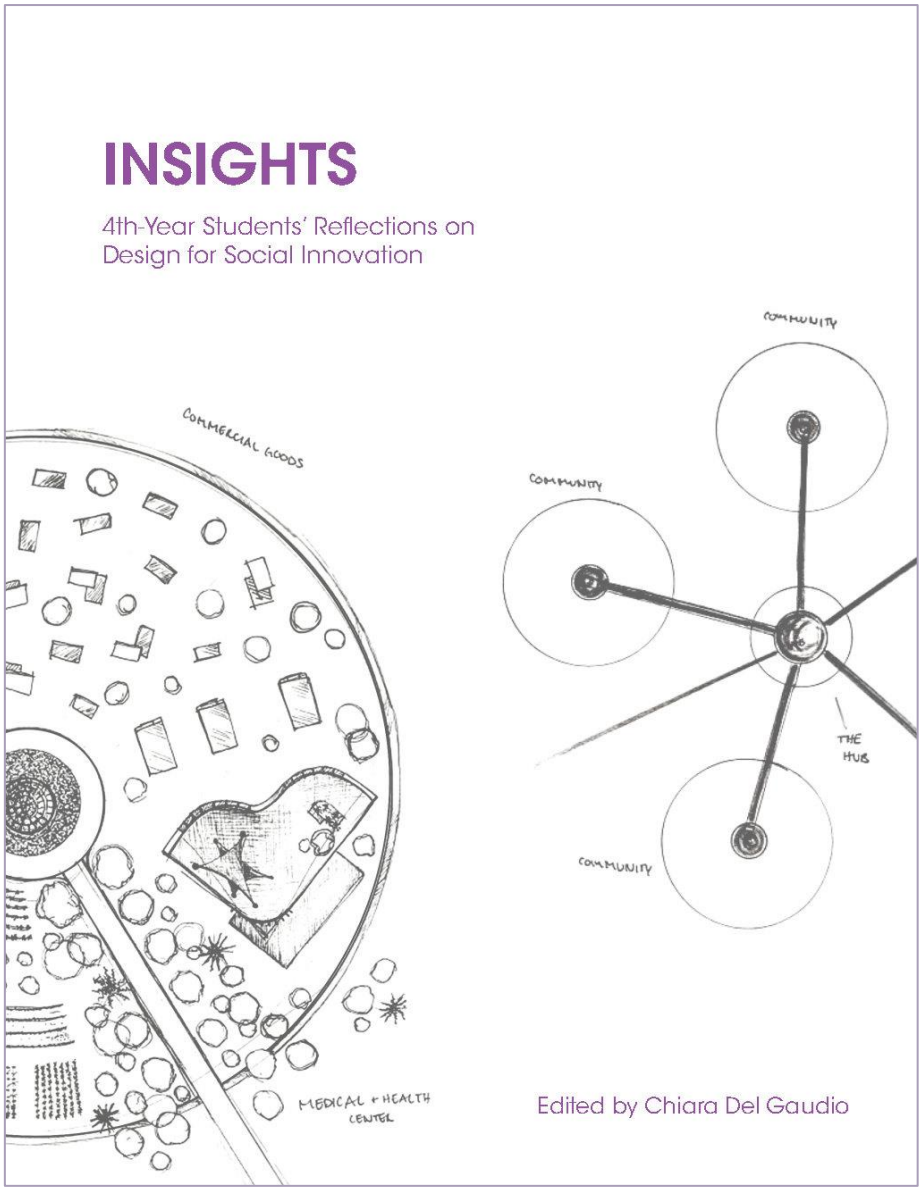
Section excerpted from:



ISBN 978-1-4884-0017-9 (ebook) DOI: 10.22215/srp/2021.delg

First edition: January 2021

Edited by Chiara Del Gaudio
Front cover image by Catherine Caetano-Macdonell, Callum Goncalves, Chimzuruoke Nebo, Gabriel Laudisa, and Heidi Evans
Paper Images retrieved by each paper's author Book Design by Maya Chopra

Published by Carleton University https://carleton.ca/

CALLUM GONCALVES

Making a Difference: How the Maker Movement is Redefinig Social Roles

MAKER MOVEMENT - PROSUMERISM - DECENTRALIZED PRODUCTION - INNOVATION

In 2005, Dale Dougherty founded *Make* magazine, a publication promoting the exploration and development of new skills as well as the building of communities of likeminded people (Dougherty, 2012) who he believed would "shape the next big wave of technology" (Dougherty, 2016, p.XII). As a result, Dougherty is often regarded as the father of *The Maker Movement* (TMM) (Dougherty, 2016). TMM is a social movement based around an evolving culture of innovating, creating, and designing nearly anything from robotics to textiles (Peppler & Bender, 2013). Although it has influenced many different industries, it is unified by the open exploration of creative ideas (Peppler & Bender, 2013). This paper looks to explore the ways in which the movement is creating innovation at a systematic level by redefining traditional social roles and relationships between consumers and producers as a result of modern technologies.

Technological Advances and TMM

The emergence and improvement of additive manufacturing technologies have allowed for new forms of rapid prototyping and small-scale manufacturing (Vayre et al., 2012). Although these technologies, such as 3-D printing, are relatively new, the field is rapidly maturing, and its respective technologies are becoming more accessible at affordable costs (Kotler, 2010). The internet is another technology which has continually grown since its inception. Since 1990, the rise of the internet has allowed for the emergence of a new environment for participatory information (Bruns, 2014). This new environment has opened avenues for individuals to participate in the creation and exchange of information in a much more productive and wide-spread way than ever before (Bruns, 2014).

Although we have seen societal changes as a result of these technologies, such as the globalized democratization of information from the internet, it should be noted that technology rarely causes change by itself (Bruns, 2014). However, it can facilitate change and promote innovation in combination with certain contextual factors (Bruns, 2014). An example of a circumstance in which these technologies promote innovation through creation and design is TMM (Peppler & Bender, 2013). This movement has been a driving force for the growth of a culture of creating (Peppler & Bender, 2013). It promotes the idea that end users can be the makers of things, not just consumers of things (Obama, 2009). The mission of this movement is about empowering people who traditionally seek jobs in creative or STEM (science, technology, engineering, mathematics) fields to create their own industries and occupations based on the evolving needs of a rapidly changing society (Peppler & Bender, 2013). Even though TMM is a widespread movement, it is also local with physical locations, called *makerspaces* all over the world (Oliver, 2016). These spaces are a place which make use of innovative technologies such as 3-D printing as well as shared resources to promote the development of technical projects with support from the maker community, which, thanks to the internet, has become a global collaborative community (Oliver, 2016). The movement also includes the international *maker faire*, which is an event where makers can bring their creations and share them among the maker community, raising exposure to a broad audience (Dougherty, 2012). In the past, small communities based around a shared interest were common, but due to the internet, the TMM community shares an unprecedented level of

interconnectedness (Dougherty, 2012). With the growth of the aforementioned technologies, such as the internet and 3-D printing, the size of TMM community is steadily increasing (Peppler & Bender, 2013).

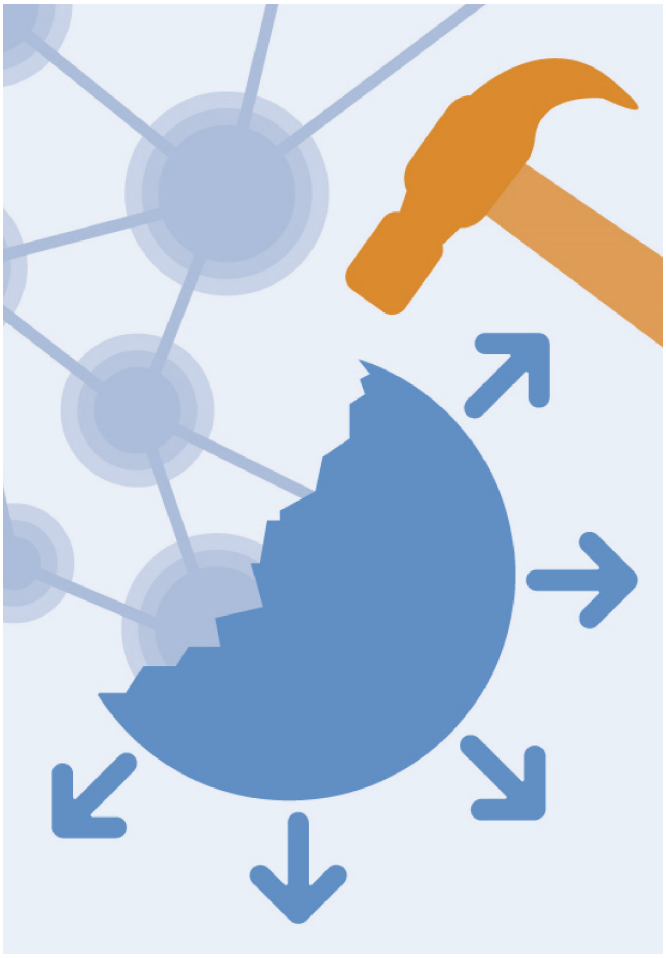
Impacts of TMM

TMM is promoting the concept of individuals taking on the social role of a prosumer, which is an individual who can produce some of the goods they consume (Kotler, 2010). This change unifies production and consumption in one person, changing the traditional structure of the producer-consumer social model (Peppler & Bender, 2013). As society moves forward into a post-industrial age, it is expected that the number of pure consumers will decline and become replaced by prosumers (Kotler, 2010). The change from strict consumerism towards personal fabrication is also viewed as a foundation for a more prosperous economy, because TMM empowers people to create their own industries and occupations to respond to the needs of society (Peppler & Bender, 2013). As a result of TMM expanding and more makers joining the community, distributed and decentralized production has been seen replacing traditional mass production in many instances (Unterfrauner et al., 2017). Traditional mass producers have a centralized production and complex supply chain for distribution while smaller, decentralized production can be locally managed with faster responses to changing demands resulting in significantly less transportation of products and resources (Unterfrauner et al., 2017). Mass production was made possible through the division of expertise and labour, which is contrasted by the maker movement which aims to marry these two factors (Unterfrauner et al., 2017). As TMM continues to grow and the division between expertise and labour lessens, it is expected that the decentralized production of goods will become more common (Unterfrauner et al., 2017).

Relevance to Social Innovation

In 2015, Ezio Manzini stated: "We define social innovation as new ideas that simultaneously meet social needs and create new social relationships or collaborations" (Manzini, 2015, p.11). If we consider TMM to be a new idea, to define the movement as social innovation means we must define the social needs it is addressing and the social relationships it is creating. Due to the vast differences between societies around the world, common social needs can be hard to agree upon. However, one problem which has the potential to negatively affect the entire world may be climate change. Therefore, it follows that one possible global social need is to combat climate change. One example of how TMM addresses this need is through the potential for decentralization of production. This may lead to reduced transportation of goods which in turn has the potential to reduce carbon emissions and wasted products. TMM also creates new social relationships through the promotion of *prosumerism*, changing the relationship between consumers and producers. Therefore, by Manzini's definition, the maker movement is a form of social innovation.

Creating systemic change in the world is difficult but through social innovation it is possible. One possible approach could be to focus on making people re-evaluate their interactions with the world in a way which promotes changing these interactions for the better. TMM has shown that it aims to change how consumers participate in consumer culture. As the movement grows, it promotes a change to decentralization, not by building more manufacturing facilities but by promoting the growth of individual ideas and businesses. People are powerful and have the power to create change. TMM understands this and will hopefully continue to promote individuals and their innovations.



References included at the end of the document
DOI: http://dx.doi.org/10.22215/srp/2021.delg.6

References

Bruns, A. (2014). Beyond the Producer/Consumer Divide: Key Principles of Produsage and Opportunities for Innovation. In M. A. Peters (Ed.), *The new development paradigm: education, knowledge economy and digital futures* (pp. 51-65). Peter Lang.

Dougherty, D. (2012). The Maker Movement. *Innovations: Technology, Governance, Globalization*, 7(3), 11-14.

Dougherty, D. (2016). *Free to Make: How the Maker Movement is Changing Our Schools, Our Jobs, and Our Minds*. North Atlantic Books.

Kotler P. (2010) The Prosumer Movement. In B. Blättel-Mink & Hellmann KU. (Eds.) *Prosumer Revisited*. VS Verlag für Sozialwissenschaften. https://doi.org/10.1007/978-3-531-91998-0_2

Manzini, E. (2015). *Design, When Everybody Designs. An Introduction to Design for Social Innovation*. MIT Press.

Obama, B. (2009). Remarks by the President on the "Education to Innovate" campaign. [Press release].

Oliver, K. M. (2016). Professional Development Considerations for Makerspace Leaders, Part One: Addressing "What?" and "Why?". *TechTrends*, 60, 160-166.

Peppler, K., & Bender, S. (2013). Maker Movement Spreads Innovation One Project at a Time. *Phi Delta Kappan*, 95(3) 22-27.

Unterfrauner, E., Voigt, C., Menichinelli, M., & Schrammel, M. (2017). The Maker Movement and the Disruption of the Producer-Consumer Relation. In S. Diplaris, A. Satsiou, A. Følstad, M. Vafopoulos & Vilarinho T. (Eds.). *Internet Science* (pp. 113-125). Springer International Publishing.

Vayre, B., Vignat, F., & Villeneuve, F. (2012). Designing for Additive Manufacturing. *Procedia CIRP*, 3, 632-637.

Washington, DC: White House Office of the Press Secretary.
www.whitehouse.gov/the-press-office/remarks-presidenteducation-innovate-campaign