderboards, with the objective being to increase societal motivation towards reducing individual carbon footprints, and thus actually reduce such footprints.

With 10 participants having trialled the application over a 7 day period, the results indicate that the gamified social mobile app effectively increased environmental motivation levels in participants, resulting in reduced individual carbon footprints in the majority of participants. Those who did not experience increased motivation and thus a reduction in their carbon footprints, highlight the dangers in assuming the same gamification principles and message frames have an equal impact on all users and that certain approaches motivate certain users. These positive results indicate that a gamified social mobile app can reduce the environmental knowledge-action gap towards reducing individual carbon footprints.