**University of Dundee**

## Use of MOOCs to scale rigorous Citizen Science and its impact

Hemment, Drew; Woods, Mel; Ajates Gonzalez, Raquel

*Publication date:*
2018

*Document Version*
Publisher's PDF, also known as Version of record

Link to publication in Discovery Research Portal

*Citation for published version (APA):*
Hemment, D., Woods, M., & Ajates Gonzalez, R. (2018). *Use of MOOCs to scale rigorous Citizen Science and its impact*. Poster session presented at 2nd International ECSA Conference 2018, Geneva, Switzerland.

# Use of MOOCs to scale rigorous Citizen Science and its impact

**Authors**

Drew Hemment, Mel Woods, Raquel Ajates Gonzalez
*Duncan of Jordanstone College of Art and Design, University of Dundee*

d.hemment@dundee.ac.uk, m.j.woods@dundee.ac.uk, r.ajatesgonzalez@dundee.ac.uk

**GROW | From Soil to Sky (2018)**
Interactive map of GROW participants

Map of MOOC participants


GROW MOOCs in 2018


MOOC participant's blog


Parrot Flower Power soil sensor


© Susan Verrall
Nutrient testing kit


GROW Forum
All images © GROW Observatory except where stated

## A citizens' observatory with international reach

The GROW Observatory (EC H2020) is a citizens' observatory undertaking to deliver local and global impact by meaningfully engaging and supporting many people to take part in rigorous citizen science across wide geographical areas to better manage soil and grow food, while contributing to vital scientific environmental monitoring (Hemment et al., 2016).

## Scaling up citizen science via MOOCs

Through a 'social and peer-to-peer' approach to Massive Online Open Courses (MOOCs), GROW is scaling participation in citizen science while maintaining scientific rigour. GROW is running 4 MOOCs this year via FutureLearn designed to enable participants to learn about soils, regnerative food growing practices and making the most of open data to create positive change (Hecker et al., 2018).

## Creating communities of citizen scientists to foster long term engagement

Citizen science projects typically have a skewed pattern of participation, where a large proportion of volunteers contribute in small quantities and it is hard to sustain long term engagement. Following Jennett et al., (2016), GROW is testing how MOOCs can help overcome these barriers to support meaningful and sustained participation by offering a wide range of indirect opportunities for learning and creativity, including social peer to peer discussions, polls and quizzes, gamification elements, and online spaces for participants to share their own work and communicate with experts. MOOCs can deliver training to thousands of people concurrently, using models and tools to promote social learning that foster the formation of communities of practice and peer to peer support as well as multiple methods for learning and accessing expert knowledge, such as webinars.

## Overcoming barriers to robust and engaging training in citizen science projects

GROW MOOCs are engaging and supporting participants in the use of sensors, nutrient testing kits; land and soil survey; methods design; data collection and data awareness. We suggest these approaches may overcome common barriers to training for scientific protocols, data collection and sustainability currently experienced when supporting citizen science at scale (Wehn and Evers, 2015).

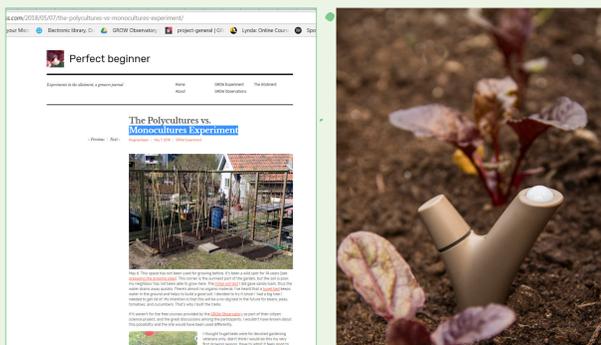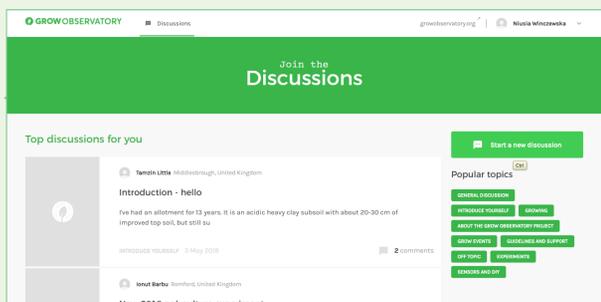| Citizen Science: From Soil to Sky | Citizen Science: Sensing the World | Citizen Science: Living Soils, Growing Food |
|---|---|---|
| Soil texture & stone content | Sensors used by learners | Regenerative practices |
| Slope angle & canopy cover | CS projects learners are involved with | Polyculture experiment parameters |
| Regenerative practices | | Land and Soil survey |

### References:

Hecker, S. et al. , 2018. Innovation in Citizen Science – Perspectives on Science-Policy Advances. *Citizen Science: Theory and Practice*, 3 ( 1 ), p.4

Hemment, D., Amditis, A., Fritz, S., When, U., Moorthy, I. and Tsertou, A., 2016. The Next Generation Citizen Observatories. In: *The First International ECSA Citizen Science Conference* 2016, May 19 – 21, 2016, Berlin, Germany.

Jennett, C., Kloetzer, L., Schneider, D., 2016. Motivations, learning and creativity in online citizen science. *Journal of Science Communication*, 15(3), article no. A05.

Wehn, U. and Evers, J., 2015. The social innovation potential of ICT-enabled citizen observatories to increase eParticipation in local flood risk management. *Technology in Society*, 42, pp.187-198.

**GROW OBSERVATORY**    University of Dundee

**Contact:**
growobservatory@dundee.ac.uk

growobservatory.org    @GROWobservatory