Innovation

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Abstract

This paper considers how the meaning of innovation has changed over time and considers how contemporary conceptions of innovation are problematic for education. The popularity of the overhead projector in schools during the 1960s is examined to show how education innovation relies on a novel new product for classrooms and a belief by adopters that the tool will radically change education. Educational Innovation movements masquerade consumerism as pedagogy. Current Canadian examples of innovation are examined to show how innovation has become a trendy buzzword. Innovation has connections to consumerism which problematizes the prevalent notion that innovation is the target that education must strive to achieve. Education must place effective pedagogy first and foremost and cannot get sidetracked in the race to become innovative.

Keywords: educational technology, digital pedagogy, educational innovation, educational change, educational leadership, 21st century education

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With "innovare," meaning to "renew" or "alter" as its Latin root, "innovation," has come to mean a never-ending pursuit of novelty. Although the types of novelty have changed across history, the desire for newness remains constant. The *Oxford English Dictionary* (OED, 2011) lists the first use of innovation as occurring in John Brendes' *The Historie of Quintus Curcius* (1553), an English translation of a Roman history about Alexander the Great. Here, the novelty of innovation only refers to subtle changes to the status quo as, "the alteration of what is established by introducing new elements or forms" (OED). During the sixteenth century, innovation begins to be applied to religious revolution, as in John Calvin's influential *The Institutes of the Christian Religion* (1561), which laid the groundwork for the Protestant reformation. Calvin advocated religious innovation by critiquing the dominant Catholic theology and promoting an alternative Protestant form of worship. Not long after, Shakespeare used innovation to refer to political novelty, in the first performance of *King Henry IV, Part 1* in 1600. Here, King Henry IV refers to the rebels as "fickle changelings and poor discontents, which gape and rub the elbow at the news of hurlyburly innovation" (5.1.77-79). For Shakespeare, political innovation is an appealing but toxic form of political insurrection. Historically, religious and political innovations defined new movements signalling social and ideological change. In the twentieth century, the sense of innovation shifts and is increasingly used to describe "the act of introducing a product to the market" (OED). Innovation becomes part of a capitalist sales pitch, one that requires a product rather than just an idea. Innovation retains a sense of novelty and change but these associations are now attached to a product that promises a revolutionary experience for purchasers. Within education, innovation becomes intertwined with the history of selling new technologies to schools.

The history of how the overhead projector became a popular classroom technology is an excellent example of innovation being used to sell to schools. In *Tools of American Mathematics Teaching*, Peggy Aldrich Kidwell, Amy Ackerberg-Hastings, and David Lindsay Roberts (2008) discuss how overhead projectors were initially used in the United States during the late 1930s to show game scores in bowling alleys. In 1939, during the onset of the Second World War, overhead projector technology was refined by the American military to support the training of new recruits. There was a pressing need for instruction in technical matters to thousands of new soldiers, many of whom who had little education. After the war, government grants and targeted marketing sparked the movement to purchase overhead projectors for school classrooms. The innovation being sold was that teachers could use the overhead to write information on a transparent sheet that would be projected onto the wall behind them. This allowed teachers to always be facing their students. Teachers would never again have to turn their backs to students while writing information as they had previously done when using the older technology of the blackboard. Situated within the visual instruction movement of the early twentieth century, overhead projectors were marketed as visual aids to support student learning, and as a tool to facilitate classroom control for teachers. It was a game-changing technology for users, revolutionary in its historical context. As this example suggests, educational innovation has two main components: a novel new product for classrooms, and a belief by adopters that the tool will radically change education.

Educational movements to encourage innovation disguise consumerism as pedagogy. Google, Apple, and Microsoft all provide technological skills training programs for educators designed to promote the belief that their technological products will innovate the school experience. The highest rank a teacher can earn from Google's certification program is becoming a Google Certified Innovator ("Google for Education," n.d.), implying innovation can be tested for, and successful candidates can be awarded a diploma. Google, Apple, and Microsoft's programs essentially create brand ambassadors who market and promote their products for no compensation.

Innovation is used to create brand loyalty in teachers who then advocate for the purchase and implementation of the products for which they have been "certified" as innovators. Like the supporters of the overhead projector, Google Certified Innovators believe that the technological tools they promote will revolutionize schooling. While a sense of novelty and newness remain in the uses of innovation, newness is no longer religious or political, it is commercial. Innovation means that there is always something new to purchase.

The technology sectors' interest in educational innovation is predominantly motivated by profit. The recent movement that calls for one-to-one iPad integration in schools to transform education illustrates how the marketing of Apple products have a long history of using innovation to sell products to schools. Before Steve Jobs returned to guide Apple out of near bankruptcy in 1996, he argued in a television interview that the company's collapse was due to their failure to innovate (Golson, 2011). A key part of Jobs' revival strategy for the company was a relentless pursuit of selling Apple products to the North American education sector. Technology spending by American schools totalled 8.38 billion dollars in the 2012-2013 academic year, showing that it is profitable for technology companies to sell their self-designated innovative solutions (Chen, 2015). Innovation pressures schools to spend their limited funds on technology, or risk becoming obsolete.

The push to market innovation as the road to a "better" future is problematic. In "The Boundaries of Innovation," Olivia Campbell (2015) warns against the dogmatic belief that innovation is the target for public institutions, as "innovation, if that is to be an appropriate watchword of the 21st century, is most harmed by those who most preach its importance" (p. 20). In contemporary society, innovation has become a keyword, elevated to a high-status buzzword. In the 2017 Canadian federal budget, the word innovation appears 364 times, and "the future success of all Canadians relies on it [innovation]" (Canada. Parliament. 2017). Innovation has become a kind of holy grail. For instance, the popular ridesharing app Uber upset with the Canadian government's decision to charge harmonized sales tax on the service, prompted app users to click a button that would write an email on their behalf to the government, protesting what Uber described as a "tax on innovation" (Boutilier, 2017). Locally, Brock University recently received a 19.2 million dollar investment from the Canadian government to create the Schmon Tower Innovation Atrium focused on "research, commercialization, entrepreneurship and innovation" (Fraser, 2016). The District School Board of Niagara has rebranded a school superintendent position as their "Chief Innovation Officer" and the primary responsibility for this role is to run their "Innovation Hub" (iHub). The purpose of the iHub is to connect technology startups with Canadian schools. These examples in education, politics, and business all show how innovation has become cultural currency in its own right, a keyword signaling the idea that progress depends on investment in a profit-generating product.

Without critically considering the pedagogical value of each technological product, schools run the risk of doing the same thing with new toys. Blogger Lee Skallerup (2014) discusses this problem in a post, "Have Apps Become the New Worksheets?" She connects the historical issues associated with the overuse of worksheets with the increased reliance on apps in education. Except this time, apps and the technology needed to run them require schools to spend much more than the cost of paper for worksheets. In order to evaluate the educational value of technology, Dr. Ruben Puentedura (2012) developed the SAMR (Substitution, Augmentation, Modification, and Redefinition) model, which is a technology integration framework for educators. The highest level in the model is "Redefinition", where technology allows for the creation of new tasks previously

inconceivable. Education must always consider effective pedagogy first and foremost. Technology must support pedagogical goals instead of directing them.

Discourse on innovation suggests a progress narrative for the future: things can only get better. However, innovation's close relationship with marketing and capitalism problematizes that narrative for education as the inherent consumerism is omitted from the conversation. Understanding the history of innovation shows that while novelty has always been a part of the keyword, it has shifted from promoting ideological changes of the mind to promoting a product or service. Education cannot afford (pedagogically or financially) to become caught up in the arms race to procure the latest innovative solution that is touted to transform education. The pursuit of innovation will always provide disappointment because there is always a newer option around the corner.

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