Literature Review

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Chandaria Research Centre

K-12 ENTREPRENEURSHIP AND SOCIAL INNOVATION EDUCATION FOR GIRLS: A LITERATURE REVIEW

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K-12 Entrepreneurship and Social Innovation Education for Girls:
A Literature Review

This literature review explores the concepts of entrepreneurship and social innovation; how they translate into best practices in entrepreneurship pedagogies and programs in Kindergarten to Grade 12 (K-12) education; and the research on girls'[1] and women's involvement in such activities through an intersectional lens. The objective of this literature review is to provide educators, administrators, and other education stakeholders with background information on K-12 entrepreneurship education and programming for girls, as well as a list of resources to implement in the classroom and beyond.

DEFINING ENTREPRENEURSHIP AND SOCIAL INNOVATION

Entrepreneurship and innovation are complementary and interconnected terms used to describe the development of new and original ideas, solutions or products. **Although there is no universal definition of entrepreneurship, here we borrow from Chasserio and colleagues' (2014) perspective, in which individuals either start a new or acquire an existing business, initiative, or non-profit.** Entrepreneurship is a multidisciplinary field with opportunities to develop skills and knowledge over multiple subject areas such as business, sociology, psychology, and mathematics (Studdard et al., 2013). Discussions around entrepreneurship often reinforce the value of opportunism, risk-taking, and designing new combinations of processes, as well as innovation (Bird & Brush, 2002). Research also points to a cultural mind-shift; in entrepreneurship major social issues are approached not as problems but rather as opportunities for growth and innovation (Huysentruyt, 2014). This perspective empowers individuals to act but can also have neo-liberal connotations of generating profit from social issues.

Innovation is a term often used in business, science, and technology; in its most essential form it can be described as "new ideas that work" (Mulgan et al., 2007, p. 8). Social innovation expands on the definition of innovation to encompass ideas that work to meet social needs and improve people's lives (Mulgan et al., 2007). Similarly, **a social enterprise can be defined as an initiative or business with "potential to help lead society to evolve a genuine, caring 'shared value' economy—a society where societal and economic progress are much more tightly, boldly, and positively linked together"** (Huysentruyt, 2014, p. 4). Such enterprises can be found in sectors ranging from education to health, social work, and community services, as well as energy and retail. Despite recent growth of social entrepreneurship, it is still very much a niche area, with an average of 3.7 percent of 18-64 year-olds around the world involved in this type of activity (Bosma et al., 2016).

[1] *Note that the term girl is broadly conceptualized as referring to cisgender, transitioning, transgender, or gender diverse identities (see Branksome Hall, May 2016).*

WOMEN IN ENTREPRENEURSHIP AND SOCIAL INNOVATION

Women have always engaged in entrepreneurial activity, with records of activity among women in European societies dating back to the mid-1700s (Kay, 2012; Vare & Ptacek, 2002). Today, although women represent one of the fastest growing entrepreneurial populations in the world (Brush & Cooper, 2012), only 16 percent of small enterprises[2] in Canada are led by women (Cukier et al., 2020). Enterprises led by women tend to be concentrated in so-called traditionally female sectors such as health care, education, and service (Cukier et al., 2020). Thus, women have a more significant representation in social entrepreneurship than in more conventional and commercial forms of entrepreneurship (OECD, 2017).

The growing body of scholarship on women entrepreneurs is beginning to shed light on their potential as change agents, as well as their potential to contribute significantly in social and economic environments.

Research on women's impact on contemporary economies has long been understated and undervalued, owing in part to the historically poor documentation of women's contributions and innovations (Carter et al., 2006). The first research study focusing on female entrepreneurs was published in 1976, and this area of research has grown very slowly since then (McAdam, 2013; Meyer, 2018). Scholars have indicated that female entrepreneurship as a field has long struggled against dominant discourses in media and academic scholarship, where entrepreneurship is portrayed as a masculine phenomenon and research has overwhelmingly focused on men's experience to produce theory (Greene et al., 2003; Hamilton, 2013).

Although limited, the growing body of scholarship on women entrepreneurs is beginning to shed light on their potential as change agents, as well as their potential to contribute significantly in social and economic environments (Ambrish, 2014; Carter et al., 2006; Kot et al., 2016).

An international study of 1,200 female entrepreneurs by the Ashoka Foundation (Taberna et al., 2019) suggests that women have distinctive leadership styles, and are more likely to use collective leadership approaches, which consider the expertise of people at all levels to address a situation. Additionally, men and women face different structural obstacles; women are more likely to encounter culture and gender stereotypes and barriers to securing funding or seeking incorporation (Cukier et al., 2020). Research also suggests that women can demonstrate a higher aversion to risk (Carter et al., 2006) and competition (OECD, 2017), and that some women may require more support to manage self-esteem and confidence issues than men (Botha et al., 2007). Women also frequently face hostile work environments, where they are subjected to sexual harassment and racism; these environments further propagate a sociocultural status quo where women do not feel welcome in entrepreneurship spaces (Openshaw & Noble, 2017). All of the barriers identified in the literature are further exacerbated for women leaders who are racialized, Indigenous, have disabilities, or identify as non-binary (Cukier et al., 2020).

One important aspect of expanding the scholarship around women's unique experiences with entrepreneurship and social innovation involves identifying when and how women are provided with opportunities to build entrepreneurial skills. A study conducted on a US university's entrepreneurship competition revealed that over five years, only 17.8 percent of participating students were female (Openshaw & Noble, 2017). This percentage denotes a significant disparity because participation was contingent on whether teams received investments,

[2] *Canadian government statistics do not track social enterprises as a category; instead, small enterprises are often used in the literature to estimate their prevalence.*

21ST CENTURY SKILLS: THE 4C'S			
CREATIVITY AND INNOVATION	**COMMUNICATION**	**CRITICAL THINKING AND PROBLEM SOLVING**	**COLLABORATION**
Engage in a holistic creation process including brainstorming and prototyping	Convey and understand multimodal ways of communicating	Choose from a variety of approaches to address a situation and/or challenge, while incorporating higher order thinking	Forge and sustain relationships with diverse teams

Figure 1: The 4Cs: Skills for learning in the 21st Century (Adapted from P21/Batelle for Kids).

and even though women's activities did not differ greatly from men's, the men were more likely to receive investment funding (Openshaw & Noble, 2017). In Canada, social innovation programs at the post-secondary level, such as Toronto Metropolitan (formerly Ryerson) University's Women Entrepreneurship Knowledge Hub, and funding opportunities, such as the McConnell Foundation Social Innovation Fund, are on the rise. But the development of entrepreneurship skills and mindset can start long before university.

ENTREPRENEURSHIP SKILLS, EDUCATION, PEDAGOGIES, AND PROGRAMS FOR K-12 STUDENTS

A rapidly shifting economy has brought increased attention to the mindsets young people will require to thrive in the future of work (e.g., innovation, growth, benefit). One major role of education is to prepare young people for becoming economically productive members of society, and thus the case has been made for introducing entrepreneurial skills in K-12 education (Couros, 2015; Glangchai, 2018; Holdsworth, 2017; Ikonen & Nikunen, 2017; Tomlinson, 2008). In response to this identified need, the Partnership for 21st Century Skills developed a framework in 2006 to reduce the gap between the knowledge and skills students were then acquiring in school, and what they would need to thrive in their communities and workplaces in the future. It proposed the integration of the "4Cs"—Critical thinking and problem solving, Communication, Collaboration, and Creativity and Innovation (see Figure 1)—along with the traditional competencies normally taught in schools (reading, writing, and arithmetic). The Deeper Learning movement (Fullan & Scott, 2014) added Citizenship and Character to the original 4Cs, all six of which are now referred to in the entrepreneurship education literature as noncognitive skills (Rodriguez & Lieber, 2020). Rodriguez and Lieber (2020) found that "… there appears to be something unique in entrepreneurship education pedagogy that facilitates noncognitive skill development, which in turn is linked to career readiness and success" (p. 293). Many schools and educational institutions are now cultivating these skills and competencies in their curricula. The implementation of these concepts is varied, including the introduction of Entrepreneurship Education (EE), as well as related pedagogies such as project-based learning and design thinking.

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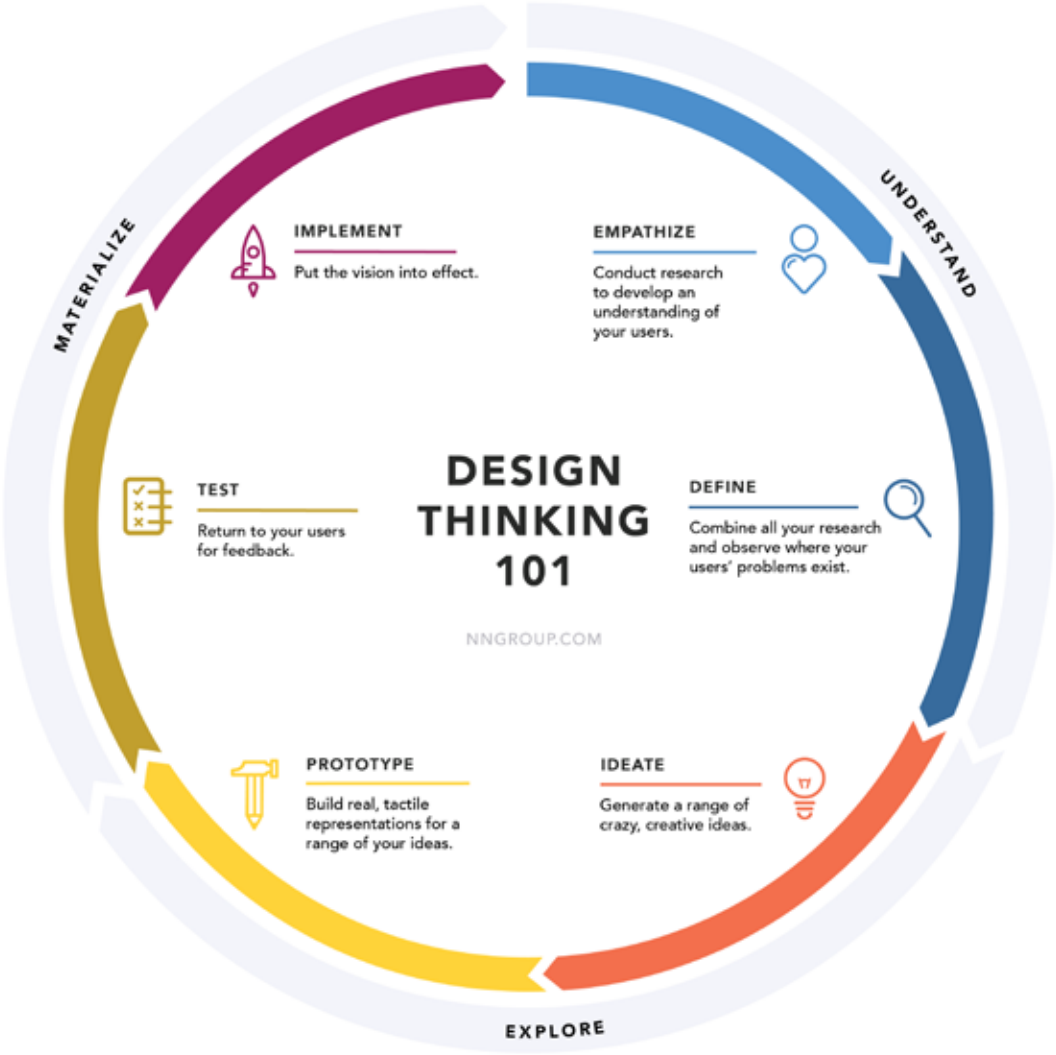

Figure 2: The six stages of design thinking (Moran, 2021).

Design thinking and project-based learning (PBL) emerge from a "learning by doing" philosophy (Dewey, 1897) and an emphasis on a collaborative search for solutions to a question, problem, or challenge. In PBL, students gain deep knowledge of their subject of inquiry by exploring a topic and engaging in hands-on project work over an extended period; student voice and choice are emphasized throughout (Markham, 2011). Similarly, design thinking, described as "both a process and a mindset" (Carroll et al., 2012), involves an iterative process in which students identify problems, conduct research, build and test prototypes, and critically evaluate the outcomes of these efforts to solve complex challenges (Davis et al., 1997). Many scholars suggest that K-12 settings should increase their incorporation of project-based learning and design thinking pedagogies (Avvisati et al., 2013; Mitchell et al., 2005). In these learning environments, students must be self-directed but also collaborate effectively with the larger goal of finding solutions to real-life problems (Lathram et al., 2016). **Although these types of pedagogical approaches do not teach entrepreneurship per se, they provide a foundation for developing the transferable skills that young people will need in the shifting economic landscape of the future.**

Entrepreneurship Education (EE) was created by the Harvard Business School in 1947 and primarily focused on higher education students (Kim et al., 2020; Studdard et al., 2013). Although there is no consensus regarding its definition, EE tends to focus on programs that:

(a) develop entrepreneurial orientation and awareness;

(b) develop competencies for new enterprise formation, self-employment, or economic self-sufficiency; and

(c) focus on small business survival and growth (Kim et al., 2020, p. 3).

The literature on EE's impact and effectiveness for youth skill development is still in its early stages, with only ten years of research available in this field of study (Kim et al., 2020). The evidence for general effectiveness of EE is mixed, which may be attributed to low methodological quality of the studies (Kim et al., 2020; Martínez-Gregorio et al., 2021). Measuring the impact of EE is complex, as there are interrelated factors such as "entrepreneurial awareness education, education for startups, education for entrepreneurial dynamism, and continuing education for entrepreneurs" (Kim et al., 2020, p. 2). In addition, Kim and colleagues (2020) argue that there has not been enough rigorous work done on developing key indicators to measure impact.

In K-12 settings specifically, the effectiveness literature transpose primarily focuses on teachers' self-efficacy in teaching EE (Amorim Neto et al., 2018; Seikkula-Leino, 2010; Sorgman & Parkison, 2008). Few studies examine the impact of EE on K-12 students or explore how it cultivates students' skills, knowledge, and attitudes to help achieve their entrepreneurial goals (European Commission, 2014). EE programs' effectiveness differs according to students' developmental stage and by program content (Brüne & Lutz, 2020; Kim et al., 2020; Studdard et al., 2013). In one study, for example, self-exploration activities were found to be more effective in developing an entrepreneurial mindset for middle school students than for high school students (Kim et al., 2020). A study attempting to better understand how students constructed inventor identities suggested that increased access to STEM environments during high school, as well as multiple opportunities to engage with their communities as inventors, were important factors in this identity formation (Couch et al., 2019).

Overall, research suggests that entrepreneurship programs are most effective for K-12 students when they are run over a longer period of time with different approaches based on age and stage of development (Kim et al., 2020; Martínez-Gregorio et al., 2021). As a result, it is argued that EE curricula cannot be standardized, as the content and pedagogy need to be tailored to specific student needs and demographics (Studdard et al., 2013).

Another study examined a rare program for youth in the US: the K-12 InVenture Prize, which blends "invention and entrepreneurship to encourage students to find authentic and interesting problems to work on and to develop viable, marketable solutions for them" (Moore et al., 2019, p. 221). In reviewing teachers' surveys, this study suggested that participation in the program had a positive impact on students' communication and teamwork skills. Additionally, teachers perceived some of these effects to be strongest for students at the elementary level, which again points to the value of early exposure to creative and authentic innovation experiences. The results of the K-12 InVenture Prize study align with other evidence in the EE literature; the program increased students' self-efficacy because they felt they were able to make an impact by creating a marketable product (Brüne & Lutz, 2020; Chatelaine & McKitterick, 2020; de Lourdes Cárcamo-Solís et al., 2017; Leffler & Svedberg, 2005).

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ENTREPRENEURSHIP PROGRAMS FOR GIRLS

One reason why women do not participate in entrepreneurship is a lack of self-confidence and self-efficacy (Brüne & Lutz, 2020; Bergman et al., 2011; Molina-López et al., 2021). Self-efficacy, an individual's belief in their competence in a specific area or domain (Bandura, 1977), is a significant aspect of entrepreneurship because the former influences intentions to pursue the latter (Bergman et al., 2011). Girls' overall confidence and self-efficacy start out similar to that of boys around the age of 8, but decline through the developmental shifts they experience during puberty (Bergman et al., 2011; Brüne & Lutz, 2020; Damour, 2019; Deak & Adams, 2010; Simmons, 2018). This decline in self-efficacy can be attributed to the phenomenon referred to as the sorting effect, wherein individuals believe they cannot fulfill the responsibilities of a role once they realize how demanding that role is (Brüne & Lutz, 2020). In the context of entrepreneurship programs, girls might feel they are "not being aggressive and competitive enough to be entrepreneurs" (Brüne & Lutz, 2020, p. 281).

In addition, the competitive nature of the entrepreneurial world might conflict with learned gender roles and stereotypes, so even when women are as competent as men in entrepreneurship, the dissonance between the environment and internalized gender role expectations can stagnate women's entrepreneurial intentions (Bergman et al., 2011). Therefore, it is imperative to address the specific barriers that young women face in becoming entrepreneurs, and to mitigate or eradicate those barriers in order to cultivate best practices for entrepreneurship programming (Bergman et al., 2011; Brüne & Lutz, 2020; Kourilsky & Walstad, 1998; Openshaw & Noble, 2017).

Four strategies are identified in the literature that increase girls' entrepreneurial intentions, self-efficacy, and participation:

1 

creating girls-only programs;

2 

increasing girls' exposure to entrepreneurial knowledge and programs;

3 

exposing girls to entrepreneurship when they are young;

4 

and providing girls with female entrepreneur role models.

Girls-only programs can help address the disparity in girls' participation in entrepreneurship and meet their unique learning needs. Increasing exposure to entrepreneurship for girls includes creating spaces for curiosity through experiential and project-based learning; supporting that environment by providing prompts and probing questions; and helping girls develop a comprehensive entrepreneurial knowledge base through experiential learning during and outside of classroom time (Glangchai, 2018; Kourilsky & Walstad, 1998; Openshaw & Noble, 2017). Encouraging a growth mindset towards failure is also emphasized, to ensure that girls learn to view failure as an opportunity to overcome challenges, learn from them, and develop new skills (Glangchai, 2018).

Exposing girls to entrepreneurship at earlier life stages lays the foundation for their future entrepreneurial mindsets (Glangchai, 2018; Openshaw & Noble, 2017). For example, if girls are exposed to the possibility of becoming entrepreneurs at a young age, they are less likely to have significant doubts about their competence in this realm as they grow older (Openshaw & Noble, 2017). While Openshaw and Noble (2017) suggest exposing girls to entrepreneurship in high school, Glangchai (2018) suggests engaging girls in entrepreneurship learning as early as age five, during the developmental stage characterized by exploration, problem identification, and solution generation.

Lastly, exposure to women entrepreneur role models has a positive impact on girls in numerous ways. Women role models can help girls understand that entrepreneurship is feasible and possible for them too, which can increase their entrepreneurial self-efficacy (Bechthold & Rosendahl Huber, 2018; Bergman et al., 2011; Glangchai, 2018; Karimi et al., 2014). Meeting other girl entrepreneurs might offer them their first exposure to or contact with entrepreneurial peers, as was the case for girls in the VentureLab program studied by Glangchai (2018). As Glangchai (2018) articulates, "We all need role models that we can identify with and aspire to emulate, and female role models are all around us if only we make the effort to find them" (p. 240). In addition, matching girls with women role models can be effective in eradicating negative career stereotypes such as the belief that women cannot be entrepreneurs (Karimi et al., 2014). Ideally, role models should be easily accessible and develop one-on-one or small-group mentoring relationships with the girls; these relationships offer more opportunities for informal learning, which increases entrepreneurial self-efficacy (Karimi et al., 2014). Schools can also invite guest speakers to share their stories and real-life examples of their success, further increasing girls' perception of entrepreneurship as a feasible career path (Karimi et al., 2014; Studdard et al., 2013).

In addition to role models within arm's reach, women entrepreneur role models with public profiles are also critical to changing the cultural narrative of what successful entrepreneurs look like. Women entrepreneurs have identified the need to increase media coverage of their peers' stories (Taberna et al., 2019). Currently, mainstream North American media shows a marked lack of representation of girls and women in entrepreneurship; this affects how girls see their place in the world and can influence their overall confidence and career aspirations (Goulds et al., 2019). Media coverage of any kind around women in entrepreneurship will further expose girls to role models, which may spark new or kindle existing interest in entrepreneurship and social innovation.

CONCLUSION

There is much value in studying women in entrepreneurship in general because women entrepreneurs are significant contributors to the global economy (Bergman et al., 2011), in addition to correcting the imbalance of research on the subject in the literature. This literature review examines the pedagogical, social, and personal value of engaging girls in social entrepreneurship activities, as reflected in current/extant scholarship.

Branksome Hall's own Noodle social innovation program, begun in 2019, will provide a rare opportunity to study the experiences and reflections of girls as they are introduced to and engage in social entrepreneurship activities and learning. Students in the Noodle program have access to faculty, expert advisors, and entrepreneurs with the specialized know-how necessary to help them develop and refine their ideas. The program culminates with student teams pitching their innovations to a panel of expert judges for the chance to win one of three Mary LESSLIE Hallward'74 Innovation Awards. We look forward to sharing our research findings from the first cycle of the Noodle in future publications.

Resources for Practitioners

NAME OF ORGANIZATION/ PROGRAM	DESCRIPTION	
Junior Achievement (JA) JA Education Resource Links Economics Teacher Resources Economics Self-guided Activities and Videos	A global program with chapters in Ontario and across Canada. It helps students build entrepreneurship and employability skills. JA programs include job shadowing, summer camps, financial literacy workshops, etc.	JA Education Resource Links provides resources for students, from elementary to high school, and their teachers and parents, including worksheets and videos on entrepreneurship and financial literacy.
European Schoolnet Open Book of Innovation Education	The Open Book examines how innovation, especially technology-inspired innovation is defined, showcasing over a hundred ground-breaking initiatives in schools across Europe.	Includes resources for: • Policymakers • Education practitioners • Researchers • Funding bodies
K-12 InVenture Prize Competition (K12IP) About Georgia Tech K-12 In Venture Prize K-12 Lesson Plans	An invention competition held in Georgia, USA. Over several months, students work in groups of two to identify a problem across any discipline and geographic range (local, national, and/or global), and develop a solution in the form of an idea and/or physical prototype. Afterwards, students share their idea/prototype in a school competition. Winners proceed to state finals.	Resources include: • Lesson plans for Grades 1–3, 4–8, 9–12 • Videos • Information for hosting your own competitions
Lemonade Day About Lemonade Day Resource Dropbox	A US program helping children and youth to set up their own stands on a community-wide Lemonade Day event, developing their entrepreneurship skills in the process.	The organization offers a centralized, comprehensive bank of resources to model the Lemonade Day program, including: • Teachers' guides • Mentor guides • Parent invitation • Posters
EntreEd: The National Consortium for Entrepreneurship Education EntreEd Lesson Kickstarters	A database of resources for entrepreneurship lessons and school programming. Kickstarters are organized by grade range and subject area(s) (science, math, social studies, physical education, health,	engineering, economics, music, and English language arts).
University of Arkansas: The Sam M. Walton College of Business Entrepreneurship Curriculum	This resource contains 9 activities and sample business plans created by teachers in Arkansas, USA. Some materials are	context-specific but can be adapted.
Network for Teaching Entrepreneurship (NFTE) Entrepreneurship Education Resources	This non-profit organization provides resources to create experiential and project-based learning.	Resources include: • Classroom posters on entrepreneurship • A lean canvas model worksheet • Calculators and modeling tools • Interactive resources on entrepreneurial mindset domains • Resource kits on innovation and design thinking challenges

References

Ambrish, D.R. (2014). Entrepreneurship development: An approach to economic empowerment of women. *International Journal of Multidisciplinary Approach and Studies, 1*(6), 224–232. http://ijmas.com/upcomingissue/18.06.2014.pdf

Amorim Neto, R.D.C., Rodrigues, V.P., Stewart, D., Xiao, A., & Snyder, J. (2018). The influence of self-efficacy on entrepreneurial behavior among K-12 teachers. *Teaching and Teacher Education: An International Journal of Research and Studies, 72,* 44–53. https://doi.org/10.1016/j.tate.2018.02.012

Avvisati, F., Jacotin, G., & Vincent-Lancrin, S. (2013). Educating higher education students for innovative economies: What international data tell us. *Tuning Journal for Higher Education, 1,* 223–240. https://doi.org/10.18543/tjhe-1(1)-2013pp223-240

Bandura, A. (1977). Self-efficacy: Toward a unifying theory of behavioral change. *Psychological Review, 84*(2), 191–215. https://doi.org/10.1037/0033-295X.84.2.191

Bechthold, L.A., & Rosendahl Huber, L. (2018). Yes, I can!–A field experiment on female role model effects in entrepreneurship. *Academy of Management,* 1–7. https://doi.org/10.5465/AMBPP.2018.209

Bergman, N., Rosenblatt, Z., Erez, M., & De-Haan, U. (2011). Gender and the effects of an entrepreneurship training programme on entrepreneurial self-efficacy and entrepreneurial knowledge gain. *International Journal of Entrepreneurship and Small Business, 13*(1), 38–54. https://doi.org/10.1504/IJESB.2011.040415

Bird, B., & Brush, C.G. (2002). A gendered perspective on organizational creation. *Entrepreneurship Theory and Practice, 26*(3), 41–65. https://doi.org/10.1177/104225870202600303

Bosma, N., Schøtt, T., Terjesen, S., & Kew, P. (2016). *GEM 2015 Report on social entrepreneurship.* Global Entrepreneurship Monitor. https://www.gemconsortium.org/report/gem-2015-report-on-social-entrepreneurship

Botha, M., Nieman, G., & Van Vuuren, J. (2007). Measuring the effectiveness of the Women Entrepreneurship Programme on potential, start-up and established women entrepreneurs in South Africa. *South African Journal of Economic and Management Sciences, 10*(2), 163–183. https://journals.co.za/doi/10.10520/EJC21815

Brüne, N., & Lutz, E. (2020). The effect of entrepreneurship education in schools on entrepreneurial outcomes: A systematic review. *Management Review Quarterly, 70*(2), 275–305. http://doi.org/10.1007/s11301-019-00168-3

Brush, C.G., & Cooper, S.Y. (2012). Female entrepreneurship and economic development: An international perspective, *Entrepreneurship & Regional Development, 24*(1–2), 1–6. https://doi.org/10.1080/08985626.2012.637340

Carroll, M., Pelochino, M., Logan, L., & Cox, R. (2012). *DesignED: Integrating design thinking In your K-12 classroom.* Lime Design Inc.

Carter, N.M., Henry, C., Ó Cinnéide, B., & Johnston, K. (2006). *Female Entrepreneurship: Implications for education, training and policy.* Routledge.

Chasserio, S., Pailot, P., & Poroli, C. (2014). When entrepreneurial identity meets multiple social identities: Interplays and identity work of women entrepreneurs. *International Journal of Entrepreneurial Behaviour & Research, 20*(2), 128–154. https://doi.org/10.1108/IJEBR-11-2011-0157

Chatelaine, E., & McKitterick, T. (2020). *Lemonade Day! Developing the next generation of business and community leaders. 2020 youth impact study.* Lemonade Day. https://lemonadeday.org/sites/default/files/resources/2020-impact-reportcompressed.pdf

Couch, S., Skukauskaite, A., & Green, J.L. (2019). Invention education: Preparing the next generation of innovators. *Technology and Innovation, 20,* 161–163. http://dx.doi.org/10.21300/20.3.2019.161

Couros, G. (2015). *The innovator's mindset: Empower learning, unleash talent, and lead a culture of creativity.* Dave Burgess Consulting.

Cukier, W., Gagnon, S., Hodson, J., Saba, T., Grandy, G., Morton, S., Elmi, M., Stolarick, K., & Chavoushi, Z.H. (2020). *The State of Women's Entrepreneurship in Canada: 2020*. Women Entrepreneurship Knowledge Hub. https://wekh.ca/wp-content/uploads/2020/10/WEKH_State_of_Womens_Entrepreneurship_in_Canada_2020_EN-1.pdf

Damour, L. (2019). *Under pressure: Confronting the epidemic of stress and anxiety in girls*. Ballantine Books.

Davis, M., Hawley, P., & Spilka, G. (1997). *Design as a catalyst for learning*. Association for Supervision and Curriculum Development.

Deak, J.A.M., & Adams, D. (2010). *How girls thrive.* Green Blanket Press.

de Lourdes Cárcamo-Solís, M., del Pilar Arroyo-López, M., del Carmen Alvarez-Castañón, L., & García-López, E. (2017). Developing entrepreneurship in primary schools. The Mexican experience of "My first enterprise: Entrepreneurship by playing". *Teaching and Teacher Education, 64,* 291–304. https://doi.org/10.1016/j.tate.2017.02.013

Dewey, J. (1897). My pedagogic creed. School Journal, 54, 77-80. Retrieved from: http://dewey.pragmatism.org/creed.htm

European Commission (2014). *Entrepreneurship Education: A Guide for Educators*. European Union. https://data.europa.eu/doi/10.2769/51003

Fullan, M., & Scott. G. (2014). *New Pedagogies for Deep Learning.* Education PLUS. Collaborative Impact SPC. Available at: https://michaelfullan.ca/education-plus/

Glangchai, C. (2018). *VentureGirls: Raising girls to be tomorrow's leaders.* Harper Paperbacks.

Goulds, S., Ashlee, A., Fergus, I., Gallinetti, J., & Tanner, S. (2019). *Rewrite her story: How film and media stereotypes affect the lives and leadership ambitions of girls and women.* The State of the World's Girls Reports. https://seejane.org/wp-content/uploads/2019-rewrite-her-story-plan-international-report.pdf

Greene, P.G., Hart, M.M, Gatewood, E.J., Brush, C.G., & Carter, N.M. (2003). Women entrepreneurs: Moving front and center: An overview of research and theory. Coleman White Paper Series 3.

Hamilton, E. (2013). The discourse of entrepreneurial masculinities (and femininities). *Entrepreneurship & Regional Development, 25*(1–2), 90–99. https://doi.org/10.1080/08985626.2012.746879

Holdsworth, C. (2017). The cult of experience: Standing out from the crowd in an era of austerity. *Area, 49*(3), 296–302. https://doi.org/10.1111/area.12201

Huysentruyt, M. (2014). *Women's social entrepreneurship and innovation.* OECD Publishing. http://dx.doi.org/10.1787/5jxzkq2sr7d4-en

Ikonen, H-M., & Nikunen, M. (2019). Young adults and the tuning of the entrepreneurial mindset in neoliberal capitalism. *Journal of Youth Studies, 22*(6), 824–838. https://doi.org/10.1080/13676261.2018.1546383

Karimi, S., Biemans, H.J., Lans, T., Chizari, M., & Mulder, M. (2014). Effects of role models and gender on students' entrepreneurial intentions. *European Journal of Training and Development, 8*(38), 694–727. https://doi.org/10.1108/EJTD-03-2013-0036

Kay, A. (2012). *The foundations of female entrepreneurship: Enterprise, home and household in London, c. 1800–1870.* Routledge.

Kim, G., Kim, D., Lee, W.J., & Joung, S. (2020). The effect of youth entrepreneurship education programs: Two large-scale experimental studies. *SAGE Open, 10*(3), 1–21. https://doi.org/10.1177/2158244020956976

Kot, S., Meyer, N., & Broniszewska, A. (2016). A cross-country comparison of the characteristics of Polish and South African women entrepreneurs. *Economics and Sociology, 9*(4), 207–221. http://doi.org/10.14254/2071-789X.2016/9-4/13

Kourilsky, M.L., & Walstad, W.B. (1998). Entrepreneurship and female youth: Knowledge, attitudes, gender differences, and educational practices. *Journal of Business venturing, 13*(1), 77–88. https://doi.org/10.1016/S0883-9026(97)00032-3

Lathram, B., Lenz, B., & Vander Ark, T. (2016). *Preparing Students for a Project-Based World.* Getting Smart. http://gettingsmart.com/publication/preparing-students-project-based-world

Leffler, E., & Svedberg, G. (2005). Enterprise learning: A challenge to education? *European Educational Research Journal, 4*(3), 219–227. https://doi.org/10.2304/eerj.2005.4.3.6

Markham, T. (2011). Project based learning. *Teacher Librarian, 39*(2), 38–42.

Martínez-Gregorio, S., Badenes-Ribera, L., & Oliver, A. (2021). Effect of entrepreneurship education on entrepreneurship intention and related outcomes in educational contexts: A meta-analysis. *The International Journal of Management Education, 19*(3),1–15. https://doi.org/10.1016/j.ijme.2021.100545

McAdam M. (2013). *Female Entrepreneurship.* Routledge.

Meyer, N. (2018). Research on female entrepreneurship: Are we doing enough? *Polish Journal of Management Studies, 17*(2), 158–169. https://doi.org/10.17512/pjms.2018.17.2.14

Mitchell, K., Shkolnik, J., Song, M., Uekawa, K., Murphy, R., Garet, M., & Means, B. (2005). *Rigor, relevance, and results: The quality of teacher assignments and student work in new and conventional high schools.* The American Institutes for Research. https://docs.gatesfoundation.org/Documents/Rigor%20Rpt%2010_21.pdf

Molina-López, M.M., Koller, M.R.T., Rubio-Andrés, M., & González-Pérez, S. (2021). Never too late to learn: How education helps female entrepreneurs at overcoming barriers in the digital economy. *Sustainability, 13*(19), 1–17. https://doi.org/10.3390/su131911037

Moore, R., Newton, S., & Alemdar, M. (2019). K-12 Inventure Prize: Teacher reflections on educating K-12 inventors. *Technology & Innovation, 20*(3), 221–233. https://doi.org/10.21300/20.3.2019.221

Moran, K. (2021). *Design thinking: Study guide.* Nielsen Norman Group. Retrieved from: https://www.nngroup.com/articles/design-thinking-study-guide/

Mulgan, G., Tucker, S., Ali, R., & Sanders, B. (2007). *Social Innovation: What it is, why it matters and how it can be accelerated.* Skoll Centre for Social Entrepreneurship. https://www.youngfoundation.org/our-work/publications/social-innovation-what-it-is-why-it-matters-how-it-can-be-accelerated

OECD/ European Union. (2017). *Policy brief on women's entrepreneurship.* Publications Office of the European Union. https://www.oecd-ilibrary.org/economics/policy-brief-on-women-s-entrepreneurship_dd2d79e7-en

Openshaw, J., & Noble, D. (2017). *The entrepreneurship talent gap: Where women win, where they lose, and how to get them to the top.* Girls with Impact Organization. Available at: https://www.girlswithimpact.org/hidden-registration-items/download-the-entrepreneur-talent-gap-2017-report

Partnership for 21st Century Skills (2006). *A state leader's action guide to 21st century skills: A new vision for education.* Partnership for 21st Century Skills. http://apcrsi.pt/website/wp-content/uploads/20170317_Partnership_for_21st_Century_Learning.pdf

Rodriguez, S., & Lieber, H. (2020). Relationship between entrepreneurship education, entrepreneurial mindset, and career readiness in secondary students. *Journal of Experiential Education, 43*(3), 277–298. https://doi.org/10.1177/1053825920919462

Seikkula-Leino, J. (2010). The implementation of entrepreneurship education through curriculum reform in Finnish comprehensive schools, *Journal of Curriculum Studies, 43*(1), 69–85, https://doi.org/10.1080/00220270903544685

Simmons, R. (2018). *Enough as she is: How to help girls move beyond impossible standards of success to live healthy, happy, and fulfilling lives.* Harper Collins.

Sorgman, M., & Parkison, K. (2008). The future is now: Preparing K-12 teachers and students for an entrepreneurial society. *Journal of Entrepreneurship Education, 11,* 75–86.

Studdard, N., Dawson, M., & Jackson, N. (2013). Fostering entrepreneurship and building entrepreneurial self-efficacy in primary and secondary education. *Creative and Knowledge Society, 3*(2), 1–14. https://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.989.8756&rep=rep1&type=pdf

Taberna, B., Rahman, R., Jackman, L., & Park, S. (2019). *Celebrating ChangemakHERS: How women social entrepreneurs lead and innovate.* Ashoka Foundation. https://www.citigroup.com/citi/foundation/data/celebrating_changemakHERS_report.pdf

Tomlinson, M. (2008). "The degree is not enough": Students' perceptions of the role of higher education credentials for graduate work and employability. *British Journal of Sociology of Education 29*(1), 49–61. https://doi.org/10.1080/01425690701737457

Vare, E.A., & Ptacek, G. (2002). *Patently female: From AZT to TV dinners, stories of women inventors and their breakthrough ideas.* Wiley.

Women Entrepreneurship Knowledge Hub (2022). *Welcome to the women entrepreneurship knowledge hub.* Available at: https://wekh.ca/about

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This project and series of publications is the product of years of collaboration between researchers and school partners. We wish to acknowledge those involved in this work.

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