

Engagement with digital games for conservation on a university campus



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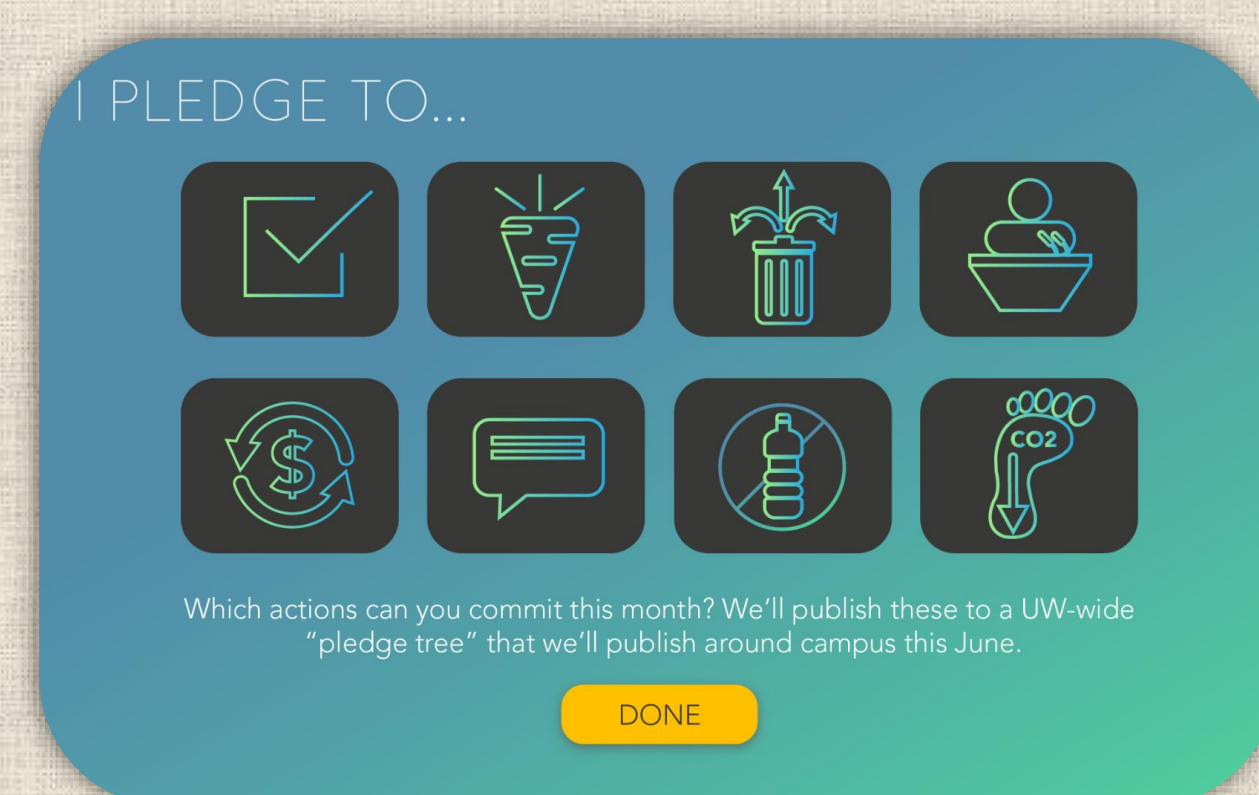
WHY GAMES?

- Can convey complex ideas and processes¹
- May reach alternative audiences compared with other media and conservation education²
- Reduce “doom and gloom”, guilt, and high stress that people experience about environmental issues³
- Games can engage people emotionally, encouraging problem-solving and innovation⁴

Goal: Test influence of game design, venue, and period of availability on engagement with conservation-oriented games

METHODS

- Feasibility study and survey of student interest in conservation games, style preferences
- Project team spent 8 months developing final games using real environmental data
- Each game was deployed on 3 test kiosks for 2 weeks in residential halls, eateries, and building lobbies
- Logged gameplays and player follow-through to explore and make up to 8 environmental pledges



Zombie Trash, tower-defense game where players get 15 seconds to sort falling items as garbage, recycle, or compost—badly sorted items come back as “zombies” that need beating back in second half of the gameplay
Duration: 25 seconds



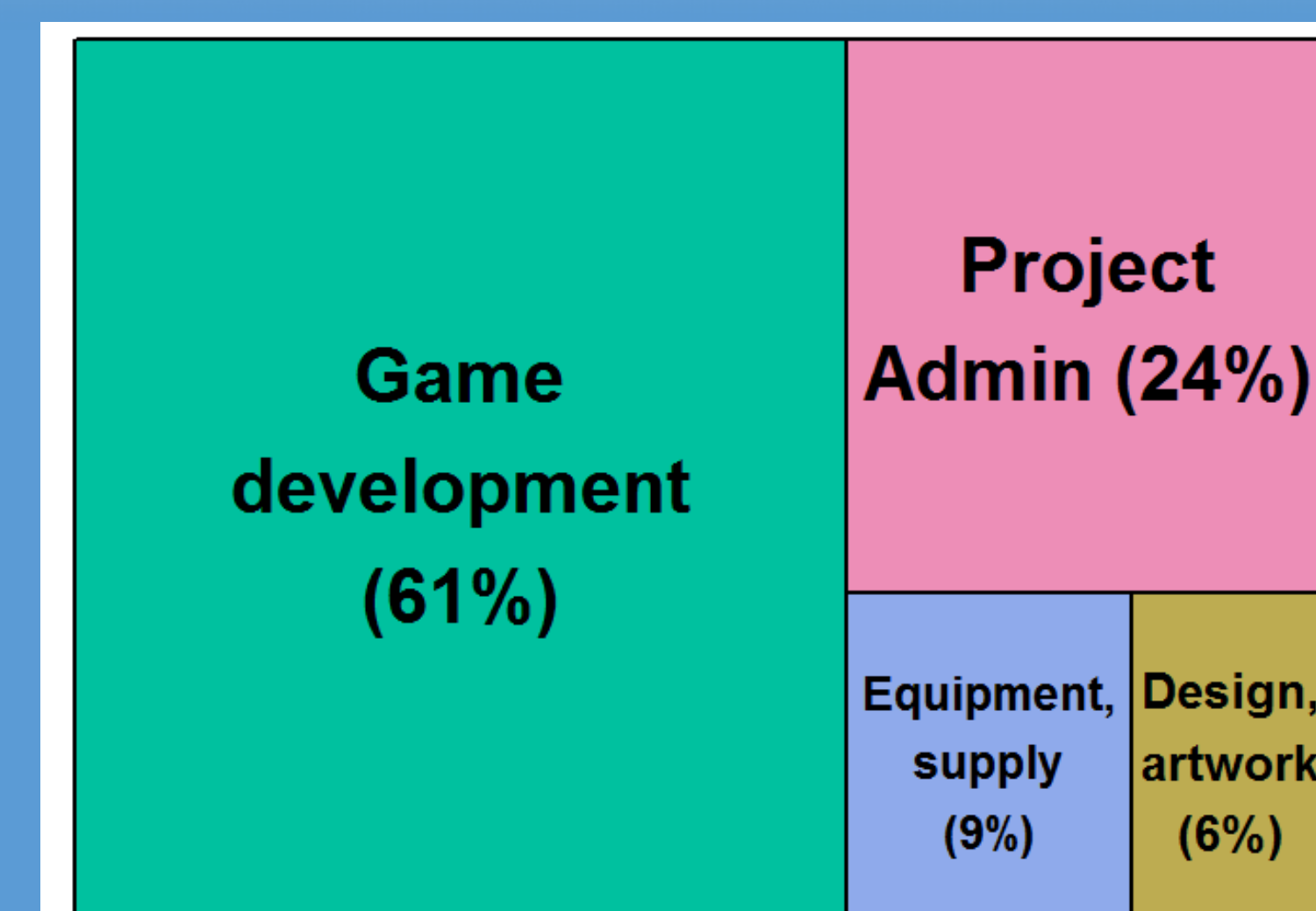
Carbon Cards, sorting game where players get 20 seconds to order six cards by their relative carbon cost—cards represented choices within four categories of shopping, food, home activities, or transportation
Duration: 30 seconds



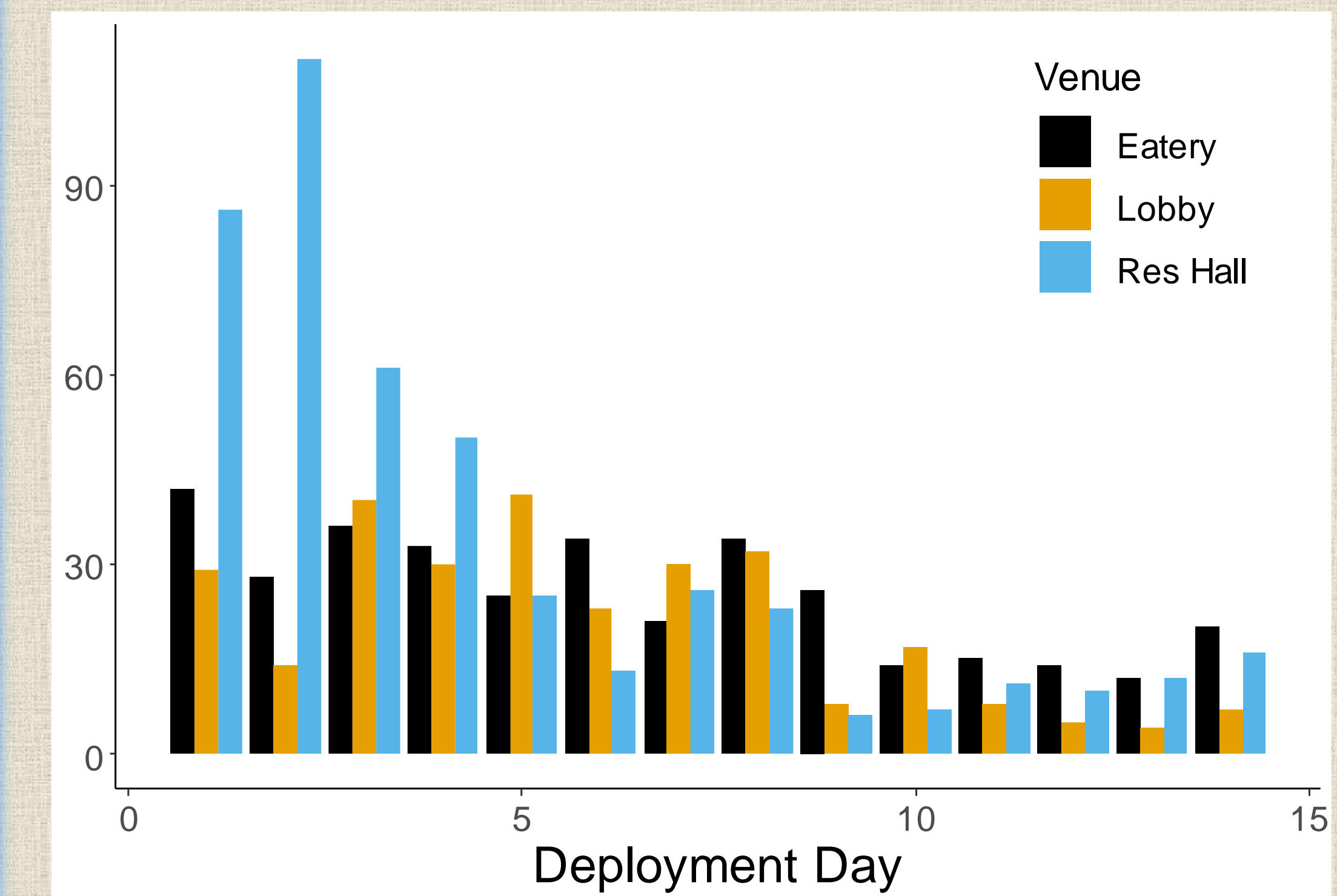
Water Shed, personal challenge game where players estimate their own water footprint and are challenged to reduce it by making water-smart choices about daily activities like food, transit, and purchases
Duration: 45-60 seconds

Project Costs

- Total budget \$15,800
- Employed student graphic designers, artists, game design/developers, and project administrators



RESULTS



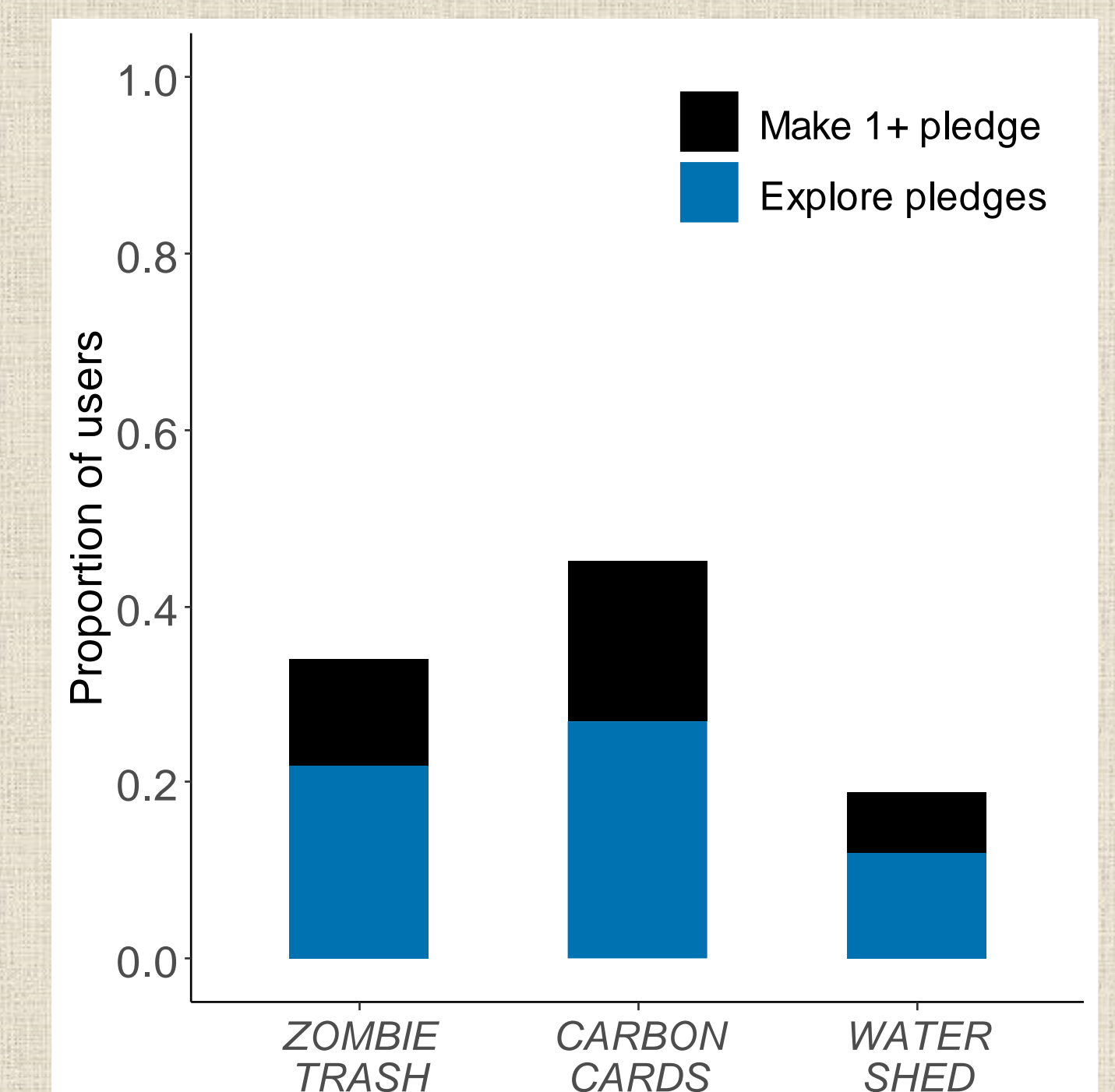
Users by day and venue

- Fastest reach in residential halls, but other venues catch up by day 10
- 75% (n=1098 unique uses) engaged in first week

- Contrary to expectation, players used kiosks in eateries and lobbies for similar periods of time (\bar{x} =31 seconds) as in residential halls

Responses to games

- 12-27% of players followed through to explore pledges, and 7-18% made 1+ pledge
- Repeat gameplays were not associated with greater likelihood of users exploring or making a pledge
- Players responded least positively to the personal challenge game



CONCLUSIONS | RECOMMENDATIONS

- Even single plays were associated with willingness to explore and pledge at least one environmental action
- Engagement was robust to location, but sensitive to game design and duration
- Competing in the “attention economy” is a huge challenge! Outreach and distribution needs careful and strategic planning to reach audiences
- Future research should compare games with other media for potential to 1) reach alternative audiences and 2) long-term influence on conservation attitudes or behavior

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References: 1. Chen et al. 2017, *Innov Edu Teach Intl*; 2. Rai & Beck 2017, *Energy Res Soc Sci* 3. Sandbrook et al. 2014, *Conserv Ltrs*; 4. Janakiraman et al. 2021, *Comp Edu*

