Gaming for Good

Exploring the potential and pitfalls of citizen science games

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## Why use games/gamification in citizens science?

Game mechanics- including points, badges, leaderboards, levels, and challenges- can make citizen science more fun and engaging. Therefore, games and gamification can:

• support volunteer motivation and retention, by reaching new participants or keeping people engaged for longer

• allow volunteers to participate in a range of social interactions

• enable meaningful recognition of achievements [1]

Foldit, Fraxinus, MalariaSpot, Phylo:

the list of citizen science projects using games is growing. Take a look here:

www.citizensciencecenter.com/citizen-science-games-ultimate-list/
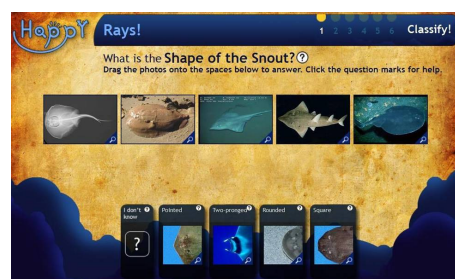
Fraxis (left) is an example of a full game. Citizen Sort (above) is an example of a gamified classification platform. Sreensshot Credits: Fraxinus, Citizen Sort

When gamification is used in citizen science, the use of game elements must be balanced with the need for relevant scientific outcomes. Thus, the use of games is contested:

The argument against…

• *"crowdsourcing model of research has the potential to cause harm to participants, manipulates the participant into continued participation, and uses participants as experimental subjects"* [2]

The argument for…

• *"crowdsourcing model of research via scientific discovery games is an emerging methodology that has the potential to tap into human intelligence at scales and in modes unheard of before"* [3]

Conclusion

The use of games in citizen science is still an underexplored and contested opportunity.

More research is needed.

References

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[2] Mark A. Graber, Abraham Graber. 2013. Internet-based crowdsourcing and research ethics: The case for IRB review. J Med Ethics 39: 115-118.

[3] Good BM, Loguercio S, Griffith OL, Nanis M, Wu C, Su AI The Cure: Design and Evaluation of a Crowdsourcing Game for Gene Selection for Breast Cancer Survival Prediction. JMIR Serious Games 2014;2(2):e7