Submissions Abstract Book - All Papers (Included Submissions)

0246

Hackathons for Sustainable Development in Higher Education: A New Tool but for What Purpose?

Sandrine Stervinou[1], Aline Polipowski[1], Jennifer Goodman[1], Laurent Noël[1], Jean-Marc Charlot[1]

[1]Audencia Business School, Nantes, France

Research Domain: Learning, teaching and assessment (LTA)

Abstract: Hackathons, originally conceived a decade ago to stimulate the production of prototypes in the technological sector, have multiplied in higher education. This exploratory study focuses on a series of Hackathons on the theme of sustainable development conducted in a management school since 2016. It aims to understand the impact of this innovative tool for the various stakeholders involved: students, professors, programme managers and external stakeholders (sponsoring companies, CSOs). Through the use of questionnaires and interviews, our empirical study identifies explicit and diverse objectives of the participating stakeholders as well as tensions between them. These tensions lead us to caution the adoption of hackathons as a teaching tool without establishing a shared understanding of objectives and adapting the hackathon in context to assure its pedagogic integrity. These insights are particularly poignant given the current push for multi-stakeholder approaches to teaching sustainable development and the increasing popularity of hackathons in higher education.

Paper:

A contraction of the verb to hack and the word marathon, Hackathons emerged a decade ago. The first events brought together computer developers for continuous and intense work over a weekend to develop a prototype such as a mobile phone application (Briscoe and Mulligan 2014). In teams, participants take up a challenge around technological expertise in a shared space, stimulating competition and collaboration as well as creativity. Originally perceived as revolutionary events these rather unstructured events were appropriated by large companies and moved away from their technological origins to even include potential end users (Canopé 2017) and now extend into both public and private domains.

Hackathons have been rapidly adopted by higher education as an educational format to work on solving real world problems. More specifically, "green hackathons" (Zapico et al. 2013) aim to provide answers to the social and environmental grand challenges at the heart of sustainable development. The complexity, interconnectedness and global reach of such challenges provide a common focus for participants and responses require collaborative multidisciplinary approaches (Ferraro et al 2015; George et al 2016). Learning to problematize these necessarily complex realities, and to consider broader systemic impacts when developing solutions, becomes a core competency of sustainability education in management education (CPU & CGE 2016). Hackathons act as devices for "learning by doing" and "doing it together" (Canopé 2017: 15) and allow for idea testing, promoting creativity, collaboration, flexibility and fun (Gréselle-Zaïbet et al 2018). Their limited duration is particularly adapted to pedagogical objectives and constraints.

While widely acclaimed, previous studies have also critiqued hackathons. Outcomes can encourage quick fixes which emphasize the ability to pitch solutions rather than fully understand an issue (Endrissat 2019). Hackathons are argued to blur the boundaries between work and leisure and even to encourage the exploitation of non-professional "but abundant, motivated *free* labour" (Endrissat 2019). Such collaboration is also claimed to annihilate difference of opinion and lead to neutral positions (Endrissat 2019). Questions also remain about their educational potential. To be effective, they require material resources and strong pedagogical skills and institutional support (Canopé 2017). An adequate space for collective work is required and participants must be motivated and have a shared interest to stimulate a common reflection about the problem posed (Page 2016; Gréselle-Zaïbet et al. 2018).

The objectives of an educational Hackathon can be quite varied from a pedagogical point of view and the expectations of the other stakeholders, students, companies, can be just as diverse. Students may be stimulated by the final prize or more interested in the convivial aspect, the concrete character of the project or the contact with companies. The companies themselves want new ideas, to feel the aspirations of the new generation, to improve their employer image, to identify future recruits. Unfortunately, to our knowledge, few in-depth scientific studies have been conducted to measure the benefits of educational Hackathons for the different stakeholders involved.

In this study, we ask whether Hackathons are effective tools for sustainability management education. We take a multi-stakeholder perspective to analyse the pre-event objectives and the post-hackathon event evaluations of students, professors, programme managers and external stakeholders. Our empirical data is collected from six Hackathons organized since 2016 around the theme of sustainable development (see Table 1) by a French business school. We draw on surveys from a total of 260 students, formal and informal exchanges with programme managers and external stakeholders, and interviews with the teaching team of each hackathon.

Our preliminary findings demonstrate that there are different expectations from each stakeholder group and tensions between them regarding whether their objectives had been satisfied. We identify a tension between satisfying the teaching team's pedagogical objectives and the "event" status and surrounding communications prioritized by the programme managers. We also find evidence of a tension between the precise and outcome-oriented expectations of involved companies and the professors' focus on exploring complex problems in-depth and encouraging a broader applicability. Our findings imply the need for caution when using Hackathons, the need for a roadmap with clear objectives, and call for further work on how this tool can be adapted to assure its pedagogic integrity while maintaining its popular appeal. These insights are particularly poignant given the current push for multi-stakeholder approaches to teaching sustainable development and the increasing popularity of Hackathons in higher education.

References: Briscoe, G. & Mulligan, C. 2014. Digital Innovation: The Hackathon Phenomenon, *Creativeworks London Working Paper*, 6, 1-13.

Canopé. 2017. Hackathons – organiser des défis pédagogiques. Editions Canopé.

CPU & CGE. (2016). Guide Compétences Développement Durable & Responsabilité Sociétale : 5 Compétences pour un développement durable et une responsabilité sociétale. https://www.iddlab.org/community/pg/file/1215/read/32200/guide-des-comptences-ddrs-cgecpu (Accessed 10th December 2020).

Endrissat, N. 2019. Hackathons: A field of dreams for 'collaborative innovation'? : A review of recent studies, **Entreprendre & Innover**, 38(3), 69-75.

Ferraro, F., Etzion, D. & Gehman, J. 2015. Tackling Grand Challenges Pragmatically: Robust Action Revisited. **Organization Studies**, 36, 363–390.

George, G., Howard-Grenville, J., Joshi, A. & Tihanyi, L. 2016. Understanding and Tackling Societal Grand Challenges through Management Research. **Academy of Management Journal**, 59, 1880–1895.

Gréselle-Zaïbet, O., Kleber, A. & Dejoux, C. 2018. Le *Hackathon* en mode *Design Thinking* ou quelles modalités pour former à des compétences méthodologiques et comportementales ? **Management & Avenir**, vol. 6, n° 104, 149-171.

Page, F. 2016. **The use of the Hackathon in design education: An opportunistic exploration**, 18th International Conference on Engineering and Product Design Education, Aalborg, Denmark, 8th-9th September.

Zapico, J. L., Pargman, D., Ebner, H. & Eriksson, E. 2013. **Hacking sustainability: Broadening participation through green Hackathons**, *Fourth International Symposium on End-User Development*. June 10-13, 2013, IT University of Copenhagen, Denmark.

Table 1 Summary presentation of the Hackathons studied

Name	General Theme	Method	Public	External Partner	Organising Team	Duration	Recurrence
LSP® Workshop	Defining growth through cross-functional approaches (management, technology, construction-urbanism)	Workshops based on the LEGO SERIOUS PLAY method	40 post-graduate students Management school, Engineering school, Architecture school	No	1 teacher expert in economics; 1 educational engineer specialised in CSR	2 days	None
Urban Lab	Solving global problems related to the	Design thinking method	110 students Master 2 Management	Yes	5 teachers responsible for the	3 days	Year 1 : 2016 repeated

city of tomorrow			School, Engineering School, Architecture Schoo		programmes represented; 1 educational engineer		
CSR Challenge	Work on a CSR issue related to one of the SDGs	To encourage ideation and follow a process of divergence convergence	From 120 to 156 students in various Specialised Masters in Management School	Yes	1 teacher expert in CSR 1 pedagogical engineer specialised in CSR	2 days	Year 1 : 2017 annual
Plastic Forum	To understand the major environmental issues and the different CSR strategies and possibilities to address them	Various methods: role-playing; short lectures; discussions; team work	105 to 130 students of the International Master in Management	No	2 CSR expert teachers	1 day and 1/2	Year 1 : 2017 annual
LID	Prototype a collective urban henhouse	A "learning by doing" approach with immersion in a fablab	30 under-graduate students Management School, Engineering School, Architecture School	Yes	2 expert teachers in Maker Culture and Design; 1 partnership with a FABLAB	2 days	None on this theme
Critical Marketing Hackathon	Redesigning the market positioning of specific products to take account of environmental	Various methods: role-playing; guest speaker experts; short	73 students from Masters level Marketing major	No	4 teachers and 1 pedagogical engineer	2 days	Year 1: 2020 twice yearly

and   social lectures;
issues   team work