Innovation, entrepreneurship and education

Editorial
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New models of innovation for education are emerging in Europe. Education is by and large a public endeavour, the responsibility of governments and international institutions. We think of education in terms of large and complex systems. Hence, the common assumption has been that change in Education will be driven by institutions: governments, universities, consortia of large stakeholders and resource-rich foundations. Recently, we are seeing more and more grassroots entrepreneurship playing a disruptive role in this ecosystem. Admittedly, the entrepreneurial scene is still dominated by American players. Can that change? Does Europe have a voice of its own, which will promote different values and pedagogical approaches? What are the promises and challenges of entrepreneurship in education?

These questions need to be considered in a broader context: according to a recent OECD study, young SMEs account for 42% of new jobs. Europe is acknowledging the importance of fostering a vibrant startup culture, a change of mindset is reflected in initiatives such as startup Europe the startup manifesto and the startup Europe partnership. Universities are responding with entrepreneurship education programmes, and the private sector is responding with a wealth of incubators and accelerators. This trend has been driven by business schools and technology faculties for several years, without a specific domain focus. Recently we are witnessing initial signs of an emerging stream of activity focused on technology enhanced educational innovation.

This special issue aims to open up the debate about the promises, risks and challenges of educational entrepreneurship, entrepreneurship education (with a focus on the above), and the synergies between them. The issue has four in-depth and four from-the-field papers that begin to uncover the landscape of innovation, entrepreneurship and education. The in-depth papers examine the role of serious games for entrepreneurial education; the importance of creating open and new ways for collaboration and innovation for education in small and large learning ecosystems; the identification of key elements of learning design to support innovation in education and the impact of student case competitions and its impact on Entrepreneurship Education and learning.

The from-the-field papers present several projects that bring attention to successful examples of an extracurricular programme for entrepreneurial learning and the significance of grassroots entrepreneurship learning programmes causing positive disruptions for education. In addition to this, a field report on a university’s effort to create an innovative multi-disciplinary media and design studio that reached beyond the walls of the academia, is presented. We wish to highlight the role that education for entrepreneurship and entrepreneurship for education are playing that can reshape European society. It is important that we take a critical view of the threats they might pose to educational quality, equality, and the challenges faced in terms of resource shortage, institutional culture, and formal qualification schemes.

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The Open Education Challenge – a New Model for Effective Educational Innovation

Education and educational innovation attract huge public investment worldwide. However, it appears that these investments do not always achieve the desired effects. Arguably, this is partially due to the highly centralised and institutional nature of most educational initiatives. We propose an alternative model, called the Open Education Challenge (OEC), which gives voice to educational entrepreneurs, and fosters a synergistic ecosystem, where private investors, established enterprises and entrepreneurs play a critical role alongside governments and educational institutions. The OEC combines the creativity and user-centric focus of Design Thinking, the business fitness of Lean Start-up, and the rigour of Educational Design Research. It engages multiple spheres of influence, from entrepreneurs to the general public, and leads a selected group of flagship start-ups on an intensive growth path. This model has been piloted in European in 2014. We report on the results of this pilot and consider the implications for future work.

1. Introduction

There is a wealth of compelling evidence for the positive impact of education on economic growth (Hanushek, E. A. & Wößmann, 2007; 2012; Kim & Terada-Hagiwara, 2010). Other studies note the positive impact of education on wellbeing, citizenship and social capital (Milligan, Moretti & Oreopoulos, 2004; Helliwell & Putnam, 2007). However, the link between education and its positive outcomes is far from simple and a critical analysis shows that it is by no means automatic (e.g. Pritchett, 2006). Furthermore, even if we accept the value of quality education as a given, the data shows that investment in education is not necessarily correlated with the expected benefits. Figure 1 maps primary completion rates against public spending on education, as a percentage of government spending (EdStats, 2013). Similarly, performance in eighth grade mathematics shows no correlation to expenditure per student in primary education, as percentage of GDP (World Bank data, 2007). These data demonstrate that the link between investment, quality and impact in education should not be taken for granted. Some countries with low investment display high achievements and vice versa.
Governments, foundations and international institutions all play an important role in promoting educational excellence, directing the required resources and ensuring that they will bring about the desired outcomes. Yet, we contend that education systems are often too large with too many impediments for internal innovation to bring about transformation in the required scale and pace. We believe Education Entrepreneurship is critical to introduce innovation into teaching and learning and to bring real change to global education systems.

Although Global EdTech Financing has hit record highs in recent years, relative to the amount of money spent on public/state Education globally (2014 spending on primary and secondary education exceeds $5 trillion worldwide), there is not enough investment in this space (only US$ 1 billion was invested in EdTech companies in 2014). Furthermore, we believe there is ample opportunity to improve the quality of entrepreneurship in education by mobilizing key stakeholders.

Education needs disruptive innovations, i.e. those able to disrupt existing education practices with new products, tools and services. For the first time, changes in education are considered as both desirable and viable and no longer reserved to a selected group of policy makers and experts. Most structured education is delivered by centralised institutions (public school systems), which are too large and slow to embrace change. “Entrepreneurship in Education” is a vital force for introducing innovation into the system.

The notion of “education entrepreneur” challenges our understanding of an education system, ruled by core curriculum standards and a cohort of dedicated civil servants that decide on behalf of the teachers, students and families what is good to be taught in the classroom and how learners should learn. These “education entrepreneurs” are part of a larger movement, opening up schools – and more broadly, education – to new influences, new ideas and new interests.

This broad transformation can only succeed if all actors—teachers, students, parents, entrepreneurs, policymakers, headmasters and University deans, HR managers, investors—are involved in redesigning education. How can entrepreneurship culture connect with education? How can private entrepreneurial initiatives truly transform the way we learn, and how can they adapt to our education systems in an ethical way? How can start-ups respond to education challenges in terms of efficiency, social equity and cultural diversity?

We need to invent a new model of entrepreneurship adapted to the specificities of education. We must find the right mix the entrepreneur must apply between understanding education challenges and injecting innovative vision that encompasses the role of technology. Our vision of an ecosystem of entrepreneurship in education is based on the following assumptions:

- Shared conviction that all countries share common education challenges, yet these are manifested in localised variants.
- Education entrepreneurs benefit from exposure to global education challenges so they might evolve their solutions in a more scalable manner while retaining their local context.
- Policymakers need help understanding the role of entrepreneurship to solve systemic problems in education.
- Investors can contribute to a socially responsible change process in education.
- Education entrepreneurship must be based on and enable a vibrant and continuous dialogue between entrepreneurs,
policymakers, practitioners, learners, publishers, designers, consultants, human resources managers, investors and investment managers; All in one place as a symbol of an innovation process that progressively blurs the frontiers that once defined education as sanctuary preserved from real life influences.

2. The Open Education Challenge

The Open Education Challenge (OEC) was created in 2014 to boost education entrepreneurship in Europe. It was designed by a private entity expert in education and an investment company in full partnership with the European Commission and its directorate general for education and culture. European policymakers at the highest level were part of the initiative from day one. Instead of proposing a traditional incubation process located in a single place, the OEC designed an ambitious tour of European capitals to get acquainted with different realities, meet experts from all fields and all cultures. To make this experience unique and fruitful, the OEC built partnerships with some of the most innovative knowledge centres in the field: the Aalto University in Helsinki, the London Knowledge Lab, ESCP Europe in Paris.

The OEC 2014 incubation process can be summarized in a few lines: an active, blended, project-based programme based on principles of design thinking an lean start-up, touring six European cities, leveraging institutional partnerships with leading universities and research centres in innovative education in four countries, three months of intensive work, 600 proposals received from 74 countries, an overall impact of 29000 innovators, personalized support with 110 mentors, dozens of work sessions and masterclasses in different European countries, a European Union sponsored award ceremony with 500 participants in Brussels, seven best in class start-ups brought to investors for an equity investment of more than €2M.

Beyond the figures, the OEC has demonstrated its capacity to engage stakeholders at the highest level in the education entrepreneurship programme: the director general for Education and Culture at the European Commission, an education expert of the House of Lords, the Higher Education adviser to the French President, heads of education in capital cities, current and former ministers for education, research presidents of some of the most important European Universities, European teachers and headmasters from public schools, university professors and researchers, the main European textbook publishers, the general commissioner for investment of the French government, the former world president of the Chartered Public Accountant, head of banks, investment funds in London, Geneva, Luxembourg and Paris, investment bankers, head of leading IT and Telco companies, HR managers of leading European companies.

3. The OEC Model

The OEC programme is not just an incubator: we take a holistic approach, which builds our community through a sequence of phases before, during and after the incubator (Figure 3).
Our model of an incubator for educational entrepreneurship is based on four pillars: educational excellence, technological excellence, business excellence and team excellence. The OEC analyses the departing point in each of these pillars of seed ideas, projects and companies. Therefore, winners and incubated start-ups are supposed to count with a good balance in each of these aspects. The four pillars are also the drive during the incubation process. Teams go through mentoring processes with reputed experts in each field to maximize the efficacy of their start-up. The programme design combined elements of design thinking (Brown, 2008) and more specifically – learning design (Mor, Craft & Hernández-Leo, 2013) with methods and principles of lean start-up (Ries, 2011). The result was an equal emphasis on user (learner or teacher) experience, business viability and technological possibility.

4. A Blended Programme
As mentioned, instead of a traditional incubation process located in a single place, the OEC designed an ambitious tour of European capitals to get acquainted with different realities, meet experts from all fields and all cultures. These residentials are focal points in a continuous collaborative learning and development process. In between these events, we provided guidance, mentoring, webinars and online workshops using a project management platform. We chose a project management platform, rather than a VLE, because it allows:

a) Organizing the work of the teams, on a task-based manner, which is very useful mostly for the earlier stage companies.

b) Establishing the regular communications among teams and experiences sharing. Earlier stages teams benefit from the contact with more mature and go to market companies.

c) Collaborating and sharing documents and information of common interest.

d) Placing meetings and pre-workshops activities with all sort of experts in the field.

5. The Residentials
Each residential focusses on one of the elements / pillars of the incubation programme. Therefore, after the design and business workshops and the final in Barcelona, we organized four residentials in four capitals focussing on product design; lean start-up and development; business planning and going to market, and financials and communication with investors. The last residential was dedicated to an Awards Ceremony and to meet investors to secure funding for their coming steps.

Residentials had a common structure, with a lot of built-in flexibility to allow us to take advantage of local opportunities (Figure 4). We opened each residential with a “catch-up” session, where all teams summarize their news and advancements since the last stage. This was usually followed by a masterclass focussing on the current focus theme. The main bulk of the residential was a combination of 1:1 or 2:2 mentoring sessions with leading subject experts, workshops, site visits and additional masterclasses. Additional activities included EduPreneur panels, private meetings with potential partners or clients and bespoke mentoring sessions according to the specific needs of individual teams. The climax of each residential was the open showcase event, where the start-ups had an invaluable opportunity to present their passion, vision and innovation to potential users, partners the educational innovation ecosystem in each city. The residential concluded with a plenary closing session, where participants shared their reflections and observations, followed by individual briefings where each team planned its work for the next period.

6. Personalised and Collaborative
Innovation and entrepreneurship is by definition unique, and thus the needs of every participating start-up are unique. The programme acknowledged these unique needs, and catered to them, through tailored mentoring, meetings and guidance both at the residential and between them, online and in person. At the same time, the sense of a shared journey and the advantages of collaborative learning are central to the OEC experience. These were reified through the joint elements of
the residents, but also reflected in the online platform and activities. For example, we held regular “morning coffee” and “afternoon tea” video conferences, which offered an informal forum for sharing experiences, achievements, doubts and tips.

7. Results

The primary measure of an incubator programme is the success of its incubated start-ups. Unfortunately, due to issues of commercial confidentiality, we cannot yet disclose the full details regarding the status of our start-ups. We can note that several of them have received, or are negotiating, significant investments. Several have been awarded promising contracts, and several have been invited to join consortia bidding for EU research and innovation funding under the Horizon 2020 programme. However, some of the start-ups in this first cohort have not yet been so successful, and are still searching for suitable investors, clients and partners.

The objective of the OEC was to stimulate and cultivate the broader ecosystem of educational entrepreneurship. In that sense, our impact has exceeded our expectations. Figure 5 offers a brief overview of the OEC’s spheres of influence, from the seven incubated start-ups to over 30,000 practitioners, entrepreneurs, innovators, policy makers, and researchers who were involved or effected by the OEC in one way or another.

![Figure 5: the OEC spheres of influence](image)

Table 1 elaborates this picture, by noting the actual numbers affected in each phase. It is important to note not only the scale and scope of impact, but also the diversity across private, public, academic and professional domains.

<table>
<thead>
<tr>
<th>Sector</th>
<th>Europe 2014 Reach</th>
</tr>
</thead>
<tbody>
<tr>
<td>Application phase contact points (website unique users)</td>
<td>29,000</td>
</tr>
<tr>
<td>Evaluated applications</td>
<td>611</td>
</tr>
<tr>
<td>Countries</td>
<td>74</td>
</tr>
<tr>
<td>Start-up maturity</td>
<td>57% early stage</td>
</tr>
<tr>
<td></td>
<td>21% start-up</td>
</tr>
<tr>
<td></td>
<td>22% idea</td>
</tr>
<tr>
<td>Regional partners, knowledge centres, etc.</td>
<td>3 knowledge centres</td>
</tr>
<tr>
<td></td>
<td>3 entrepreneurship hubs</td>
</tr>
<tr>
<td>Contacted entities (call for project + incubation)</td>
<td>300 Incubators / Accelerators</td>
</tr>
<tr>
<td></td>
<td>765 Chambers of Commerce</td>
</tr>
<tr>
<td></td>
<td>150 Universities and business schools</td>
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<tr>
<td></td>
<td>40 education networks</td>
</tr>
<tr>
<td>Number of mentors</td>
<td>110</td>
</tr>
<tr>
<td>Incubation-related activities</td>
<td>40 private meetings, visits, workshops or webinars</td>
</tr>
<tr>
<td>Number of policy makers involved</td>
<td>3 at European level: DG EAC Director General / EU representation in the visiting country</td>
</tr>
<tr>
<td></td>
<td>4 at national level: Presidency Office / Ministry of Education / Public Innovation Programmes</td>
</tr>
<tr>
<td></td>
<td>4 at city level ** 4 countries and cities visited</td>
</tr>
<tr>
<td>Social media</td>
<td>5,000 engaged users (approx.)</td>
</tr>
<tr>
<td>Showcase attendees</td>
<td>300</td>
</tr>
<tr>
<td>Released Open Educational Resources</td>
<td>4-6</td>
</tr>
<tr>
<td>Number of investors</td>
<td>TBC. 10 to date</td>
</tr>
<tr>
<td>Total equity of investment</td>
<td>TBC. €2 million to date</td>
</tr>
<tr>
<td>Invested companies</td>
<td>4/7 to date</td>
</tr>
</tbody>
</table>

8. Academic Resonance

The OEC was developed in partnership with several academic institutions. Aalto University, Helsinki, a prominent centre of excellence in design and entrepreneurship, was the ideal site to open the incubator – driving the message of “design first”. Aalto’s Design Factory was a fitting setting to start a programme aiming to empower change-makers in education, as was Finland, a country where educators are highly regarded and empowered to innovate. Our second residential was focused on business sense, and ESCP Europe in Paris was the natural partner for this. The Entrepreneurship Chair of this leading European business
school invited the start-ups to participate in their Blue Taste event, an opportunity to present their company many times in short meetings and answer the questions of potential users or clients. The third phase introduced the start-ups to lean start-up methods and concepts, and Berlin, with its vibrant start-up scene, offered a perfect backdrop. Here, our partner was the educational start-up iVersity. Finally, the London Knowledge Lab, a world-leading research centre with wide networks in academia as well as industry, was the most suitable partner for the last phase which highlighted presentation and communication.

Our blog provides a record of the experiences in each one of the residentials, with additional posts related to specific masterclasses:

- “Innovation and Incubation in Helsinki”: openeducationchallenge.eu/blog/innovation-and-incubation-helsinki
- Top takeaways from masterclass “Creating and Telling Your Story”: Top takeaways from masterclass “Creating and Telling Your Story”
- “Discovering new aspects of innovation in education in Paris”: Discovering new aspects of innovation in education in Paris
- “Highlights of the Berlin residential”: Highlights of the Berlin residential:
- “The Lean Start-up Model for edtech entrepreneurs”: openeducationchallenge.eu/blog/lean-start-up-model-edtech-entrepreneurs
- “London: the last residential”: http://openeducationchallenge.eu/blog/london-last-residential

On 11-12 December, the OEC teams came together one last time in 2014 for two exciting events. Firstly, we attended the conference Education in the Digital Era, where the teams had the honour of being named the “European EdTech Start-ups of the Year.” Secondly, we held our Investors Day, where the teams pitched their projects to the Open Education Investment Club. This was not the only occasion the teams interacted with academia at conferences. They were also invited to showcase at the Research and Innovation in Distance Education (RIDE 2015) conference that took place the 6th of February in London. The incubation process provided opportunities for them to collaborate with researchers and expose pilot findings, etc. ThinkWithThings, for example, was invited to share some of their outputs of a pre-pilot in 5 Belgian schools at the Mobile Learning Week 2015 that UNESCO organized at Paris headquarters during 24-27 February. The strong connections formed between the start-ups and the relevant academics they met through the incubation process are reflected in the advisory boards that several of the earlier stage companies formed or strengthened. Relevant experts whom, they met as mentors or as co-presenters at conferences were recruited to give the start-ups a stronger theoretical and scientific foundation.

9. Policy Resonance

The Open Education Challenge was launched in partnership with the European Commission and under the patronage of former Education and Culture Commissioner, Ms. Androulla Vassiliou. Mr. Xavier Prats-Monné, current Director General for Education and Culture at the European Commission, joined the Jury chaired by Lord David Puttnam in Barcelona that selected the teams that were afterwards invited to participate in the incubation programme. Both Lord Puttnam and Mr. Prats-Monné were again in charge of the Awards Ceremony celebrated in Brussels, during the conference Education in the Digital Era¹ organized by the European Commission with the aim of leveraging discussion on the education needs to be “fit for the digital era”. The conference presented a unique chance to discuss the opportunities and challenges of adapting contemporary education systems to the increasing use of ICT in our digital society. It involved a wide range of high-level stakeholders and experts in the field of digital communication and learning, among these government ministers from across Europe and beyond, university leaders, high officials in the European commission, and prominent thought leaders.

10. Participant Testimonials

The start-ups participating in the incubator had the closest and most elaborate view of its effects. We therefor include some extracts from texts some of our participants published. These are admittedly anecdotal and self-selected, as participants who had less positive experienced may have chosen to remain silent. Nevertheless, we believe these testimonials give a glimpse of the perspective of those participating in the programme.

ThinkWithThings dedicated a newsletter to the experience. Among other comments, Julie Anne Gilleland, co-founder and CEO says: “an amazing accelerator is an understatement! We would call it a super-speed boost pack that pushes you into the arms of the top in education reform and allows you to be the best you can be, even if you didn’t think you could be”.

Testimonials from GroupMooc, Klassdata, Domoscio and Funbrush where collated in another blog post. The quality of the connections in each of the ecosystems, the organization and the value of meeting the right people at the right time were some of the key aspects they highlighted. Gregory Howe’s feedback was very positive: “At every stage in this process we learned a great deal: the importance of product/market fit; implementing sophisticated user analytics; creating design displays to showcase our product; identifying new revenue stream opportunities; new approaches to marketing and advertising; and new techniques for business plan and pitch presentations to better communicate our solutions. For us, the highlights were the incredible expertise and experience of the mentors and the quality of the master class workshops. We were also introduced to potential customers, which is hugely helpful for a new business”.

“In my opinion, the meetings with potential customers and mentors are a total asset”, says Tomás Martinez Buero, CEO and co-founder of KlassData, a developer of educational learning analytics technologies. “Our company has grown during the incubation process. We fine-tuned our message to the different stakeholders (customers, channel, users and investors), becoming more effective at explaining our value proposition. We also improved our value proposition because we had the chance to meet many potential customers and educational experts across Europe, which helped us to understand much better the market’s needs and difficulties.”

Critical input and help from very diverse profiles, ranging from education experts to investors, were a major asset in the re-definition of the participants’ agenda. “They were pertinent, available and encouraging”, states Ivan Ostrowicz, CEO and co-founder of Domoscio. Ivan points out: “In terms of business, the incubation allowed us to have a better approach to the market, with an international vision. This vision clarified our positioning and targeting. Once these two points were well-defined, the message and marketing to implement them were made easier”.

Our youngest entrepreneurs and co-founders of Funbrush, Miłosz Cisowski and Adam Roszyk, were enriched by the first-hand knowledge they received through contact with more experienced entrepreneurs. “Conversations with mentors showed us our weaknesses, and the hard work and results from the users of our first prototype were a great motivator for action”, confirms Adam.

11. Future Work

Our success on the European scene leads us to seek ways to expand our programme globally. We are currently considering organisational and financial models which would allow us to scale up the OEC, through a network of incubators, venture capital instruments and centres of excellence, to create a critical mass of educational entrepreneurship that would promote educational excellence worldwide. In the meanwhile, we are analysing and refining our model. Müller & Thoring (2012) offer an insightful comparative analysis of lean start-up and design thinking approaches. Much of their findings resonate with our experience, and will feed into the re-design of our model. The expansion of the OEC to a global scale will also be a catalyst for careful and detailed documentation and evaluation of our principles and methodologies. In the first run of the OEC, we adopted a lean approach also in our use of supporting technologies: most of the tools we used were off-the-shelf components. Towards the next iterations, we will review the lessons learnt in this domain as well, and develop a platform tailored to our model.

12. Summary

The results we presented here are still somewhat unstructured and unsystematic. Nevertheless, they portray a picture of considerable success, especially if we take into account the innovative nature of the programme itself and the relatively modest resources at our disposal. This success is by all means not complete: several of our start-ups are still refining their products and strategy, and searching for suitable funding and revenue streams. However, both the anecdotal and the structured evidence suggests that all start ups are in a considerably better position than they were at the beginning of the process.

Our goals go beyond the incubated start-ups: we aimed to stimulate and cultivate the broader ecosystem of educational entrepreneurship. Our engagement with and impact on policy makers, practitioners and academics indicate that we have

2 http://openeducationchallenge.eu/blog/think-things-happy-memories-outour
contributed to the growing awareness of the role entrepreneurs need to play in the European educational scene, and to the conditions that need to be present to enable them to take on this role. By and by, we have also helped establish productive relations between different actors in this ecosystem. We are not alone in this field: there are other incubators, accelerators and competitions promoting entrepreneurship in education. Indeed, we are in close contact with many of them, and welcome open and honest exchange of knowledge.

We initiated the OEC out of our conviction that alongside governments, foundation, academic and educational institutions, and international organisation – entrepreneurs have a vital role to play if we want education to manifest the benefits it promises. Our experience with the first round of the OEC has strengthened this conviction. To fulfil this destiny, educational entrepreneurs need support which goes beyond the existing mechanisms that serve entrepreneurs or educational innovators in general. We have tried to construct a framework that simultaneously promotes excellence in educational quality, business quality, technological quality and team quality. The initial evidence that we presented here suggests that, to a degree, we have succeeded.

13. Acknowledgments

We would like to thank Sabine Runge and William Florence for their contributions.
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An Autoethnographic Perspective of Social Entrepreneurship Focused Student Case-competitions and its impact on Entrepreneurship Education and learning

Competition or competitiveness is arguably an innate human trait that drives many individuals, businesses and organizations, from the Olympics to searching a cure for AIDS. It is one of the powerful forces that push us to excel or reach out for more, even though the yardstick of success that we use is relative to the performance of “our competitors”. It is, thus, not surprising that over the past decade or more, there has been an exponential increase in student case-competitions around the world, especially in the areas of business and entrepreneurship. Coupling this to the current trends and increased interest in social entrepreneurship, we are starting to see an increase in crowd-sourcing to solve generally intractable social problems via case-competitions for both students and non-students alike. The competitions provide a framework for the participants to combine their skills, to network and to contribute with ideas for the existing social problems. Our paper explores the rise of social entrepreneurship based case-competitions through an auto-ethnographic approach of the two authors by combining critical assessment and reflection of their participation in multiple challenges – both social and general. The reflections are buffeted with secondary data-analysis. We report on the entrepreneurial learning of the authors, and reflect on the process and the engagement levels at different stages of participation. We finally extrapolate our findings in context of other competitions and discuss how these can be applied to entrepreneurship education in general. We thus set a stage for more empirical studies in this emerging area.

1. Introduction

In the past years, there has been an increasing critique towards methods used in education from schools to universities (Resnick, M. 2002, Robinson, 2001). The major concern has been that students are trained just to be employees and that schools are built on an archane model derived from the industrial era, training students to be factory workers, rather than be independent creative problem solvers (Robinson, 2001). However, nowadays, the skillset-demands from the new graduates are changing (Wolk 2011). The past decades have primarily been driven by fast-paced technology development – what students learn in school is outdated by the time they graduate. Thus, building knowledge is not sufficient, and an ability to spot opportunities and to create new ideas is required. This is also driving changes in the education systems around the world to include group activities, case-studies and student-driven projects. These provide students with more ownership and responsibility – students are no longer passive recipients of knowledge, but a part of creating new knowledge within their domain. This has also influenced the rise of student competitions in a majority
of institutions worldwide. These projects bring together students to work on a pre-defined problem description to create their solution based on their knowledge and often connecting students from different disciplines, levels of experience and geographies. The rise of the internet not only increases awareness of global issues, but also enhances the opportunities to connect people globally to interact and work together, making possible cross-border work on problems and ideas at a scale like never before.

At the same time, there is increasing interest from organizations, universities as well as the general public in social issues (Elkana, Y., 2009; Battilana & Lee, 2014). Problems like social inequality, climate change, labour mobility, demographic change, etc. are pressing concerns for societies today. While previously these concerns were mainly addressed by the governments and NGOs, increasingly more people assume the responsibility to take ownership of community problems (Wates, 2014) –from local projects to the establishment of social businesses.

Social businesses target social change using market-based approaches for social value creation (Smith et al., 2013). Several studies have found that social businesses are a source of economic value creation and a mean to contribute to society (Fayolle & Matlay, 2010; Certo & Miller, 2008).

Social ventures pursue social goals as a primary focus but base their operations and revenue generation on commercial activities. The social purpose determines the organization design and business model of these ventures in order to combine economic and social goals in one venture (Wilson & Post, 2013). According to a taxonomy developed by Yunus et al. (2010), a social business is defined as “no-loss, no-dividend, self-sustaining company that sells goods or services and repays investments to its owners, but whose primary purpose is to serve society” (Yunus et al., 2010: 311). Social ventures focus on social profit maximization over financial profit maximization and the repayment of invested capital over no recovery of invested capital (see Figure 1). Indeed, a “new global economic sector” could grow from the creation of business models that pursue profits and societal wealth simultaneously (Thompson & MacMillan, 2010: 292).

Figure 1: What is a social business? Source: Yunus et al. (2010: 310)

Kathleen and I have both been involved in student case-competitions during our time as students—some of these focussed on social-entrepreneurship while others were standard business challenges and/or entrepreneurship challenges. We met each other at an entrepreneur startup-weekend challenge during its organic team-formation process. Later, we also participated together in another social entrepreneurship challenge (Financial Times MBA Challenge) due to the positive experience of working together in the aforementioned startup-weekend challenge. I had already participated in at least a couple of social challenges and two other business challenges before the FT-MBA challenge. I could already feel the difference in my experience of the standard and the social business case challenges. During and after the FT-MBA challenge, both Kathleen and I compared, contrasted and discussed our experiences of these different challenges. We were surprised to discover that despite the significant differences in our age, gender, educational background, work experience, culture and language, we felt the similar differences in the feelings that the two types of challenges invoked in us – in terms of involvement, engagement, passion, sense of accomplishment etc. This inspired us to analyse our experiences towards a research article. However, in trying to contextualise our experiences and set it within an objective research framework, we found ourselves struggling to agree about the best way to go about it. We knew that we needed to dig deeper into our experiences – which we could only do with a qualitative approach but not a case-study as the researcher separates from the self in case study methodology. It was at this point that Kathleen realised that we could possibly use an autoethnographic approach. While, we did not have much experience with the method per se,
after researching other qualitative methods, autoethnography seemed to be the most appropriate way for us to use ourselves as research instruments and involve ourselves in the analysis. In this context, we believe that an auto-ethnographic perspective complemented with secondary-data analysis and literature searches would aid in understanding the differences we experienced between the two types of case competitions.

2. Frame of Reference

This section reviews the rise of two phenomena – one of social entrepreneurship and the other of student challenges/case-competitions. These are relevant for an increasingly mobile and technology-savvy generation Y that is now approaching work and career options with a new attitude (Armour, 2005). We will first chronicle the rise of these two phenomena and the correlation of these sets the context of this article.

Rise of Social entrepreneurship: We are currently in a time where Social Entrepreneurship is both recognized and accepted as a world-changing phenomenon that continues to exponentially attract social entrepreneurs, policy makers and academics studying the field. Academic inquiry into Social Entrepreneurship is only now beginning to catch up with what social entrepreneurs have already been doing – namely, changing the world for the better – however, with almost no research or policy support. A reason attributed to the slow pace of academic inquiry is the lack of common understanding or varying definitions of what a social enterprise is and the role of the social entrepreneurs behind them (Samer Abu-Saifan, 2012; Martin & Osberg 2007). There has been a chronological evolution of the various definitions that indicate not only the changing perceptions but also similarities between theoreticians and practitioners (Waddok and Post 1991, Leadbeater 1997, Bronstein 1998, Thompson, Alvy and Lees 2000, Drayton 2004, Bronstein 2007, Martin and Osberg 2007, Ashoka 2011, Hartigan P., (in Murphy and Sachs, 2013)). While lingering differences between social activists and entrepreneurs still exist and the wide and mixed usage of the term can contribute to its obfuscation (Martin & Osberg 2007), what is clear from observing these definitions is that social entrepreneurs can be recognised as innovative, persistent, action-oriented and intrinsically motivated individuals with a strong belief in the social cause they are rooting for.

The rise of Social Enterprises itself is also mirrored in the global rise of educational programs that offer social entrepreneurship courses/modules, or in some cases a full Master’s program – for example the HULT University Master in Social Entrepreneurship (Hult International Business School, 2014) or the Social Enterprise Career Program at Harvard Business School (Harvard Business School, 2014). However, what is arguably one of the strongest indicators for the rise in social entrepreneurship education is its influence on business schools, primarily on MBA programs. An MBA program is often seen in prestigious light by MBA-aspirants with expectations of improved job-prospects and salaries through an MBA degree (Forbes, 2013). This probably correlates with the proliferation of MBA studies worldwide and the subsequent rise of various business school rankings.

Some longitudinal studies provide an interesting observation that an MBA education leads to an increase in self-oriented student values compared to other-oriented values (Krishnan, 2008). So, it does come as a surprise when one sees the increase in social entrepreneurship content and enrolment in elite business schools, for example in Harvard and Stanford, as shown in a recent article by Milway & Goulay (2013) that documented the rise of Social Entrepreneurship in recognized Business Schools. Figure 2 below (borrowed from Milway & Goulay’s 2013 article) showcases data from the Bridgespan group on the increase in Social Benefit content in courses at top MBA schools in the US. Interestingly, this increase coincides with the anger against global capitalism fomented by the global financial crisis of 2008. This has brought back into the fore the debate on the relationship between business and social responsibility – a debate that probably has its origins since the start of the great depression and surprisingly has also led to thoughts about a resurgence of a more “mature” and socially responsible form of global capitalism (Murphy and Sachs, 2013).
**COURSES AT TOP MBA SCHOOLS THAT INCLUDE SOCIAL BENEFIT CONTENT**

Between 2003 and 2009, the average increase in courses was 110%.

![Bar chart showing increase in social entrepreneurship education at top MBA schools.][1]

**Figure 2: Increase in Social Entrepreneurship education in Business Schools.**

**Rise of student case-competitions:** Case-competitions are widely used by various organizations to interact with students at universities. While many subject domains are now increasingly using this format, a majority of the case competitions are relatively more prevalent in the business domain as can be seen from a compendium of case competitions around the world compiled in a crowd-sourced wiki[^1]. While information on business & entrepreneurship challenges is much more widespread and can be easily accessed or searched for, we showcase some case-challenges from other domains to present the larger context and prevalence of the phenomenon. This list is compiled in Table 1.

The challenges allow students and organizations to interact, discuss and create new ideas. Where the case owners may have various interests, for example, getting to know talented students, promoting their organization, or getting new inputs, the participants have the opportunity to learn new skills and techniques in their field and learn how to apply their knowledge to a practical case. This concept has also found large interest within the social business area exemplified in Table 2.

### Table 1: Examples of case challenges in domains other than business and entrepreneurship

<table>
<thead>
<tr>
<th>Case-competition</th>
<th>Location</th>
<th>Purpose</th>
<th>Started</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Engineering and Commerce case competition</td>
<td>Concordia University, Canada</td>
<td>Real-world problem solution through interdisciplinary collaboration. Engineering and commerce students from Universities across the globe develop culturally diverse solutions.</td>
<td>2014</td>
</tr>
<tr>
<td>2 Clarion Local/National Case Competition</td>
<td>University of Minnesota, USA</td>
<td>Improving healthcare through inter-professional collaboration (Students from medically related fields)</td>
<td>2002/2005</td>
</tr>
<tr>
<td>3 International Emory Global Health Case Competition</td>
<td>Emory Global Health Institute, USA</td>
<td>Multidisciplinary teams of University students (all disciplines) learn about a real-world global health issue and develop innovative solutions.</td>
<td>2009</td>
</tr>
<tr>
<td>4 Global Case Competition</td>
<td>Washington State University, USA</td>
<td>Bringing multidisciplinary (all disciplines) teams of students from WSU colleges to develop solutions to issues currently impacting global community.</td>
<td>2011</td>
</tr>
<tr>
<td>5 US-China Energy and Environment Case Competition</td>
<td>UC Berkeley, USA and Tsinghua School of Environment, China</td>
<td>Breed young top-tier leaders in energy and environment with a global mindset by giving students “opportunity to solve a real-life problem that demands integrative problem-solving and innovative thinking to get prepared to all kinds of situations that they might face at the forefront of the next wave of US-China collaboration in global energy and environment fields”. Teams with mix of science and humanities encouraged.</td>
<td>2014</td>
</tr>
<tr>
<td>6 Undergraduate Science Case Competition (Local/Provincial)</td>
<td>Western University, Canada</td>
<td>Tackle a real-world challenge by proposing an original research idea backed with current scientific literature. Multidisciplinary science teams.</td>
<td></td>
</tr>
</tbody>
</table>

### Table 1: Examples of case challenges in domains other than business and entrepreneurship

<table>
<thead>
<tr>
<th>Case-competition</th>
<th>Location</th>
<th>Prize</th>
<th>Started</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Hult Prize</td>
<td>USA (Global)</td>
<td>USD 1 Million</td>
<td>Spring 2010</td>
</tr>
<tr>
<td>2 Innovation in Social Entrepreneurship Case-Competition</td>
<td>Brigham Young University (National)</td>
<td></td>
<td>2010</td>
</tr>
<tr>
<td>3 YYC Social Enterprise Case-Competition</td>
<td>University of Calgary, Canada</td>
<td>Internship in Kenya</td>
<td>2014</td>
</tr>
<tr>
<td>University of Calgary, Canada</td>
<td>Internship in Kenya</td>
<td></td>
<td>2014</td>
</tr>
<tr>
<td>4 Kellogg Biotech &amp; Healthcare Case-Competition</td>
<td>Northwestern University (Global)</td>
<td>USD 5000</td>
<td>2007</td>
</tr>
<tr>
<td>5 VERB Grew from DELL Social Innovation competition (DSIC) which ran from 2007 until 2013</td>
<td>Northwestern University (Global)</td>
<td>USD 25000</td>
<td>2014</td>
</tr>
<tr>
<td>6 The Games for Change Challenge for students (digital game development with a cause)</td>
<td>Europe (Global)</td>
<td>Invitation to series of professional events to showcase the game</td>
<td>2013</td>
</tr>
<tr>
<td>7 Hong Kong Social Enterprise Challenge (HKSEC)</td>
<td>Hong Kong</td>
<td>Two awards of up to HKD 60000</td>
<td>2007</td>
</tr>
</tbody>
</table>
In social business competitions (as compared to other business competitions), student teams are usually given a real problem that is of concern to a specific community, or are given an overall theme under which to develop a viable social business plan. While the incentive for winning the competition is very large, i.e. the ideas may be financially supported for implementation, these competitions demand a strong support from the universities — a challenge for many students in terms of time constraints (due to a strict course schedule) or financial support to participate in regional or global rounds of the competition.

**Research question:** Within the context of the framework presented, the question that we are attempting to answer is – “What could be the reasons for perceived differences between the experiences (such as motivation, engagement, passion, sense of accomplishment) in the general and social-business case-competitions? This inevitably leads to a second and probably more pertinent sub-question – “Can social entrepreneurship case-completions be used as an effective mechanism in entrepreneurship education, and if so, how?”

### 3. Methodology

Autoethnography, a qualitative method, is a postmodernist construct in that it combines autobiography with ethnography (Reed-Danahay, 1997). According to Maréchal (2010:43), “autoethnography is a form or method of research that involves self-observation and reflexive investigation in the context of ethnographic field work and writing”. Ellis (2004) pointed out that auto-ethnographers look in (at themselves) and out (at the world) connecting the personal to the cultural and includes dialogue, emotion, and self-consciousness through first-person accounts. It is thus a highly personalized form of writing “where authors draw on their own experiences to extend understanding of a particular discipline or culture” (Holt, 2003). They further added that auto-ethnographic research is useful as it attempts to combine the self-conscious impulse with a heightened cultural awareness, thereby reflecting the larger world against personally lived experiences (Ellis and Bochner 2000). This work is based on the authors’ personal experiences with case-competitions and their reflections in the context of the entrepreneurship education.

Autoethnography as a method has a few limitations (Atkinson, 1997; Walford, 2004) and one of these is the presence of inherent bias that can also be enhanced when the subject matter being discussed is of passionate interest to the authors with the risk of distortion of the reality (Walford, 2004). We were aware of this limitation, but on the other hand had done a search for other qualitative methods (Seale et. al., 2004) and found that this method would be the only one that would capture the richness and details of our shared experience despite our considerably different backgrounds. However, we have taken some steps to try and counter-balance some of the limitations of the method and also to add some objectivity to the reflections. The authors agreed upon the objective of the study and the original motivation that made the study possible in the first place and structured a rough process/framework within which the individual reflections should occur. As the aim was to identify experiential differences in the case competition types, we structured the process as follows: pre-challenge, mid-challenge and post-challenge considerations. The individual narratives & reflections were made solo before the authors discussed together their reflections and compared notes. Furthermore, we also looked at literature, quotes and any other statements that we might have made during the challenges that were already available on documented media such as newspaper articles, blogs and or challenge webpages. Finally, we added from one of the SE challenges, the FT-MBA challenge a collection of participant interviews that the Financial Times had done mid-challenge from all the participating finalist teams Financial times (2012). These may contribute to countering the bias to some extent.

Our observations and reflections (in the following section) thus try and tease out the factors that motivated us to participate

<table>
<thead>
<tr>
<th>n.º</th>
<th>The President’s Challenge</th>
<th>Harvard (for Harvard school students and post-docs)</th>
<th>Mentoring the project in i-lab for top 10 teams. Grand prize $70K (runners-up share $30K)</th>
<th>2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>9</td>
<td>Skoll Foundation SE challenge</td>
<td>Not only for students – but general</td>
<td>USD 1.6 Mill raised – but shared via 10 teams via a donor match method</td>
<td>2014</td>
</tr>
<tr>
<td>10</td>
<td>Financial Times MBA Challenge</td>
<td>Global</td>
<td>Opportunity to consult the partner charity</td>
<td>2012</td>
</tr>
</tbody>
</table>
in the challenge, our expectations as the challenge progressed and our engagement levels in various phases of the challenge.

4. Observation and reflections

Pre-challenge: Motivation for participation

Kathleen: (talking about FT-MBA challenge) - “My motivation to participate was to develop a solution from scratch and turn it into a viable business case. The problem presented to us had a great impact for the lives and education of the children, which made this challenge very motivating. For me, it was important to get to know more about the problem and the context in order to gain a rich understanding of how a potential solution could look like and how it can be feasible and useful for the community. It was a privilege to be able to work on this real-life problem; it is much more than a case-study challenge.”

Rajiv: “I have always been attracted to challenges as it allows me to test out the knowledge gained in studies in practical settings. However, the challenges that really matter most to me are those that have real-world impact and are also helpful to society as a whole.”

Kathleen: “The Financial Times Challenge was not the first case-competition that I took part in and also not the first within Social entrepreneurship. I remember that every time such an opportunity presented itself, I was so curious to be part of it, because it gave me the chance to engage myself with a new project that allows me to use my knowledge and creativity, and to discuss ideas with my team members for new products, concepts or business opportunities. I have always experienced those challenges as great fun, because it allows the participants to actively develop their input to a given problem. Too many times in university education, students are the receivers of knowledge, whereas those competitions are based on an active participation. Therefore, entering a new challenge was always voluntarily with the willingness to spend extra hours and extra effort, because I expected fun and active learning, independent from the scope of the given challenge.”

Rajiv: “My motivation to take part in most challenges was of course to meet new people, try out new skills, have fun and network while also scope out career possibilities. However, if I count all the extra hours and effort that I spent, it seemed that I always found more time for social challenges and was willing to go the extra mile – even if it meant missing classes, work or spending resources directly from your own pocket. For example, in the Hult Challenge, I travelled to India to actually meet and scope the rural communities to have a better understanding of the problem – as the theme was on using Education to fight Global poverty. I wouldn’t have done this if it were just a standard business challenge like for e.g. the Novo Nordisk Innovation Challenge that I took part in.”

Observations and critical reflection: It appears that the most common drivers for participation in the challenges seem to be the testing of theoretical skills in a real-world case combined with curiosity and relatedness/attachment to the case and its social impact. When querying others that we met in some of these challenges we more or less got similar answers. Investigating this further through the Financial Times interviews, we summarise and document motivation factors for us and the other participants of the challenge (Table 3).
Table 3: Motivation factors for short-listed teams of the FT-MBA Challenge

<table>
<thead>
<tr>
<th>Teams</th>
<th>Team Members</th>
<th>Motivation factors for participation</th>
</tr>
</thead>
<tbody>
<tr>
<td>RightSite*</td>
<td>Rajiv</td>
<td>Test knowledge in practical settings. Attracted to challenges, especially social challenges and prior experience with them.</td>
</tr>
<tr>
<td></td>
<td>Kathleen</td>
<td>Learning opportunity. Hope to bring people closer</td>
</tr>
<tr>
<td></td>
<td>Dev</td>
<td>Learning opportunity, especially in writing business plans</td>
</tr>
<tr>
<td></td>
<td>Aaron</td>
<td>Need to solve the issue, being close to the issue at hand (Recognition of societal need as a deputy director of an eye care service provider)</td>
</tr>
<tr>
<td></td>
<td>Ishanie</td>
<td>Need to solve the issue, being close to the issue at hand (Personal experience – user of prescriptive glasses since a young age)</td>
</tr>
<tr>
<td></td>
<td>Enoch</td>
<td>To understand the elements for any business to be a sustainable and a social entrepreneurship.</td>
</tr>
<tr>
<td>The Glass Strangers*</td>
<td>Deepali</td>
<td>Desire to work for societal benefit and use education for greater good. Experience of a four month old wearing prescriptive glasses</td>
</tr>
<tr>
<td></td>
<td>Sudhanshu</td>
<td>Involved with NGO and other activities for social good. Opportunity to provide input to Sightsavers. Motivated to help own countrymen.</td>
</tr>
<tr>
<td></td>
<td>Ashish</td>
<td>Opportunity to work with students from universities around the globe. Opportunity to find solution to a real-life-social-issue</td>
</tr>
<tr>
<td></td>
<td>Fenna</td>
<td>Opportunity to explore more about business plans. Opportunity to possibly be able to make a difference</td>
</tr>
<tr>
<td></td>
<td>Pankaj</td>
<td>Personal understanding of stigma behind wearing prescriptive glasses. Would like to make a difference</td>
</tr>
<tr>
<td></td>
<td>Rohit</td>
<td>Have observed the issue at schools and in the society and understand the need for it to be solved.</td>
</tr>
<tr>
<td>2020 Vision for Change@</td>
<td>Bethan</td>
<td>Apply to eyecare: own education, skills and knowledge of working in developing countries</td>
</tr>
<tr>
<td></td>
<td>Marc</td>
<td>Way to apply classroom learning to a real world scenario – especially in social entrepreneurship</td>
</tr>
<tr>
<td></td>
<td>Bruce</td>
<td>Aware of stigma due to personal use of prescription glasses</td>
</tr>
<tr>
<td></td>
<td>Leanne</td>
<td>Opportunity to use a business model to address a public health issue</td>
</tr>
<tr>
<td></td>
<td>Lucy</td>
<td>Prior experience of barriers to eye care service provision in low resource settings. The challenge requires direct addressing of the issue within an often hard-to reach group</td>
</tr>
<tr>
<td></td>
<td>Sumona</td>
<td>Attracted to social enterprise and prior experience investigating a model for eliminating avoidable blindness.</td>
</tr>
</tbody>
</table>
From the interview, some additional factors emerge, over and above what we already had said. These are – “the desire to give back to the society”; “an opportunity to work with others, especially internationals”; and “relatedness to the issue at hand”.

Mid-challenge: Process expectations & engagement

Rajiv: “As the challenge took hold, I being one of the more senior members of the team, felt that it was necessary for the team to have a team-leader and correspondingly heightened responsibility for our actions and plans. This role helped me guide the process but also was inherent by the intense engagement I was having both due to the problem and to the potential impact and post-project potential of the project. I could see the potential of “real-change” happening and I wanted to be a part of that even though I knew that in the end we had to give away our business plan to SS to carry out the work. There were moments of despair within the group process as we worked with a rather ambitious solution towards a seemingly intractable problem that the charity had struggled for years with as well. Due diligence, the competitive element, time-pressure, regular contact with the organisers, and media coverage of the problem and its potential also worked towards increasing the engagement levels in general and to overcome barriers such as balancing time and study needs (most teams had active students) and geographical boundaries (virtual team work challenges”).

Kathleen: “I think the experience during a challenge depends a lot on the people you work with. Sometime you chose your own teams and other times you are allocated in specific groups. Either way, the group dynamics have a big influence, because case-competitions are often designed to solve complex problems and the work environment feels intense. Even though there is no obligation to perform, and the participation from everyone is voluntarily, I have observed over the years that most of the participants get really attached to the project and this creates a highly intensive work environment. The concept of a ‘challenge’ adds to the competitiveness among teams and the willingness of your team to succeed with your solution. I have experienced that challenges that are based on real-life cases and with a
sincere interest of the organizers to take the solutions forward, increase the motivation of the participants significantly. I have participated in a few smaller case-competitions that were primarily focused on learning how to solve cases and how to analyse complex problems. The given problems may have been old cases that the organizers worked on previously within their firms. While those competitions add great value to the participants learning on case-solving, the attachment turns the project remains minor. In contrast, the engagement level seems the highest in social-case competitions. Those challenges go beyond the firm level in many cases, but are open to solutions that are meaningful on a broad scale. Further, the set-up of the competition has a large impact on the learning. The level of support during a case-competition can vary largely. Some competitions are facilitated step-by-step whereas others let the teams explore ideas on their own with a high degree of independence. Competitions that continue over several months require a significant time commitment from the participants. Only in competitions where I felt that our ideas bring value to the project, did I put in extra effort. This has been most often the case in start-up challenges and social business competitions.”

Rajiv: “Even though we started out approaching this project as consultants, the process and involvement meant that we tended to work towards a solution that was more entrepreneurial in nature – i.e. where we started charting out a role for ourselves in the solution where we intended to partner with the charity in some way. This was a trend that could be seen in other teams as well based on our informal conversations with them. Also, most teams felt that there was a high level of entrepreneurial learning during this process.”

Post-Challenge

Rajiv: (About FT-MBA) “I felt that winning the challenge was a great recognition of our commitment to the project and its highly innovative potential. It felt sad, however, that we just had to give away our business plan to the NGO for the NGO to implement but on the other hand it was coupled to another contra-emotion of joy and personal satisfaction as we felt that we were going to impact the lives of many people and that there was no better reward than that.”

Kathleen: “Challenges have always been a rewarding learning experience for me. It was an emotional journey of ups and downs during the process, because we got more and more enthusiastic about our ideas, while we knew that there will be constraints in implementing the project ourselves. Winning or not winning the competition did not matter as much, as long as some of our ideas would be taken forward.”

Rajiv: “Most of the business challenges that I have taken part in have always felt as though we played the role of consultants. However, if I look back and consider the social entrepreneurship challenges – for example, in at least three that I took part in – teams were required to deliver their solutions to the host charity or NGO. However, even though I started out feeling as a consultant, the process and involvement and potential for social impact meant that I tended to work towards a solution that was more entrepreneurial in nature – i.e. I did not just want to give away the solution. This was not the case in business challenges where I was happy to give away the solution (i.e. it was a requirement but no regret was felt in handing over the solution). This was a trend that I saw in other teams as well.”

Considering that this analysis is retrospective, there may be a bias towards remembering the “good” experiences stronger than the “negative” ones. This though should not limit the authenticity of this analysis, since the major question in focus is about the learning from those competitions. Looking back, we consider case challenges as an important part of education, the main reasons being: (1) the participants are actively engaged in developing solutions, (2) the competitive spirit adds to increase the participant’s eagerness to perform without the pressure of receiving any grades, and (3) the participants develop a sense of ownership of their projects which strengthens the engagement and thereby the learning, as has been observed in self-managing teams (Druskat & Pescosolido, 2002). The level of learning depends on the design of the competition. Based on our shared experience and conversations with other participating teams we can safely state that participation in any case-competition contributes to developing skills in problem-solving, analytic thinking, team-work and presentation. With an increasing level of group independence, there has been a higher degree of learning time management and project management, in convergent and divergent thinking in addition to the other skills. In social-case competitions, however, there may be some implicit design for the participants to implement their ideas and thereby support some form of venture creation process, the entrepreneurial learning is strongly fostered. In these cases, our collective experience again identified that these competitions were relatively more engaging than standard business case competitions.
5. Discussion

Entrepreneurship is a social phenomenon that involves a wide set of behavioral skills in addition to entrepreneurial business knowledge. Each of these can be learned (Kirby, 2004) and educators can work with these structures of knowledge (Neck & Greene, 2011). Yet, teaching entrepreneurship is a challenge because it ideally requires cycles of accumulating tacit knowledge through experimental and action-based learning, and reflection on these actions in an informed and structured way; often while still in action (Heinonen & Hytti, 2010). Preferably, a program should include actions that equate to some level of real life entrepreneurial experience, as the decision to execute is perhaps the single most important barrier to lower because, as Shane and Venkataraman (2000) remind us, prior entrepreneurial experience increases the probability of execution (Carroll & Mosakowski, 1987) because learning reduces the cost. From a barriers perspective, striving for something as-real-life-as-possible is also important because barriers reported by non-, potential-, intentional-, and actual entrepreneurs were stable across the four groups, but drop in importance the closer a person is to venture creation and actually being a founder manager (Kouriloff, 2000). From this perspective, ultimately, execution of a genuine startup venture would be the single best way to break down the largest multitude of barriers.

Our own observations, the data on the rise of social entrepreneurship challenges and educational programs, coupled to the feedback from other teams indicate that there is a relatively higher level of engagement in social entrepreneurship challenges as compared to other standard business or engineering challenges alone. This observation would, of course, have to be verified by longitudinal studies or a mixed methods study. Due to space and time limitations, we have not added data from other similar competitions, but if one compares the duration of the challenges – i.e. the time of the challenge versus the amount of time the student has to spend on it and the number of teams that apply for such challenges – the data will probably indicate a bias towards social entrepreneurship challenges. To put things in perspective – another Global case-challenge is the “Hult Prize”, one of the world’s biggest SE challenges currently, that runs for a period of 10 months where short-listed student teams have to leave their studies for 2 months to join an accelerator program. It had 4000 teams applying in 2012. In 2014, it had over 11,000 teams from across the globe. This, in itself, speaks highly about the engagement level of the students for SE challenges and thus combined with our own observations and experiences reaffirm our primary research question. What is, however, more interesting is our subsequent research question about what this higher engagement means and how it could be translated into practice.

We have earlier discussed the worldwide debate regarding education systems in general and have also highlighted the disillusionment with business education that has also correlated with the recent financial crisis and the questions being raised about a capitalist system that probably is getting out of sync with the recent developments and changes in the world around us (Murphy & Sachs, 2013). Murphy and Sachs acknowledge the rapid rise of entrepreneurship and propose the rise of SE as a possible future for global capitalism. We would like to further add to this line of thought that the rise of SE also represents a possible future for the evolution of more mature and involved action-based learning that could especially be employed in the area of Entrepreneurship Education. Entrepreneurship Education itself has moved away from the debate on whether it should be taught to how it should be taught (Heinonen and Hytti, 2010) with a focus now on imparting entrepreneurial skills rather than just theory about entrepreneurship.

Various articles assess how different aspects have an impact on developing entrepreneurial skills. Blenker et al. (2014) present a review of the empirical papers on entrepreneurship education between 2000 and 2012. The review shows that the current research does not include empirical studies on how case-competitions influence the development of entrepreneurial skills. While some studies present case-studies as part of the in-class or extra-curricular teaching activities, none of the papers that measure the effect of an independent on a dependent variable include case-competitions as a variable. The overview shows that the majority of papers assess the impact of an entrepreneurship program on a respective dependent variable (14/23 papers). Our paper identifies case competitions as a parameter worth examining in future studies as an independent variable for developing entrepreneurial skills (dependent variable).

A common critique to entrepreneurship education is that it cannot be successful because students targets are high grades and the successful completion of a course in entrepreneurship can hardly be measured – Should students be assessed on their theoretical knowledge of business concepts? Should
they work independently on an idea and the viability of the idea is assessed? Should we measure success by an increase in the entrepreneurial intention? Overall, there is no simple answer to this discussion and surely this paper cannot answer it either, but this analysis and the use of student competitions for the development of entrepreneurial skills is based on a voluntary participation, where students self-select themselves into and there is no formal assessment in terms of a grade that they are dependent on. Thus, they can work more freely and independently on the idea and are not constrained by performing in the way that is expected to obtain a high grade. A study has shown that involvement or participation in extracurricular activity improves interpersonal competence and educational success in terms of higher average grades (Mahoney et. al., 2003). It however, remains to be seen that if grades were to be added in the mix of voluntary participation of SE – challenges, would that have negative or positive impacts on the voluntary participation itself. Similarly, when combined in entrepreneurship education curriculum, SE-challenges have the potential to increase learning but to what extent and if the outcomes would be similar to non-challenge based extracurricular interventions raise interesting avenues for further research.

Conclusion and future perspectives

The paper sets out to present an in-depth, reflective autoethnographical analysis of the prevalence of social entrepreneurship based case-challenges which ties in with the rising trend of social entrepreneurial activity in entrepreneurship education itself. Our findings indicate high engagement levels for social entrepreneurship competitions despite the time and financial limitations that are an inevitable part of a student time-line and coupled with the fact that most student institutions treat case-competitions as extra-curricular activities. Our study, to the best of our knowledge, is probably one of the first exploratory studies that tried to shed light on a seemingly trendy phenomenon of rise of SE-challenges. The rise of SE-challenges is linked to the rise of SE itself which also has shown its impact towards the rise of social business curricula in business schools and MBA courses. Furthermore, the SE-challenges also tend to elicit entrepreneurial behaviour as witnessed by students circumventing multiple barriers, such as resource scarcity, institutional lackadaisical approaches etc. using innovative and highly entrepreneurial means. While the entrepreneurial behaviour could be caused by multiple factors, our study suggests that engagement in the activity (for tangible benefits or not) is a large factor that cannot be ignored. Coupled with the attraction of a “real-world societal problem”, heightened engagement can only lead to win-win scenarios and thereby represents accessibility towards a high-learning potential that can be exploited in the area of action based learning in entrepreneurship education. This suggests that entrepreneurship education should further explore opportunities to integrate real-life SE cases in entrepreneurship education and that there be an increased form of institutional support and recognition of the students’ efforts (and not just post-challenge win celebration) in these competitions. Our research suggests that further empirical work should be conducted to test the influence of a participation in case-competitions as a new dependent variable to measure an increase of entrepreneurial skills.

Recommendations & limitations of the study

There are various opportunities to integrate SE-challenges into entrepreneurship education programs. The key factors to be considered when setting up such a challenge in-curriculum could be, (1) the realness of the project, (2) the opportunities to create diverse teams, and (3) clear communication with regard to how the developed ideas may be taken forward and how this would be supported. The point of evaluation, where grades have to be assigned, should not be based on the performance of the teams during the competition, but instead it can be suggested that learning logs should be submitted at the end of the course. Beyond these suggestions, students should be encouraged to participate in regional and global SE challenges and universities should support it better, in terms of providing time and money. Further, this analysis should also encourage more institutions to set-up such challenges.

While considering the above recommendations, we would also like to draw attention to the limitations of the study. As also mentioned in the methods section, autoethnography as a method has its advantages but also comes with its own methodological disadvantages. Autoethnography is often criticized for being biased (Atkinson, 1997; Walford, 2004). We would like to acknowledge this debate in the literature but also realise that for this study it was a valuable method, perhaps the only method that would justify this exploratory study. We therefore recommend the use of value-adding data sources such as interviews and surveys with a larger number of participants of SE competitions. Secondly, despite the remedial measures applied by the authors to limit bias, it is impossible
to remove 100% bias. For example, it was argued that the significant differences in the two author’s backgrounds when coupled with a similar perspective or outlook would speak favourably against bias. While this may be true, the differences could throw in an extra parameter that could influence the observations and reflections. For example, one of the authors has a Master’s in Innovation management while the other an MBA. One teaches entrepreneurship to students whereas the other has only taken part in a few short courses on the subject. Thus, it is conceivable that one with a larger exposure to entrepreneurship and business skills may be more inclined to have a favourable opinion on the concept of SE-challenges and its incorporation in Entrepreneurship education. Finally, a third bias may be that SE-competitions are designed very differently and a more detailed analysis of the set-up of these challenges may be needed for an in-depth understanding and to contrast with how such set-ups may change the learning experience and thus the overall motivation and engagement levels.
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Partnership Model for Entrepreneurial Innovation in Open Online Learning

Globalisation and increased competition nationally and internationally for students points towards the need for increasingly flexible learning routes, but these must also be sustainable and cost effective for institutions to deliver. Established models of higher education can be much more costly compared to those presented by open online courses. This paper discusses possible entrepreneurial initiatives in the context of open education and online learning that focus on three key areas emerging from MOOC experiments: openness; revenue models; and disaggregation of HE provision. A case study will be presented to demonstrate the development of new models around openness, collaboration, and innovation through international partnerships in an open learning ecosystem. The potential for entrepreneurship in developing open online courses and the challenges faced in a higher education context are discussed.

1. Introduction

Globalisation and increased competition nationally and internationally for students points towards the need for increasingly flexible learning routes, but these must also be sustainable and cost effective for institutions to run. Established models of higher education can be costly to students in terms of the fees they are charged and the opportunity costs of full-time study – e.g. the income and training they could have received through employment. In part, sustainability of the current business models in HEIs is one factor that has generated significant levels of interest in the development of new business models such as those presented by open online courses, including the developments around Massive Open Online Courses (MOOCs) (Yuan and Powell 2013). As a result, the commercial online course providers, such as Udacity and Coursera, attract large numbers of learners who are currently unserved by the higher education system and are attracted to the online and face-to-face courses on offer. The majority of these learners already have higher qualifications and are well educated. However there remains an opportunity for those who are less well educated...
if institutions develop credit and award bearing courses that are offered with appropriate learner support. This approach may be attractive to learners if it offers flexible study routes at a lower cost of provision and hence lower fees.

The interest in MOOCs has created a context in which higher education institutions are re-evaluating their online learning provision. The argument that MOOCs have provided a lens through which to examine current pedagogical and business models for face-to-face as well as online distance learning, including methods of accreditation, is gaining increasing acceptance. Reports on MOOCs (BIS, 2013; Moody 2013; Kalman 2013) offer different views on their likely impact, but whatever the future holds, there may still be significant opportunities to be exploited from MOOCs for institutions’ marketing activities and for academics to reach a wider audience. A significant point made by the BIS report (2013) is that further actions are needed to respond to the maturing of MOOCs, including: the exploration of a viable business model for low-cost accredited degrees; and understanding the trajectory of their technical development; and opportunities around accreditation and pedagogical innovation.

This paper discusses possible entrepreneurial initiatives in the context of open education and online learning that focuses on three key areas emerging from MOOC experiments: openness; revenue models; and disaggregation of HE provision. A case study will be presented to demonstrate the development of new models around openness, collaboration, and innovation through international partnerships. The potential for entrepreneurship in developing open online courses and the challenges faced in a higher education context are further discussed and explored.

2. Open Education, Online Learning and MOOCs

Yuan & Powell (2013) provided an analysis of the origins of MOOCs, making a direct link to open education movements that contributed to the MOOC inception (2008), which eventually led to launch commercial MOOC start ups by venture capitalists and elite institutions (2011-12). In line with this analysis and the identification of current trends, Figure 1 shows the influence of MOOCs in the HE system in the contexts of face-to-face teaching, open education, online distance learning, and possible entrepreneurial initiatives in education and training.

![Figure 1. Potential Impact and Trends of MOOC on Education](image)

Key ideas and trends shown in Figure 1 include:

I. Most MOOC content is not openly licensed so it cannot be reused in different contexts. There are, however, a few examples of institutions using Creative Commons licences for their courses - meaning they can be taken and re-used elsewhere. In addition, there is a trend for MOOC to be made available ‘on demand’ after the course has finished, where they in effect become another source of online content that is openly available. Those OERs and online content can be used to develop blended learning courses or support a flipped classroom approach in face-to-face teaching.

II. New pedagogical experiments in online distance learning can be identified in addition to the c/xMOOC with variants including SPOCs (Small Private Open Courses), DOCCs (Distributed Open Collaborative Course) and SOOCs (Social Online Open Course or Small Open Online Course). It is likely that they will evolve to more closely resemble regular online courses with flexible learning pathways. These will provide a range of paid-for services, including learning support on demand, qualitative feedback on assignments, and certification and credits (Yuan and Powell 2014).

III. The disruptive effect of MOOCs will be felt most significantly in the development of new forms of provision that go beyond the traditional HE market. For example, the commercial MOOC providers, such as Udacity and Coursera, have moved on to professional and corporate training, broadening their offerings to appeal to employers (Chafkin, 2013). In an HE context, platforms are creating space for exam-based credit and competency-based programs which will enable commercial...
online learning providers to produce a variety of convenient, customizable, and targeted programs for the emergent needs of the job market backed by awards from recognised institutions.

IV. The development of online courses is an evolving model with the market re-working itself to offer a broader range of solutions to deliver services at a range of price levels to a range of student types. There is great potential for add-on content services and the creation of new revenue models through building partnerships with institutions and other educational service providers. As these trends continue to unfold, we can expect to see even more entrepreneurial innovation and change in the online learning landscape.

3. Entrepreneurship in Education - the MOOC Experiment

MOOCs have generated as much excitement amongst educational entrepreneurs and amongst established academics than any other technology related innovations in recent years. The significance of MOOC development for entrepreneurial initiatives in education involves three key areas: openness, revenue models and disaggregation of HE provision (Yuan & Powell, 2014). These are discussed below.

3.1 Openness: Scalable & Data Driven Business

The term openness in an educational context encapsulates a wide range of concepts including registration requirements, fees to access a course, or what may be done with resources (Downes, 2013). In the case of MOOCs, openness is key as it is this that makes it possible to pursue the scalability of courses and the connectivity of social networked learning beyond institutions.

Open access is an important aspect of MOOCs because it brings with it the possibility of large numbers of learners to achieve scalability at minimal additional cost. The commercial MOOC platforms developed new approaches to online learning which focus on the scalable delivery of content and data driven business.

3.2. Revenue Model: Freemium & Premium

Commercial MOOC start-ups are adopting what is known as a ‘freemium to premium’ business model, one that has been widely used by Silicon Valley technology and social media start-ups. The model offers services and products that are initially free, and once a consumer base has been established, a fee is then charged for advanced or additional services and products. Examples of companies that have adopted this model for their services include Google, Facebook and Twitter. Key to this approach is the level of attention generated and consumption of the free product; this provides a platform to sell premium products or services to some of the users. As the use of the free product increases, the demand for the revenue generating products increases.

In the case of MOOCs, the platform providers partner with ‘elite’ universities to offer free courses without credit. The premium model requires the MOOC start-ups to offer additional services for fees and this can include certification, licensing of course materials, and tuition fees for credit-based courses. The MOOC platforms also partner with other commercial providers to provide relevant services to learners. For example, Coursera receives a fee each time a student clicks through to the Amazon site to buy recommended textbooks or other products. Both Coursera and Udacity also partner with Pearson to provide examinations at their test centres.

3.3 Service Disaggregation: Unbundling and Re-bundling

Christensen, Anthony and Roth (2004, 227 – 250) provide a useful perspective to help understand the concept of disaggregation. In simple terms, companies can “choose to integrate, executing most of the activities themselves, or they can choose to specialize and focus on a narrow range of activities, relying on suppliers and partners to provide other elements of value added”, (ibid, p225). Applying this theory to higher education, the integrated model is dominant and HEIs are responsible for the full range of activities required to deliver programmes: curriculum design, marketing, recruitment and enrolment, delivery, and assessment and accreditation. However, MOOCs represent an unbundling of the traditional services, which higher education institutions (both distance and campus) have been delivering (Universities UK, 2013, p24).

If unbundling is pursued, institutions will need to identify new ways of packaging, planning and organising their courses, services and learning support activities. They can then focus on their unique disciplinary, reputational and/or geographical strengths. For example, institutions could provide contextualised local and personalised learning experiences through re-bundling different components and elements from other organisations.
to create certificates and degree programmes that meet local demand. Some universities have started to experiment with re-bundling by embedding courses from MOOC platforms into their existing face-to-face courses. Re-bundling is a possible threat to HEIs, but also an opportunity as those institutions which re-bundle effectively may find a way to take advantage of MOOCs by incorporating them into revenue-producing degree programmes. There is also a case to be made that educational publishers such as Pearson, will make an attempt to develop new business models by applying digital publishing techniques to the HE market place.

Clearly, MOOCs have generated significant interest from commercial companies and venture capitalists that see a business opportunity to be exploited in higher education through open access and disaggregating of teaching from content delivery and assessment to pursue marketing activities with different pricing strategies. The early MOOC experiments framed themselves around the disruptive innovation theory (Bower & Christensen, 1995) that promise to disrupt the standard higher education model with a focus on developing new business models and the new markets for potential profits. Although MOOC start ups may not be able to replicate the pattern of disruption seen in other marketplaces, increasingly, openness will play an important role in driving innovations in education and developing entrepreneurship in the HE market.

4. International Opportunities

Increasingly, openness in education is providing opportunities for experimentation and innovation in teaching and learning. It also allows new for-profit providers to enter the higher education market (Weller, 2014). OERs and MOOCs largely came about as a result of engaging with the possibilities of technological innovation in sharing and using course content and delivery of online learning in higher education. However, as Weller (2014) pointed out, most of the open education movement, with notable exceptions, is seeking to supplement or complement existing education. This activity is undertaken by people working in higher education and are largely supported by not-for-profit institutions. The emergence of MOOCs has raised the profile of open education in the HE context and has stimulated debates around adaptive learning and business models in higher education (Daniel, Cano & Cervera, 2015). Weller (2014) suggests that “the presence of commercial interests in the field can create a healthy mix of competition, innovation and different perspectives” in higher education resulting in a renewed interest in financial and business models that can be developed around online learning provision. For example, companies such as Udacity and Coursera have taken the MOOC concept to experiment with new business models that claim to disrupt the existing HE market. However, the diversity of students’ needs between sophisticated online learners and those new to higher education makes developing a model that is based on MOOCs difficult. This has tended to drive providers towards more restrictive training models that offer pre-packaged solutions which negate further exploration of new pedagogical approaches and teaching and learning methods. This provides opportunities for developing the partnership model of new entrepreneurships with a focus on open online education more broadly to provide services that meet the diverse needs of the educational market.

International education has gained public attention as one result of the rapid development of MOOCs, which promise to expand universities’ market reach and promote the globalisation of higher education, a big market for HEI in the UK, USA and Australia. The increased pressures of lower direct public funding for higher education means that universities have to seek alternative sources of income. In our work researching and writing reports about the impact of MOOCs on the higher education system, we identified one of the impacts on institutions as forcing “established providers to re-visit online learning and open education as strategic choices for the future” (Yuan and Powell 2013).

Higher education institutions need to assess, prepare and adapt their global engagement strategies to the new opportunities presented by open online learning. A significant area of interest for UK HEIs is how opportunities in overseas markets like China can be exploited. However, there are some fundamental challenges for English language MOOCs and other online course if they are to succeed in the mass Chinese market. These include: technical constraints that limit or prevent learner access to these courses; the provision of pedagogically appropriate versions of courses; delivery in a different language, and in different cultural and educational settings; and, given a different approach to financing education in China, finding and developing business models that are sustainable over the longer term. A partnership model is one possible solution to this problem in helping universities in the UK and China to design and delivery affordable, flexible and effective international education through online or blended provisions. This provides the opportunity for large numbers of Chinese students to experience a UK higher education
and enrich and internationalise the curriculum in Chinese universities. In return UK universities will be able to market their higher degrees through these Open Online Courses and recruit better prepared students.

5. A Partnership Approach for Entrepreneurships in International Education – a Case study

The case study discussed below is based upon a new business start up to unlock market potentials through promoting openness, collaboration and innovation in higher education, and to help UK institutions to adapt their global engagement strategies to the new opportunities presented by open online learning in China:

- A China-based platform – Wolearn has been developed to make UK MOOCs/Open Courses easier to find and more accessible through adaptation to the local context;

- Services have been offered to broker partnerships between UK institutions and Chinese institutions, who in turn want to offer an affordable international educational experience for their students by integrating open online UK courses into their programmes, and for UK institutions to expand their markets in China;

- A collaborative blended delivery model has been developed to create an interactive, responsive and pedagogically effective online and face-to-face experience.

UK partners were identified through those universities that have produced OERs, open online courses and MOOCs, and want to expand their international market. The proposition put to institutions is that this approach will lead to the development of partnerships between UK and Chinese universities, and through the integration and delivery of identified courses deeper institutional collaboration will be made possible.

In September 2014, the University of Southampton Web Science MOOC, hosted on the FutureLearn Platform in the UK, was used as an integrated component of an introduction to computer science course being delivered by Beijing Normal University. Chinese students were asked to register on the course so that they could access the resources in addition to attending lessons as normal, delivered by their own university. Online discussions were held between students and their Chinese teachers focusing on the MOOC resources and held on a third party platform provided by the WoLearn company. In addition, a limited number of online seminars were delivered by academics from Southampton with the summative assessment of the 87 students being undertaken by the Chinese tutors. Figure 2 illustrates how the different partners organisational arrangements.

![Figure 2. Partner Organisational Relationships](image)

The business model has been developed to take the advantage of unbundling and re-bundling of courses, where Chinese Universities pay for additional services (online lectures and seminars), on top of free online course content. Content produced by UK universities can be localised and re-used by many Chinese learners. Support for learners is provided by local institutions’ staff making it economical and affordable. This division of labour is key to the business model as the more significant costs of scaling up numbers is borne by the local Chinese institutions, allowing collaborations to take advantage of the different cost-bases in the UK and China. Therefore, the model is made commercially and financially viable by moving the costs associated with scalability to the Chinese institution.

6. Method

At the end of the collaborative blended course from BNU and Southampton, WoLearn conducted a survey to evaluate the overall course and gather feedback for improvements. 72 students completed the questionnaires and submitted. The return rate was 82% and effectiveness was 100%. In additional to the questionnaire survey, focus group interviews have also been conducted with 12 students who have participated in the courses. Two interviews with professors from Beijing Normal University and the University of Southampton, who have been collaboratively delivering this blended course, were conducted.
The interviews were recorded, transcribed and translated into Chinese and English. For the purpose of this paper, we have provided relevant results from the questionnaire survey and the interview with BNU students to evaluate the values and outputs of this collaborative blended learning course. Furthermore, data collected from the interviews with teachers in the University of Southampton provided a basis for discussing the possibilities and challenges in developing entrepreneurial innovation in open online learning in higher education.

7. Findings and discussion

7.1 Students’ perceptions

7.1.1 Overall satisfaction of students toward this collaborative blended course

As table 1 shows, the majority of students were satisfied with the course (67%). Several reasons were mentioned by students in the free texts and the focus group interview including: (1) the course expanded their subject knowledge in computer science and provided opportunities for them to practice their use of English; (2) Gained new perspectives and exposure to Western learning styles that would be useful for their future career or studying abroad; (3) Compared with completely independent MOOCs, this blended collaborative course enabled them to engage with UK professors and gain different learning experiences; (4) The course was enjoyable and meaningful, as lecturers from both China and the UK worked together to encourage students to think and share ideas which made the course very interesting to learn.

For example, one student pointed out: “In the past, the things we learnt in the class were very generic. In the Web Science MOOC and the online seminar this semester, we discussed lots of hot topics and help me better understand what I have learnt in the lessons. It is very unique that the professors from Southampton could answer our questions directly.” Another student commented on the course that “I learned lots of new topics on computer science which changed my view about this subject. I didn’t like computer science much before but I found it was interesting now”.

The reason for dissatisfaction were identified, including language being one of the major barriers that prevented students communicating with UK professors, which affected the effectiveness of the course.

7.1.2 The value of different components in the course

Table 2 shows that most of students think that all four components of the blended course were valuable with 96% on Southampton MOOC on Web Science, 85% on the online seminar valuable and 90% on the online discusses in the forum at Wolearn platform respectively. Some students pointed out that it would be better if students have more time to communicate with professors from Southampton. One students also suggested that “I expect that we could be able to communicate with students from Southampton and understand more about how they learn, not just communicate with professors.”

7.1.3 Likelihood of studying an online degree offered by Southampton

Table 3 likelihood of studying an online degree offered by Southampton
An important cornerstone of the business model being developed by the collaborative, blended model is the extent to which students experiencing a UK university are more likely to study with them in the UK or online. In this case, there is evidence that students were more likely to consider studying with the University of Southampton, with 24% of students responding that they were more likely and 56% of students that they were somewhat likely to study online with Southampton. The focus group interviews helped to better understand this online proposition. For example, one student explained that it was quite expensive to live and study in the UK. If there were some online degree available for him with lower cost, he did prefer to take that. It should be more efficient. Another student expressed her view that the only factor for her to take online degrees or not depended on whether the courses provided are interesting enough. However, students also pointed out some concerns about online verses face to face learning. For example, it was essential that qualifications were recognised by the Chinese government if they were to consider studying with an institution as if this wasn’t the case they would find it difficult to use the qualification to gain employment. Further, they expressed reservations about how teaching and learning online may not be able to adequately replicate lab experiences and the development of practical skills and abilities. Lastly, the students were very clear that because online courses may not be as effective as studying on campus they believed that the fees should be lower.

7.2 Academics’ perceptions

Many UK universities have a strategic priority to have a global reach and part of this is the development of international partnerships. The academics from Southampton reflected that “this course appeals to the university approach to make more international partnerships. In particular, how MOOCs can be used to help achieve this goal”. Developing MOOC provision is a significant investment, and it was pointed out that “we’re looking around for opportunities to leverage this resource and the investment that we’ve made to get more use and value out of it in all different contexts. That in itself was very appealing.” It was suggested that the feedback from students were very positive, therefore, it is worth continuing with experiments, especially, how to connect with teaching practice in the university.

On academic pointed out that the reason innovation is not common in UK universities teaching is that “we can all just manage doing the same thing year after year and nobody has to worry about doing anything complicated.” They pointed out that the challenge of working in this was that it was not possible teach as before and, therefore, there was a requirement to try new things like the ‘flipped classroom’ and to consider the different needs of the Chinese students in particular pitching ideas at an appropriate level to “stimulate them to think about the topics but not to make it too difficult”. The academics speculated about different approaches they could develop including teaching the same courses simultaneously in China and the UK so that students can learn together, and recording lectures to be re-used at a later date. This ‘moving on’ of teaching practice has potentially significant benefits for the wider institution and a striking observation was how enthused the UK lecturers became about their teaching. The academics observed that although teaching between institutions was possible, if each institution handles their own assessment and quality assurance then there are fewer barriers to working together.

7.3 The Partnership Model

The approach developed in this case had a clear delineation of the responsibilities of the organisations involved and is shown by figure 3. The bulk of the work is undertaken by the Chinese institution so that the additional costs associated with the involvement of the UK institution don’t become over burdensome due to the significant differences in costs. In addition, the company (WoLearn) takes on the organisational, and coordinating role in the UK as well as providing the learning platforms and the pedagogic design.

Learners were supported during this course by both academics and non academics. The academic support was carried out by the local teacher in the classroom and the online facilitation of the forums. The non-academic support was undertaken by
the course administrators from WoLearn, who were responsible for coordinating the seminars and the overall course implementation. There was also the need for non-academic support from a teaching assistant at Southampton, who dealt with technical issues at the Southampton end including recording the videos during the seminars. Both aspects were important in making run the project smoothly.

The most difficult challenge for developing entrepreneurship in open online learning is to work out a sustainable business model. One academic pointed out “at this stage no credit involved so no quality issues. Simply doing something as invited guest speakers. As soon as you go beyond that there is a whole load of bureaucracy stuff and there has to be a business model for doing that”. Another academic commented that “further up the hierarchy people may complain about who is going to pay for your time in this, a more bean counter attitude. The existence of a bilateral or multilateral experiment in this area may be enough justification in itself ”.

The partnership model developed addresses this problem head on. It recognises that there will need to be a flow of money, but by making an attractive proposition to both sides it is anticipated that this can be kept at a sustainable level. UK universities gain fee paying students with Chinese universities investing a modest amount of money in internationalising their curriculum so that students can gain an internationalised educational experience.

8. Conclusions

The early MOOC development opened up debates around new pedagogical approaches and business models in higher education. The three key areas of MOOC experiments on openness, revenue models and unbundling encouraged the developing entrepreneurship around open online courses. This may offer a low-cost, flexible alternative for those students, who choose to study in universities in their home countries but also gain an international experience (something that is highly valued) through studying courses online (MOOCs, the OU’s OpenLearn, etc.) that are integrated into their own university curriculum.

This collaborative, blended course based on the Web Science MOOC and integrated into the Introduction to Computer Science for students studying at BNU provided an new opportunity for UK universities to develop their brand internationally and to expand their international marketing. In this case, MOOCs have become the testing ground for the online components that can be used in commercial online and blended courses.

The course was designed and delivered collaboratively by academics in the UK and China with the technical and administrative support from WoLearn. This collaboration demonstrated a new way for developing entrepreneurship and exploring how universities and commercial companies could work together to address technical, pedagogical and financial challenges in innovation in education. Technology will continuously impact on teaching and learning in universities globally, and there is a need to develop new entrepreneurship that encourages openness, collaboration and innovation which make face to face and online learning more effective in higher education.
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Aspects of a field experience in Entrepreneurship Education

This contribution deals with Entrepreneurship Education; in doing so, it draws on the experience conducted in the framework of the EU project “stimulating Entrepreneurship through Serious Games (eSG)”\(^1\), where a theoretical model for EE was devised and an innovative working methodology based on Serious Games and gamification was adopted.

Actually, it aims at supporting experience-based reflections on: 1) what are/should be the pillars of Entrepreneurship Education and 2) whether innovative learning/teaching methodologies such as Serious Games and gamification can effectively contribute to renew and enhance EE.

After framing the concept of Entrepreneurship Education in the European context, the paper briefly describes the eSG project by focusing on the field experiment conducted in Italy. The theoretical model devised and adopted in the experiment is outlined. Subsequently a glance is cast to the innovative learning/teaching methodology employed, which was largely based on gamification techniques and integrated online with in presence collaborative activities.

1. Introduction

Nowadays the unemployment rate is very high (around 11.2% in Europe)\(^2\) and for a young person it has become very difficult to find a job. Key factors are putting new pressure on western economies, Nowadays.

In the light of the recent documents from the European Commission (EC) (European Commission, 2012), we acknowledge that the term Entrepreneurship Education (EE) refers to the development of a wide range of different abilities. It actually encompasses those educational processes oriented to support the development of an entrepreneurial mindset as well as those aimed at developing general competences (such as adaptability/flexibility, creativity…) and specific skills related to a functional and profitable management of business enterprises (e.g. administrative and managerial abilities). For sure, it should not be confused with mere economics or business management studies.

We also acknowledge that Entrepreneurship Education is assuming increasing importance in the present EU panorama where becoming an entrepreneur represents a concrete alternative for young people who experience serious difficulties in finding a job.

In our opinion, Entrepreneurship Education should be regarded as a lifelong learning process, not limited to secondary or higher educational contexts. It could actually fit primary school

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\(^1\) http://www.esg-project.eu/
\(^2\) http://ec.europa.eu/eurostat/tgm/table.do?tab=table&language=en&pcode=teilm020&tableSelection=1&plugin=1
In any case, EE could (and should) play a crucial role in today’s society by providing students with: (1) the possibility of developing an entrepreneurial mindset (2) the opportunity to acquire general knowledge and the specific competences needed to become an entrepreneur.

In the following, we then focus on a field experience conducted in Italy in the framework of the eSG project with university engineering students (non business studies).

In doing so, our main aims are:

1) to present the theoretical model which was devised ad hoc by the research team in order to structure and conduct the educational intervention.

2) to share some key aspects of the adopted methodology with specific attention to the adoption of Serious Games, collaborative and gamification learning techniques.

A short foreword is also proposed, aimed at shedding light on the eSG project and the context in which it was carried out (the European and Italian present situation as to EE implementation in formal education).
2. An Insight Into The Present Situation Of Entrepreneurship Education

Since 2006, the European Commission has recognized “a positive correlation between entrepreneurship and economic growth” and underlined that: “entrepreneurship is a key competence for all, helping young people to be more creative and self-confident in whatever they undertake and to act in a socially responsible way”. In this direction, the EC has also identified entrepreneurship as one of the eight key competences for lifelong learning and has proposed a European development plan for EE, based on systematic strategy and on transversal actions to be implemented at all school levels, also in the vocational training field. These declarations by the EC, were followed, in the next years, by a sequence of recommendations and communications, reported in the “Europe 2020” document, some of which are explicitly directed to define and sustain specific actions in different formal education settings.

In the following, we explore the current level of implementation of EE in EU Member States, and in particular in Italy. Afterwards, we discuss the tools and methodologies that could be adopted, with particular attention towards Serious Games and the potential that they can have in this specific field.

Outlining the implementation of EE in the Member States and in Italy

Even though the EC has repeatedly and strongly highlighted the importance of EE, not all Member States have yet undertaken specific actions aimed at increasing and/or introducing EE in official curricula. EE is still insufficiently reflected in educational policies (European Commission, 2008a) thus we must acknowledge that: “Europe needs to prioritise entrepreneurship education” and “universities need to be at the heart of its efforts” (European Commission, 2009), by promoting entrepreneurial skills to facilitate the creation of new opportunities from study and research (European Commission, 2006).

For sure, EE is still rarely adequately addressed at a strategic level by universities. This is true in particular in technical universities, which is critical, particularly considering the innovation potential coming from technological studies and research (Bellotti et al., 2012).

A further survey commissioned by the EC shows that, of the 21 million students in the EU, only around 5 million are involved in entrepreneurship courses (European Commission, 2012). The fact that almost only business schools offer entrepreneurial education is problematic, since innovative and viable business ideas are also likely to originate from technical, scientific and creative studies (European Commission-Enterprise and Industry 2008).

As for the Italian situation (which represents the context of the experience reported in this paper), the Europe2020 document recognizes that EE is not explicitly recognized in the formal instructional/educational processes foreseen for both 1st and 2nd levels of the ISCED (International Standard Classification of Education) while at the 3rd level EE is considered “transversal” (cross-curricular). Here entrepreneurial skills are listed among the key competences that students should develop at the end of that school level.

Indeed, the present Italian scenario confirms what was highlighted by the above mentioned EC survey: at university level, except for economy, management, industrial engineering courses, and some MBAs (Master of Business Administration) specific actions aimed to support EE (European Commission, 2008b) have not yet been developed.

Casting a glance at the tools and learning/teaching methodologies for EE with an eye to the potential of games.

Given the above mentioned “fluid” situation, the research on EE is also still relatively immature. This entails the need to clarify what exactly the objectives and the contents of EE should be and what the learning methodology adopted should be. In this paper, both a theoretical framework and a methodological proposal to sustain EE are put forward.

As for the educational methods to be adopted, the expert group called by the EC to analyse Entrepreneurship in higher education especially within non-business studies (2008b), concluded that a multi-disciplinary approach is essential and that particular attention should be devoted to the development of entrepreneurial attitudes problem-solving abilities and creativity. They also agree that, for students in the scientific and technical fields, a strong practical component should always accompany theory. More recently Neck and colleagues (2014) suggested a practice-based approach and advocated teaching.
entrepreneurship using a portfolio of practices, which includes play, empathy, creation, experimentation and reflection.

In this line, an accurate choice of the tools to be adopted is necessary and these will be integrated into a coherent whole serving the different learning objectives underpinning EE and offering various and diversified perspectives and opportunities.

As for the tools to be employed, following a consolidated trend in Technology Enhanced Learning one possible choice (the one that characterized the eSG project) is that of making use of Serious Games.

As a matter of fact, games have proved to have a high potential to support learning (Garris, Ahlers, & Driskell, 2002) also because they make use of human inclination to play games as a source for highly motivated learning (Connolly, Boyle, MacArthur, Hainey & Boyle, 2012). Motivation in the use of games may support students’ efforts, thus enabling them to understand things more easily, and may also contribute to enhance their creativity (Ott & Pozzi, 2012). Games can provide an engaging context for learning if they are properly designed and they are able to balance challenges in order to generate an optimal learning experience for players, and provide realism. According to Foreman (2003), in game-based learning, active discovery is required as much as analysis, interpretation, problem-solving and memory.

Despite their actual potential and although the educational use of business and management simulations and/or games dates back to the years around 1960 (Greenlaw et al. 1962), games have been scarcely adopted in EE so far, at least in the framework of formal education curricula.

As a matter of fact, in early times, business and management simulations and games were mainly used by firms with the aim of fostering their employees’ competences in the field. Thanks to a specific analysis of the field conducted by Faria (1989) we know that at the end of the 1980s there were approximately 228 business games available in the US used by business companies mainly for staff training purposes.

Further on, we witnessed the penetration of business gaming in Universities/Academia. A thorough review conducted by Dickinson and Faria in 1994 showed that, at that time, in the US over 200 business games were being used by nearly 9,000 teachers at over 1,700 colleges offering business programmes.

More recently, Faria et al. (2009) have published an extensive survey of the current state of business games for educational purposes. The emerging panorama testifies the increasing interest for the use of such tools in US Universities and the progressive adoption of cutting edge technologies for the development of such games and simulations (e.g. virtual reality techniques). The European situation, as a whole, is less investigated and appears to be highly fragmented although a number of interesting initiatives have to be considered (e.g. the project carried out at Exeter University)5.

Despite increased interest in the academic use of this type of tool shown by Universities, the validity and effectiveness of their educational use is questioned by Stainton et al. (2010). These authors’ main concern attains to the actual unavailability of specific evaluation tools and methods, due to the high variability (dimension, content, structure...) of the educational actions carried out in the field.

3. New Perspectives In Ee: The Esg Project

In this panorama the eSG project (“stimulating entrepreneurship through Serious Games”), was co-funded in 2011 by EACEA in the framework of the Lifelong Learning Programme ( LLP-ERASMUS-FEXI); it represents an attempt to introduce significant methodological novelties in the field of EE.

The project (which started in 2011 and ended in March 2014) involved three universities with a technical-scientific background from three different European countries (in Italy, the Faculty of Electronic Engineering, located in Genoa; in Spain, ESADE Business & Law School of the Ramon Llull University, located in Barcelona; in the Netherlands, the Technical University of Delft).

The main objective of the eSG project was to design, develop and enact learning processes aimed to sustain EE in technical universities. The eSG consortium was first engaged in the definition of both didactic objectives and contents connected with EE. Subsequently, it was involved in the design and conduction of field experiments, which in turn required the devoting of specific attention to the choice of the instructional tools to be employed. Three experiments were deployed in each of the three partner countries. They followed a common pedagogical model based on the use of SGs (as learning tools) but in each country different courses were implemented, which followed different educational approaches and methodologies: ESADE in Spain developed a MOOC, TU Delft in the Netherlands

5 http://projects.exeter.ac.uk/feele/index.shtml#fdtl5
an In-depth eLearning course and UNIGE in Italy a fully

gamified course.

In the next section, we present the theoretical model behind the
three courses, that was devised by the research team as a whole.
Afterwards, we describe the innovative methodology adopted
in the Italian eSG experiment, highlighting its advantages.

4. From The Esg Experience: Which
Objectives And Contents For
Entrepreneurship Education?

According to the guidelines provided by the EC, “entrepreneurial
competence” nowadays should be considered a “composition
of an entrepreneurial attitude, entrepreneurial skills and
knowledge of Entrepreneurship” (European Commission, 2012).

In particular:

- Entrepreneurial attitudes cover “aspects that help
  individuals to take actions including taking responsibility for their
  own learning, careers and life”. The educational actions in this
  sector should be oriented to help students to improve/change
  their mental attitudes towards the possibility of becoming
  entrepreneurs; they should support the learner to understand
  the potential and drawbacks of an entrepreneurial career, which
  will allow them to “responsibly” include entrepreneurship in
  their personal career plans;

- Entrepreneurial skills concern those “skills needed to
  turn ideas into action”; the related educational actions should
  be aimed to offer the students the opportunity to develop those
  skills (such as creativity, analysing, motivating, networking and
  adaptability) that can enable them to run a business;

- Knowledge of entrepreneurship refers to “having
  a broad understanding and knowledge of entrepreneurship
  including the role entrepreneurs and entrepreneurship play
  in modern economies and societies” (such as recognize
  opportunities, understand the context where you live and work,
  know the topics connected with the “business ethic”).

Figure 1- Didactic objectives and competences in the eSG Project

Figure 1 represents, in the centre of the picture, the three core
competences to be addressed, as suggested by the EC. They are
surrounded by the educational objectives derived by the EU
document on “Entrepreneurship in higher education, especially
within non-business studies” (European Commission, 2008b),
namely:

**Raising awareness and motivation** which entails promoting
students’ awareness of what the concept of entrepreneurship
really means and stimulating their potential motivation to
become entrepreneurs;

**Developing the entrepreneurial competences needed to identify
and exploit business opportunities**, that is contributing to help
students develop those competences that are required to
identify and manage a business;

**Training to set up a business and manage its growth** which aims
at endowing students with those practical and conceptual tools
that are necessary to set up, manage and improve a business.

The educational objectives and the entrepreneurial
competences to be addressed (attitudes, knowledge and skills)
are closely connected. Figure 2 shows the theoretical model
that was devised in the framework of eSG to shed light on the
connections and links between objectives and areas to be
addressed.

It actually shows how each one of the mentioned educational
objectives is directly linked to one or more of the core
competences to be addressed. The idea underpinning the
model creation was that of supporting the pedagogical planning
of the learning activities to be conducted. Actually, following
this model, specific pedagogical plans can be created addressing
the objectives to be reached in each of the target areas of competence.

![Diagram: Connections between entrepreneurial competences and didactic objectives in the eSG Project](image)

**Figure 2-Connections between entrepreneurial competences and didactic objectives in the eSG Project**

The first objective - **Raising awareness and motivation** – targets both the attitudes and knowledge areas.

The second goal of the project - **Developing the entrepreneurial competences needed to identify and exploit business opportunities** – has direct connections with all the three core competences. The third, and last, objective, which is more “technical” - **Training to set up a business and manage its growth** aims at providing students with tools that enable them to create and manage a business; it actually addresses the knowledge area and, in particular, also entails sustaining the development of specific skills, particularly the procedural ones.

This model represented the common basis of the different pedagogical plans developed in the framework of the eSG project with the aim to inform and sustain the different experimental learning actions carried out in Spain, the Netherlands and Italy; this last experiment is reported in the following section and is the basis for some reflections on the adoption of innovative methodologies in the field.

5. **From The Esg Experience: Which Tools And Educational Strategies For Ee?**

The Italian courses (one per each of the two project years) were conceived and structured according to specific and detailed pedagogical plans (Bottino et al., 2008) taking into account the target population, their prerequisites and the learning objectives to be pursued. The two courses followed a blended modality, which included both face to face and distance learning activities: lectures, entrepreneurs’ talks, game sessions, debriefing activities and tests. They made in-depth use of Serious Games which were integrated into the course activities together with other more traditional media (Antonacci et al., 2014). Furthermore, with the aim of pushing both competition and collaboration among students, the courses were entirely gamified, which means that game design elements (Kapp, 2012) were introduced in the courses which were based on inter-team competition. These two aspects (use of Serious Games and Gamification techniques) were the pillars of the learning interventions and proved to be good sources of students’ external and internal motivation thus also increasing their engagement in learning tasks (Bellotti et al., 2013).

The overall experiment was structured in two main experimental cycles (leading up to the two editions of the courses) involving:

- Definition of the objectives and of the theoretical framework adopted (this was set at the beginning of the project and subsequently improved).
- Scouting, assessment and choice of the most appropriate Serious Games.
- Planning of the course structure and definition of the content and modalities of each lecture, definition of the homework and home SG-based competition, definition of the entrepreneurs’ talks; preparation of the relevant material.
- Execution of the courses, with: lectures, organization of the student teams, briefing, SG-playing sessions, debriefing, entrepreneurs’ talks, play-offs, final competition, pre and post-questionnaires.
- Analysis of the results.

**Structure of the courses**

Students were divided into teams (2/3 players each) that could collect points for each course activity with the final aim of acquiring a high ranking on the leader board for the final-day playoffs. Competition and collaboration among students were among the pillars of the learning interventions and proved to be good sources of both external and internal motivation and considerably increased engagement in learning tasks (Bellotti et al., 2012).
During the courses, the students were exposed to a range of topics and to an increasing level of difficulty in games, game-play and home assignments. Various types of activities (performed both in class and at home) were foreseen among which:

- Short theoretical introductions, where teachers presented business topics relevant to entrepreneurship.
- Talks by invited entrepreneurs presenting their experience in building and managing a company and also speaking about a particular entrepreneurship topic.
- Games played at home (homework and competitions), preceded by an in-class game debriefing and concluded with a debriefing.
- Home assignments in the form of writing a report and filling in thematic questionnaires.
- “Playoff” competition matches on the final day between all teams.

Gamification

As to the gamified structure of the courses, we adopted a scoring system which is a fundamental aspect of gamified processes (Deterding et al., 2011). As a matter of fact after each activity (both face to face and at a distance) each team (composed of three or four students), received a score resulting from their specific performance and the level of interest and participation they had shown during lectures and entrepreneurs’ talks. Scores were given by the course managers and made available on the team’s leader board.

After the qualification phases, the teams played the playoffs consisting of game sessions. The position in the playoff grid was based on the team’s ranking on the whole course’s leader board.

The four best teams played finals, after which the winning team was proclaimed.

Use of Serious Games

Playing with Serious Games represented an important aspect of the courses; the use of business simulation games offered the students the possibility of having hands-on experience and of experimenting with some important aspects (strategic decision-making, management and concrete operations) of the entrepreneurial world.

From the very beginning of the experiment, it was clear that the effectiveness of the activities carried out with Serious Games cannot be taken for granted but rather largely depends on the characteristics of the games adopted. It is strictly linked to the game functionalities and, in particular, to the appropriateness of its contents, structure and of the entailed methodology.

The educational relevance of these elements internal to the games requires one to operate an extremely careful and focused choice of the SGs, in coherence with the learning contexts and the educational objectives.

To this aim, a structured process was carried out, based on an analysis of the games available on the market and their adherence with the contents and objectives of the project and an a priori evaluation of their usability and educational effectiveness.

The preliminary investigation about the games available had revealed that a wealth of suitable SGs exist, but also that, despite the relative abundance of products (among them one hundred SGs were examined in detail) most of them were too specific (e.g. on supply chains) or dealt exclusively with economic aspects (Bellotti et al. 2014). Thus, in order to select the most suitable, SGs were accurately evaluated on a set of parameters related to their contents their adherence with the educational objectives and their specificity as to the competence to be trained but also to their usability, ease of use, and potential pedagogical effectiveness.

The process underpinning the game choice and evaluation represented a common methodology that was devised centrally by all the project partners. Each partner country then chose the games to be adopted in the country-specific experiment/course.

The template presented in Figure 3, which takes into account the EE model presented in the previous paragraph (core competences and educational objectives for EE) served as the main tool to classify games.
In Italy, five different games were adopted: Hot Shot Business, Sim Venture, Enterprise game and Go Venture-Any Business.

Hot Shot Business is a game developed by Disney for K-12 Students, it is useful for introducing students to the basic principles of the entrepreneurship environment. The student can open and run his own business and take the best decisions to make it successful. Even though developed for younger students the game was positively accepted by higher education students.

Sim Venture is a single player, detailed business simulation game, where the player is an entrepreneur managing a small computer assembly and sales company. The player can operate in different areas: Organization, Sales & Marketing, Operations and Finance but the game also offers the opportunity to deal with product development. It provides a good tutorial explaining the game mechanics and can be played at different levels of difficulty. Each round of the game lasts a virtual month. At the end of each month the player gets a detailed report about his/her performance covering several parameters (e.g. company value, cash-flow, profit and loss), oriented to help him/her to understand errors made and how to improve the business.

Enterprise Game is a single player, on line, role-playing, business simulation. The game has several goals among which: matching the customers’ and the market needs, increasing the company’s profit and cash flow, ensuring the workforce motivation and controlling the reaction of competitors. The player, who is the CEO of the Enterprise, can interact with business advisors and consultants that guide, educate and inform the player, virtual competitors and employees that react to players’ decisions. The enterprise encompasses different departments (marketing, finance and production) to be organised. The Enterprise has a cycle of three virtual years and the game provides monthly reports.

GoVenture - Any business is a highly customizable business simulation where players manage enterprises alone or in teams. The game allows the player(s) to define the product and the market sector or to select one of the available scenarios/simulations. The aim of the game is to manage a successful business competing with other enterprises led by real or virtual competitors.

Some lessons learnt

The detailed results of Italian course are not presented here as they are extensively treated in Bellotti et al. (in press), where data highlighting the efficacy of SGs in the experiment are provided thus fully supporting the idea of the positive impact of the use of SGs and gamification techniques on the overall learning process and in particular on students’ motivation.

The use of games proved to be effective especially in some areas related to the development of the practical skills an entrepreneur should be endowed with (Smith et al, 2007),

Students themselves judged the course positively. As to the overall evaluation, shown in Figure 4, most of the students considered the course “Useful” (79.4%), around 9% evaluated the course “Very useful” while no one found it “Very useless” or “Useless”. The course was also considered interesting by the majority of students. 55.9% of the learners considered the course “Interesting”, 32.4% “Very interesting”, only 8.8% judged the course “Uninteresting” (Fig. 4).

As for the specific games adopted, the post-test administered at the end of the courses, registered a good level of acceptance, even though with margins of improvement both for the structure of the games and the contents delivered. In particular, students pointed out that the games should be improved with regard to the level of entertainment and the feedback provision (that was sometimes not clear or well linked to the mistakes
made by the player); moreover they pointed out the lack of attention for innovation and ICT tools. It was also noted by students that some aspects, in particular those related to the development and the structuring of an entrepreneurial mindset and motivational aspects were scarcely addressed by the SGs adopted.

With respect to the specific course components, students were asked to assign a value (1: very negative – 5: very positive) and briefly comment the value they recognize to various course components. An average of the students’ evaluations was calculated and is reported in Fig. 5. It shows that the entrepreneurs’ talks were the most valued aspect of the course but also that competition (the gamified aspect of the course) was well accepted by students. The activity with Serious Games was less valued, mainly because of the scarcely entertaining features of the game adopted, as mentioned above.

Conclusions

In this paper we have proposed a theoretical model and an innovative working methodology based on Serious Games and gamification for EE. Its ultimate aim was to provide food for thought and stimulate some reflections about which are the core competences to be taught in Entrepreneurship Education courses and how this can be done, using innovative software tools. In particular starting from European documents we have briefly outlined the current Entrepreneurship Education diffusion in the European Member States.

Based on the experience of the eSG project, we outlined (following precise European Commission recommendations) what have to or should be considered the specific objectives and contents in EE. It is evident that educational interventions need to go beyond the pure management of economic aspects of a business and should aim at developing an entrepreneurial mindset and also at tackling other aspects like motivation and attitudes.

In a Technology Enhanced Learning (TEL) perspective, we then reflected on how EE could take advantage of innovative methodologies and tools. To this aim, we referred to the use of an innovative methodology, gamification, and the adoption of Serious Games as educational tools. This was done in a concrete situation, namely the courses developed in Italy under the eSG project framework. As shown in the paper, we acknowledge that the choice of Serious Games for EE course should be grounded on a solid pedagogical approach and their use needs to be carefully planned. In the Italian experience presented, they were accurately selected so as to be functional and able to effectively support the educational process, allowing students to train themselves in complex simulations related to a variety of topics/situations. Students gave a positive evaluation of the course, as they were conceived; the gamified structure of the courses made them more appealing and students considered the experience different from those in other university courses as they were more interactive and personalized.

SGs were positively valued as well, even though students considered them less entertaining than expected. Generally speaking the students perceived the course as useful and interesting. Its pleasantness value, however, was lower than expected. We argue that this is also due to the workload, especially in terms of homework, given by the course and to the fact that the SGs used have a fun level that is not comparable with that of commercial games with which the youngsters are familiar.

Furthermore, based on performance data and the analysis of pre and post-questionnaires administered to the students (Bellotti et al., in press), we can say that the selected SGs, supported by briefing and debriefing activities, demonstrated to be useful tools in particular for developing procedural knowledge and competences. Competition based on scores, an engaging graphic look and game interactions proved to be good motivators to spur the students to gain practice by doing...
several matches/exercises. Intra-team collaboration in playing and reporting was another key motivator.

Obviously, the use of games as educational tools must be proposed and perceived by students as an activity requiring the same commitment and attention as others and teachers need to always be able to mediate the learning experience, interpreting data and discussing the possible choices made by the students during the games.

For sure, the conducted experience paves the way for further investigations; many of the issues raised still remain open and call for further in-depth analysis.

In particular, we consider it very important to make a comparison between the use of SGs and other tools; an understanding of how to implement some gamification elements, (e.g. badges) is also needed in order to increment the overall long-term impact of a gamified course. Assessing the benefits of each gamification element for each given pedagogical goal in detail and trying alternatives (within a gamification approach and outside) is a major goal for future research.

What is evident from the Italian experience and from the overall eSG project results, is that Serious Games and gamification techniques can be considered effective educational means only provided that their use is supported by sound pedagogical planning and corroborated by well focused educational strategies.
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Five Key Elements of a Learning Design Methodology for Educational Innovation

Education and training of teachers is a main aspect of education quality assurance (ENQA, 2009). Teachers and professors need to be permanently trained to be able to adapt their teaching to new educational methodologies and strategies and to the students’ needs and characteristics. The Continuous Professional Development of educators in terms of Information and Communication Technologies (ICT) is still an unresolved problem. Most trainings and activities focus either on the ICT tools (hands-on courses on the functionalities) or the pedagogy (theoretical-oriented sessions). We describe here 5 elements of a Learning Design methodology that uses a similar approach to the Design Thinking (DT) methodology. The 5 elements were identified as essential for teacher training in the context of the MOOC called “Learning Design Studio for ICT-based learning activities” of the Hands-On ICT project. They aim to empower teachers to be learning designers and to adopt an innovative and entrepreneurial mindset in the process of creating ICT learning activities. They also offer them useful tools for being able to constantly review the learning activities they design and implement in their classrooms, another main aspect of educational quality standard (ENQA, 2009).

1. Introduction

Education and training of teachers is a main aspect of education quality assurance (ENQA, 2009). Teachers and professors need to be permanently trained to be able to adapt their teaching to new educational methodologies and strategies and to the students’ needs and characteristics. Massive changes brought about by population growth, technology, and globalization not only demand but also create opportunities for educating creative and entrepreneurial students (Zhao, 2012). Students that have received high quality teaching are more likely to be innovative, entrepreneurial and employable in the broadest sense of the term. It is a key responsibility of institutions to ensure their academic staff are well trained and qualified as professional teachers and not just qualified in a particular academic subject (High Level Group on the Modernisation of Higher Education, 2013). The acquisition of transversal creativity competences, the sense of initiative and entrepreneurship requires an approach more in line with current needs and expectations of learners and workers. Moreover Information and Communication Technologies (ICT) play an increasingly central role in learners’ lives and have the potential to enable educational change towards innovative learning environments (Bocconi et al., 2012). However, the Continuous Professional Development of educators in terms of ICT is still an unresolved problem. Most trainings and activities focus either on the ICT tools (hands-on courses on the functionalities) or the pedagogy (theoretical-oriented sessions). The methodological elements that we describe in this paper aim to empower teachers to be learning designers as a way of being autonomous...
in the process of creating ICT learning activities using a similar approach to the Design Thinking (DT) methodology that combines functionality of ICT tools with theory of pedagogy. They also offer teachers useful tools for being able to constantly review the learning activities they design and implement in their classrooms, another main aspect of educational quality standard (ENQA, 2009).

2. The context

The Hands-On ICT project (http://handsonict.eu/) aims at facilitating the integration of ICT tools in teaching and learning by developing a learning-by-doing environment to be explored by learners themselves or with the guidance of a mentor. The pervasiveness of ICT often makes us forget these technologies are just the means to an end. Nowadays, most teachers face the incorporation of ICT tools in their teaching activities as a burden. However, ICT tools are not the problem per se. For the participants of the MOOC of the Hands-On ICT project that we surveyed before its second edition, the main obstacle for applying ICT tools to education was not their own reluctance to acquire ICT skills (not, or a minor obstacle for 79 % of them). The main obstacle was a lack of pedagogical and technical support during the incorporation of ICT tools at their institution (a major or complete obstacle for 43 % of them). The encumbrance is being alone in the process of searching, selecting, setting up, including it in classroom, troubleshooting and evaluating its impact. The teachers that have the courage and time to go through this process tend to be successful but often end up unwilling to attempt it again. This is the problem space that the HANDSON project wants to address and work on.

The project, following a user-centered design methodology, consists of three pilots involving educators from three sectors: Higher Education, Vocational Education and Training and Secondary Education. In this paper we refer to Pilot 2 and 3 where we designed an online course based on a Design Thinking methodology called Learning Design Studio (Mor and Mogilevsky, 2013) and with a scalable MOOC format (Downes, 2013) to make possible training of many teachers.

The MOOC called “Learning Design Studio for ICT-based learning activities”, was aimed at promoting the inclusion of (ICT) in teaching and learning by empowering educators with digital competences. Following the Learning Design Studio (LDS) approach (Mor and Mogilevsky, 2013), the MOOC was designed as a set of activities to walk educators in the design process of an ICT-based learning activity ready to be used in their classrooms. The Learning Design Studio is a framework for training educators in effective and evidence-based use of educational technology. In this model, the main activity of a course is the learners’ continued work on design challenges in a defined domain of practice. Students typically work in groups. They identify an educational challenge, research it, and devise innovative means of addressing it. At the core of the Learning Design Studio model is the design inquiry of learning approach that identifies 5 stages for the design of an ICT learning activity: 1) Imagine; 2) Investigate; 3) Inspire and Ideate; 4) Prototype; 5) Evaluate and Reflect (Mor and Mogilevsky, 2013).

These 5 stages of the LDS methodology were used as a framework to structure the course into 5 weekly modules of learning activities. As part of the course, the participants were themselves introduced to the LDS methodology through a learning-by-doing approach to foster design thinking. In 5 weeks they had go from an educational challenge to a ready-to-use learning activity.

We ran the MOOC twice, in Pilot 2 in English and in Pilot 3 in seven different languages (Bulgarian, Catalan, English, French, Greek, Slovenian and Spanish). The conclusions of this article are from Pilot 2. We collected data about the experience of participants with the Learning Design methodology throughout the course to illustrate its impact on teacher training. The goal of this article is not to evaluate each module of the course but to provide a methodological explanation for the following 5
elements of Learning Design that we identified as essential in a teacher training experience to empower educators to innovate and to introduce ICT in the learning activities:

- Design thinking for teachers
- Imagining concrete: defining a learning challenge
- Empathy: knowing our students
- Sharing with other teachers
- Iterative evaluation

3. Design Thinking for teachers

Design thinking has come to be defined as combining empathy for the context of a problem, creativity in the generation of insights and solutions, and rationality in analyzing and fitting various solutions to the problem (Kelley and Kelley, 2013).

Design Thinking attempts to inspire the essential element of creativity, the ability to take an abstract idea and create something with it. It’s based upon the fundamental belief that an unexecuted idea, one that is never realized, is a worthless proposition and that doing is equally as valuable as thinking (Cohen, 2014).

Problem or issue solving, creativity and empathy are also key elements in the process of learning design, offering educators a tool that helps them in the process of learning activity creation following the Learning Design Studio approach (Mor and Mogilevsky, 2013).

In addition to the Learning Design Studio already described above, there are different initiatives that offer educators design thinking methodologies adapted to learning as a way to help them to innovate in the creation of learning activities.

The design firm IDEO, for instance, has created the Design Thinking for Educators toolkit that contains the process and methods of design adapted for the context of K–12 education (IDEO, 2015). The Learning Design Framework is another example of design thinking methodology for learning that offers three sets of resources, 1) content sources, 2) web-collaboration resources, and 3) human resources (Morrison, 2014).

To evaluate the awareness of teacher with such initiatives, we asked participants of Pilot 2 to rate (1-Novice, 2, 3, 4, 5-Expert) their knowledge and understanding of Learning Design in general before doing the MOOC. The average rating was 2.2 from 224 answers collected. This confirms that teachers are not used to use Learning Design methodologies in their day to day teaching. Also, 70% of the MOOC participants were interested in knowing about Learning Design when they joined the course.

At the end of the course, we asked participants to estimate their agreement (1=Strongly disagree ..... 5= Strongly agree) with the following statement: “Using Learning Design Studio can help me improve my educational practices”. The average rating was 4.05 from 224 answer collected, thus demonstrating a real interest for educators in knowing and using a Learning Design Methodology in their practices.

4. Imagining concrete: defining a learning challenge

Imagining is a good way to think further and without borders. It is also a way of identifying how to launch innovative projects. In most design thinking methodologies, step one is to imagine and then to think about an issue or a problem that need to be improved or solved. It is sometimes believed that innovative ideas come from illumination. In fact, identifying an issue or a problem and thinking creatively about how to improve it or solve it are essential to innovate (Kelley and Kelley, 2013).
As part of the Learning Design Studio methodology, during the first week of the MOOC, participants were asked to imagine but to imagine concrete. This activity encouraged participants to think and describe a learning situation they are involved in, a change they would like to see in that situation, and how they think they can bring about that change.

In this activity it was very important to think in something that they were able to attempt with the learning activity they were going to design. We offered participants these tips to help them refine their challenge in order to be able to design an ICT-based learning activity, based on the SMART criteria, their challenge should be:

- **Specific** – target a specific area for improvement.
- **Measurable** – quantify or at least suggest an indicator of progress.
- **Attainable** – how the goal can be achieved.
- **Realistic** – state what results can realistically be achieved, given available resources.
- **Time-related** – specify when the result(s) can be achieved.

After imagining, we asked participants to rate this activity. The average rating was 4.01, being 4 “Useful” and 5 “Very useful”, from a total of 277 answers.

5. Empathy: knowing our students

A big part of the Design Thinking concept involves empathy for those you are designing for. It’s often manifested through a series of activities, which attempt to create an experience of what or how your idea will ultimately be consumed (Cohen, 2014).

Deep empathy for people makes our observations powerful sources of inspiration.(...) An empathic approach fuels our process by ensuring we never forget we’re designing for real people (Kelley and Kelley, 2013).

It is essential for educators to think of their students and knowing and understanding them. A learning activity that works in one group of students may not work the same way for another group. Often teachers design their learning activities focusing on the content and the curriculum not on students characteristics. Design Thinking (Brown, 2008) uses design methods and a specific process to be able to know to whom we are designing to. In Learning Design Studio there is a process stage called “Investigate” where MOOC participants had to create a “Persona Card” based on the main characteristics of their students.

During the course we have seen that most of educators take into account students when they create an activity but sometimes, content or lessons appear as the main subject to design to. Here there are some comments about this matter:

“So far I am designing my lessons in void -may be a general student.”

“the thing is that we probably focus on the subject when we design our lesson not on the personas”

“To be honest, I had never thought of personas before. We simply played some roles in the classroom and tried to see a topic from different perspectives, but knew nothing about the term “personas” or the concept”.

Although educators create their activities taking into account their students, it appears from the comments collected in the MOOC that they don’t necessarily engage into a deep analysis of their profile. During the investigate stage of the Design Learning Studio methodology, educators were encouraged to think about their students deeply.

Using personas and being aware of their contexts is a way of systematizing and ensuring that educators have students in mind when designing a learning activity. Knowing the needs, wants and limitations of students is key to facilitate the success of the learning activity and, therefore, to fulfill both the students and the teachers’ goals. This does not mean creating a persona per student. Personas are archetypes that represent groups of students. Personas are not individuals but a way of characterizing a target group by putting a name and a story behind (Cooper, 2008).

Another good way of knowing how are our “personas”, is to know about the environment that shapes their actions, perceptions and behaviours. A girl living in a small village in India does not have the same desires and opportunities as a young man in Paris. The web of material, social, cultural, technological and intentional factors in which the learner is situated is the context of their learning. To be effective and relevant when designing a learning activity, it must refer to this context. For doing so it is important to describe and understanding it. The context as well as the user’s goal affects how he/she behaves. To help educators
to think about the context we encourage them to think about these questions:

- What is the learner context?
- How does this context affect the ways learners interpret and enact learning designs?
- How can we use context in learning design?
- How can we personalise designs to individual learners’ needs and contexts?

Following the Learning Design Studio methodology, we use three dimensions to describe the context: material, social and intentional:

- Material factors include the characteristics of the physical space and the tools and objects which the actors have access to.
- Social factors include organisational structure, grouping of and relations between various actors, conventions and norms.
- Intentional factors include the beliefs, desires, motivations, expectations, and mental or emotional barriers of individual actors.

To have information about users in depth, knowing how are they and their context, educators can adapt better the activity design being able also to innovate. (Mor and Mogilevsky, 2013).

At the end of the week where participants created their “personas” we asked them if they would use the personas concept again, 73,15% of the participants answer that “definitely” or “probably yes”, from 222 answers collected.

After the context activity, where participants have to describe the context of their “persona”, we asked MOOC participants to rate the activity. From 222 answers collected, the average rating was 4,2 (4 being “Useful and 5 “Very useful).

6. Sharing with other teachers

Sharing with others is a key element of the HANDSON project and was chosen as a way to create communities of practice among educators (Cambridge and Suter, 2005) and offer ongoing support in the introduction of ICT in the teaching and learning processes. The Hands-On ICT team believes that MOOCs, ICT tools and creativity techniques fit well together and that a course based on short, specific and very practical units where teachers can meet their very specific needs at the same time that they can have the support of other peers, can emulate personal one-to-one interactions on a massive scale. The targeted learners of this MOOC were all educators and although they were from different sectors and countries they also have many features in common. Receiving comments and feedback from peers is very enriching for educators and is the strategy chosen by the HANDSON project and implemented during the first and the second pilot.

Besides the promotion of a community for sharing and commenting during the course, the goal of the MOOC and the HANDSON project is also to go beyond the 5 weeks of the course, having an impact in the continuous professional development of educators. Peer mentoring is a powerful methodology not only for the peers but for the individuals themselves; it allows for the reflection of one’s work and also helps others.

Several concrete actions and tools were set during the course to involve peers in the learning and feedback process:

1. Explicit mention in the course description and methodology about the use of peer mentoring. From the beginning of the course, we informed participants about the use we were going to make of mentoring methodology. Besides, in the description of activities we always encouraged them to publish their work and look at the other participants’ contributions.

2. Include specific peer mentoring activities. An important part of most MOOC activities was sharing the work in the forum to receive and also provide feedback.

3. Comment on the participants and their contributions as part of the facilitators tasks. This was done through the daily entries in the course journal and during the weekly convergence sessions.

4. Provide appropriate interactive tools. We provided ICT tools, such as Forums in Moodle, or the Comments function from ILDE (Hernández-Leo et al, 2014) that allowed participants to use functionalities that promote peer mentoring such as add comments to others, sharing, editing, publishing, etc.

Participants asked for clear indications and guidance regarding the activities of the MOOC. This was mostly provided for the individual activities but a framework also needs to be provided regarding the peer mentoring.
The implementation of peer mentoring actions and strategies during the MOOC of the HANDSON project were successful in raising awareness of the value of feedback from peers and in the engagement of participants as active learners during the MOOC. Of 12 factors surveyed for their importance when attending an online course, “Peer feedback” was ranked 9th, thus as one of the least important factors for the participants starting the MOOC. However, after the MOOC, 68% of the participants agreed with the statement about the facilitation of the course “Peer-mentoring is a good way to get feedback and enhance my learning” which made it the best ranked of the 7 surveyed in this category. However, more work needs to be done to make the contributions of peers enriching for the learning processes of participants and to maintain the community alive after the end of the MOOC.

7. The iterative evaluation

During the Design Thinking process designers are encouraged to evaluate a prototype as soon as they have any. Also, following the iterative principle, it is recommended to evaluate as many times as needed to improve the designed learning activity.

Iteration is key in Design Thinking and in the Learning Design approach. Often teachers create their activities in a linear way meaning that they go on with the activity proposal till they implement it and evaluate it at the end. Learning Design methodologies, and Learning Design Studio concretely, propose and insists in iterate as many times as possible as a way to review and evaluate constantly the work made and being then, able to review it continually.

As we mentioned at the beginning of this article, reviewing the learning activities is one fundamental aspects of quality assurance in education. Educators need to be aware of the need of constantly evaluating and reviewing their activities but not only at the end of the implementation, using students results, but also using heuristic evaluation in an iterative process.

During the third week of the MOOC and during the Learning Design Studio stage called “inspire and ideate”, participants were encouraged to create their own heuristics (based on existing examples; Mor, 2014) that they will use to evaluate their own learning activity.

Heuristics are principles and guiding elements that we as designers need to keep in mind when designing a learning activity. There are general sets of heuristics, for instance, Jacob Nielsen created 10 Usability Heuristics for User Interface Design (Nielsen, 1995). The rationale is to have tools to evaluate designs as early as possible. Evaluating early means being able to change/adapt when the design is still on its early stages and therefore when the changes are less costly.

The idea behind the Learning Design Studio is that design is an iterative and empirical process. In this sense, you start designing “small” and test what you have done. The evaluation helps you to improve your design and make it grow. And this is a process that does not end it is up to you whether your design is ready to be used and whether you want to keep refining it. It is important to highlight again that to offer teachers with useful tools for being able to constantly review the learning activities they design and implement in their classrooms is a main educational quality standard (ENQA, 2009).

8. Conclusions

Although Learning Design was one of the area of least knowledge of the participants at the beginning of the MOOC, at the end of the course 71% agree with the statement “I will reuse the Learning Design Studio methodology for the design of my lessons or course”. Thus, the concrete experience with the 5 elements of the learning design methodology that we used to create our course model appears to reach its aim of fostering design thinking in teachers, that is to think different when looking for a way to improve or solve an issue or a problem in their teaching. These elements offer educators resources to innovate and include new ways of reaching learning objectives minimising the risks thanks to a process focused on students and theirs contexts and an iterative process.

Education and training of teachers is key to innovate in education. It is though very important to offer them tools to be autonomous and empower them to create learning activities that embrace students’ characteristics and their context. But also, it is very important for teachers to be able to review and redesign the learning activities as a way to innovate and to adapt them to the constant change of times.

Moreover, the learning design approach brings in the necessary methods and process to include ICT in education in a meaningful way. It shifts the focus from the learning materials and content to the educational challenge to be solved given a specific context and set of students.

In sum, learning design for teacher training as well as the continuous professional development of educators is a sound
way to bring in innovation in education. Initiatives such as the one described here should help educators to work and think in the future with a more creative mindset and to empower their students with the necessary skills to approach and solve problems in a creative way with digital tools. This is increasingly the way in which problems are solved at work and caters for lifelong learning.
References


“Building a Business” – case study of the entrepreneurship education at the University of Oxford.

This paper presents the extracurricular programme “Building a Business” as an example of a successful approach to teaching entrepreneurship at the University of Oxford. The combination of residential events, enhanced with video recordings and podcasts, has made the principles of entrepreneurship accessible to members of the university and interested individuals around the world.

1. Introduction

Entrepreneurship is an important component of an innovative approach to business education. Many universities around the UK offer entrepreneurship education as part of their extracurricular programmes and many have now also successfully implemented the subject in their regular curricula. Networking groups like Enterprise Educators UK encourage discussion on entrepreneurship among universities around the country to share knowledge and good practices. Business schools are in an advantageous position to deliver such programmes but need to work in collaboration with their wider universities and ecosystem. A key challenge hereby is that the term “entrepreneurship education” is often perceived as being only relevant to those who want to start their own business while programmes are actually addressed at a much wider and more diverse audience. The University of Oxford represents a world recognized institution and its students benefit from the combination of cutting-edge research and business education. The challenge is to leverage these established strengths to be innovative in the use of technologies so as to deliver the best experience for students. The successful method of finding that balance is to design an extra-curricular programme that would serve members of the university and introduce entrepreneurship to a broad audience. The production of high quality recordings of lectures and use of social media maximizes the impact of this programme, while the combination of academics and experienced entrepreneurs provides a great balance of theory and practice.

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Tags
Innovation, entrepreneurship, education
2. The Building a Business programme

In recent years it has become increasingly apparent that many students at the University of Oxford and Saïd Business School (SBS) aspire to become entrepreneurs and would benefit from exposure to specific concepts and the development of relevant skills. In response, the Entrepreneurship Centre at SBS developed a series of programmes to address this need. Building a Business (BaB) is one of the established extra-curricular programmes and consists of a nine-week lecture series organised by the Centre since 2006. The original purpose of BaB was to introduce entrepreneurship to science students. The in-person lectures were initially enhanced by audio recordings on iTunesU. Since then, it has evolved to meet changing needs and be more relevant to a wider audience. This paper discusses the outcomes of the latest version, presented in autumn 2014.

Previous feedback suggested that BaB should be more interactive and offer the opportunity to meet successful entrepreneurs. Taking this into account, the current version of BaB has two main objectives. On one hand, the lecture series is designed to teach the fundamentals of developing a business in an accessible fashion. The aim is to educate and show the importance of creative thinking while planning a business venture. To provide students with a range of professional perspectives, lectures were delivered by academics as well as practitioners. Speakers covered the following topics: ‘reasons for starting a venture’, ‘future-proofing your business’, ‘customer development’, ‘using the business model canvas’, ‘raising venture capital’, ‘financial projection’, ‘marketing strategies’ and ‘intellectual property’. The original format was reduced to eight lectures with the addition of a final debate with entrepreneurs who addressed questions that arose in earlier sessions.

However, entrepreneurship is a practical field and not all skills can be learned in the classroom. Therefore, each lecture was complemented by a networking event were local start-ups were invited to present their journey. This offered an informal space for participants to interact among themselves and with start-up founders and introduced a wide spectrum of businesses and experiences.

Another objective of BaB is to provide opportunities for engagement within and beyond the Oxford community. The core lectures were video recorded and each session was then divided into shorter chapters. Recent research on videos efficiency developed by Wistia, a video hosting company, shows that shorter videos stimulate viewers to maintain stronger focus. (Ruedlinger, 2012). The lecturers were informed about this structure and encouraged to follow the predefined list of chapters that facilitated subsequent editing. The videos were uploaded at the SBS’s Youtube1 and iTunesU2 channels. “Video production is becoming as core a competency as writing (Shephard, 2014)”. Therefore, the emphasis was placed on producing high quality recordings in order to distinguish the BaB offerings from other lectures already available online.

At the same time, the Entrepreneurship Centre team created profiles on a range of social media platforms—including Twitter3, Facebook, and LinkedIn—for participants to use and engage with each other. These platforms also provided a way to promote the video recordings produced in the programme.

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1 Building a Business Youtube channel playlist: https://www.youtube.com/playlist?list=PLtXf43N26ZieRz-WuxVmpcy9Rz8Bz3RAY
3 Building a Business Twitter profile: https://twitter.com/Building_a_Busi
3. Outcomes

More than 300 people registered to attend the programme but only 300 could be accepted. The number of female participants increased this year with 54% male and 46% female attendees. The majority of participants were students (undergraduates, masters, DPhil, MBA and high school) but also researchers, academic staff and local entrepreneurs. The marketing campaign across the university especially via the Oxford Learning Institute helped in reaching out to academic staff who were considering changing their career or pursuing an idea in addition to their current employment.

![Building a Business participants - autumn 2014](image)

Figure 1. Breakdown of the Building a Business participants in autumn 2014.

The Centre measured the impact of the programme on participants by comparing the results of an online survey filled out at the time of registration with a final evaluation at the end of the programme. A key finding is that diversity is a great strength for the program: the variety of participants has encouraged networking and attracted a lot of attention from across University of Oxford. More faculty members are now interested in participating in future iterations of the programme and are willing to encourage their students to register. Other universities have expressed interest to use the videos for their programmes. On iTunesU the numbers of users who downloaded the lectures reached 3,062,604 (since 2008) and the numbers on Youtube (since October 2014) increase daily. The latter videos reached a total of 7,933 combined views by February 2015.

127 of 300 registrants attained the BaB certificate of completion for attending at least eight of the nine lectures. This number does not capture the total effect of the programme, however. Firstly, most participants attended the majority of lectures, but either did not quite reach the threshold of eight, or were not interested in requesting the certificate. It appears that younger participants (high school students and undergraduates) were more motivated by the prospect of a certificate, perhaps due to its perceived value for their CV. Participation in the BaB programme was also an opportunity for aspiring entrepreneurs to reflect upon their expectations and the real picture of a life as an entrepreneur. To gauge this, we asked the participants if fear of failure would prevent them from starting their own business. In the initial registration form, 43% of respondents listed fear of failure as a barrier to starting their own business; this decreased to 36% at the conclusion of the programme. We also asked if they have enough knowledge to start their own business; the number of participants answering in the affirmative increased significantly from 16% to 57%. This shows that participation in the programme has improved the confidence of attendees and further prepared them for the challenges of entrepreneurship.

Our social media presence is still active months after the completion of the programme, suggesting that participants find these resources highly valuable. Twitter was the most active platform and through the hashtag #buildingabusiness, the BaB program succeeded in reaching out to early-stage entrepreneurs and students around the world. That community is still growing and will be inclusive of all the future BaB audiences.

![Building a Business YouTube playlist](image)

Picture 3. Building a Business YouTube playlist

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All participants were expected to complete the initial survey as a condition of their registration in the programme. In order to receive a certificate of completion, participants were again required to complete the final evaluation, and attend eight of the nine BaB lectures. 236 participants completed the initial survey, while 127 also completed the final evaluation. This discrepancy is addressed further in a moment.
4. Conclusions

“Entrepreneurship education provides a mix of experiential learning, skill building and, most importantly, mindset shift.” (Wilson, 2008). These require the unification of efforts across the university but also the inclusion of alumni and local entrepreneurs. The traditional approach to teaching entrepreneurship is not sufficient to cover the practical aspects of having a business. In our experience, the insight provided by practitioners enriches discussion and changes expectations of students – for the better. The popularity of the video recordings shows that the participants appreciate the opportunity to revisit material on their own time and at their own pace. Furthermore, a wider audience can learn the principles of entrepreneurship without attending the programme in Oxford. “[E]ntrepreneurship is not just about being creative or innovative but about having the ability both to envision opportunities and to make them happen.” (Kirby, 2003) Therefore, in order to deliver entrepreneurship education, its creators must be entrepreneurial themselves and deliver programmes that will be impactful and welcoming for different members of their institutions. The BaB is constantly reviewed and every year an improved version is launched. The feedback from the last edition will determine changes in the next instalment.

Moving forward, the BaB programme will be further expanded to take advantage of the full academic year at Oxford. The lecture series and networking meetings with local entrepreneurs will be organised in the first term of the academic year and the programme will continue in the second and third terms with additional activities. This is a major change since so far this programme has been limited to the first term only. Four workshops for smaller numbers of participants will be added in the second and third terms. These workshops will provide more hands-on information on marketing, team management and specific business relations. The Entrepreneurship Centre will also organise informal “lunchtime talks” for students in university departments. During these outreach events the participants will watch one of the BaB lecture videos, and discuss the main issues covered in that session. The aim for the next edition of BaB is to expand our entrepreneurship network to a greater range of students at the University of Oxford and around the world, and encourage BaB alumni to take part in the workshops and lunch talks. Through these initiatives we want to build a community of entrepreneurial enthusiasts who will share their stories and encourage others to explore new career options in business.
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Creating Innovation: Reflecting on the MEDEA Studio at Malmö University

The MEDEA Studio was a research centre founded at Malmö University. It focused on collaborative media and design to promote research and practice in connection with its surrounding environment for better innovation and outreach. During its history, MEDEA has undergone several changes leading to diverse challenges. This field report examines MEDEA’s development from the perspectives of knowledge acquisition and learning with the aim to analyse factors for success and failures. As society and especially academia struggle with understanding how to innovate and connect, reflecting on the different instantiations of the MEDEA studio can bring insights for researchers, practitioners, administrators and the studio’s future development.

1. Introduction

In this short field report, we examine the history of MEDEA studio at Malmö University between the years 2009 to 2014. The MEDEA studio (version “1.0”) was created as a space for co-production, collaboration, media, and design that would connect researchers from different academic disciplines and provide a place to bring together society. The studio started off with a large number of financed (local, national and European) projects that resulted in roughly sixty publications and two books. Additionally, MEDEA developed an international presence that included a series of MEDEA Talks with different artist, designer and entrepreneur in-residence programmes. During this period, the studio went through a major transformation as the funding landscape changed and in 2011. A new director from an industrial background began to shift the focus of MEDEA towards the development of the new media sector in local, national, and international arena with focus on research and development for innovation (creating a “2.0” version of the studio). The aim of our ongoing research is to reflect on what lessons learnt from the experience of creating a multi-organisational innovative studio in a university setting. Through this retrospective analysis of the MEDEA story and examining the two distinct phases we hope to share our experiences and contribute to the next incarnation. Currently, MEDEA (version “3.0”) is being redeveloped as a research platform under the Faculty of Culture and Society at Malmö University. The notion of a platform is to provide a more dynamic foundation for research that can operate as a research platform under the Faculty of Culture and Society at Malmö University. The notion of a platform is to provide a more dynamic foundation for research that can operate effectively across different disciplines and sectors.

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1 See http://medea.mah.se/
with greater inclusion and less overhead than a standard research centre.

2. Background

Multidisciplinary labs and studios similar to the MEDEA studio strive to bridge the gaps between academia, research, education, and society. An example of the labs that influenced the creation of MEDEA is the Interactive Institute\(^2\) in Sweden, where some of the principal researchers at MEDEA (1.0) have been involved. Interactive Institute is an experimental IT and design research institute that conducts applied research and innovation. The goal of this institute is to create new research areas, concepts, products and services while providing strategic advice to corporations and public organisations. Another example is MIT’s Media Lab\(^3\), which has a focus that combines industrial partners with research. The aim of the MIT Media Lab is to promote a unique, “antidisciplinary” culture, which goes beyond known boundaries and disciplines, encouraging the most unconventional mixing and matching of seemingly disparate research areas. It creates disruptive technologies that happen at the edges and pioneered such areas as wearable computing, tangible interfaces, and affective computing. Other relevant and important labs include the Pervasive Media Studio in Bristol\(^4\) that shares a similar history with MEDEA and today continues to be an open and innovative space. The Pervasive Media Studio can be described as a community of artists, creative companies, technologists and academics exploring experience design and creative technology. The studio is collaboration with the University of West of England and the University of Bristol, managed by Watershed, a cultural centre. Additional lab of interest is Copenhagen Institute of Interaction Design (CIID)\(^5\), which describes itself as an international hub of creative minds. CIID’s integrated structure aims to create a unique environment that encompasses world-renowned education (1 year private masters program), an international research group and provides design consultancy. Both the MIT Media Lab and the Interactive Institute inspired the MEDEA (1.0) to position itself with the initial funding as a more independent, innovative entity that focused on social engagement in the city. This brief background of these four labs illustrate that diverse entities in the arena between universities, organisations, and industry, see the need for research, design, and innovation to be coupled together, but building a sustainable studio requires different ways of management, communication, and working.

3. Methods

This exploratory report uses single case study design (Yin, 2014), inspired by an ethnographic approach with involvement of the researchers in the case, which has proven to be a common method of a good number of recent organizational studies (e.g. Simeone, 2014). Currently work in progress, this field report investigates the different incarnations of the MEDEA studio at Malmö University during 2010-2014. The case study-design used includes a series of interviews with key participants, review of the different MEDEA projects and analysis of similar national and international studios/centres. To date, semi-structured interviews (and subsequent discussions) have been performed with four senior academic researchers and two practitioners, currently more research is planned. In addition, four MEDEA projects and five national and international studios/centres (see “Background” above) are being reviewed through content analysis. Since the authors have been and are participating in different levels in activities at MEDEA, the methods also include participant observation. The collected material (documents, notes, observations, audio recordings, unstructured conversations) has been analysed by placing the material in a thematic narrative structure, elaborated to write the field report.

4. Theory

Knowledge is today seen as an important commodity in most organizations. However, many organizations struggle with how to make best use of the knowledge that exists within them.

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\(^2\) See https://www.tii.se/

\(^3\) See http://www.media.mit.edu/

\(^4\) See http://www.watershed.co.uk/pmstudio

\(^5\) See http://ciid.dk/
Academic and practitioner collaboration is one example of knowledge creation gaining importance today. The intention of these collaborations is to leverage disparate knowledge economic and political conditions. Previous studies have shown that such relationships play an important role in driving innovative processes. However, the organizational dynamics of these relationships remain under-researched (Perkmann & Walsh, 2007), where the management of learning plays an important part.

The complex activity of learning can be viewed as the process of knowledge acquisition across social and individual practices in the organization. These types of learning take place in different steps and on different levels: exploratory vs. exploitative learning and individual vs. organisational learning. Exploratory learning is based on different constructivist approaches that focus on rich and multidimensional knowledge derived from real world experiences (Rieber, 1996), whereas exploitative learning is using knowledge already acquired. This leads to a paradox between them, because going for exploratory learning also means making mistakes and learning from these, while the exploitative approach generally leads to a known and secure result that consequentially, tends to be less innovative (Su et al., 2009). Therefore, successful organizations have to place themselves in the spectrum between these two poles. According to Wang and Rafiq (2009) a balance between approaches, like diversity and creativity, as well as implementing goals and a shared vision, helps to find the right position between the two extremes. Implemented goals and a shared vision also help to integrate individual with organizational learning. Otherwise, these two approaches can work against each other (Kim, 1993).

Previous studies of academic-practitioner collaboration also highlight the role of the socialisation process in the early beginning of the project, building credibility between partners, in order to overcome cultural gaps (e.g. Hermans & Castiaux, 2007). This is important since the tacit knowledge - personal, context dependent and difficult to formalize - created in the socialisation for example regarding responsibilities and deliverables, is converted into explicit knowledge (Nonaka & Takeuchi, 1995) in the externalisation process. Physical examples of the latter knowledge are contracts and confidential agreements, which have been shown to enhance the commitment between partners (Hermans & Castiaux, 2007). However, there is a balance between how much the researchers are allowed to pursue avenues that are not immediately tied to economic revenues, and how much they are accountable to the aim of the external stakeholders (Simeone, 2014). Previous studies also showed that scientific knowledge was not automatically an outcome of academic-practitioner relationships, but trust, credibility and social network enhancements were underestimated benefits. Trust has also been shown to have a central role in such relationships, and a condition for conducting collaborative projects, according to Hermans and Castiaux (2007).

Connectivity Hackathon 2012

5. Results

Our field report focuses on understanding the changes between the first the more research focused MEDEA (1.0) to the second incarnation that was more consultancy oriented (MEDEA 2.0). The different studios discussed in the background provide some different clues on how these unique research and innovation based organisations can work in their individual contexts. However, each one is unique and the “modus operandi” is not as transferable. For example, MEDEA 2.0 illustrates that when the new director (industrial focused) took over the studio, it became centred on finding more diverse funding sources and the projects expanded from solely the research based. This also meant that not all projects were initiated by MEDEA, but driven by clients (e.g. funders and stakeholders). Thus, the vision changed from being a research-focused creative and innovative space to a more reactive approach, where research was not the sole focus. The initial idea of a centre, that is, working across borders on a large scale with actors from outside academia, remained, however. Consequently, the results show that the on-going projects in MEDEA (2.0) were more “consultant like” in their approach with shorter time periods and increasingly based on prototype building. Moreover, specific deliverables were now required from the project participants. Hence, the “new” approach was more focused on the outcome and
deliverables than previous focus had been. In MEDEA (1.0) the aim was instead focusing on the process, i.e. “infrastructuring” (Björgvinsson et al., 2010), where the researchers did not know from the beginning what they were supposed to deliver. It was an approach relating to the idea of the “free scientist”, which not necessarily delivered what the funders had provided money for.

The downplaying of the research focus in the second phase of the MEDEA studio resulted in lesser time for documentation of results, which endangered the knowledge transfer, whereas at the initial MEDEA (1.0) documentation was a big part of the process. The idea initially was that the research should be transparent, with shared knowledge and collaborative open processes, and with a non-hierarchical leadership. The change to a more consultancy MEDEA (2.0), created a lab environment that the researchers did not understand and decisions they were not involved in. Preliminary data from the case highlights at different times MEDEA experienced communication and relationship problems in its existence, in its effort to get people from different areas, with different goals, to work together. Additionally, the ability to secure researchers’ time in a more consultancy environment worked against how the university budgeted time in half year blocks versus a more project oriented framework required by engagement industrial and society stakeholders. An important finding that drives our research is to further investigate how the collaborative environment evolved between the two MEDEA studios.

6. Conclusion

As pointed out by previous research (e.g. Hermans and Castiaux, 2007) one of the crucial elements working in multidisciplinary environments and across organizational borders, is to establish trust and mutual respect, in order to make it possible to work innovatively and productive together, despite not having the same goal or interests. This seems to have been easier said than done in the investigated case. A crucial reflection is that creating the right balance for an innovative environment (see e.g. Wang and Rafiq, 2009) in academia requires a careful balance between research, funding, and people that combines a vision of open research with sustainable funding. As we point out this, is a very difficult balance in the best of industrial cases and very challenging in the academy.

The history of MEDEA shows a turn from a research-like to a more consulting-like environment, due to the change of funding and leadership. This change resulted in a shift of the position, between explorative and exploitative learning, from the explorative learning (research oriented) approach towards the exploitative learning (consulting oriented). In the first MEDEA perhaps, the researchers were too independent, and in the second version of the studio, the research became focused on being accountable to the external stakeholders (cf. Simeone, 2014). Our initial conclusion is that the MEDEA (1.0 & 2.0) struggled to place itself in the spectrum between these two approaches. It resulted in imbalance with either too much/less of each approach, affecting the knowledge creation, the knowledge transfer and in the end the existence of the studio (cf. Kim, 1998). However, in accordance with previous research (e.g. Hermans and Castiaux, 2007; Simeone 2014), we believe that environments, like the MEDEA studio, can be valuable for the way we create, learn and transfer knowledge from and between academia, society, and industry/organisations. Additionally, there is a need to further understand the different incarnations of the MEDEA studio as a means to contribute to the next iteration (3.0), so that a better balance between the exploratory nature of the studio can be exploited in a sustainable manner.
References


Innovation, Entrepreneurship and Education
From the Field: Four Case Studies from an EdTech Accelerator

1. Introduction

Over recent years, the ecosystem for education innovation has boomed within the UK. Amongst this backdrop, grassroots entrepreneurship is playing an increasingly pivotal role in disrupting educational outcomes for the better.

A handful of accelerators and incubators have emerged in the UK to nurture and fuel entrepreneurship in education. Emerge Education - a London-based accelerator programme for EdTech startups - is one such example.

Emerge believes firmly in a world in which education is relevant, high quality, equal, accessible and cost-efficient. In order to achieve this vision, we believe an unprecedented amount of innovation in the education system is required. Our mission is therefore to establish a global ecosystem for entrepreneurialism in education which will fuel this innovation. Emerge's role in that ecosystem is to supply exceptional education entrepreneurs with capital, deep knowledge and networks to make their ideas succeed.

Over the past two years Emerge has worked with nineteen of the most exciting, innovative and disruptive education technologies. Our unique position at the intersection between entrepreneurship and education has given us a comprehensive overview of current practices and entrepreneurial initiatives taking place across Europe within the field of edtech.

In this paper we present four case studies from Emerge's current cohort and alumni network that outline: the problem each technology aims to tackle; the applied methodology and, where possible, resulting outcomes.
2. Case Study 1: Primo

Understanding and creating with technology means understanding and creating our own future, but the problem with the speed of technology is that it forces us, and future generations, to be passive consumers of it rather than creators.

The barriers to entering the world of coding, physical computing and electronics, not only for young children, but also for adults, is high. The digital objects that fill our everyday lives, from toys to smartphones, tend to hide the technologies that make them work, and in only a handful of cases, a person is curious enough to look beneath the surface.

Primo solves that problem by designing and producing tools and toys that, instead of hiding the technologies that power them, makes them easy to access and tinker with if the user chooses to, making it part of the experience while opening an infinite number of new play paradigms. Primo’s tools allow children to easily understand, play and open-endedly create with technology in ways that were never possible before.

For the last 16 months they’ve been working on a tangible programming interface and robot called the Cubetto Playset where children between the ages of 4-7 can learn about sequences of instructions, and thus the basics of programming logic.

This helps children grasp the basic principles of writing algorithms and programs, whilst giving them context, allowing them to “code” and “debug” through concrete manipulation.

3. Case Study 2: A Tale Unfolds

The pupils in primary schools today live entirely in the digital age. Their lives are connected seamlessly from screen to screen, website to website, app to app. Conversely, they are taught by teachers who do not fully understand the digital world in which their students live. The result is that children today find school boring and completely unconnected to their digital lives. No wonder it is estimated that illiteracy costs the UK Government £81billion a year.

Nevertheless, we are all still convinced by the need for students to work offline. Learning to write is considered to be something that can’t be mastered using technology. Group work, problem solving and public speaking are also critical skills which are taught without technology.

At A Tale Unfolds, film writing projects provide the means for teachers to be able to enter into the digital world undaunted by the prospect of embracing the technology their pupils use every day. At the cutting edge of pedagogy, ATU use the best of teaching methods with video to entice pupils away from the screen and learn the offline skills that they need to succeed in the future world of work. They then reintroduce video editing technology in order to create a film which has been written, edited, performed and video edited entirely by the pupils themselves.

The feedback from the 400 teachers who have used this methodology so far can be summed up in three ways. Engagement – pupils are excited by the learning more than ever before. Teachers – their stress levels have significantly decreased thanks to our resources and they are connecting with their students unlike ever before. Progress – average levels of improvement in writing are two to three times the normal rate.

4. Case Study 3: Learn Forward

Every time a new technology is adopted there is a certain interval where new tech resembles old tech. Think early days of television: broadcasting the image of some people talking in a radio studio. Early days of cars: cart-like disposition of the seats. Later on, all successful technologies grow mature and discover their specificity. They become the new standard.

We are now exactly in this transitional period regarding digital education. The technology is here (mobile apps, cloud, web, SaaS, social) but the current digital textbooks still look and feel like the printed ones.

Learn Forward proposes a new type of digital textbook: modern HTML5 textbooks that are responsive, cross-browser, interactive and collaborative. And above all, they’re simple to use. They don’t require creating accounts, logging in, sophisticated setup or specialised hardware. As long you have a device (smartphone, tablet, laptop, desktop, smart TV, you name it) and a browser you are good to go.

However, textbooks are more than information that’s organised and bound together. They are opportunities for teachers to teach. Starting points for an experience of learning. This is exactly why all teachers have been adapting, mixing and even creating their own educational materials to better fit their students. Teaching is, at its core, adaptive. This is why Learn Forward is building tools not only for publishers to make the
best of their content but also for teachers to be able to carry on their task of mixing, adapting and creating content in the new age of digital education.

5. Case study 4: DrumRoll

Technology is transforming every aspect of our lives but in so doing, is making jobs redundant. The jobs that are safe require creative, technical and critical thinking skills. Code involves all of these. It’s essential for kids to learn, no matter what discipline they choose to pursue. Unfortunately, not enough children are interested - especially girls. Coding is regarded my many as being difficult, boring and geeky.

Drum Roll’s solution is E.A.K. - the first game that teaches kids to code and create their own websites and apps. E.A.K. is set in a mysterious and quirky internet universe. Players need to use code to change the world around them, in order to save kittens from the evil Operation E.A.K. - Erase All Kittens.

Other code games, like the new computing curriculum, teach the concepts of coding - but not the real thing. E.A.K. is completely unique because it equips children aged 7+ with real, practical coding skills, almost without them realising it. Children acquire languages very effectively when they’re younger - so why not teach them code - the language of technology?

With no marketing, the beta version of E.A.K. has over 12,000 players in 94 countries. 95% have said they want to learn more about code after playing - 46% of those are girls. Children spend an average of 15 minutes playing the game on the Erase All Kittens website.

6. Conclusions:

The four case studies outlined in this paper evidence the power that entrepreneurship has to positively impact a limitless range of learning outcomes, from literacy, to coding skills, right through to collaborative learning. The successes of these cases are manifold - the technologies outlined above have made coding accessible to preliterate children; reinvented literacy learning through the medium of film-making; enabled teachers to reclaim dynamic, interactive content via digital textbooks; and, gamified coding for 12,000 children in 94 distinct countries.

Despite these successes, our understanding of the impact of technology within education is limited. Validating and impact assessing edtech is therefore likely to be the biggest challenge for entrepreneurs, practitioners and investors alike over the next few years.

As edtech continues to take root in mainstream education, accelerators and incubators seeking to nurture the edtech ecosystem will need to develop more robust and stringent validation processes. This may involve a closer relationship between the commercial and academic spheres than has traditionally been seen. Emerge is actively developing links with leading academic institutions in the UK, such as the London Knowledge Lab, for example, to develop our thinking in this area. It is our view that this partnership approach is key to developing a robust validation model for the edtech startups that we support, which will enable us to more clearly evidence the impact of edtech on learning outcomes.