Nurturing Innovation and Future Entrepreneurs:
A case of crowdfunding in University teaching

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1. Introduction

Our entrepreneurship and innovation teaching initiative is an applied project linking innovation, entrepreneurship and crowdfunding, piloted in 2016 at Bradford University School of Management. Our aim is to cultivate in our Masters students an entrepreneurial mindset and to provide an environment in which entrepreneurial practice can occur. Valued at around $16.2 billion globally in 2014 and estimated to rise to over $34 billion by 2015 outstripping venture capital investments of around $30billion each year (Barnet, 2015; Massolution, 2014), crowdfunding provides an alternative to traditional ways of accessing capital which is becoming increasingly inaccessible to entrepreneurs and start-ups (Bruton et al., 2015). This initiative links the opportunities offered by crowdfunding with practice-based approaches to entrepreneurial learning through experience (Cope and Watts 2005, Wagner 2012, Neck et al. 2014). Evidence suggests that entrepreneurial learning resides in experience (Cope and Watts 2005) and that entrepreneurship and innovation are conceived as 'skills and habits of mind that can be nurtured, taught and mentored' (Wagner 2012: 16). Emphasis is on developing entrepreneurial potential and mindsets using a 'portfolio of practices' for creating (Neck et al. 2014: 11) and learning by doing. The Initiative was designed to run over three stages illustrated in Figure 1.
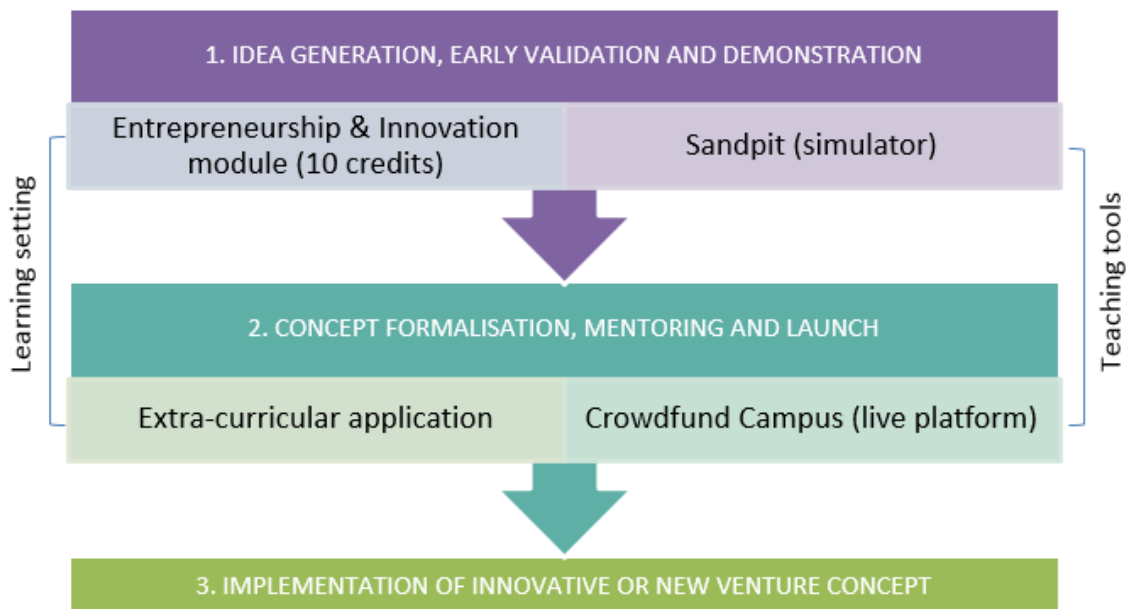
Figure 1. Three stages of crowdfunding initiative

For Stage 1, the setting was a 12 week module, in which thirty Masters students enrolled on the Entrepreneurship and Innovation module individually developed an idea for an innovative service or product and launched campaigns on a new crowdfunding simulator called Sandpit. Sandpit provides a safe learning environment for publishing innovative concepts. The platform was open for the 12 week period and the campaigning and crowdfunding experience was linked directly to the module assessment.

Following the module, students had the extra-curricular option to develop their concept within a real world exercise in Stage 2. Ideas incubated in the simulator could be taken forward to the live crowdfunding platform, which is also run by Sandpit developers, Crowdfund Campus. These 2 stages of the teaching initiative allowed us to follow in-class learning with post-module extra-curricular application. At the end of Stage 2, students with successful campaigns on the live platform would have secured the market feedback and business mentoring they need to go on to Stage 3 and start implementing for real their new venture or innovation concept.

The module allowed the students to experience an applied practice-based approach to enacting the early stages of innovation and entrepreneurship. Students were asked to build crowdfunding campaigns around ideas generated, give and receive peer feedback, act on that feedback, critically appraise their idea and reflect on the learning experience. The Sandpit activity was central to the module, supported by lectures, tutorials and formative feedback opportunities. Running in parallel, the lectures and tutorials combined a core understanding of innovation and entrepreneurship theory with presentations and interviews with practising entrepreneurs for a critical appreciation of the subjects' applied nature. The objective was to give the students a practical space in which to learn by doing, test out their entrepreneurial potential and expose them to the ambiguity, uncertainty and feedback that they would receive in the real world broadly following the phases of successful innovation (Mariello, 2007). The five phases were:

> *a. Idea Generation & Formulation*: Students generated initial innovative ideas around a problem or opportunity, supported by lectures incorporating tools and techniques for creative thinking and ideation, such as 6 hats thinking at the very early stages of the module.
> *b. Early Validation*: After researching their initial idea, the students had to consolidate, refine and communicate their idea to the class in a strict one minute elevator pitch. The objective was to garner the interest of potential backers in a simulation of the crowdfunding scenario. It was also to prepare them to articulate their ideas succinctly to an interested audience.
> *c. Demonstration*: Students then created their campaigns and organised their supporting material and launched them to the platform. The campaigns included descriptors, videos, target funding amounts and different rewards for backers. At the same time as launching their own campaigns, students were each allocated a set amount of campus coins, simulating real currency, for 'investing' in peers' concepts. Once the campaigns were launched, students were offered the opportunity to pitch to other students from the faculty of engineering and computing. The students were brought together to explore possibilities of working in multi-disciplinary teams to develop prototypes or provide support where relevant.
> *d. Reflection*: Each student was expected to provide critically constructive feedback on at least three of their peers' campaigns. They were asked in their assignment to reflect on the feedback they in turn received on Sandpit, as well as from tutors previously in tutorials and formative feedback sessions.
> *e. Development*: This extra-curricular phase was open for any students wishing to take their ideas forward and allowed them to apply their learning from the Sandpit and realise their entrepreneurial competencies. This phase incorporated post-module idea formalisation and development. The students worked closely with local business mentors to help test and develop their business concept, before it was launched on the live Crowdfund Campus platform. At this stage, the students were pitching for real funding from actual backers.

2. Infrastructure required to launch the initiative

The core requirement to launch this initiative was the online platform. The entrepreneurship and innovation teaching and learning initiative was built around an online crowdfunding-based e-learning tool developed by Crowdfnd Campus Ltd (https://crowdfundcampus.com). This teaching and learning tool facilitated the two stages mentioned. Stage 1. The "Sandpit" provides a simulated crowdfunding environment where students can experiment and test their ideas, and gain practical experience of setting up and running campaigns associated with their ideas, invest in other campaigns, provide and obtain feedback. For this stage, the Crowdfund Campus developers allocated a license for the institution based on numbers of student users. The developers hosted the platform and provided all other technical support for the platform, including back-ups for the campaigns and student technical support. No technical support was required from the University.

The Crowdfund Campus developers provided workshops to train staff in the use of the platform. This constituted a single two hour session at the University. The platform administration was very easy from a teacher's perspective. Figure 2 provides snapshots of the login stage, the educator/administrator's tab for setting up groups and campus coin limits, and a sample of the campaigns posted by students. Once administration privileges were given, it was easy to set up groups of students according to their module and invite registered

students to the respective group in the Sandpit with no problem. They were available to answer any technical problems as and when they arose, which was rare after the initial set-upstage. Supporting material was available on the website.
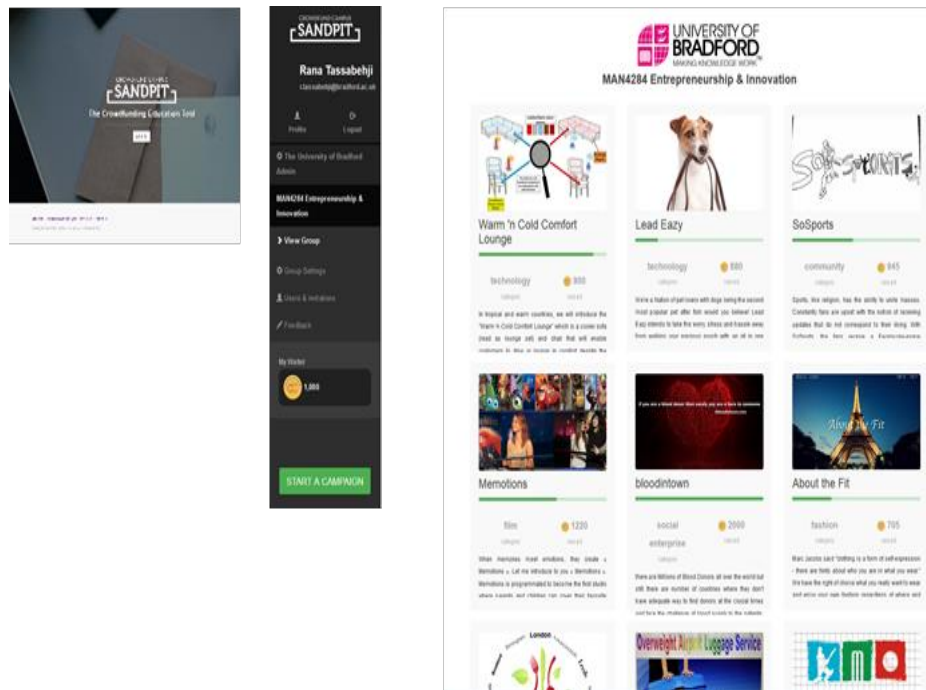
Figure 2. Sandpit screenshots: login, administration and campaign samples

The Crowdfund Campus developers also delivered a student workshop on crowdfunding best practice, including how to setup campaigns and use the platform, with examples from past campaigns, which the students found helpful.

There was no additional software or hardware required other than access to the internet through students' and faculty's own/institutional devices. This platform was accessible via mobile, tablet, laptop and desktop devices so long as they had internet connection.

There was no need for any additional staff to support this initiative, other than those in the existing teaching team.

This initiative was a collaborative pilot and was co-funded by the University using HEIF funding for knowledge transfer activities and Crowdfund Campus Ltd. A successful evaluation of this initiative will mean having to fund the platform for future use and development and any future license fees will have to be negotiated.

For Stages 2 and 3 this involved moving the students' ideas from the Sandpit to the "live" crowdfunding platform (figure 3) again provided and supported by Crowdfund Campus developers. Very similar to the Sandpit, it was easy to use with no requirements of additional technical support. As these stages were extra-curricular, they involved engagement of tutors and students from other faculties to collaborate on projects such as developing prototypes, apps or websites for demonstrating students' concepts and ideas. The mentoring phase involved contacting people with "real life" experience from the University's strong network of local SME business and alumni and matching mentors to the relevant students. In this phase we acted as facilitators to bring the two together, but largely left the mentors to work with the students directly. The decision to finally launch their campaigns on the live website was taken by the students and their mentors allowing students to unleash their entrepreneurial and innovative ideas on the world.
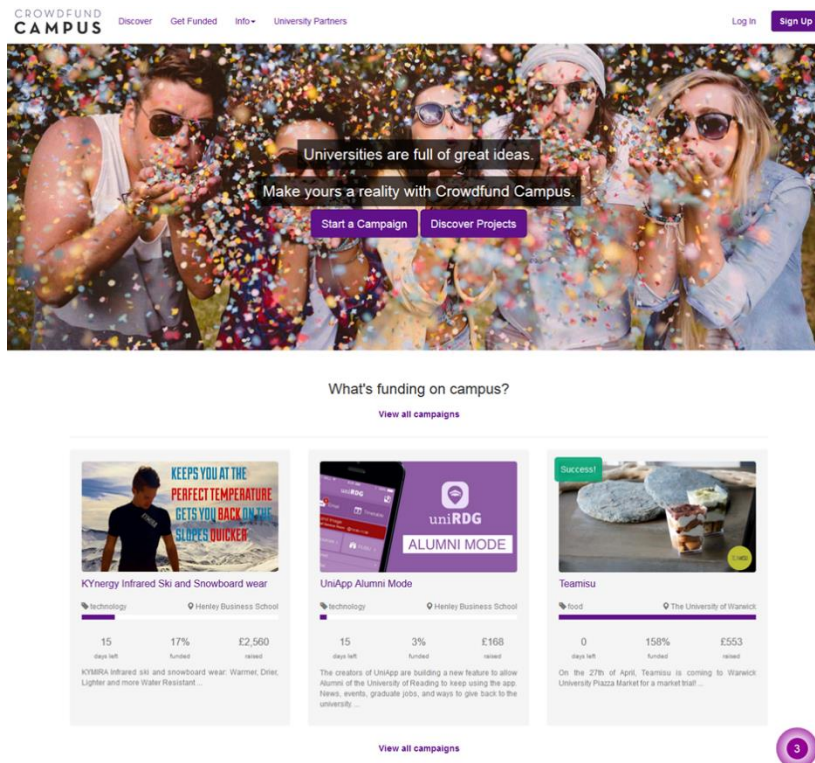
Figure 3. Screenshot of "live" Crowdfund Campus platform

3. Challenges

We identified four main challenges relating to the idea generation phase and the use of the Sandpit tool.

- *Idea generation***:** Students and tutors had different perception of the time needed for generating ideas. The students felt that two weeks was too short to come up with an initial idea. However, the tutors had informed the students from the module outset about the activity and assignment, and engaged the students in ideation and creativity exercises early in the module. Early engagement of students in the activity is critical and extra support was provided for individual students. In future more structured support with ideas will come from involvement by the platform developers at critical points.

- *Fear and uncertainty***:** Students expressed an early reluctance to share or publicise their ideas. Live talks by entrepreneurs and IP experts helped students understand the actual risks, how and when to protect ideas and the importance of sharing ideas for the entrepreneurial process. Fear was also raised around failure of the campaign (i.e. not reaching the target funding), of rejection of their ideas, of personal and public humiliation. We were surprised at the anxiety caused by the challenge of presenting, although in the end the pitches created a real buzz. Dealing with uncertainty and fear are important learning points and students need to develop the mindset to convert a negative into a positive. The tutors helped the students understand how to manage these issues through informal feedback, tutorials on failure and case studies.

- *Articulating value*: A major challenge was in getting the students to think about and articulate the 'value' of their concepts from an external perspective. In practice, convincing investors of the value and potential of a new venture or innovative concept is vital but most students approached the elevators pitches from an 'academic' viewpoint, focused on internal rather than external value and environments. Formative forward feedback emphasised this point, informing the development of the full campaigns for the Demonstration phase. Space for practice is important and is particularly important preparation for pitching later to the other faculty students and business mentors.

- *Creating effective campaigns*: Although technically Sandpit is a very user friendly tool (and none of the student had any problems using the actual platform), we found that few students used all four main features of the campaigns to communicate their ideas to their audience. Firstly, the students struggled to structure the rewards into tiers of value, despite these being an essential aspect of reward-based

crowd-funding. The descriptions, which form the main body of the campaign, lacked depth and focus and generally failed to present a compelling and interesting case. Surprisingly in a social media world, there was reluctance to produce short videos. The reasons for this reluctance was unclear to the tutors and in future more time will be given to support video pitches. Finally, the feedback/comments space was used only minimally and a-critically. There is a significant challenge in getting the students to appraise others' ideas where they have not yet understood the external perspective themselves.

Overall, from an educator's perspective, this pilot has highlighted a need to help students out of a dominant mindset of criteria compliance into a mindset of experimentation, discovery and learning by doing. In future iterations, more time will be dedicated to helping the students to understand the objectives of the activity and the links to their learning outcomes.

4. How the initiative was received

Feedback from a focus group and end of module review indicated that the students found Stage 1 of the initiative to be a highly positive learning experience. In particular they enjoyed the practical aspects of the activity. Importantly for evaluating the initiative, students told us that using the Sandpit platform genuinely validated their idea and that there was a real outcome at the end of the module i.e. a potential idea to take forward. Interestingly major strengths were identified as the assignment itself, the 'simulation leading to the development of their own ideas' and guest speakers' input. In particular, the session on failure was considered helpful.

The business mentors were extremely supportive of the initiative in offering their time to mentor the students through the extra-curricular stage 2, and hopefully onwards to implementation. The tutors also received requests from students not on the module asking to take part in Stage 2, so clearly interest in the initiative is spreading through word of mouth. The platform developers themselves have identified the Bradford pilot as the most integrated and embedded in the curriculum among other HE institutions in the UK, using their platform.

On reflection, as educators we feel overall that the Sandpit is an innovative teaching tool with potential to really engage students in a practice linked to real world entrepreneurial experience. The initiative has some areas for development but we feel its strength lies in its capacity to develop multi-disciplinary projects across the University. Computing and engineering students enjoyed engaging with our business students and found the exchange of ideas rewarding; despite some expected frustrations between the two sets of students in this first pilot collaboration, all faculty want to pursue this initiative further and inter-faculty opportunities are being discussed.

5. Achievement of learning outcomes

The broad learning objectives were to: understand and apply an entrepreneurial mindset; apply the phases of innovation in practice; and develop skills in entrepreneurial decision-making. The table below set out these broad learning objectives and key learnings and maps how achievement of learning objectives are being measured and evaluated.

Achievement of learning objectives was continuously monitored throughout the module, through a combination of: formal and informal formative tutor and peer feedback in each of the five phases, a within a constant dialogue and feedback loop; interim and end-of-module focus groups with the students; tutors' observations and field notes; standard end of module reviews; assessed coursework, including a portfolio and reflective account; feedback from business mentors, including at the shortlisting stage; two way feedback; interviews with the platform developers; and performance of the campaigns in the Sandpit itself. In future, evaluation will be also structured within the Sandpit around a clearer framework.

Learning objective	Key learnings	How measured /evaluated
1. Develop and apply and entrepreneurial mindset	developing an innovative solution to a real world problem or opportunity	Sandpit measures: funding achieved and feedback comments
	entrepreneurial practices of experimentation, discovery and creation	Educator reflections and field notes
2. Apply the phases of innovation in practice	idea generation and mobilization, validation of and by peers	Feedback from platform developers on usage
	concept demonstration	Formative feedback
	concept experimentation and diffusion	
3. Develop skills in entrepreneurial decision making	creativity	Assessment Summative –portfolio (including the pitch, etc and the reflective account)
	communication	
	problem solving	
	critical reflection	Business mentors – shortlisting the ideas potentially going forward

Table 1. Summary of learning objectives and outcomes

Evaluation will be ongoing over the coming three years. However, initial indications are that use of the Sandpit tool and live platform was instrumental in achieving the overall learning outcomes. The activity engaged students in the process of moving ideas from concept stage further along the innovation/entrepreneurial process. For around half of the student cohort, Stage 1 was the start of their entrepreneurial journey as they apply for mentoring to take their ideas to Stage 2 and then implementation.

6. Plans for further development

Having launched this initiative locally within the Faculty of Management, the future plan is to disseminate our experiences university-wide, to faculties such as Engineering, Computing, Health, Peace studies, Biological sciences and others. Our intention is to develop an integrated curriculum for Entrepreneurship and Innovation teaching, through multi-disciplinary programmes at Masters and Undergraduate level where,

(a) Students will collaborate with their peers from other faculties on projects to experience, share and develop entrepreneurial skills and an understanding of the innovation process from completely different disciplinary perspectives

(b) Educators will work together in a genuinely collaborative way to develop creative and mutually relevant student assessments, broaden students' subject specific knowledge and help students apply their skills honed from different disciplinary areas. This initiative ultimately supports the development of teaching teams across faculties to develop state-of-the-art and critical understanding of entrepreneurship and innovation teaching and learning as it relates to different technologies and disciplines.

Our plan is also to build on the relationship between university educators and students and enterprise initiated through this pilot. Following this pilot, we expect to develop even closer ties, directly with businesses and organisations, by taking on the role of mentors for our students and possibly even as potential investors in our students' ideas. The ultimate objective is to have students graduating with the skills and knowledge that are relevant to the real world, by creating and launching their own enterprises, ventures or technologies and with the opportunity of generating more creative ways of attracting funding. Dependent on the students' capabilities, a whole range of spin-offs in the form of new entrepreneurial ventures, new businesses, new innovations and ideas could result, with potential in the long term to create employment, prosperity and based on the ideas from our initial pilot, may well have an impact on the wellbeing of people and sustainable societies locally, nationally and internationally.

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