Experimental Examination of Healthcare Personals' Pro-Environmental Behavioral Change through Mobile Application

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Introduction

- Global Environmental Crisis
- Global warming and climate change impact healthcare (WHO, 2021).
- Healthcare sector accounts for 4.4% of global net emissions (HCWC-Arup, 2019).
- Dalin Tzu Chi Hospital's commitment to environmental protection.

Introduction (cont.)

- Dalin Tzu Chi Hospital
- Participation in 'Race to Zero' campaign.
- Awards: Bronze Award (2022), Gold Award (2023).
- Implementation of 'Green Forest' app for environmental education.

Literature Review

- Pro-Environmental Behaviors
- Various studies on environmental behavior (Abdul Wahab, 2008; Zhao et al., 2019).
- Factors influencing behaviors: demographics, knowledge, attitudes (Steg & Vlek, 2009).
- Methods for behavior change: education, social influence, incentives (Hafner et al., 2019; Weber et al., 2019).

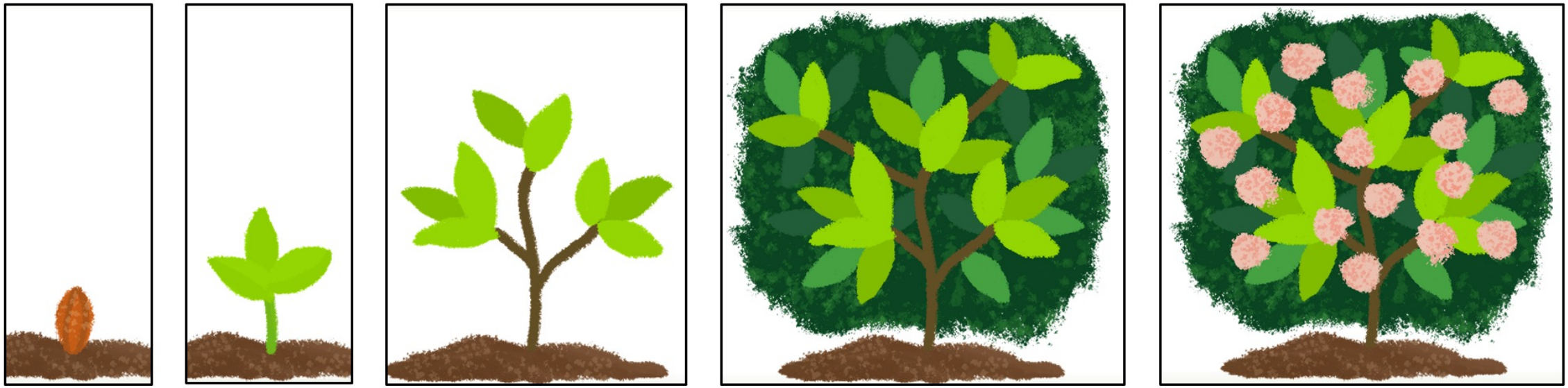
Literature Review (cont.)

- Mobile Applications
- Increased use of mobile feedback for behavior change (Chatzigeorgiou & Andreou, 2021).
- Six key strategies: real-time feedback, monetary information, social influence, disaggregation, gamification, goal setting.

Methodology

- Green Forest App
- Add-on feature in LINE application.
- Daily reminders to log pro-environmental actions.
- Actions divided into Green Action and Carbon Reduction sections.
- Gamification: virtual seedling growth.

Gamification feature of “Green Forest” where the virtual seedling grew and matured



Methodology (cont.)

- Data Collection
- 21-day program in 2021 and 30-day program in 2022.
- Users log actions daily.
- Data analyzed using SPSS 25.0.

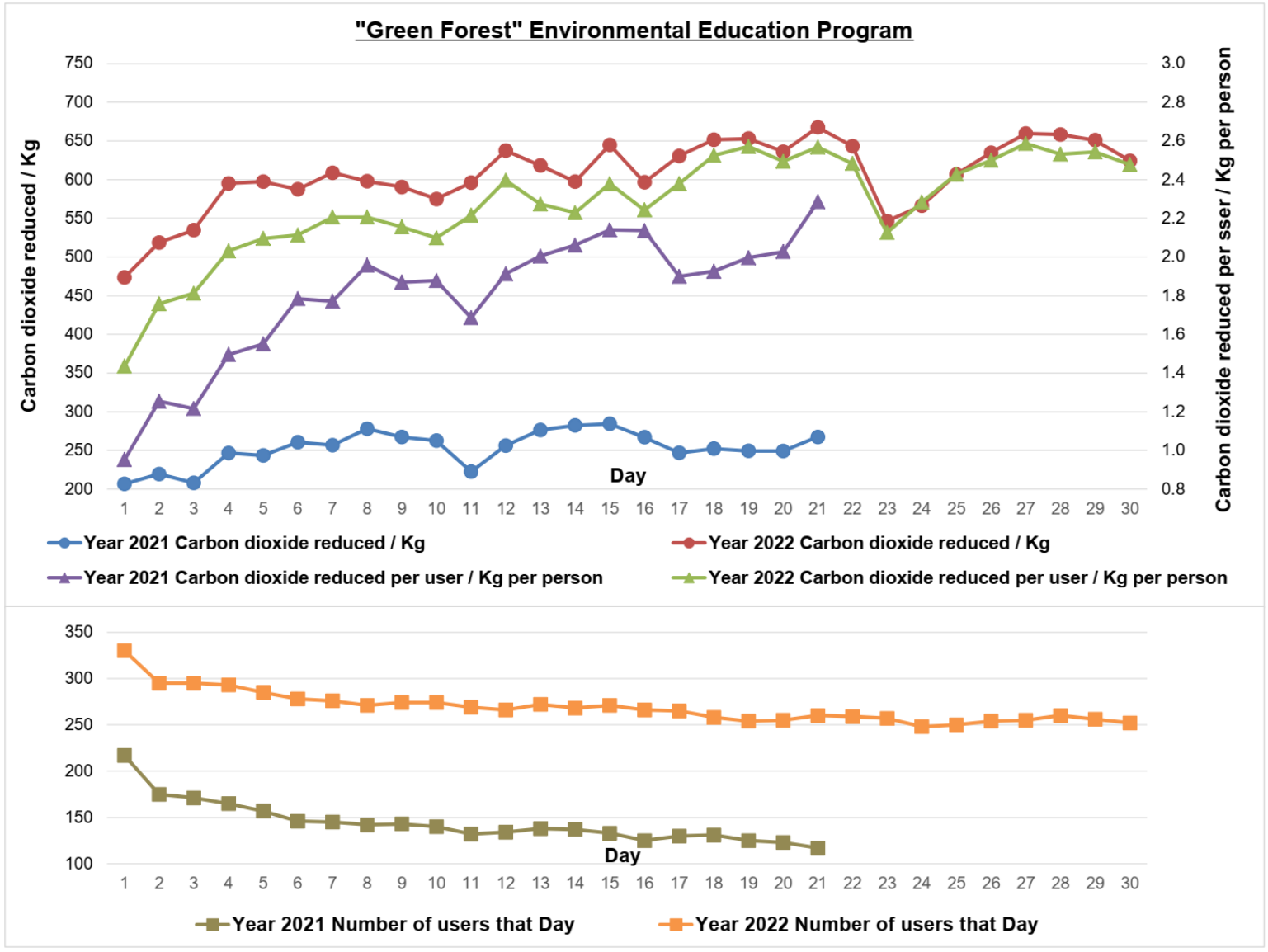
Results

- Participation and Actions
- 2021: 217 users, average 8.37 Green Actions daily.
- 2022: 330 users, average 8.70 Green Actions daily.
- Significant increase in pro-environmental behaviors over time.

Results (cont.)

- Carbon Reduction
- - 2021: 5305.0 Kg CO2 reduced.
- - 2022: 18198.6 Kg CO2 reduced.
- - Daily reduction per user increased significantly.

Carbon dioxide reduced achieved using “Green Forest”



Discussion

- Effectiveness of Green Forest App
- Historical feedback and gamification strengthened perceived behavioral control.
- Monetary incentives encouraged participation.
- Pro-environmental habits formed after 18 days.
- Recommendations for future improvements.

Discussion (cont.)

- Gamification and Goal Setting
- Realistic goals improved user engagement.
- Virtual seedling growth motivated continuous participation.
- Collective goals not fully achieved, highlighting areas for improvement.

Discussion (cont.)

- Monetary Incentives
- Low financial values but significant motivational impact.
- User feedback indicated monetary incentives were a key factor in participation.

Conclusion

Key Findings

- 'Green Forest' app effectively improved pro-environmental behaviors among healthcare staff.
- Significant CO2 reduction achieved.
- Importance of realistic goals and incentives for sustained engagement.

Conclusion (cont.)

- Future Directions
- Increase participation through enhanced collective goals.
- Further research on long-term habit formation and sustainability.

Thanks for Listening !! 感恩!!

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