

Graduate Student SYMPOSIUM

Selected Papers*

Vol. 12 2017-2018

**Get off my lawn: Why capitalism's monopoly on innovation is
bad for us all and what educators can do about it**

Eleftherios Soleas

Queen's University

(pp. 91-107)

Queen's University
Faculty of Education



Heather Braund, Britney Lester, Stephen MacGregor, and Jen McConnel
Co-Editors

Theodore Christou
Managing Editor

***From the 2017 Rosa Bruno-Jofré Symposium in Education (RBJSE)**

Please scroll down to view the document.

Get off my lawn: Why capitalism's monopoly on innovation is bad for us all and what educators can do about it

Eleftherios Soleas

Queen's University

Abstract: *Innovation has many definitions such as generating wealth through ideas in business settings like a new product being brought to market. It can also mean applying creativity in psychology such as a new theoretical perspective for a human issue. Innovation involves applying practical or theoretical knowledge to novel contexts to facilitate discoveries, solve problems, improve designs, and generally enhance individual lives and society as a whole. However, in our societal zeitgeist, innovation has largely been subsumed by capitalism and society often only considers the most profitable of ideas as innovative. Capitalism inherently values objects, services, and processes that create monetary value as well as the people who design the goods or perform the services. These persons are often considered prodigies and role models. There are consequences to conceptualizing innovation this way, namely that we leave behind excellent ideas that are not profitable. I call upon systems of education to challenge the primacy of business in innovation by building the capacity and will for incremental innovation among students. Education could instead leverage the ideas of a larger segment of society and expand society's definition of innovation to include smaller, non-profit generating ideas that also benefit humanity.*

Keywords: capitalism; economic value; incremental innovation; innovation; social value;

Innovation has many definitions in many different contexts such as generating wealth through ideas in business settings or applying creativity in psychology (Baregheh, Rowley, & Sambrook, 2009). Complicating the divergent meanings is the ubiquity of the word; we use the word so commonly to describe different phenomena that people use it to mean one thing and their listeners often hear something else. However, broad commonalities exist among definitions that separate creativity and divergent thinking from innovation – the mobilization of a creative idea. Most definitions of innovation factor in creativity, and there is almost always an execution, implementation, or application aspect that sets innovation apart from creativity (Baregheh et al., 2009; Carpenter, 2010). The

consensus from an amalgam of definitions is that innovation is effecting change through the novel execution of ideas likely to generate a process or product of value (e.g. Baregheh et al., 2009; Kastle, 2010; OECD, 2016). This value can take many forms including monetary, personal, and societal (Berkun, 2017; O'Shea & Buckley, 2007; Quintane, Casselman, Reiche, & Nylund, 2011). While in business innovation is synonymous with profiting from an idea, the idea in other innovation-related disciplines like the arts, design, scholastics, external to business is that innovation is not only for profit. Indeed, this conceptualization highlights two crucial aspects of innovation that can be developed in schools: the ability to implement ideas from thought to product and that ideas that do not aim to make money can have a tremendous impact on society.

Business and policy literatures have in the past overlooked the social values of innovative products or processes like sustainable energy sources because they might not have immediate monetary value despite being meaningful contributions to society (Bateson & Bateson, 1972; Chu & Majumdar, 2012). However, there are consequences to only anointing monetarily successful ideas as innovative: it disenfranchises ideas, and the people who have them, that improve humanity without necessarily being profitable. Democracy and public education are not profit-generating machines, but they have tangibly improved the lives of people with access to them, far more than BuzzFeed, Starbucks, and Apple (all of whom are philanthropic by the way). When society conflates revenue with relevance and consumption potential with contribution, we have allowed capitalism rather than aspirations to dictate the destiny of society.

The Promise of Innovation

Innovation is a primary source of renewal and revitalization and is vital to the long-term success of society (Dewey, 1997; Glassman, 2001; Green, 2013; Sousa, 2013). Society often thrives when innovation occurs, and innovations can be mutually beneficial for both society and for the innovator (Bhaduri & Kumar, 2011; Sousa, 2013). Innovation is the process of applying practical or theoretical knowledge to novel contexts, which in turn can facilitate discoveries, solve problems, improve designs, and generally enhance individual lives and society as a whole (Drucker, 2006; Pavitt, 2005). Drucker and Pavitt, unlike the majority of business literature, do not explicitly privilege the notion of monetary wealth generation (e.g., Friedman, 2008; Johannessen, Olsen, & Lumpkin, 2001; Nager, Hart, Ezell, & Atkinson, 2016; Roth, Schneckenberg, & Tsai, 2015; Brusoni, 2006).

Business is as nebulous a term as innovation; for the purposes of this argument, business refers to any enterprise or interest that has the primary concern of generating monetary, material, or financial wealth. The vast majority of definitions in business are unsurprisingly written with business in mind. Business is focused on generating wealth,

hence business enterprises' and scholars' perceptions of innovation are focused on generating wealth.

However, other forms of innovation exist as well, forms that do not immediately generate monetary wealth, such as theories, discovery research, works of art, new building designs, and policy reform. These non-monetary innovations benefit humanity without immediately generating profit. Our schools should also stoke the capacity to incrementally innovate (Delcourt & Renzulli, 2013; Norman & Verganti, 2014; Scott, Penaluna, & Thompson, 2016) and not be complicit in propelling the business-first narratives (McLaren, 2016; Norris, 2011).

Innovations have the potential to improve people's lives. Some are famous, such as the Internet, smartphones, and laser eye surgery (radical innovation), while individuals often take for granted less obvious innovations such as sunscreen, staplers, and sunglasses (incremental innovation). While society 'oohs' and 'ahs' over the former, the latter have measurably improved our lives as well. Why is one set famous and the other taken for granted? The answer to a large extent is marketability and directness of how the innovation generates monetary wealth. Capitalism inherently values objects, services, and processes that create vast monetary value as well as the people who design the goods or perform the services. These persons are often considered as prodigies and role models. Consider for instance, Sir Tim Berners-Lee the creator of the World Wide Web. His innovation enabled a whole new method of communicating and retrieving information. Compare Sir Berners-Lee's fame with the anonymity of the creator of sunglasses, which have helped prevent millions of people from developing cataracts or the discoverer of sunscreen which reduces the prevalence of life-threatening cancers in millions of people. Innovation is not only the domain of prodigies who make the greatest advances; it also includes everyday innovations—less-known but novel ideas that may not achieve public acclaim (Green, 2013; Norman & Verganti, 2014).

Everyday innovation advances society incrementally through displays of cognition that apply knowledge from one context to others to create new resources. For example, the first person to apply a philosophical idea to a new field has transferred an idea to create a new way of thinking, a product. As a result, ideas that change the world may go unnoticed as represented by the irony that ideas that are wildly successful tend to be thought of later as obvious (Kress & Selander, 2012). Everyday innovation holds an abundance of promise. Innovations enable our society to progress and be rejuvenated with fresh ideas and new perspectives on past ideas.

How Much Influence Can Business Really Have?

One measure of business' influence on society's conceptualization of innovation is to determine the amount of exposure economic value-oriented definitions received compared to societal value-oriented definitions in academic and popular media. The author did so and once definitions were compiled, three distinct measures were determined: (1) number of economic versus societal-oriented definitions in academic and popular sources; (2) publication metrics (views, reads, and citations) for the academic sources; and (3) webpage visit numbers for the economic versus societal-oriented definitions in the webpages and blogs.

As a first step, I conducted a review of the literature on innovation definitions through EBSCOhost using the search terms "Innovation" and "Definition" in the title or abstract. This yielded 1400 academic papers and books that defined innovation, of which 80 were selected because they met the eligibility criteria of providing unique, explicit, and discrete definitions. To compare with these academic definitions, 80 websites dedicated to innovation including blogs (e.g., InnovationDefinitions, 25 definitions of innovation, innovation.cc) from innovation enthusiasts such as researchers and bloggers, who published their ideas outside peer review, were selected because they offered unique, explicit, discrete definitions of innovation. For the sake of a balanced comparison, I used only the first 80 websites and blogs compiled by Google using the same search terms featured definitions. Both sets of definitions were sorted into categories based on whether the definition explicitly considered the possibility of social value (n= 39) or whether it limited innovation to producing economic value (n=41; see Table 1 for examples).

Table 1

Exemplar Definitions of Innovation Illustrating Conceptualization Differences

Economic value definitions (n= 41)	Social value definitions (n=39)
The harnessing of creative ability within people and processes in an organization, in response to customer and market demands (McAdam, Reid, & Gibson, 2004, p. 149)	Innovation is the development and implementation of new ideas to solve problems (Giuliani & Bell, 2005, p. 288)
Innovation is the conversion of a new idea into revenues and profits (Lafley & Charan, 2008, p. 21)	Innovation is both the creative development of novelty and its application to generation of a new product (Taylor & Grieve, 2009, p. 724)
The commercialization of any new product, process, or idea, or the modification and recombination of existing ones (Rothaermel, 2013, p. 172)	The process of developing and implementing a new idea (van de Ven, 1986; Van de Ven, 2017, p. 39)

Next, the proportion of definitions within each value category was compared between scholarly (paper and book) and popular definitions (website/blog). Of the paper and book definitions, 41 of the 80 definitions specified innovation to be primarily or entirely based on economic value, while the other 39 tended to consider both social and economic value (see Table 2). This is to say that over half of the academic definitions would strictly speaking not consider a novel idea that improves the lives of many people as innovation if it does not turn a profit. Among websites, more than half of the conceptualizations (n=44) were amenable to an idea being innovative if it benefited society rather than if the idea was solely economically profitable.

Table 2

The Dichotomy of Value in Innovation Among Papers and Websites

Innovation product	Scholarly	Popular	Societal value	Scholarly	Popular
Economic value	41/80	36/80	Societal value	39/80	44/80

The first comparison did not result in significant differences in the quantity of definitions in each category. However, deeper analyses such as looking at the citation metrics of the scholarly (paper and book) and the popular (website and blog) sources were conducted. Using PlumX metrics and the EBSCOhost database it was revealed that the papers containing economic value-oriented definitions were viewed (2.03 times), read (1.7 times), and ultimately cited (2.27 times) more frequently than papers with societal value-oriented definitions of innovation, as demonstrated by a significant chi-square test (χ^2 , $p < 0.0001$).

Table 3

The Differences Between the Publishing Metrics of the Articles and Books

Papers with Economic Value Conceptualization			Papers with Social Value Conceptualization		
Citations (n= 44)	Reads (n= 28)	Views (n=28)	Citations (n= 36)	Reads (n=22)	Views (n=22)
58482	13253	101746	28802	7859	44750

Note. Not all papers had PlumX metrics as only articles published after 2008 were indexed with Plum Analytics

Although the proportions of definitions were different between academic and popular media, the true primacy of business oriented definitions became clear when looking at web metrics. Using SimilarWeb, a free web analytics tool, a metadata analysis revealed the number of unique visitors to a given website until December 2017. This analysis revealed that the websites of all economic value leaning definitions (n=36) were visited approximately 255 million times (255,648,990) since their inceptions compared to

approximately 12 million times (11,876,330) for the societal value-oriented definitions (n=44) of innovation revealing a significant chi-square test (χ^2 , $p < 0.0001$). Even though the literature search revealed more societal value-oriented definitions than economic wealth definitions, the economic definitions were visited 21.5 times more frequently than the societal value definitions further illustrating that the economic value-oriented definitions of business websites receive vastly more exposure than societal value definitions.

The alarming and disproportionate imbalance between the economic and societal value definitions in terms of webpage visits as well as scholarly views, reads, and citations indicate that action is needed to prevent a monopoly on innovation and to present a balanced perspective for future innovators. This action should begin with the next generation of innovators, our students.

A Call to Action

When I speak of innovation, I draw from Dewey's belief that innovation represents aspects of human goodness and humanity's penchant for progress. Therefore, innovation is for dreamers of all sorts who try to make their world better and if it helps them make a living, all the better. I also believe that we stand at a crossroads and that we risk allowing the velocity of money and the interests of business to dictate innovation and the human condition rather than the pursuit of improving humanity. I believe that we should measure innovation by the lives it improves rather than the money it makes. In doing so, innovation should be a capacity of many, rather than the dominion of business prodigies. Innovation should be for everyone whether they elect to participate or not. Schools should cultivate the tools to innovate for better. To quote Clint Eastwood (Eastwood, 2008), when one stakeholder group attempts to define innovation as their own to the exclusion of others, it is to our benefit to ask them to "Get off my lawn!"

What are the Costs of Only Being Able to Think in Terms of Money?

How did society get to a state where profit is the primary criterion for the value of an idea? The answer is that capitalist systems have largely subsumed our value system to the advantage of business and consumerist ventures (McLaren, 2016; Norris, 2011; Roth et al., 2015) without much protest (Carton, Jönsson, & Bustos, 2017; Rossi, 2012; Thompson & Briken, 2017; Vercellone, 2007). Capitalism has co-opted the way we assign value to things and as result the first instinct people have when appraising the relevance or importance of something is to objectify it via potential for profitability (Lafley & Charan, 2008). The interests of business have hijacked the cultural zeitgeist to the detriment of human interest which often lies outside potential for profitability. We have become obsessed with outcomes, which is why sometimes the process falls by the wayside (Caniëls, De Stobbeleir,

& De Clippeleer, 2014; Marton & Saljo, 1992). However, there has been a resurgence in education and psychology scholarship pushing back against the marginalization of process importance with arguments for teaching a process and valuing the output based on a range of contributions rather than zeroing in on profit (e.g., Bruner, 2009; Caniëls, De Stobbeleir, & De Clippeleer, 2014; Cassidy, 2011; de Guerre, Séguin, Pace, & Burke, 2013; Delcourt & Renzulli, 2013). Indeed, many scholars have highlighted the costs of allowing a profit-centred view to openly exist in education and society.

Allowing business and corporate interests to define and influence constructs, such as innovation, is dangerous. Business should be one part of defining innovation in conjunction with the rest of society rather than being the anointing party of what constitutes innovation. Business must inherently take calculated risks hence risk/reward analysis of everything (Drucker, 2006; Morrison & Johnston, 2003). Profit is often the reward in the business context. Many ideas that seem unprofitable, but have long-term potential to improve humanity, languish or are abandoned because of the intense pressure to meet the prime criterion of a business-obsessed society—profit. Financial profit matters, but we should also consider the contribution to humanity an investment that yields return in the form of an improved human condition.

The insistence of business valuing revenue and profit has trickled down throughout society to the point where people expect rewards to be in the form of money. As chronicled by Kruglanski and colleagues in the 1970s, with their experiments with extrinsic reward systems this monetary value system might manifest in the attitude of: unless industry pays individuals to do something, there is little motivation to do it (Kruglanski, 1978; Kruglanski et al., 1975; Kruglanski, Friedman, & Zeevi, 1971). Quite simply, extrinsic rewards like money sunder the motivation to do something for its own sake or simply for enjoyment. Consequently, people are now increasingly motivated to perform a task like innovating because of money, and not for fulfillment. Consider the missed opportunities, if innovations like sunscreen of sunglasses were left by the wayside in pursuit of ideas that were immediately profitable. In today's capitalist and utilitarian culture, the aim of schools seems to focus on the needs of industry and business which value profit. For example, McLaren (2016) gives the example of an early goal of school being to socialize students for their eventual involvement in the workforce.

Examples of the depth of permeation of capitalism into schools are not hard to come by. For example, the not so subtle movement of schools training students for easy transition into industry rather than educating for a balanced and meaningful life (Bruner, 2009; Ito & Kawazoe, 2015; Ryan & Deci, 2017). Society seems to have bought into the notion that schools' main purpose is to train students to be employable and to measure their worth by

what society is willing to pay them for what they can offer. Consider how when one thinks of innovators one frequently only thinks of the most famous wealthy individuals (Shavinina, 2013; Watters, 2014). Society's education stakeholders including students, parents, teachers, administration, and industry have varied interests. Students will have to make a living somehow, but many people want students to gain more from school than obtaining employment. Some stakeholders have the notion that school should set a student up for leading a fulfilling, productive life with the opportunity to self-actualize (e.g., Deci, Koestner, & Ryan, 1999; Niemiec & Ryan, 2009; Rossi, 2012) as opposed to being adequate employees in the grand design of capitalism (e.g., Fernandez & Pitts, 2011; Ito & Kawazoe, 2015).

In summary, business interests have intentionally and unintentionally dominated the societal consensus such that innovation is conceptualized as contingent on being profitable, to indeed be innovative. As the result of schools being co-opted by business interests and researchers and turned into training grounds for employment, students have been indoctrinated into this way of thinking about innovation. As such, we risk a future where many great innovations are lost because of our preoccupation with wealth.

Another Way Forward: Incremental Innovation in Schools

Scholars in education and elsewhere posit that there is more than one kind of innovation. Sarri et al. (2010) differentiate between incremental and radical innovation, emphasizing that intervention programs should focus on building the skills needed for incremental innovation rather than only those for radical innovation. These skills could include project management, practice with the process of peer review of ideas, enacting feedback and from this feedback making smaller changes to steadily improve ideas (Sarri et al., 2010). Incremental innovations are ideas and refinements that move society forward without necessarily being the fame-inducing breakthroughs that alter industries and the direction of human progress in the same way as radical innovations. For example, a radical innovation was the invention of the Internet search engine, a high profile, world-changing invention. An incremental innovation would be developing an algorithm that helps a search engine return more effective results. Both forms contribute to human well-being and societal progression, but they do so on different scales. Focusing on radical innovation, as is common in business literatures (e.g., de Guerre et al., 2013; Fowinkel, 2014; Isaksen, Tidd, & Tidd, 2006; Johannessen et al., 2001) privileges innovation as the domain of those anointed as geniuses or prodigies. Such a focus fails to leverage the potential of those who can make incremental contributions, which constitute the vast majority of innovations (Ali, 1994; Norman & Verganti, 2014; Sarri et al., 2010). For society to maximize innovation, schools must recognize and cultivate incremental innovation in classrooms by changing the

perceptions of what constitutes innovation thereby mitigating the narrow thinking that only radical innovation is really innovation.

As per the analysis of the economic and societal value definitions, Norman and Verganti (2014) illustrated that the clear majority of business innovation literature focuses on radical innovation, typically economic value focused, to the detriment of incremental innovation which tends to be societal value focused. Radical innovations better fit the narrative within business literature of innovations generating profit and the struggling start-up striking it big with some world-changing idea. These are ideas that are easily exploitable by capitalism as they illustrate that innovation generates wealth. Whereas a small segment of innovation constitutes radical innovation, the much larger, more accessible portion of innovation is incremental in nature. Ideas that incrementally improve products and processes are not seen as having the same flash and flair as those that radically change industry. Although students have on rare occasion produced radical innovations, such as Charles Best working with Frederick Banting on the invention of insulin, and Zuckerberg and colleagues' invention of Facebook—students are seldom in a position to contribute to society through radical innovations. Without the same prestige, or marketability, these incremental advances are not often seen as contributing to society to the same extent as radical advances. Therefore, incremental innovations are not as attractive an aspiration to students.

Students in schools see that society does not appreciate incremental efforts in the same way as radical efforts and often are discouraged from attempting to innovate altogether (Norman & Verganti, 2014). Schools can combat this by using incremental innovations and their innovators as examples such that students see that incremental improvements are, in fact, given the appreciation they deserve. For example, schools could discuss more frequently the work of locally developed innovators like Craig Kielburger, who started the Me to We Foundation as a small local focused charity and has paved the way for similar efforts to raise funds and act locally in pursuit of the common good. Another example of incremental innovation can be seen in the local efforts of postsecondary student unions to hold blood and stem cell drives, previously only held within healthcare settings. This application of an existing idea in a new context has resulted in a surge in current efforts to build blood stockpiles and to find donors for regenerative medicine procedures. These examples and those like them can help stoke the idea that incremental innovations can indeed make a huge difference locally and beyond.

There are degrees of skill in developing and implementing innovative ideas as exemplified by the prodigious achievements of Nobel Laureates (Shavinina, 2013). In their analyses of creative types of thinking, Kaufman and Beghetto (2009) created a continuum from the small, everyday creativity (mini-c and Little-c) to the acts of creative professionals

(Pro-c) and ending with the titanic achievements of famous thinkers who improve the lives of humankind with their discoveries (Big-C). We can apply Kaufman's idea of a continuum of creative acts (4-C model) to innovation, a 4-I model, from everyday little-i innovation to the transcendent breakthroughs of Big-I Innovation. Schools can showcase the different types of innovation and demonstrate that all the types can benefit humanity by demonstrating the impact of each and developing the skills to innovate on a small scale.

While many thinkers in the past have anointed great innovators as geniuses (e.g., Janszen, 1950; Kirton, 1976), it has become increasingly common to conceptualize innovation as a developed skill that we can cultivate in individuals (Ali, 1994; Castella & Byrne, 2015; Norman & Verganti, 2014). While, Big-I innovators become widely recognized and often famous (radical innovation; Sarri, Bakouros, & Petridou, 2010), the achievements of "mini-i", "little-i", and "pro-i" innovation also contribute a great deal by advancing society incrementally (incremental innovation; Norman & Verganti, 2014). Schools can benefit society by means of increased engagement and an influx of ideas by mobilizing all types of innovation. They can do this by developing more students' capacity to incrementally innovate instead of awaiting Big-I innovators to occur naturally and make their mark.

The promotion of incremental innovation at a local level, starting in schools with today's students has the potential to engage an entire generation of thinkers in productive goals and produce civically and socially responsible thinkers keen to solve the problems of today and tomorrow. Schools can work to help society progress by supporting all types of innovators through balancing the influence of business interests with those of other societal stakeholders and expanding the scope of interventions to focus on all types of innovations. This can take the form of students being involved in civic and municipal community engagement projects like Kingston, Ontario's graduate student outreach program which pairs graduate students with community stakeholders to address important local issues like employment, philanthropic causes, conservation, and resource management.

A 2016 report commissioned by the U.S. government showed that the most underrepresented groups of people in the United States were also the largest remaining untapped potential knowledge producers and innovators (Nager et al., 2016). They further elaborated that their investigation led them to believe that the most expedient and valuable way forward was to broaden the pool of potential innovators and therefore leverage a wider segment of society instead of increasing funding for existing innovators.

From this line of thinking designing education programs to support radical innovation only undermines the incremental innovation that advances humankind steadily, diminishes the ability to leverage the creativity of a larger segment of society, and propels radical innovation potential (Ali, 1994). Think about it, what is better: only

supporting and glamourizing a minority of new types of thinking, or admitting that, yes, it might not be as glamorous, but incremental innovation is a more sustainable and more engaging method of contributing to society at large for a great many more people. Perhaps it is time to stop letting money dictate products and processes and embrace the benefit of non-profitable ideas. Schools need to acknowledge the costs of thinking about everything in terms of money and instead expand our definitions of wealth to include human prosperity in addition to economic wealth.

Acknowledgements

This argumentation is dedicated to the memory of my advisor Dr. John G. Freeman—the only man I knew was grouchier about capitalism than I.

References

- Ali, A. (1994). Pioneering versus incremental innovation: Review and research propositions. *Journal of Product Innovation Management*, 11(1), 46-61.
[http://doi.org/10.1016/0737-6782\(94\)90118-X](http://doi.org/10.1016/0737-6782(94)90118-X)
- Baregheh, A., Rowley, J., & Sambrook, S. (2009). Towards a multidisciplinary definition of innovation. *Management Decision*, 47, 1323-1339.
<http://doi.org/10.1108/00251740910984578>
- Bateson, G., & Bateson, M. C. (1972). *Steps to an ecology of mind. The Western Political Quarterly* (Vol. 988). Ballantine Books: New York, NY. <http://doi.org/10.2307/446833>
- Berkun, S. (2017). The best definition of innovation. Retrieved February 16, 2017, from <http://scottberkun.com/2013/the-best-definition-of-innovation/>
- Bhaduri, S., & Kumar, H. (2011). Extrinsic and intrinsic motivations to innovate: Tracing the motivation of “grassroot” innovators in India. *Mind and Society*, 10(1), 27-55.
<http://doi.org/10.1007/s11299-010-0081-2>
- Bruner, J. S. (2009). *The process of education*. Boston, MA: Harvard University Press.
- Brusoni, S., Cefis, E., & Orsenigo, L. (2006). Innovate or die? A critical review of the literature on innovation and performance. *CESPRI Working Papers*, (August). Retrieved from [http://unina.stidue.net/Universita' Bocconi/RePEc/cri/papers/WP179BrusoniCefisOrsenigo.pdf](http://unina.stidue.net/Universita%27Bocconi/RePEc/cri/papers/WP179BrusoniCefisOrsenigo.pdf)
- Caniëls, M. C. J., De Stobbeleir, K., & De Clippeleer, I. (2014). The antecedents of creativity revisited: A process perspective. *Creativity and Innovation Management*, 23(2), 96-110.
<http://doi.org/10.1111/caim.12051>
- Carpenter, H. (2010). 25 definitions of innovation. Retrieved February 24, 2017, from <http://innovationexcellence.com/blog/2010/08/22/25-definitions-of-innovation/>
- Carton, W., Jönsson, E., & Bustos, B. (2017). Revisiting the “Subsumption of Nature”: Resource Use in Times of Environmental Change. *Society & Natural Resources*, 30, 789-796. <http://doi.org/10.1080/08941920.2017.1320176>
- Cassidy, S. (2011). Self-regulated learning in higher education: Identifying key component processes. *Studies in Higher Education*, 36, 989-1000.
- Castella, K. De, & Byrne, D. (2015). My intelligence may be more malleable than yours: The Implicit Theories Self-Form is a better predictor of achievement and motivation. *European Journal of the Psychology of Education*, 30(3), 1-28.
<http://doi.org/http://dx.doi.org/10.1007/s10212-015-0244-y>
- Chu, S., & Majumdar, A. (2012). Opportunities and challenges for a sustainable energy future. *Nature*, 488, 294-303.
- de Guerre, D. W., Séguin, D., Pace, A., & Burke, N. (2013). IDEA: A collaborative organizational design process integrating innovation, design, engagement, and action. *Systemic Practice and Action Research*, 26, 257-279.
<http://doi.org/10.1007/s11213-012-9250-z>

- Deci, E. L., Koestner, R., & Ryan, R. M. (1999). A meta-analytic review of experiments examining the effects of extrinsic rewards on intrinsic motivation. *Psychological Bulletin*, 125, 627-668-700. <http://doi.org/10.1037/0033-2909.125.6.627>
- Delcourt, M. A. B., & Renzulli, J. S. (2013). The three-ring conception of innovation and a triad of processes for developing creative productivity in young people. In L. Shavinina (Ed.), *Routledge international handbook of innovation education* (pp. 128–141). London, UK: Routledge.
- Dewey, J. (1997). *Experience and education*. New York, NY: Simon and Schuster.
- Drucker, P. (2006). *Innovation and entrepreneurship*. New York, NY: Harper Business. <http://doi.org/10.1016/j.jbusvent.2008.06.001>
- Eastwood, C., Gerber, B., Lorenz, R. (Producers & Eastwood, C. (Director) (2008). *Gran Torino* [Motion Picture]. United States: Warner Bros. Pictures.
- Fernandez, S., & Pitts, D. W. (2011). Understanding employee motivation to innovate: Evidence from front line employees in United States federal agencies. *Australian Journal of Public Administration*, 70, 202–222. <http://doi.org/10.1111/j.1467-8500.2011.00726.x>
- Fowinkel, T. (2014). *Human resource management systems in new business creation: An exploratory study*. Berlin, Germany: Springer. <http://doi.org/10.1007/978-3-658-05982-8>
- Friedman, S. D. (2008). Be a better leader, have a richer life. *Harvard Business Review*, 86(4), 46–51. <http://doi.org/10.1002/jls>
- Giuliani, E., & Bell, M. (2005). The micro-determinants of meso-level learning and innovation: Evidence from a Chilean wine cluster. *Research Policy*, 34(1), 47–68. <http://doi.org/10.1016/j.respol.2004.10.008>
- Glassman, M. (2001). Dewey and Vygotsky: Society, experience, and inquiry in educational practice. *Educational Researcher*, 30(4), 3–14.
- Green, E. (2013, June 20). Innovation: The history of a buzzword. *The Atlantic*. Retrieved from <http://www.theatlantic.com/business/archive/2013/06/innovation-the-history-of-a-buzzword/277067/>
- Isaksen, S. G., Tidd, J., & Tidd, J. (2006). *Meeting the innovation challenge: Leadership for transformation and growth*. London: United Kingdom: Wiley.
- Ito, H., & Kawazoe, N. (2015). Active learning for creating innovators: Employability skills beyond industrial needs. *International Journal of Higher Education*, 4(2), 81–91. <http://doi.org/10.5430/ijhe.v4n2p81>
- Janszen, F. (1950). The age of innovation. *Review Literature And Arts Of The Americas*, 1–4.
- Johannessen, J.-A., Olsen, B., & Lumpkin, G. T. (2001). Innovation as newness: What is new, how new, and new to whom? *European Journal of Innovation Management*, 4(1), 20–31. <http://doi.org/10.1108/14601060110365547>
- Kastelle, T. (2010). The problem of defining innovation. Retrieved February 16, 2017, from <http://timkastelle.org/blog/2010/08/aninnovationdefinition/>
- Kaufman, J. C., & Beghetto, R. A. (2009). Beyond big and little: The four c model of creativity. *Review of General Psychology*, 13(1), 1–12. <http://doi.org/10.1037/a0013688>

- Kirton, M. (1976). Adaptors and innovators: A description and measure. *Journal of Applied Psychology, 61*, 622–629.
- Kress, G., & Selander, S. (2012). Multimodal design, learning and cultures of recognition. *The Internet and Higher Education, 15*, 265–268.
<http://doi.org/10.1016/j.iheduc.2011.12.003>
- Kruglanski, A. W. (1978). Endogenous attribution and intrinsic motivation. *The Hidden Costs of Reward: New Perspectives on the Psychology of Human Motivation*, 85–107.
- Kruglanski, A. W., Friedman, I., & Zeevi, G. (1971). The effects of extrinsic incentive on some qualitative aspects of task performance. *Journal of Personality, 39*, 606–617.
- Kruglanski, A. W., Riter, A., Amitai, A., Margolin, B.-S., Shabtai, L., & Zaksh, D. (1975). Can money enhance intrinsic motivation? A test of the content-consequence hypothesis. *Journal of Personality and Social Psychology, 31*, 744–750.
<http://doi.org/10.1037/0022-3514.31.4.744>
- Lafley, A. G., & Charan, R. (2008). *The game-changer: How you can drive revenue and profit growth with innovation*. New York, NY: Crown Business.
- Marton, F., & Saljo, R. (1992). On qualitative differences in learning: 1. Outcome and process. *British Journal of Educational Studies, 46*(1), 4–11. <http://doi.org/10.1111/j.2044-8279.1976.tb02980.x>
- McAdam, R., Reid, R. S., & Gibson, D. A. (2004). Innovation and organisational size in Irish SMEs: An empirical study. *International Journal of Innovation Management, 8*(2), 147–165. <https://doi.org/10.1142/S1363919604001027>
- McLaren, P. (2016). *Life in schools: An introduction to critical pedagogy in the foundations of education* (6th ed.). New York, NY: Routledge.
- Morrison, A., & Johnston, B. (2003). Personal creativity for entrepreneurship: Teaching and learning strategies. *Active Learning in Higher Education, 4*(2), 145–158.
- Nager, A., Hart, D., Ezell, S., & Atkinson, R. D. (2016). *The demographics of Innovation in the United States*. Retrieved from <https://itif.org/publications/2016/02/24/demographics-innovation-united-states>
- Niemiec, C. P., & Ryan, R. M. (2009). Autonomy, competence, and relatedness in the classroom: Applying self-determination theory to educational practice. *Theory and Research in Education, 7*, 133–144. <http://doi.org/10.1177/1477878509104318>
- Norman, D. A., & Verganti, R. (2014). Incremental and radical innovation: Design research vs. technology and meaning change. *Design Issues, 30*(1), 17–30.
http://doi.org/doi:10.1162/DESI_a_00250
- Norris, T. (2011). *Consuming schools: Commercialism and the end of politics*. Toronto, Canada: University of Toronto Press.
- O’Shea, D., & Buckley, F. (2007). Towards an integrative model of creativity and innovation in organisations: A psychological perspective. *Irish Journal of Psychology, 28*(3), 101–128.

- Organization for Economic Cooperation and Development (OECD). (2016). Defining innovation. Retrieved February 16, 2017, from <http://www.oecd.org/site/innovationstrategy/defininginnovation.htm>
- Pavitt, K. (2005). Innovation Processes. In J. Fagerberg, D. Mowery, & R. Nelson (Eds.), *Oxford Handbook of Innovation* (Vol. 18, pp. 86–114). Oxford, UK: Oxford University Press.
- Quintane, E., Casselman, R. M., Reiche, B. S., & Nylund, P. (2011). Innovation as a knowledge-based outcome. *Journal of Knowledge Management*, 15, 928–947.
- Rossi, U. (2012). On the varying ontologies of capitalism: Embeddedness, dispossession, subsumption. *Progress in Human Geography*, 37, 348–365.
<http://doi.org/10.1177/0309132512463300>
- Roth, S., Schneckenberg, D., & Tsai, C. (2015). The ludic drive as innovation driver: Introduction to the gamification of innovation. *Creativity and Innovation Management*, 24, 300–306.
- Rothaermel, F. T. (2013). *Strategic management*. New York, NY: McGraw-Hill Education.
- Ryan, R. M., & Deci, E. L. (2017). *Self-Determination Theory: Basic psychological needs in motivation, development, and wellness*. New York, NY: Guilford Publishing.
- Sarri, K. K., Bakouros, I. L., & Petridou, E. (2010). Entrepreneur training for creativity and innovation. *Journal of European Industrial Training*, 34, 270–288.
<http://doi.org/10.1108/03090591011031755>
- Scott, J. M., Penaluna, A., & Thompson, J. L. (2016). A critical perspective on learning outcomes and the effectiveness of experiential approaches in entrepreneurship education: Do we innovate or implement? *Education+ Training*, 58(1), 82–93.
<http://doi.org/10.1108/ET-06-2014-0063>
- Shavinina, L. (2013). Where did all great innovators come from? Lessons from early childhood and adolescent education of Nobel laureates in science. In L. Shavinina (Ed.), *Routledge International Handbook of Innovation education* (pp. 248–261). London, United Kingdom: Routledge.
- Sousa, C. (2013). Innovation, creativity and reward practices in academic spin-offs : The case of the IST Spin-off Community. *Portuguese Journal of Social Science*, 12, 263–286.
<http://doi.org/10.1386/pjss.12.3.263>
- Taylor, A., & Grieve, H. (2009). Superman or the Fantastic Four? Knowledge combination and experience in innovative teams. *Academy of Management Journal*, 49, 723–740.
- Thompson, P., & Briken, K. (2017). Actually existing capitalism: Some digital delusions. In A. Marks, K. Brinken, S. Chillias, & K. Martin (Eds.), *The New Digital Workplace: How New Technologies Revolutionise Work* (p. 241). London, United Kingdom: Palgrave.
- van de Ven, A. H. (1986). Central Problems in the Management of Innovation. *Management Science*, 32, 590–607.
- Van de Ven, A. H. (2017). The innovation journey: You can't control it, but you can learn to maneuver it. *Innovation: Management, Policy and Practice*, 19(1), 39–42.
<http://doi.org/10.1080/14479338.2016.1256780>

- Vercellone, C. (2007). From formal subsumption to general intellect: Elements for a marxist reading of the thesis of cognitive capitalism. *Historical Materialism*, 15, 13–36.
<http://doi.org/10.1163/156920607X171681>
- Watters, A. (2014). How do we measure “innovation”? Retrieved from
<http://doi.org/http://hackededucation.com/2014/10/23/measure?innovation>