

The Power of the Crowd: Promise and Potential of Crowdsourcing for Education

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Crowdsourcing is the term often used for processes of data collation and creation where individuals or groups of users who are not necessarily located centrally generate content that is then shared. While the term originates within the world of business, it has since gained traction within a number of academic and professional disciplines. Drawing upon two examples that have originated within the Republic of Ireland, this paper reflects on the educational potential of crowdsourcing. Firstly, it reports a unique one-year open crowdsourcing initiative which compiled a comprehensive A-Z directory of edtech tools for teaching and learning through collaborative contributions. Secondly, it describes an initiative to develop a crowdsourced repository of study tips and suggestions for adult, part-time, online and flexible learners embarking on further study. These two case studies provide a valuable context for considering the wider potential of crowdsourcing applications for teaching and learning purposes.

Keywords: crowdsourcing, collaboration, directory, edtech, flexible learning, open

Background

The term ‘crowdsourcing’ is generally attributed to the work of Jeff Howe (2006) who defines it as ‘the act of a company or institution taking a function once performed by employees and outsourcing it to an undefined (and generally large) network of people in the form of an open call’. Howe outlines that the crucial prerequisites are the use of the open call format and the large network of potential labourers with regard to the crowdsourcing focus. The general concept of crowdsourcing, however, predates Howe’s work by some time; Hossain and Kauranen (2015), for instance, cite one instance of a crowdsourcing project that dates back to the early eighteenth century, and also outline how a crowdsourcing process was used in 1884 by the Oxford English Dictionary to catalogue words through a ‘crowd’ of eight hundred readers. While Howe’s is undoubtedly the most commonly utilised definition for the term crowdsourcing, it is by no means the only one; Estellés-Arolas and González-Ladrón-de-Guevara (2012) compare over forty definitions for the term and outline how it is often confused and conflated with similar meaning terms, as well as contested in its core meaning. The authors propose eight attributes common to any crowdsourcing initiative: the crowd, the task at hand, the recompense obtained, the crowdsourcer or initiator of the crowdsourcing activity, what is obtained by them following the crowdsourcing process, the type of process, the call to participate, and the medium. With regard to this final element (the medium) it is acknowledged that advanced internet technologies have made crowdsourcing practicable for an immeasurably wider audience, at a larger scale, for a greater number of products and services, and at greatly enhanced speed (Saxton, Oh, & Kishore, 2013).

As recognition of the potential and power of crowdsourcing has grown, so too has the range of uses for which it is employed. In their comprehensive literature review of crowdsourcing, Hossain and Kauranen (2015) identify a number of applications of the process that includes idea generation (whereby crowds are called upon to submit new ideas and the best ones are chosen), microtasking (whereby users can select and complete small tasks, often for monetary or non-monetary rewards) and citizen science (whereby the participation of crowds is utilised in solving real-world problems through a form of collaborative research). Crowdsourcing has found particular resonance with regard to open source software development, notably through the evolution of the Linux operating system (Abraham et al., 2016). It has found application in clinical research, where Armstrong et al. (2012) suggest that it can facilitate recruitment of larger, more diverse patient populations and relatively low costs for data collection, as well as the ability for patients to provide research data from any location and any time. It has found use in the discipline of law, where Orozco (2016) adopts the term ‘lawsourcing’ to describe various ways that legal crowdsourcing has developed to achieve substantial legal reform and innovation in the United States and beyond.

We can see, therefore, that many advantages exist with regard to crowdsourcing. It can enable access to a potentially global range and diversity of locations, opinions and problem-solving options, as well as provide a means of voicing opinions that otherwise would not be shared, and to bring together communities of interest and concern (Paulin & Haythornthwaite, 2016). Crowdsourcing can fulfil the old maxim that the whole is often greater than the sum of its parts through assimilating many small contributions into resources of high quality (Corneli & Mikroyannidis, 2012).

Case Studies

Set against this backdrop of promise and potentials for crowdsourcing, we now turn our attention to two specific and applied uses of crowdsourcing which originate in the Republic of Ireland. The first is a crowdsourcing initiative which compiled a directory of tools for teaching and learning through collaborative contributions, and the second is an initiative to develop a crowdsourced repository of study tips and suggestions for learners embarking on further study.

Case Study 1: Project 252

Project 252 (<http://project252.donenda.com>) was a year-long open crowdsourcing initiative which was undertaken to collaboratively compile an A-Z directory of edtech tools for teaching and learning. The project ran for the entirety of one calendar year (January 2015 to January 2016 – although the project website remains active and the crowdsourced directory freely available) and was implemented around a chronological and sequential model of design: every two weeks for the fifty-two weeks of the year (hence ‘252’) the project focused upon one letter of the alphabet (starting with A and going through to Z). For the two weeks of the ‘featured letter’, an open call was issued which invited contributors to submit the details of an edtech tool (for instance, an app, Web 2.0 service or software package) that begins with that letter. In order to allow for instances where participants ‘missed’ a certain letter, and for those participants who discovered the project after a featured letter had passed, four ‘back catalogue’ sessions were introduced to allow for such submissions to be included (for instance, a back catalogue at featured letter ‘G’ at the end of March 2016 meant that participants could submit a contribution for the featured letter as they usually would but could also submit a contribution for any of the previous letters A-F). Submissions were published on the project website within hours following review by a moderator.

Contributions were invited via a standard form which specified a number of criteria that included the name of the tool, a URL to access/download/purchase it, a technical classification for the tool (online or specific to a particular operating system or device), suggested uses for the tool in an educational setting, suggested academic subjects for its usage, pricing structure (free, free trial followed by purchase, once-off purchase, recurring cost), suggested educational level (primary, secondary or higher education) and any suggested links to online tutorials or reviews for the tool. Contributors could choose to make a submission by logging in to the site using their Twitter credentials (in order to associate their Twitter profile with their submission) or else anonymously (for those who did not have a Twitter account or did not wish to associate their Twitter account with their submission). The project’s own Twitter account (@proj252) was used to announce each new ‘featured letter’ as it occurred and the imminent conclusion of the current one, and to publicise each contribution as it was added to the directory. Over 850 tweets were sent during the duration of the project.

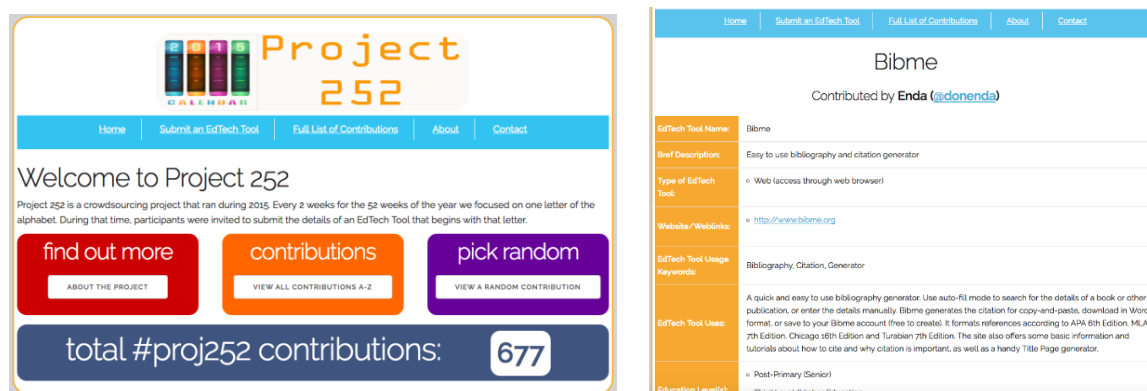


Figure 1: ‘Project 252’ Homepage and Sample Contribution

By the time the project reached completion in January 2016, it had received a total of 667 contributions (see Figure 1). These were compiled from a total of 96 named contributors with a further 27 contributions submitted anonymously (it is not possible therefore to tell if any of these anonymous contributions were from repeat contributors and how many were once-off contributions). The letter which received the most contributions is ‘S’ with a total of 61 submissions, while the smallest number of contributions was received for letter ‘X’ with a total of 7. There were 24 instances where a particular edtech tool was submitted more than once (from different contributors), with all other contributions (626) being unique.

An initial analysis of submissions for the project reveals a number of interesting outcomes. For instance, the most popular type of edtech tool was online (in terms of technical classification) and free (in terms of pricing classification) – a particularly notable outcome when considering the open nature of the project in terms of design, collation and dissemination of contributions. An analysis of named contributors reveals an appreciable spread of submissions from across the education spectrum; for instance, the top ten contributors comprised 3 teachers from the primary sector, 2 post-primary/secondary teachers, and 5 from the higher education sector. This cross-sectoral range is also reflected in the classification of edtech tools submitted: 483 of the 667 submissions are suggested as suitable for senior post-primary pupils, 481 as relevant for higher education students, and 401 for senior primary pupils. While the majority of submissions come from educators based in Ireland (which is to be expected as this is the context for this particular project) it is notable that contributions were also received from educators in the United Kingdom, Argentina, France and the United States. The geographical spread is, however, significantly more pronounced in terms of visitors to the project website: a review of Google Analytics data for the site reveals visitors from over one hundred different countries across five continents. On the final day of the project in January 2016 the directory of submissions had received almost 70,000 views, and this has increased significantly to 118,000 views in the six months since the project finished, which indicates continued and ongoing usage of the directory of edtech tools after the crowdsourcing activity has concluded.

Beyond the scope of this paper is a more in-depth analysis of the motivations of contributors and the nature of the community that formed around this distributed group collection and sharing activity. However, we do draw some tentative lessons from the design and iterative development of the project that contributed to its success. Extensive use was made of Twitter in designing the social layer of the tool (see Figure 2). Almost all contributors were Twitter users and the project lead had a relatively large Twitter following (2,717 followers) and an above average level of social media influence as measured by a klout score of 47 (Rao, Spasojevic, Li, & DSouza, 2015). Simple but effective gamified elements that encouraged participation included the two week windows during which each letter was open; this encouraged contributors to suggest tools early in the window to get their suggestion in ahead of other contributors, and also encouraged entries late in the two week period as the window was about to close. Similarly to the cueing effect of the closing of the windows, which the project Twitter account would remind people of (e.g. ‘only 12 hours to go for the letter P’). The community was also alerted to key approaching milestones such as the 300th contribution, the halfway mark, and so on. Back Catalogues, during which users could add entries from previous weeks whose windows were now closed, served to provide not just temporal anchors but also a sense that there were only limited opportunities in which to participate. The project played upon the affordance of these limited opportunities to participants to give up their labour in a light-hearted way and chats would regularly bubble up on Twitter around aspects of the project.



Figure 2: Use of Twitter for Social Layer of ‘Project 252’

Case Study 2: Student Success Toolbox

The Student Success Toolbox project (<http://studentsuccess.ie/>) seeks to address the problem of effective transitions and the foundations for student success during the initial stages of the study lifecycle with a specific focus on flexible learners. In the context of this project a broad definition of flexible learners is adopted, which includes adult learners engaged in part-time and online/distance learning. The particular focus of this project is on supporting flexible learners through key transitions in the early stages of the study lifecycle: from thinking about study, making choices, the registration process and through to the first few weeks. A basic premise of the project is that the foundations for student success start early in the study lifecycle, and that the importance of the period before flexible learners formally commence their study is insufficiently recognised. A related underlying assumption is that this crucial transition period may be enhanced by the availability of appropriately designed digital readiness and preparation tools, which help to scaffold both prospective students and those about to embark on part time or online/distance study for the first time.

Following a preliminary literature review and analysis of digital tools adopted internationally to enhance transitions to study for this unique sub population of learners (Brunton et al., 2016) a strategically targeted suite of research-informed digital readiness tools was designed and developed to focus primarily on facilitating adult learners who are transitioning to part-time undergraduate study. This toolbox of eight digital tools can be accessed through the project website at <http://studentsuccess.ie/the-toolbox/> (see Figure 3).



Figure 3: ‘Student Success Toolbox’

One of the tools designed for this project is ‘Study Tips for Me’ (see Figure 4) which is developed using the Tumblr platform. This tool is designed to crowdsource study tips, suggestions and support for flexible learners from other flexible learners. Each student is free to post on the site and materials submitted are intended to be generic and beneficial for any flexible learner (rather than focusing upon course- or discipline-specific content). Through encouraging interaction between students in this manner it is intended to be of benefit to all students in overcoming challenges and developing suitable plans for study.

Submissions are invited via a standard form which invites the contributor to write a message to a learner who is about to embark on a course of study at the higher education level for the first time. Contributors are asked to share a tip that they would like to have been given when they themselves started out, or an experience that has helped inform them as a learner. Suggestions include sharing a link to a helpful website that the contributor has used to help them study, or an inspiring quote that has motivated them, or a snippet of advice for learning, or a photograph of any place or thing that they associate with having learned successfully. Flexible learners are welcome to post any tips they wish to give other flexible learners. The contributor tags each submission using a list of possible tags, and includes their name and email address so that they can be credited and contacted if necessary. The submitted tip is then reviewed by a moderator and approved for publication on the ‘Study Tips for Me’ page. Within the scope of this project the tool can be used when an individual is considering the prospect of becoming a flexible learner, when they have made a decision to become a flexible learner and are waiting to begin their first year of study, and/or as part of an ‘on-entry’ orientation (Brunton, 2016).

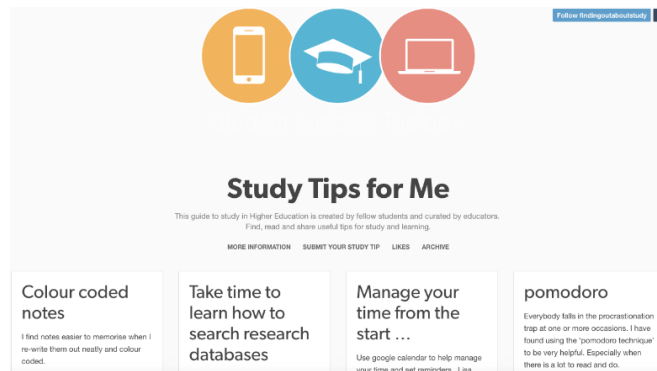


Figure 4: 'Study Tips for Me' Tool

Although the tool has yet to be formally launched, to date, a total of 26 study tips have been submitted and shared via the 'Study Tips for Me' tool. Submitted tips include advice on note-taking, time management, examination preparation, participation in study groups, attendance, and undertaking an assignment. A primary purpose of creating the 'Study Tips for Me' tool was to demonstrate how such a tool can be built and utilised using existing social media platforms. This approach can be employed for broad uses, such as in this particular case study, or for specific discipline or course uses. While the tool was developed following input from a number of focus groups it remains to be seen how prospective students, and those at the early stages of the study life-cycle, engage with this form of crowdsourcing. The 'Study Tips for Me' tool will be launched for the new academic year in the Northern Hemisphere starting in September 2016.

Conclusion

Foulger (2014) claims that crowdsourcing has yet to have much impact in education, although it has proven to be successful in business and industry. Nevertheless the two case studies described in this paper illustrate a number of benefits with regard to the use of crowdsourcing for educational activities and more specifically within teaching and learning contexts. Consistent with previous literature, the benefits include the value of the open call with regard to sourcing a diverse range of contributions and from a wide geographical base (Paulin & Haythornthwaite, 2016); the effectiveness of web-based technologies (Saxton et al., 2013) and in particular social networking tools and platforms (Corneli & Mikroyannidis, 2012) in facilitating the collation and dissemination of contributions; and how individual contributions can prove more helpful in collation than in isolation. While a question remains over the validity or trustworthiness of the crowdsourced offerings, the two examples of Project 252 and the Flexible Learning Toolbox illustrate the power of the crowd for collaboration, contribution and collation, and provide valuable insight for considering the wider potential of crowdsourcing for teaching and learning.

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