

Who, Me? Increasing High School Girls' Entrepreneurial Self-Efficacy, Knowledge and Intentions

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Abstract. This paper provides a case study of two female-only entrepreneurship education programs designed by faculty from Brescia University College, Canada's only women's university, located in London, Ontario, Canada. The programs were designed to address the substantial gender gap found in women's participation in entrepreneurial activities by inspiring, educating, and exposing program participants to entrepreneurial endeavours. One program was a one-day conference and the other was a one-week boot camp. The study was designed to better understand how to strengthen the female entrepreneurial pipeline by measuring changes in entrepreneurial knowledge, entrepreneurial self-efficacy (ESE), and entrepreneurial intentions (EI). Program participants were asked to complete pre- and post-experience questionnaires where information about leadership experiences, role models, entrepreneurial knowledge, ESE, and EI was collected. The results of the analysis reveal that the gender-specific programming increased ESE in the one-week camp and that both programs significantly increased both objective and self-perceived knowledge of entrepreneurship. The authors conclude that the female-only educational interventions helped to transform adolescent girls' sense of entrepreneurial possibilities. We recommend a scaffolded and integrated approach to future entrepreneurship education programming to address and ultimately close the entrepreneurship gender gap.

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INTRODUCTION

The ventures started, managed, and run by women¹ entrepreneurs represent a major contribution to the economies in which they operate. In Canada, majority women-owned small and medium-sized enterprises (SME) contributed \$130 billion to the economy in 2012, equivalent to seven percent of GDP (RBC Economics, 2013), and employed over 1.5 million Canadians (BMO Financial Group, 2012). In the United States, it is estimated that women-owned businesses generate over \$1.3 trillion in revenues and employ nearly 7.8 million people (American Express OPEN, 2013). In addition to the economic impact at the macro level, the impact of entrepreneurial activity on the individual can be very powerful. Women who participate in entrepreneurial ventures may experience greater financial success, independence, and self-respect than they would otherwise (Wilson et al., 2004).

Although women entrepreneurs make significant contributions to the societies in which they operate, there is still a substantial gender gap in early stage entrepreneurship participation which has resulted in an overall weakening of the entrepreneurial pipeline. An entrepreneurial pipeline is a way of understanding the entrepreneurial process, starting with individuals who hold a positive view of entrepreneurship and believe that they have the skills and abilities to start a new business. Individuals who hold this view and these beliefs are more likely to engage in the steps necessary to explore starting a business (Elam et al., 2019). A robust entrepreneurial pipeline is crucial in the exploration and ultimate formation of new ventures.

Women's participation in entrepreneurial ventures continues to lag behind that of men in the United States (4.3% gap), Canada (7.0% gap), and the U.K. (6.4% gap) (Huynh et al., 2017). In the 1990s, Canadian women led 45% of start-ups; but, by 2012, this number had declined to 40% (Tal, 2012). Statistics show that although the number of women-owned businesses has increased, the percentage of majority women-owned SMEs in Canada has declined from 16.4% in 2007 to 15.5% in 2011 (Industry Canada, 2015). In the U.S., women's share of business ownership has remained unchanged, at approximately 36%, in the five-year period between 2007 and 2012 (Lichtenstein, 2014). The enduring gap between men and women in early stage entrepreneurial participation and the weakening of the female entrepreneurial pipeline can be tied to lower levels of confidence, or entrepreneurial self-efficacy (ESE), entrepreneurial intentions (EI), and program participation among women (Chen et al., 1998; Gatewood et al., 2002; Kourilsky & Walstad, 1998; Wilson et al., 2009).

Adolescent career aspiration research has shown that teen girls are less likely than boys to aspire to entrepreneurial careers (Kickul, 2008; Kourilsky

¹ Throughout this paper, we use Brescia's policy regarding transgender or gender questioning applicants to define the terms "female" or "woman" which includes cis gendered females and "self-identified women and people assigned female at birth who do not fit into the gender binary." (*Undergraduate Admissions for Transgender or Gender Questioning Applicants Policy*, 2015, p. 1).

& Walstad, 1998; Marlino & Wilson, 2003) and also less likely to participate in voluntary entrepreneurship programming opportunities such as Junior Achievement (JA) (Elert et al., 2015). Menzies and Tatroff (2006) found that post-secondary level women were more likely than men to indicate that entrepreneurship did not fit their personalities as a reason for not taking entrepreneurial education. Also, women in post-secondary programs have been shown to exhibit lower ESE and EI than do men (Dempsey & Jennings, 2014; Wilson et al., 2009).

Recent research suggests that female entrepreneurs possess a number of unique characteristics, including being risk-averse, valuing relationships with clients, “fac[ing] a confidence gap” in starting their own businesses, and perceiving “that women are portrayed in stereotypical ways and do not believe they have adequate business skills” (Aidis, 2015 para. 9). Role models also appear to be of greater importance to women than men in supporting EI (Laviolette et al., 2012). Overall, women have been found to be less likely to pursue entrepreneurial endeavours because of low ESE (Chen et al., 1998; Gatewood et al., 2002; Kourilsky & Walstad, 1998). For example, in Ontario, women are less likely than men to believe they possess adequate entrepreneurial knowledge and skills (61.6% of men versus 47.2% of women) and more likely to report fear of failure as a reason for not starting a business (34.2% of men versus 43.0% of women) (Huynh et al., 2017).

The declining trends in the percentage of women-owned businesses combined with the career aspiration research findings are troubling. Fewer entrepreneurial-minded women in the pipeline will ultimately translate into fewer women starting businesses and contributing to their local and national economies. Encouraging greater female participation rates by addressing potential barriers, including low ESE and EI, could result in significant contributions to national prosperity (RBC Economics, 2013).

Evidence suggests that educational opportunities and targeted education positively influences ESE more for women than for men (Wilson et al., 2007) and that entrepreneurial education programs have the potential to increase entrepreneurial knowledge, ESE, and EI (Bae et al., 2014; Elert et al., 2015; Florin et al., 2007; Martin et al., 2013). However, by the time women reach post-secondary education, many have developed a belief that entrepreneurship does not fit with their personality (Menzies & Tatroff, 2006), suggesting that efforts to improve ESE and EI need to occur during primary and secondary education.

As a means to close the entrepreneurship gender gap, we decided to explore the effectiveness of short-term, female-only entrepreneurship programs at Canada’s only women’s university. The first program was delivered in the form of a one-day conference and the second was delivered as a one-week residential camp for girls enrolled in secondary school. These programs were designed to promote entrepreneurial knowledge, ESE, and EI.

The purpose of this study is to build on previous research by exploring the relationship between entrepreneurial knowledge, ESE, and EI. This study answers the call for more research to understand if and how entrepreneurship education can influence entrepreneurial perceptions and intentions (Chrisman & Vesper, 2002; Krueger & Brazeal, 1994). It also addresses the appeal to provide diverse learning experiences in entrepreneurial education to better fit with cognitive styles (Barbosa et al., 2007) accomplished through the design of gender-specific programming. Finally, it contributes to closing the gap in studies on subjects under the age of 25 (Cañizares & García, 2010).

THEORETICAL BACKGROUND

Entrepreneurial Self-Efficacy and Entrepreneurship Education

From Bandura's classic work (1977), the concept of self-efficacy can be defined as the belief that one can successfully perform a task required to achieve a particular outcome. Self-efficacy is malleable in that it develops and changes over time through skills obtained through experiences (Bandura, 1982; Gist, 1987; Hollenbeck & Hall, 2004). Although individuals can develop and intensify self-efficacy beliefs through mastery² experiences, modeling (observational learning), social persuasion, and judgements about their own psychological states, the most effective way is through mastery experiences (Bandura, 1977, 1982; Gist, 1987). Evidence suggests that those with higher levels of self-efficacy are more likely to pursue and persist in a given task (Bandura, 1977).

ESE, an extension of self-efficacy, is a "construct that measures a person's belief in their ability to successfully launch an entrepreneurial venture." (McGee et al., 2009, p. 965). Individuals who exhibit high ESE are more likely to engage in entrepreneurial activities (Chen et al., 1998). It is essential to understand how ESE is formed because it is such an important construct in entrepreneurship research (Shinnar et al., 2014).

Research on entrepreneurship education and self-efficacy perceptions have yielded divergent results despite the fact that a number of studies have identified education opportunities as having a positive impact on individual ESE perceptions (Peterman & Kennedy, 2003; Shinnar et al., 2012; von Graevenitz et al., 2010; Zhao et al., 2005). Additional research has found that entrepreneurship education can act as a gender equalizer as education opportunities have been found to be more important to women than to men in increasing self-efficacy (Wilson et al., 2007, 2009). The contradictory findings on the effect of entrepreneurial education on ESE as well as the potential positive impact entrepreneurial education may have on female program participants leads us to hypothesize that participation in gender-specific entrepreneurial programming will have a positive impact on ESE.

² The term mastery is commonly used in the self-efficacy literature to connote proficiency or expertise in a specific set of abilities or domain. Despite the gendered nature of the term mastery, we decided to use it for the sake of clarity.

Knowledge Acquisition and Entrepreneurship Education

A number of studies have established that creative skills and entrepreneurial knowledge are key factors in the start-up, survival, and growth of entrepreneurial ventures (Brüderl et al., 1992; Corbett, 2007; Davidsson & Honig, 2003). Kourlisky and Walstad's (1998) study of a population of high school students revealed that although both males and females exhibited a low level of entrepreneurial knowledge, females were found to be more aware of their lack of knowledge than were males. Other studies have found gaps in knowledge confidence as females were reported to be significantly less confident in their rating of entrepreneurial abilities than were males (Duval-Couetil, 2014; Wilson et al., 2004). Findings from a number of studies also suggest that an entrepreneurship education has the ability to increase the entrepreneurship knowledge and skills (Kirkwood et al., 2014; Volery et al., 2013) in female adolescents which could increase confidence, intent, and activity. Thus, we hypothesize that participation in the educational interventions will positively affect the entrepreneurial knowledge of participants.

Entrepreneurial Intentions and Entrepreneurial Education

A desired outcome of many entrepreneurship education interventions is to increase EI, which Boyd and Vozikis (1994) describe as, "the state of mind that directs and guides the actions of the entrepreneur toward the development and implementation of the business concept" (p. 64). The literature identifies two theoretical perspectives that suggest entrepreneurship education is positively related to EI: (1) ESE (Boyd & Vozikis, 1994; Chen et al., 1998; De Noble et al., 1999; Fitzsimmons & Douglas, 2011; Krueger et al., 2000; Zhao et al., 2005) and (2) human capital theory (Becker, 1975).

The overall relationship between entrepreneurial education and EI was found to be small but positive from Bae et al.'s (2014) meta-analysis of 73 studies, 74 samples, and a sample size of 37,285 respondents. Feder and Nițu-Antonie's (2017) more recent study demonstrated a link between EI, entrepreneurial education, and gender identity in which women participants in an entrepreneurship education program showed an increase in EI whereas men did not. Shinnar et al. (2012) showed that gender had a moderating impact on the relationship between entrepreneurial education and EI such that male EI became stronger while female EI became weaker when exposed to an educational intervention. One explanation for this finding may be the presence of a gender-stereotype threat. Women may experience a conflict between an entrepreneurial identity and traditional female gender roles (Ahl, 2006; Baron et al., 2001). As a result, entrepreneurship is generally viewed by women as a masculine career and not an attractive option (Gupta et al., 2009).

Moderators of the entrepreneurial education-entrepreneurial intention relationship, including duration, level of engagement and self-selection bias, may also influence the EI of participants. Bae et al. (2014) hypothesized that

students would be able to absorb more learning in a program of greater duration. And as previously referenced, the most effective way to improve confidence in the ability to carry out and ultimately pursue and persist in a task is through mastery experiences (Bandura, 1977, 1982; Gist, 1987). In the case of self-selection bias, it is quite probable that those who purposefully enrol in entrepreneurial education programming already desire or have a high level of interest in an entrepreneurial career (Liñán, 2004; Long, 1987; Noel, 2002).

Based on this research, we hypothesize that a single day exposure to entrepreneurship with limited opportunities to engage in mastery experiences will not be sufficient to significantly shift EI. We also believe that the self-selection bias present in the one-week camp, due to the considerable expectations of applicants, is enough to neutralize any possible increase in EI.

STUDY CONTEXT

Exposure to Entrepreneurship

In the province of Ontario, where the studies were conducted, the high school curriculum is designed centrally and administered locally.³ The publicly funded provincial high schools have the authority to determine which non-core courses, including courses in business studies, to offer student populations. A total of three entrepreneurship courses, at the grade 11 or 12 level, may be available to students. If any of these entrepreneurship courses are available, two carry the “college” (community college) designation, and one carries the “open” (to any student) designation. Grade 11 and 12 students who are interested in applying to university would be unlikely to take a community college designated course as it would limit their ability to meet university application prerequisites.

Extracurricular youth (under 18 years) entrepreneurship programming in the province is limited to community-based programming like JA and student entrepreneurship clubs, such as DECA.⁴ Both programs attract participants who have a predisposition to entrepreneurship. The limited availability of curricular and extra-curricular programming, lack of offerings for university-

³ In Canada, education is constitutionally a provincial responsibility, in which the province develops policy and curricula and local boards of education deliver the curricula. Section 93 of the Constitution of Canada entitles Roman Catholics to attend denominational schools and Francophone families to send their children to French-language schools, which are funded by the Government of Ontario. As a result, there are four types of publicly funded school boards in Ontario: English Public, English Catholic, French Public, and French Catholic. Finally, the Ontario secondary school system categorizes credits in the first two years of secondary school as academic or applied. In the final two years courses are categorized according to the destination students aspire to after graduation, including courses designed to prepare students for community college, university, both university and college, workplace, and open courses, which are designed for all students. Students may take courses from multiple categories, but data suggests that the students tend to choose courses from a single category (*The Trouble with Course Choices in Ontario High Schools*, 2013).

⁴ DECA Ontario is an extra-curricular business club for high school students which fosters leadership and entrepreneurship in high school students. DECA Ontario has 206 chapters across the province. It is a member of the international DECA movement.

bound students, and probable self-selection bias could be a contributing factor to the weakening of the female entrepreneurial pipeline.

Just Own It! Program Overview. Wilson et al. (2007) suggest that providing education opportunities to women could be particularly important to fuel the entrepreneurial pipeline and that targeted education appears to positively influence confidence more for women than for men. To test our hypotheses, we analyzed data collected from two separate entrepreneurial education interventions (called Just Own It!) offered at Brescia University College (see Appendix A for an institutional profile) that delivered programming to female high school students, as entrepreneurship education at pre-college levels has been found to be effective in increasing interest in entrepreneurial careers (Dyer, 1994; Kourilsky, 1995). A provincial government grant funded the program. Our objectives were to raise awareness of entrepreneurial activities, provide exposure to young female entrepreneurial role models, increase confidence in entrepreneurial abilities (Krueger & Brazeal, 1994), and increase participation in provincial and community-based youth entrepreneurship programming.

The programming mirrored effective entrepreneurial programs by including elements of interactivity, experiential learning, role modeling, and links to the local entrepreneurial ecosystem (Gupta et al., 2009; Peterman & Kennedy, 2003). Both interventions incorporated successful female role models that encouraged identification with the role model (Laviolette et al., 2012).

STUDY 1: ONE-DAY CONFERENCE

One-Day Conference Intervention Description

In the first entrepreneurial education experience, 220 female high school students from 39 high schools participated in a one-day entrepreneurship conference at a local women's university in February 2015. Students came from across Southwestern Ontario, from English-language urban and rural schools in six Catholic or Public Boards of Education. The conference programming allowed participants to explore the idea of entrepreneurship and to engage in entrepreneurial activities. The organizers promoted the event through school boards and high school staff who selected participants based on their leadership skills, creativity, and engagement. It was specifically highlighted that participants did not need to express an interest in entrepreneurship, or to have taken business courses, to minimize the risk that students who were not interested in business would self-select out of the program (Verheul et al., 2005).

The participants and their teachers started the day with a keynote speech by a recent university graduate who had cofounded a successful business. She emphasized the varying nature of the entrepreneurial experience and her personal reflections as a pre-angel start-up. Her talk was intended to provide an aspirational role model for the participants.

Participants then moved to breakout groups for three interactive, experiential learning sessions on opportunity identification, prototype development, and technology, which were led by female entrepreneurs from the local community with assistance from female university students. The conference emphasized creativity (a gender-neutral stereotype) and engagement with customers (a characteristically female stereotype) to avoid stereotype threat, and to increase the likelihood of the participants evaluating an entrepreneurial career more positively (Gupta et al., 2014).

Each high school student was exposed to a minimum of three women entrepreneur role models in the small group sessions to counter the male occupational role stereotype that both men and women associate with entrepreneurship (Bird & Brush, 2002; Langowitz & Minniti, 2007; Mueller & Conway Dato-on, 2013; Shneur et al., 2013; Urban, 2010). During the lunch break a trade show took place featuring 15 organizations that support youth entrepreneurship in the local area, including banks, credit unions, local business support centres, youth entrepreneurship programs, and several local women-owned businesses. At the end of the three break-out sessions, participants reconvened in a plenary session featuring a closing keynote speech from a 17-year-old female high school student. This young woman had been operating a small business since the age of 15, providing the conference participants with a role model of their age and life-experience.

Study 1 Hypotheses

To evaluate the effectiveness of the one-day conference programming, we measured changes in entrepreneurial knowledge, confidence and intention to explore the following hypotheses:

Hypothesis 1: Participation in the one-day conference will positively affect the ESE of participants.

Hypothesis 2: Participation in the one-day conference will positively affect the entrepreneurial knowledge of participants.

Hypothesis 3: Participation in the one-day conference will not positively affect the EI of participants.

Study 1 Participants and Procedure

Participants were asked to complete pre- and post-experience questionnaires designed to measure the effectiveness of the programming (Fayolle & Liñán, 2014; Wilson et al., 2007). The first questionnaire ($t = 0$) was administered during the first breakout session and the second questionnaire ($t = 1$) was administered at the end of the third breakout session, before the final keynote speech.

A letter of intent was incorporated in the registration documentation and given to parents/guardians requesting parental permission for registrant participation in the study.⁵ A two-page questionnaire asked respondents to

⁵ This study was approved by the Brescia University College Research Ethics Board (#11-2014-01) following the Tri-Council Research Ethics Policy Statement.

complete measures of work and leadership experiences, role models, entrepreneurial knowledge, ESE, and EI. A total of 159 pre-conference questionnaires and 170 post-conference questionnaires were completed for response rates of 72.3% and 77.3%, respectively.

MEASURES

Entrepreneurial Self-Efficacy

Most theorists argue that ESE is best conceptualized as a multi-dimensional measure; as a result, some studies have attempted to break the construct into components (Barbosa et al., 2007; McGee et al., 2009; Mueller & Goić, 2003). McGee et. al (2009) developed and validated a five element ESE construct, particularly suited to examining the behaviour of nascent entrepreneurs. The construct includes the following five dimensions: (1) searching, which captures the creativity and innovation required in the idea development phase; (2) planning, which includes activities that would help the entrepreneur convert the idea into a feasible plan; (3) marshaling, which describes the process to assemble required resources; (4) implementing-people, which includes the skills necessary to grow and sustain the business through good management principles; and, (5) implementing-financial, which relate to the financial competencies required to manage the business effectively. The dimensions follow a process model that divides entrepreneurial activities into discrete phases.

To measure ESE, respondents rated themselves on 10 ESE competency statements drawn from the works of McGee et. al (2009) and Wilson et. al (2007). Using a five-point Likert scale (1 = much worse and 5 = much better) respondents were asked, "Compared to other students in your grade, how would you rate yourself in the following areas?" The statements were grouped into McGee et al.'s (2009) multi-dimensional construct for analysis.

Entrepreneurial Knowledge

Participants were asked to answer four objective questions about entrepreneurs to measure their entrepreneurial knowledge. From these questions a composite variable was computed to examine whether participants' objective entrepreneurial knowledge increased by the end of the program. This variable, summing to a total of 10, represented a score of objective knowledge, where the higher the number, the greater the knowledge. To measure subjective knowledge, respondents were asked, "Overall, rate your knowledge and understanding of starting and managing a business" on a five-point Likert scale (Kourilsky & Walstad, 1998).

Cronbach's alpha was used to determine the internal consistency of both the ESE and entrepreneurial knowledge constructs. A Cronbach alpha of 0.7 or above is considered acceptable and demonstrates reliability of the scale (Cronbach, 1951). Cronbach's alpha was 0.861 for ESE and 0.747 for entrepreneurial knowledge, including results from both the pre- and post-experience data.

Entrepreneurial Intentions

To measure EI respondents were asked how interested they were in various careers including starting/owning a business on a five-point Likert scale (1 = definitely not interested and 5 = extremely interested) (Wilson et al., 2009). See Appendix B for the survey questions used to measure ESE, entrepreneurial knowledge, and EI.

STUDY 1 RESULTS

Descriptive statistics were generated to assess the sample. Independent t-tests, rather than paired t-tests, were conducted to evaluate the impact of the one-day conference. Paired t-tests were not possible for the one-day conference as logistics prevented matching responses. Results were analyzed using IBM SPSS 23.

To better understand the population, demographic and experience data were collected (see Table 1). Respondents reported a considerable amount of leadership experience which might minimize any significant increase in ESE as the population already possessed a high degree of confidence. We noted that a large percentage of this population knew an entrepreneur personally.

TABLE 1. ONE-DAY CONFERENCE PARTICIPANT PROFILE

Grade	%	Work Experience	%	Leadership Experience	%	Know an Entrepreneur	%
9	5	Employed	54	Yes	70	Mother	16
10	14	Business Owner	6	No	30	Father	40
11	33	No Experience	43			Grandparent	27
12	48					Aunt/Uncle	31
						Family Friend	39

Note: Work experience and knowing an entrepreneur add to more than 100% because participants could choose more than one response.

ENTREPRENEURIAL SELF-EFFICACY AND ENTREPRENEURSHIP

EDUCATION. To examine H₁, that participation in the one-day conference will positively affect the ESE of participants, the means of the pre- and post-conference ESE composite score and the multi-dimensional ESE construct were analyzed. The results presented in Table 2 show that, although the composite ESE mean and the means of all ESE categories increased (except implementing-financial), the results were not statistically significant, and therefore H₁ was not supported. These results imply that a five-hour program was not sufficient to alter the confidence of participants.

TABLE 2. ONE-DAY CONFERENCE PARTICIPANTS' SELF-REPORTED ESE

Variable	Time	Mean	t	df	p
Composite Score	Pre	3.7	-0.92	320	0.356
	Post	3.8	-0.93	320	0.355
Item-Level Constructs					
Searching	Pre	3.8	-0.93	327	0.354
	Post	3.8	-0.93	326	0.354
Planning	Pre	3.8	-1.05	327	0.295
	Post	3.9	-1.05	323	0.295
Marshalling	Pre	3.6	-0.41	325	0.685
	Post	3.6	-0.41	325	0.684
Implementing -People	Pre	3.9	0.06	325	0.951
	Post	3.8	0.06	325	0.950
Implementing-Financial	Pre	3.6	0.36	327	0.719
	Post	3.6	0.36	326	0.719

KNOWLEDGE ACQUISITION AND ENTREPRENEURSHIP EDUCATION. The results shown in Table 3 indicate that both objective and subjective entrepreneurial knowledge increased by the end of the entrepreneurial education program; therefore, H2, participation in the one-day conference will positively affect the entrepreneurial knowledge of participants, was supported. This finding supports the notion that the program content was appropriate in building knowledge to better understand entrepreneurship.

TABLE 3. ONE-DAY CONFERENCE KNOWLEDGE ACQUISITION

Variable	Time	Mean	t	df	p
Objective Knowledge	Pre	7.7	-2.57	305	0.011*
	Post	8.3	-2.56	294	0.011*
Perceived Knowledge	Pre	3.1	-8.42	317	p < 0.001*
	Post	3.9	-8.41	309	p < 0.001*

Note: *p<0.05

ENTREPRENEURIAL INTENTIONS AND ENTREPRENEURIAL EDUCATION. The results shown in Table 4 show that H₃, that participation in the one-day conference will not positively affect the EI of participants, was supported. The mean score for starting/owning a business did increase; however, it was not significant (p > .05). This result reinforces the established relationship between ESE and EI in that a shift in EI is partially dependent on a shift in ESE.

TABLE 4. ONE-DAY CONFERENCE ENTREPRENEURIAL INTENTION

Variable	Time	Mean	t	df	p
Entrepreneurial Intentions	Pre	3.6	-0.33	327	0.743
	Post	3.7	-0.33	327	0.742

STUDY 2: ONE-WEEK CAMP

We conducted a second study to explore whether a longer, more intensive entrepreneurial education program would have a greater impact on ESE and EI. In the second study, 49 female high school students from 31 high schools participated in one of two one-week residential entrepreneurship boot camps in July 2015. Participants attended English-language public and Catholic high schools across Southwestern Ontario, primarily from the Greater Toronto Area (GTA) and from the London/St. Thomas area. Participants were required to submit a formal application to the program which included two short essays, one describing a business idea and one describing a teamwork or collaboration experience, as well as provide a nomination from a teacher or guidance counsellor.

The program was promoted through local school boards. The marketing message highlighted that the girls did not need to express an interest in entrepreneurship, or to have taken business courses in high school, or plan to take a business major at university or college. The curriculum used an experiential learning pedagogy, similar to those used by Steve Blank, an American entrepreneur and educator based at Stanford University and by the MaRs Discovery District, which is an innovative organization based in Toronto that works with a network of private and public sector partners to help entrepreneurs launch and grow companies.

After discussing entrepreneurial personalities and skills, students formed founders' teams on the first day of the camp. They then identified a specific customer problem and created a solution in the form of a business model canvas (Osterwalder & Pigneur, 2010). On day two students focused on designing a product or service, creating a prototype, and conducting customer discovery (Blank & Dorf, 2012). On day three students used the information they learned in customer discovery to modify their business models, exploring the concept of the pivot and product validation (Ries, 2011). They also worked on revenue models and costing. Day four consisted of fine-tuning product prototypes, participating in a pitch workshop, and developing pitches. Throughout the first four days, participants worked with experienced women entrepreneurs during the workshop sessions. They also engaged in a storytelling (Donnellon et al., 2014) session with three experienced women entrepreneurs. Day five involved preparation for and delivery of the pitches in front of a panel of experienced entrepreneurs and investors, as well as friends and family.

Study 2 Hypotheses

We expected both the ESE and entrepreneurial knowledge of participants to increase; however, we did not expect EI to increase. The camp demanded a rigorous application process and a five-day commitment so we predicted participants would report a high level of pre-camp EI; therefore, it was unlikely that the intervention would increase EI. In summary, our hypotheses for the one-week camp included:

Hypothesis 4: Participation in the one-week camp will positively affect the ESE of participants.

Hypothesis 5: Participation in the one-week camp will positively affect the entrepreneurial knowledge of participants.

Hypothesis 6: Participation in the one-week camp will not positively affect the EI of participants.

Study 2 Participants, Procedures, and Measures

For the one-week camps, a total of 49 pre- and post-experience questionnaires were collected for a response rate of 100%. The same procedures, instruments, and measures were used in Study 1 and Study 2.

Study 2 Results

We generated descriptive statistics and conducted t-tests to evaluate the impact of the one-week camps. The descriptive statistics revealed that camp participants possessed both work-related and leadership experiences comparable to the experience results from the one-day conference; therefore, a possible ESE bias could be present in this population as well. Camp participants were also found to know many entrepreneurs.

TABLE 5. ONE-WEEK CAMP PARTICIPANT PROFILE

Grade	%	Work Experience	%	Leadership Experience	%	Know an Entrepreneur	%
9	8	Employed	56	Yes	71	Mother	19
10	21	Business Owner	6	No	29	Father	46
11	58	No Experience	40			Grandparent	27
12	13					Aunt/Uncle	35
						Family Friend	44

Note: Work experience and knowing an entrepreneur may add to more than 100% because participants were able to choose more than one response.

Entrepreneurial Self-Efficacy and Entrepreneurship Education

The results for H₄ (participation in the one-week camp will positively affect the ESE of participants) are presented in Table 6.

TABLE 6. ONE-WEEK CAMP PARTICIPANTS' SELF-REPORTED ESE

VARIABLE	Time	Mean	t	df	p
Composite Score	Pre	3.9	-2.82	46	0.007*
	Post	4.0			
ITEM-LEVEL CONSTRUCTS					
Searching	Pre	3.9	-2.32	46	0.025*
	Post	4.1			
Planning	Pre	4.4	-0.62	46	0.537
	Post	4.4			
Marshalling	Pre	3.7	-1.60	46	0.116
	Post	3.8			
Implementing -People	Pre	4.1	-2.06	46	0.046*
	Post	4.3			
Implementing-Financial	Pre	3.9	0.22	46	0.830
	Post	3.9			

Note: * $p < 0.05$

The change in overall ESE, as well as the change in two ESE categories (searching and implementing-people), was significant ($p < .05$), supporting H₄. The camp curriculum focused on fostering creativity by exploring a problem-solution model (searching stage activities) through collaborative work (implementing-people activities) which appears to have been an effective means to increase confidence in those areas.

Knowledge Acquisition and Entrepreneurship Education

Similar to the results from the one-day conference, the one-week camp intervention results shown in Table 7 supported H₅, that participation in the one-week camp will positively affect the entrepreneurial knowledge of participants.

Entrepreneurial Intentions and Entrepreneurial Education

Although the results from the one-week conference reveal that the overall EI mean decreased slightly, the results were not significant and H6; participation in the one-week camp will not positively affect the EI of participants, was supported. These results reinforce the assertion that due to the selection process, participant pre-experience EI was already strong and that it would be difficult to shift post-experience EI.

TABLE 8. ONE-WEEK CAMP ENTREPRENEURIAL INTENTIONS

Variable	Time	Mean	t	df	p
Entrepreneurial Intentions	Pre	4.0			
	Post	4.0	0.78	45	0.439

Limitations

This study has several limitations that need to be acknowledged. First, because we used non-probability sampling, the final results cannot be viewed as representative of the population of adolescent females in Canada. Second, the study relied on self-reported data and assessed respondent's perceptions and not behaviours, even though intentions are consistently the best predictor of subsequent behaviour (Barbosa et al., 2007). Next, the data was collected in 2015. Although we have no evidence to suggest that the context has changed meaningfully, it is conceivable that the a more recent group of program participants would respond differently to the survey tools. Finally, we must be cognizant that female adolescents hold varying degrees of awareness and interest in exploring entrepreneurship and those differences must play a key role in the design of more effective programs.

DISCUSSION AND IMPLICATIONS FOR PRACTICE

Our goal in designing, delivering, and evaluating these entrepreneurial education interventions was to better understand how to encourage female adolescents to explore entrepreneurship thereby closing the entrepreneurship gender gap. The studies attempted to understand if the interventions were effective at engaging high school students through measured changes in confidence and knowledge.

The two interventions in this paper differed in duration, intensity, and process. The one-day conference might have been more appealing to students in the curious, willing to explore stage whereas the one-week camps were likely more attractive to students who had already established an interest in entrepreneurship and were intent on further developing their skills and ideas. We compared the pre-intervention EI scores of the one-day conference with those from the one-week camp and discovered a significant difference ($t = -2.177$, $df = 79.66$, $p = 0.032$). This result suggests that the populations were indeed different. The difference in intention to pursue an entrepreneurial career makes clear the need for diverse entrepreneurial

education opportunities for adolescent females in order to strengthen the female entrepreneurial pipeline.

First, there is a need to build entrepreneurial knowledge through exposure to ideas, experiences, and role models in the population that has not seriously considered entrepreneurship in early stage interventions (e.g. the one-day conference). Second, interventions designed to extend knowledge as well as strengthen ESE should be developed (e.g. the one-week camp). The next level of programming should focus on advancing competencies in planning, marshaling resources, and financial management (e.g. JA programs) followed by support and mentoring interventions as ventures are launched. A longitudinal study by Elert et al. (2015) demonstrated the effectiveness of JA programming by finding that participation increases the long-term probability of starting a firm.

We suggest a series of scaffolded interventions, starting with those designed to expose and inspire and ending with those intended to support venture implementation, are essential to fuel the female entrepreneurial pipeline. It is critical that the programming focus on competencies, such as creativity and relationship development, that do not trigger stereotype threat (Duval-Couetil, 2014; Gupta et al., 2008; Wilson et al., 2004), and that integrate role models, storytelling, and experiential learning activities (Laviolette et al., 2012).

At present there is limited coordination between developers of available entrepreneurial education programs in the region the study took place. In addition to recommending a more coordinated and intentional approach to the development and delivery of entrepreneurial education, we also recommend a change to the Ontario secondary school curriculum to offer entrepreneurship courses for university-bound students and to increase the availability of entrepreneurship courses.

Consistent with the mission of the Center for Advancement of Women at Mount Saint Mary's University to find solutions for persistent gender inequality, this paper provides a case study of entrepreneurship programming designed to reduce the entrepreneurship participation gap between men and women. Increased participation in entrepreneurial ventures may result in greater financial success, independence, and self-respect, thus improving the lives of girls and women. Women's colleges are better positioned to deliver female-only entrepreneurial programming due to their unique assets, including instructors who understand feminist pedagogy, awareness of the unique challenges facing female entrepreneurs, and connections to female entrepreneurs in the community who may act as role models for aspiring adolescent female entrepreneurs. Consistent with the mission of the Women's College Coalition, we believe that this program has helped to transform adolescent girls' sense of entrepreneurial possibilities, and therefore have the potential to change the world through education.

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APPENDIX A

BRESCIA UNIVERSITY COLLEGE PROFILE

Brescia University College (Brescia) was founded in 1919 by the Ursuline Order of the Chatham Union, a Roman Catholic organization of women religious, to provide university education to women. It originated as a women's college and survives today as Canada's only women's university. Brescia welcomes self-identified female students of all backgrounds and does not require students to observe any religious behavioural codes (Trick, 2015); moreover, Brescia has a strong heritage of inclusion, diversity, and social justice.

As of September 2019, Brescia boasted 1,600 undergraduate and graduate students (M. Simm, personal conversation, December 12, 2019). It offers programs in management and organizational studies, social sciences, foods and nutrition, arts and humanities, and leadership studies as well as discipline-specific courses in leadership.

Brescia is a publicly funded affiliate college of Western University, in London, Ontario, one of the 16 church-sponsored colleges affiliated with seven secular, publicly funded universities in the Province of Ontario. It is a legally separate entity from Western University, with its own governance structures and articles of incorporation. Brescia has canonical sponsorship from the Mother St. Anne Lachance Society, which includes representation of the founding order of Ursulines and the local Roman Catholic diocese. However, Brescia is constituted and governed independently from its canonical sponsor, albeit with representation of its sponsor on Brescia's governing board.

APPENDIX B

SURVEY QUESTIONS

Measures of Entrepreneurial Knowledge

Objective Measure Questions:

What is an entrepreneur? (Choose all that apply)

- a. A person who takes on risk in order to start and operate a business
- b. A person who is responsible for running all or part of a company
- c. A person who comes up with a new product or service idea
- d. A person who invests in businesses

What educational requirement is necessary to become an entrepreneur?

- a. University/College graduate
- b. High school graduate
- c. No specific education required

Do you have to have taken business courses to become an entrepreneur?
Circle your answer.

Yes No

What are the goals of entrepreneurs? (Choose all that apply)

- a. Financial rewards
- b. Achieving social change
- c. Independence
- d. Doing something they love

Subjective Measure Question:

Overall, rate your knowledge and understanding of starting and managing a business

- a. Excellent
- b. Good
- c. Fair
- d. Poor
- e. Very poor

Measures of Entrepreneurial Self-Efficacy

Five Element Construct Categories:

- 1) searching, which captures the creativity and innovation required in the idea development phase;
- 2) planning, which includes activities that would help the entrepreneur convert the idea into a feasible plan;
- 3) marshaling, which describes the process to assemble required resources;
- 4) implementing-people, which includes the skills necessary to grow and sustain the business through good management principles; and,
- 5) implementing-financial which relate to the financial competencies required to manage the business effectively.

Compared to other students in your grade, how would you rate yourself in the following areas?

	Much worse	A little worse	About the same	A little better	Much better
Being creative (1)					
Being able to solve problems (1)					
Organizing projects & activities (2)					
Working in teams (3)					
Getting people to agree with you (3)					
Making decisions (3)					
Explaining your ideas (3)					
Being a leader (4)					
Motivating others (4)					
Managing money (5)					

Measure of Entrepreneurial Intentions

Rate your interest in the following careers:

	Definitely not interested	Probably not interested	Possibly interested	Somewhat interested	Extremely interested
Business or management					
Doctor, nurse or medical professional					
Actor or performer					
Artist/graphic designer					
Lawyer					
Starting/owning your own business					
Scientist/engineer					
Professional athlete					
Journalist/writer					
Working with computers					
Military					
Sales/marketing					
Teacher					
Nonprofit/government					

REFERENCES

- Ahl, H. (2006). Why research on women entrepreneurs needs new directions. *Entrepreneurship Theory and Practice*, 30(5), 595–621. <https://doi.org/10.1111/j.1540-6520.2006.00138.x>
- Aidis, R. (2015, June 10). Canada is an emerging hot spot for high-impact female entrepreneurs. *The Globe and Mail*. <http://www.theglobeandmail.com/report-on-business/small-business/sb-growth/canada-is-an-emerging-hot-spot-for-high-impact-female-entrepreneurs/article24822724/>
- American Express OPEN. (2013). *The 2013 state of women-owned business report*. <http://a10clinical.com/images/uploads/a10-news/StateOfWomenReport.pdf>
- Bae, T. J., Qian, S., Miao, C., & Fiet, J. O. (2014). The relationship between entrepreneurship education and entrepreneurial intentions: A meta-analytic review. *Entrepreneurship Theory and Practice*, 38(2), 217–254. <https://doi.org/10.1111/etap.12095>
- Bandura, A. (1977). Self-efficacy: Toward a unifying theory of behavioral change. *Psychological Review*, 84(2), 191–215.
- Bandura, A. (1982). Self-efficacy mechanism in human agency. *American Psychologist*, 37(2), 122–147. <https://doi.org/10.1037/0003-066X.37.2.122>
- Barbosa, S. D., Gerhardt, M. W., & Kickul, J. R. (2007). The role of cognitive style and risk preference on entrepreneurial self-efficacy and entrepreneurial intentions. *Journal of Leadership & Organizational Studies*, 13(4), 86–104.
- Baron, R. A., Markman, G. D., & Hirska, A. (2001). Perceptions of women and men as entrepreneurs: Evidence for differential effects of attributional augmenting. *Journal of Applied Psychology*, 86(5), 923–929. <https://doi.org/10.1037/0021-9010.86.5.923>
- Becker, G. S. (1975). *Human capital: A theoretical and empirical analysis, with special reference to education* (2nd ed.). University of Chicago Press.
- Bird, B., & Brush, C. (2002). A gendered perspective on organizational creation. *Entrepreneurship: Theory & Practice*, 26(3), 41–65.
- Blank, S. G., & Dorf, B. (2012). *The startup owner's manual. Vol. 1, The step-by-step guide for building a great company* (1st ed). K&S Ranch, Inc.
- BMO Financial Group. (2012, March). *BMO women's day study*. <https://newsroom.bmo.com/2012-03-05-REPEAT-BMO-Womens-Day-Study-Majority-of-Canadian-Women-Would-Start-Their-Own-Business>
- Boyd, N., & Vozikis, G. (1994). The influence of self-efficacy on the development of entrepreneurial intentions and actions. *Entrepreneurship Theory and Practice*, 18(4), 63–77.
- Brüderl, J., Preisendörfer, P., & Ziegler, R. (1992). Survival chances of newly founded business organizations. *American Sociological Review*, 57(2), 227–242.

- Cañizares, S. M. S., & García, F. J. F. (2010). Gender differences in entrepreneurial attitudes. *Equality, Diversity and Inclusion: An International Journal*, 29(8), 766–786. <https://doi.org/10.1108/02610151011089519>
- Chen, C. C., Greene, P. G., & Crick, A. (1998). Does entrepreneurial self-efficacy distinguish entrepreneurs from managers? *Journal of Business Venturing*, 13(4), 295–316. [https://doi.org/10.1016/S0883-9026\(97\)00029-3](https://doi.org/10.1016/S0883-9026(97)00029-3)
- Chrisman, J., & Vesper, K. H. (2002). Lessons from successful innovations in entrepreneurial support programming. In W. McMullan (Ed.), *Innovation and entrepreneurship in Western Canada: From family businesses to multinationals* (pp. 207–223). University of Calgary.
- Corbett, A. C. (2007). Learning asymmetries and the discovery of entrepreneurial opportunities. *Journal of Business Venturing*, 22(1), 97–118. <https://doi.org/10.1016/j.jbusvent.2005.10.001>
- Cronbach, L. J. (1951). Coefficient alpha and the internal structure of tests. *Psychometrika*, 16, 297–334.
- Davidsson, P., & Honig, B. (2003). The role of social and human capital among nascent entrepreneurs. *Journal of Business Venturing*, 18(3), 301–331. [https://doi.org/10.1016/S0883-9026\(02\)00097-6](https://doi.org/10.1016/S0883-9026(02)00097-6)
- De Noble, A. F., Jung, D., & Ehrlich, S. B. (1999). Entrepreneurial self-efficacy: The development of a measure and its relationship to entrepreneurial action. *Frontiers of Entrepreneurship Research*, 1999, 73–87.
- Dempsey, D., & Jennings, J. (2014). Gender and entrepreneurial self-efficacy: A learning perspective. *International Journal of Gender and Entrepreneurship*, 6(1), 28–49. <http://dx.doi.org/10.1108/IJGE-02-2013-0013>
- Donnellon, A., Ollila, S., & Williams Middleton, K. (2014). Constructing entrepreneurial identity in entrepreneurship education. *The International Journal of Management Education*, 12(3), 490–499. <https://doi.org/10.1016/j.ijme.2014.05.004>
- Duval-Couetil, N. (2014). The characteristics and motivations of contemporary entrepreneurship students. *Journal of Education for Business*, 89(8), 441–449.
- Dyer, W. G. (1994). Toward a theory of entrepreneurial careers. *Entrepreneurship Theory and Practice*, 19(2), 7–21.
- Elam, A. B., Brush, C., Greene, P. G., Baumer, B., Dean, M., & Heavlow, R. (2019). *Global Entrepreneurship Monitor Women's Entrepreneurship Report 2018/19* (p. 108). Global Entrepreneurship Research Association. <https://www.gemconsortium.org/report/gem-20182019-womens-entrepreneurship-report>
- Elert, N., Andersson, F. W., & Wennberg, K. (2015). The impact of entrepreneurship education in high school on long-term entrepreneurial performance. *Journal of Economic Behavior & Organization*, 111, 209–223. <https://doi.org/10.1016/j.jebo.2014.12.020>

- Fayolle, A., & Liñán, F. (2014). The future of research on entrepreneurial intentions. *Journal of Business Research*, 67(5), 663–666. <https://doi.org/10.1016/j.jbusres.2013.11.024>
- Feder, E.-S., & Nițu-Antonie, R.-D. (2017). Connecting gender identity, entrepreneurial training, role models and intentions. *International Journal of Gender and Entrepreneurship*, 9(1), 87–108. <http://dx.doi.org.proxy1.lib.uwo.ca/10.1108/IJGE-08-2016-0028>
- Fitzsimmons, J. R., & Douglas, E. J. (2011). Interaction between feasibility and desirability in the formation of entrepreneurial intentions. *Journal of Business Venturing*, 26(4), 431–440. <https://doi.org/10.1016/j.jbusvent.2010.01.001>
- Florin, J., Karri, R., & Rossiter, N. (2007). Fostering entrepreneurial drive in business education: An attitudinal approach. *Journal of Management Education*, 31(1), 17–42. <https://doi.org/10.1177/1052562905282023>
- Gatewood, E. J., Shaver, K. G., Powers, J. B., & Gartner, W. B. (2002). Entrepreneurial expectancy, task effort, and performance. *Entrepreneurship Theory and Practice*, 27(2), 187–206. <https://doi.org/10.1111/1540-8520.00006>
- Gist, M. E. (1987). Self-efficacy: Implications for organizational behavior and human resource management. *Academy of Management Review*, 12(3), 472–485. <https://doi.org/10.5465/AMR.1987.4306562>
- Gupta, V. K., Goktan, A. B., & Gunay, G. (2014). Gender differences in evaluation of new business opportunity: A stereotype threat perspective. *Journal of Business Venturing*, 29(2), 273–288. <https://doi.org/10.1016/j.jbusvent.2013.02.002>
- Gupta, V. K., Turban, D. B., & Bhawe, N. M. (2008). The effect of gender stereotype activation on entrepreneurial intentions. *Journal of Applied Psychology*, 93(5), 1053–1061.
- Gupta, V. K., Turban, D. B., Wasti, S. A., & Sikdar, A. (2009). The role of gender stereotypes in perceptions of entrepreneurs and intentions to become an entrepreneur. *Entrepreneurship: Theory & Practice*, 33(2), 397–417. <https://doi.org/10.1111/j.1540-6520.2009.00296.x>
- Hollenbeck, G. P., & Hall, D. T. (2004). *Self-confidence and leader performance*. *Organizational Dynamics*, 33(3), 254–269.
- Huynh, A., Vu, V., & Lo, M. (2017). *Beyond the \$ value: Attitudes, behaviours, and aspirations of Ontario entrepreneurs*. Brookfield Institute for Innovation and Entrepreneurship. <https://brookfieldinstitute.ca/report/beyond-the-dollar-value>
- Industry Canada. (2015, May). *Majority female-owned small and medium-sized enterprises—Special edition: Key small business statistics*. [https://www.ic.gc.ca/eic/site/061.nsf/vwapj/MFOSMEs_KSBS-PMEDMF_PSRPE_2015-05_eng.pdf/\\$FILE/MFOSMEs_KSBS-PMEDMF_PSRPE_2015-05_eng.pdf](https://www.ic.gc.ca/eic/site/061.nsf/vwapj/MFOSMEs_KSBS-PMEDMF_PSRPE_2015-05_eng.pdf/$FILE/MFOSMEs_KSBS-PMEDMF_PSRPE_2015-05_eng.pdf)
- Kickul, J. (2008). Are misalignments of perceptions and self-efficacy causing gender gaps in entrepreneurial intentions among our nation's teens? *Journal of Small Business and Enterprise Development*, 15(2), 321–335.

- Kirkwood, J., Dwyer, K., & Gray, B. (2014). Students' reflections on the value of an entrepreneurship education. *The International Journal of Management Education*, 12(3), 307–316. <https://doi.org/10.1016/j.ijme.2014.07.005>
- Kourilsky, M. L. (1995). Entrepreneurship education: Opportunity in search of curriculum. *Business Education Forum*, 50(10), 11–15.
- 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](https://doi.org/10.1016/S0883-9026(97)00032-3)
- Krueger, N. F., & Brazeal, D. V. (1994). Entrepreneurial potential and potential entrepreneurs. *Entrepreneurship Theory and Practice*, 18, 91–104.
- Krueger, N. F., Reilly, M. D., & Carsrud, A. L. (2000). Competing models of entrepreneurial intentions. *Journal of Business Venturing*, 15(5–6), 411–432. [https://doi.org/10.1016/S0883-9026\(98\)00033-0](https://doi.org/10.1016/S0883-9026(98)00033-0)
- Langowitz, N., & Minniti, M. (2007). The entrepreneurial propensity of women. *Entrepreneurship Theory and Practice*, 31(3), 341–364. <http://dx.doi.org.proxy1.lib.uwo.ca/10.1111/j.1540-6520.2007.00177.x>
- Lavolette, E. M., Lefebvre, M. R., & Brunel, O. (2012). The impact of story bound entrepreneurial role models on self-efficacy and entrepreneurial intention. *International Journal of Entrepreneurial Behaviour & Research*, 18(6), 720–742. <https://doi.org/10.1108/13552551211268148>
- Lichtenstein, J. (2014). *Demographic characteristics of business owners* (Issue Brief No. 2; Advocacy: The Voice of Small Business in Government). Office of Economic Research of the Office of Advocacy. <https://www.sba.gov/sites/default/files/Issue%20Brief%202,%20Business%20Owner%20Demographics.pdf>
- Liñán, F. (2004). Intention-based models of entrepreneurship education. *Piccola Impresa / Small Business*, 3(1), 11–35.
- Long, W. A. (1987). Entrepreneurship education in the nineties. *Journal of Business Venturing*, 2(3), 261–275. [https://doi.org/10.1016/0883-9026\(87\)90013-9](https://doi.org/10.1016/0883-9026(87)90013-9)
- Marlino, D., & Wilson, F. (2003). *Teen girls on business: Are they being empowered?* Simmons School of Management and The Committee of 200,.
- Martin, B. C., McNally, J. J., & Kay, M. J. (2013). Examining the formation of human capital in entrepreneurship: A meta-analysis of entrepreneurship education outcomes. *Journal of Business Venturing*, 28(2), 211–224. <https://doi.org/10.1016/j.jbusvent.2012.03.002>
- McGee, J. E., Peterson, M., Mueller, S. L., & Sequeira, J. M. (2009). Entrepreneurial Self-Efficacy: Refining the Measure. *Entrepreneurship Theory and Practice*, 33(4), 965–988. <https://doi.org/10.1111/j.1540-6520.2009.00304.x>
- Menzies, T. V., & Tatroff, H. (2006). The propensity of male vs female students to take courses and degree concentrations in entrepreneurship. *Journal of Small Business & Entrepreneurship*, 19(2), 203–218.

- Mueller, S. L., & Conway Dato-on, M. (2013). A cross cultural study of gender-role orientation and entrepreneurial self-efficacy. *International Entrepreneurship and Management Journal*, 9(1), 1–20. <http://dx.doi.org/10.1007/s11365-011-0187-y>
- Mueller, S. L., & Goić, S. (2003). East-West differences in entrepreneurial self-efficacy: Implications for entrepreneurship education in transition economies. *International Journal for Entrepreneurship Education*, 1(4), 613–632.
- Noel, T. W. (2002). Effects of entrepreneurial education on intent to open a business: An exploratory study. *The Journal of Entrepreneurship Education*, 5, 3–13.
- Osterwalder, A., & Pigneur, Y. (2010). *Business model generation: A handbook for visionaries, game changers, and challengers*. Wiley.
<http://ca.wiley.com/WileyCDA/WileyTitle/productCd-0470876417.html>
- Peterman, N. E., & Kennedy, J. (2003). Enterprise education: Influencing students' perceptions of entrepreneurship. *Entrepreneurship Theory and Practice*, 28(2), 129–144. <https://doi.org/10.1046/j.1540-6520.2003.00035.x>
- RBC Economics. (2013). *Canadian women grabbing the baton* (p. 5) [RBC Economics Report]. <http://www.rbc.com/newsroom/pdf/women-and-sme-10-2013.pdf>
- Ries, E. (2011). *The lean startup: How today's entrepreneurs use continuous innovation to create radically successful businesses*. Crown Business.
- Shinnar, R. S., Giacomini, O., & Janssen, F. (2012). Entrepreneurial perceptions and intentions: The role of gender and culture. *Entrepreneurship Theory and Practice*, 36(3), 465–493. <https://doi.org/10.1111/j.1540-6520.2012.00509.x>
- Shinnar, R. S., Hsu, D. K., & Powell, B. C. (2014). Self-efficacy, entrepreneurial intentions, and gender: Assessing the impact of entrepreneurship education longitudinally. *The International Journal of Management Education*, 12(3), 561–570. <https://doi.org/10.1016/j.ijme.2014.09.005>
- Shneor, R., Camgöz, S. M., & Karapinar, P. B. (2013). The interaction between culture and sex in the formation of entrepreneurial intentions. *Entrepreneurship and Regional Development*, 25(9–10), 781–803.
- Tal, B. (2012). *Start-ups—Present and future*. CIBC Economics.
http://research.cibcwm.com/economic_public/download/if_2012-0925.pdf
- The trouble with course choices in Ontario high schools* (p. 15). (2013). People for Education. <https://peopleforeducation.ca/wp-content/uploads/2020/07/People-for-Education-report-on-Applied-and-Academic-streaming.pdf>
- Trick, D. (2015). *Affiliated and federated universities as sources of university differentiation*. Higher Education Quality Council of Ontario.
http://www.heqco.ca/SiteCollectionDocuments/Affiliated_and_Federated_Universities.pdf

Undergraduate Admissions for Transgender or Gender Questioning Applicants Policy. (2015). College Council, Brescia University College.
<http://brescia.uwo.ca/about/wp-content/uploads/sites/3/delightful-downloads/2016/04/Transgender-Admissions-Policy.pdf>

Urban, B. (2010). A gender perspective on career preferences and entrepreneurial self-efficacy. *South African Journal of Human Resource Management*, 8(1), 1–8.
<https://doi.org/10.4102/sajhrm.v8i1.293>

Verheul, I., Uhlaner, L., & Thurik, R. (2005). Business accomplishments, gender and entrepreneurial self-image. *Journal of Business Venturing*, 20(4), 483–518.
<https://doi.org/10.1016/j.jbusvent.2004.03.002>

Volery, T., Müller, S., Oser, F., Naepflin, C., & del Rey, N. (2013). The impact of entrepreneurship education on human capital at upper-secondary level. *Journal of Small Business Management*, 51(3), 429–446. <https://doi.org/10.1111/jsbm.12020>

von Graevenitz, G., Harhoff, D., & Weber, R. (2010). The effects of entrepreneurship education. *Journal of Economic Behavior & Organization*, 76(1), 90–112. <https://doi.org/10.1016/j.jebo.2010.02.015>

Wilson, F., Kickul, J., & Marlino, D. (2007). Gender, entrepreneurial self-efficacy, and entrepreneurial career intentions: Implications for entrepreneurship education. *Entrepreneurship: Theory & Practice*, 31(3), 387–406.
<https://doi.org/10.1111/j.1540-6520.2007.00179.x>

Wilson, F., Kickul, J., Marlino, D., Barbosa, S. D., & Griffiths, M. D. (2009). An analysis of the role of gender and self-efficacy in developing female entrepreneurial interest and behavior. *Journal of Developmental Entrepreneurship*, 14(2), 105–119.

Wilson, F., Marlino, D., & Kickul, J. (2004). Our entrepreneurial future: Examining the diverse attitudes and motivations of teens across gender and ethnic identity. *Journal of Developmental Entrepreneurship*, 9(3), 177–197.

Zhao, H., Seibert, S. E., & Hills, G. E. (2005). The mediating role of self-efficacy in the development of entrepreneurial intentions. *Journal of Applied Psychology*, 90(6), 1265–1272.

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About *Collectif*

The Center for the Advancement of Women at Mount Saint Mary's launched *Collectif*, a digital research anthology, in 2018 as a companion piece to the University's annual Report on the Status of Women and Girls in California.™ *Collectif* is an anthology of original writing created by University faculty, students, and community partners.

About Center for the Advancement of Women at Mount Saint Mary's University

The Center for the Advancement of Women at Mount Saint Mary's is a hub for gender equity research, advocacy and leadership development. Its vision is to find solutions to persistent gender inequities and work with partners to eradicate those inequities in our lifetime. That goal includes eliminating obstacles that women face in the workplace, in their communities, in the media and beyond to make a positive difference in the lives of women and girls in California and our nation. The Center also creates public programming, research guides, and training opportunities to engage more partners in its work.

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About Mount Saint Mary's University

Mount Saint Mary's is the only women's university in Los Angeles and one of the most diverse in the nation. The University is known nationally for its research on gender equality, its innovative health and science programs, and its commitment to community service. As a leading liberal arts institution, Mount Saint Mary's provides year-round, flexible and online programs at the undergraduate and graduate level. Weekend, evening and graduate programs are offered to both women and men. Mount alums are engaged, active global citizens who use their knowledge and skills to better themselves, their communities and the world.

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About the Women's College Coalition

The Women's College Coalition (WCC) is an organization that represents 37 women's universities and colleges in the United States and Canada. The mission of the WCC, in concert with its members, is to transform the world through the education and success of women and girls. WCC is a convener and a leading advocate for women's educational institutions, facilitating best practices to ensure that women's colleges and universities continue to thrive. The Coalition serves a diverse group of institutions, including public, private, historically Black, secular, and faith-based colleges and universities.

In 2019, the national WCC found a new home at the Center for the Advancement of Women at Mount Saint Mary's. As a WCC member university that has a vested interest in advancing women's education, the Center dedicates its third edition of *Collectif*—an online research anthology—to questions related to the relevance and utility of women's universities in the 21st century.

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