

Spurring inclusive entrepreneurship and student development post-C19: synergies between research and business plan competitions

Spurring
inclusive
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Abstract

Purpose – Academic innovation strives to benefit from an ample talent pool, and entrepreneurship and research competitions constitute an integral part of the effort. This prompts discussions about how to optimize the impact of interdisciplinary learning, especially for less-traditional participants. The main purpose of this article is to describe how synergies between research and business plan competitions can facilitate inclusive engagement and enhanced development of transferable skills.

Design/methodology/approach – A case illustration addresses the following questions: (1) what skills can be enhanced through a single project toward parallel participation in research and business plan competitions? (2) How can synergies between research and business plan competitions support more inclusive student development? The case illustration outlines the process and outcomes of an initiative with three first-gen business students, two female and two international.

Findings – The case illustration describes how synergies and alignments of deadlines between research and business plan competitions enhanced the learning process by facilitating more opportunities to showcase learning and receive feedback. In addition, the parallel preparation facilitated student inclusion by providing purposeful authentic practice in a project envisioned by the students. As a result of the 2019 learning experience, students and their employers continue to value in 2021 the effective development of transferable skills.

Originality/value – Previous studies examine independently entrepreneurship initiatives, science technology engineering arts and mathematics (STEAM) initiatives, transferable skills and pedagogy that support inclusive education. This manuscript describes the option of synergies between research and entrepreneurship competitions to support more inclusive student development. In addition, it provides recommendations for impact when scaling-up synergies.

Keywords Inclusion, Transferable skills, Research competition, Business plan competition, Student development

Paper type Research paper

1. Introduction

A culture of academic innovation includes interdisciplinary entrepreneurship curriculum, business plan competitions and research competitions. Furthermore, synergies in parallel preparation toward research and business plan competitions arguably help integrate resources, engage wider talent pools and optimize the development of transferable science technology engineering arts and mathematics (STEAM) skills, especially post Covid-19.



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The purpose of this article is to describe how synergies between research and business plan competitions can facilitate inclusive engagement and enhanced project-based learning experiences. The case illustration in this study intends to address the following questions: (1) what skills can be enhanced through a single project toward parallel participation in research and business plan competitions? (2) How can synergies between research and business plan competitions support more inclusive student development?

The case illustration outlines the process and outcomes of an initiative in California State University Long Beach. A group of three first-gen college students, two female and two international, envisioned the development of a digital venture that required data analysis to at least decide and justify the fee to be charged to potential customers. Therefore, the “gen z” students were mentored and trained to develop skills in data preparation and analysis, as well as group and presentation skills. The analytical and presentation skills were showcased in parallel research and entrepreneurship competition processes, and following the time-tested experience, the three students have reflected in 2021 on their 2019 experiences.

Overall, post-C19 opportunities are expected to be digitally lead beyond traditional digital entrepreneurship, defined as the sale of digital products or services across electronic networks (Guthrie, 2014). Zaheer *et al.* (2019) indicate that digital entrepreneurship is becoming more interdisciplinary, and Liguori and Winkler (2020) reflect on challenges and opportunities for entrepreneurship education post-C19. Liguori and Winkler (2020) stress the need for deliberate practice, real-world immersion and experiential approaches emphasized previously by Kassean *et al.* (2015) and Neck *et al.* (2014).

1.1 Theoretical framework

Barringer and Ireland (2019) note that about 80% of colleges and universities offer entrepreneurial instruction. Jones *et al.* (2014) discuss a variety of activities that include both in-class and out-of-class learning, and Addams *et al.* (2014) propose the integration of entrepreneurship with the operation of actual businesses, which is what entrepreneurship competitions facilitate. Furthermore, Blank (2011) highlights initiatives for students to have hands-on experience beyond the development of business plans, such as talking to customers and business partners. Talking to potential customers is also the first step in the design of digital ventures and can be systematically done following research methodology, as the students in the case study did.

Bertrand and Namukasa (2020) examine a series of transferable STEAM skills including critical thinking and problem-solving, collaboration and communication, creativity and innovation. These are skills entrepreneurship and research competitions intend to develop, as well as perseverance, resilience and adaptability. These are all transferable skills employers value.

Osiri *et al.* (2014) consider the tenure status of the faculty involved in entrepreneurship, beyond access to capital, as a factor that would influence the number of outcomes. In addition, Zaheer *et al.* (2019) provide a literature review of digital entrepreneurship.

1.1.1 *Inclusive entrepreneurship.* Fayolle and Gailly (2015) find that entrepreneurship education has a more marked effect on those students whose previous entrepreneurial exposure has been weaker or inexistent, and Ericsson *et al.* (1993) emphasize the importance of deliberate practice. Thus, the environment within higher education can become an influential factor in the formation of diverse entrepreneurs (Morris *et al.*, 2017).

One factor that has been found to impact entrepreneurship intention is gender (see e.g. Chlosta *et al.*, 2012; Tinkler *et al.*, 2015; Kanze *et al.*, 2018). More specifically, Koellinger *et al.* (2013) find lower rates of female business ownership in 17 countries, and Bosma *et al.* (2020) report that males are more likely to start a business and show higher entrepreneurial interest. In addition, there is an important gap between male and female levels of participation in entrepreneurship education, and this gap also appears to be consistent across cultures and

economies (Thébaud, 2015). Several studies attribute this gender gap to the presence of global gender stereotypes in society (Gupta *et al.*, 2014; Shinnar *et al.*, 2014).

In a seminal study, Kourilsky and Walstad (1998) find that females are more aware of their deficiencies in entrepreneurship knowledge than men, and that females are more likely to consider price changes an objectionable response to shifts in the cost of production or to changes in market demand. Overall, gender is an influential aspect of self-perception, and therefore, it plays a significant role in the orientation toward entrepreneurship (Goktan and Gupta, 2015). Therefore, inclusive entrepreneurship arguably needs to consider the engagement and empowerment of female students, especially in STEM projects such as the development of digital ventures.

Cetindamar *et al.* (2012) also emphasize access to human and financial capital to promote entrepreneurship, which entrepreneurship competitions seek to facilitate. Other studies that support this notion include those of Edelman *et al.* (2016), Dai *et al.* (2017), Löher *et al.* (2018) and Khan *et al.* (2019). Arguably, the access to competition rewards and faculty mentors is most effective when pursuing parallel preparation toward research and entrepreneurship competitions.

In addition, risk tolerance has also been identified as a primary entrepreneurial characteristic (Chan *et al.*, 2015). As Bouchouicha and Vieider (2019) point out, those who venture into entrepreneurship seem to have a higher tolerance for risk (see Van Gelderen *et al.*, 2015; and Kerr *et al.*, 2019). In addition, Jegede and Nieuwenhuizen (2020) investigate the factors that motivate researchers in the STEAM fields. Overall, the level of risk tolerance is an important driver, and risk taking is found to have a strong relationship with quality research. Therefore, it could be argued that parallel preparation of students toward entrepreneurship and research competitions could help support risk tolerance. Risk tolerance support would be especially important for students with less previous preparation toward competitions, such as first-gen students and international students, especially female ones developing digital ventures.

Overall, entrepreneurship education can shape entrepreneurial attitudes in several ways. For example, it can garner people's attitude closer to entrepreneurship through inspiring experiences and role models that stress the rewards of entrepreneurial behavior (Entrialgo and Iglesias, 2016; Bae *et al.*, 2014; Souitaris *et al.*, 2007). Overall, the objective of instructors and mentors is to enhance self-efficacy or how individuals develop transferrable skills through entrepreneurship training that allows them to adapt and prosper in other environments. Keyhani and Kim (2021) identify competencies and traits that are commonly attributed to teacher entrepreneurs, along with actions they carry out and impact student learning. Fini *et al.* (2020) find that teacher entrepreneurs are socially motivated individuals who are innovative, collaborative, proactive, opportunity-minded, dedicated, resourceful, risk-tolerant and self-improvement-oriented. These are arguably traits mentors aim to transmit.

1.1.2 Synergies between research and entrepreneurship competitions. Quality research toward competitions requires that researchers explore daring and uncertain approaches to solving problems, which is akin to the risk-taking propensity of competitive entrepreneurs. Keyhani and Kim (2021) describe similarities between the characteristics of good researchers and entrepreneurs. For instance, researchers are driven to seek answers to unknown questions, and they do not rest until a plausible answer is found. They are as explorative as the entrepreneur and persevere even when progress is painstakingly slow. Another similar characteristic of researchers and entrepreneurs is a positive attitude. Both learn from their mistakes and failures. While the consequences of risk could be fatal at times, an optimistic researcher and entrepreneur will see failure as an opportunity to learn and gain experience. These are indeed traits valued by any employer.

In addition, [Keyhani and Kim \(2021\)](#) posit that successful researchers are those who come up with new inventions and innovations. More specifically, [Keyhani and Kim \(2021\)](#) explain that STEAM researchers and entrepreneurs accept risk as a cost of innovation when the results turn out to be positive and view it as an opportunity cost should the outcome be negative. In addition, [Chen et al. \(2010\)](#) point out that newly developed products and services do not fail because of lack of advanced technology, but because of a failure to understand and address customer needs. Therefore, it can be argued that entrepreneurs are better equipped to take calculated risks and explore business opportunities following research that includes structured analysis of data provided by potential customers, which is what the students in the case study did.

Structured research arguably helps student entrepreneurs develop better business plans that increase the likelihood of timely venture funding and success. In addition, enhanced preparation to answer questions by faculty in research competitions, besides angels and venture capitalists in entrepreneurship competitions, is also a superior preparation for a wider range of professional opportunities. [Rubin et al. \(2019\)](#) introduce competition as an essential part of educational management. Competition competencies relevant to entrepreneurship are classified as those related to (1) competition for results, (2) competition for resources, (3) performance in competition actions, (4) educational management and (5) self-management. [Rubin et al. \(2019\)](#) emphasize the development of goal-oriented tasks as well as interactions with rivals using offensive, defensive, cooperative and operational tactics. Thus, it can be argued that parallel preparation toward entrepreneurship and research competitions also helps develop skills to manage superior stress and pressure, maintaining an overall good state of physical and mental health able to express thoughts clearly while thinking critically with a broad outlook.

Overall, the skills previously described are supported in much sought-after authentic learning and purposeful practices. Authentic learning is defined as an instructional approach that allows students to explore, discuss and meaningfully construct concepts and relationships in contexts that involve real-world problems and projects that are relevant to the learner. Purposeful practice refers to the greater meaning and relevance when the goal is connected to purpose and long-term values. This is arguably something supported in parallel preparation toward research and entrepreneurship competitions because students envision the venture and research goals, receive frequent feedback and are supported toward increasingly demanding goals.

2. Learning experience and student reflections

In order to illustrate in more detail the potential synergies between research and business plan competitions, a case will be described. In 2019, a group of three first-generation business students in California State University Long Beach envisioned the development of a digital study-abroad agency. Two students were female and two international students.

A crucial aspect of the business plan was the pricing of the service and the features it should include. This required a rigorous market study that could be facilitated and enhanced by rigorous quantitative research skills. Therefore, the three first-generation students designed a survey and analyzed the responses using standard research software with the purpose of participating in the university-wide research competition as well as the entrepreneurship competition (please see [appendix](#) for a list of research questions and goals, survey questions and data analysis findings that evidence the development of research skills).

More specifically, students learned the basics of survey design, Stata programming, statistical and regression analysis. The timing of the research proposal a month before the deadline to submit the business plan proposal allowed for revisions and application of

interdisciplinary business knowledge before the actual presentations and final documentation required for both competitions. In addition, the research presentation helped prepare the entrepreneurship presentation.

2.1 Challenges and opportunities for nontraditional students

The preparation of a business plan presentation can seem a daunting task. However, the experience of presenting the research first helps build self-confidence, something nontraditional entrepreneurship students especially benefit from. Their experience addressing questions in the research competition strengthened the business plan and helped Polish presentation skills toward the entrepreneurship competition. More specifically, the female entrepreneurs in the case study felt encouraged and successfully pursued demanding internships and other professional opportunities. During the interview process, employers sought information from the faculty mentor supervising their participation in the research and business plan competitions as evidence of the valued multidimensional quant and soft skills that were acquired.

Wilson *et al.* (2020) find that faculty support is consistently, significantly and positively linked to behavioral and emotional forms of student engagement. Gender, race/ethnicity, international student status and transfer status significantly predict at least one form of engagement and STEAM education supports the development of interdisciplinary skills, including critical thinking and problem-solving, collaboration and communication, and creativity and innovation. Consistent with their findings, the students in this manuscript's illustration case also agree with having developed these skills as well as perseverance, adaptability and transferable STEAM skills while preparing toward parallel research and business plan competitions.

For the students, the learning was enjoyable because of the multiple opportunities to showcase progress and receive feedback and because of the direct application of research training in a project they had envisioned. It was indeed crucial that the timing of the university-wide entrepreneurship training and preparation runs parallel to the research one, and that the research presentation and feedback preceded the business plan presentation.

In the end, following the experience in the research and business plan competitions, the students sought and obtained valuable remunerated positions assisting with data analytics and research. Employers sought insight into student group dynamics, interactions with faculty and valued transferable skills related to research and overall STEAM competences. These competences included enhanced written and oral communication skills, as well as taking responsibility for the development of assumptions, as well as justification of decisions both in the research and entrepreneurial competitive processes.

Following the learning experience, the students reflected in 2021 about the time-tested qualitative and quantitative learning skills they had acquired in 2019, what they found useful and what has been helpful professionally. The three students agree on having found passion and confidence in pursuing data analytics, which they find best suited to examine real-life issues. These are some of the comments provided in 2021:

"In this research training, I found that problem-solving and teamwork played in a crucial part to help progress our project. During the process, I developed the understanding of data and analyzing the financial statements for our business plan. The qualitative skills I gained during this research training was that I was able to create survey and interact with new people to gather more information by observation and open-ended interviewing. This introducing research through a project towards student competition has provided me a lot of great experience and skills that help me professionally. It has given chances to improve my communication, team-working, planning, organizing and time management, and problem solving which I have been using in my career."

“The research training helped my team and I to accomplish and gathered important information. In the training process, we also acknowledged each team member’s skills and we used it to implement our research. I improved my quantitative skills after we analysis of the data that we collected from our questionnaire and survey. I developed qualitative skills by managing my friendly relationships with students that we surveyed. This experience has given me the opportunity to be prepared for my future business and to be aware of the competitors. It also helped me to challenge myself to accomplish my tasks in the professional field.”

“The research training had played an important role in shaping my view on the use of the data to make the decision. The data that we collected provided us in-depth understanding of the problem we are looking to solve and the best solution that we can use to solve the issue. During the research, I have developed the understanding of analyzing the answers from the survey we collected. This research and competition have taught me the importance of designing the effective and accurate survey that is on-point to our problem we are looking to solve. This project has given me an analysis skill that I can use in my workplace. I have used this skill to design the survey for my company and analyze the responses we get from the customers.”

2.2 Suggestions for impactful scaled-up synergies

Beyond the reflection in 2021, the students offer some suggestions that would increase the impact of scaling-up synergies between research and entrepreneurship competitions:

“In our opinions, we would suggest providing more in-deep feedback and various resources that a researcher can use to expand their understandings and usage, such as Stata and other types of programs that will enhance the process. Also, it is even better to provide more research collaboration beyond academia.”

“I strongly suggest integrating this type of training into our study curriculum. As we know that we are living in the data-driven era where many companies are using data to make decisions. R-programming class should be designed as an elective class for marketing students because it helps the students who are interested in marketing analytics”.

It is indeed noteworthy that students would value access to Stata software in at least one computer in the computer lab to practice programming. Furthermore, in alignment with circumstances and student and faculty preferences, California State University Long Beach developed Qualtrics online training for survey development in 2020, as well as structured online research training for honors and undergraduate research programs. These are general tools that the case students wished they had had in 2019 to complement focused training by mentors. In addition, the case students would have valued written feedback at the end of the presentations like it is done by trained first-gen mentors after each meeting as well as in general music competitions.

Finally, it is important to note that the faculty members that participate in parallel mentoring toward research and entrepreneurship competitions would benefit from mentor training. Effective mentor training would include diversity, equity and inclusion and would build on experience supervising separate preparation toward research and entrepreneurship initiatives. For example, supervision of student research is oftentimes done through directed studies and honors thesis, besides research competitions, while independent entrepreneurship initiatives usually include at least incubators and course projects besides business plan competitions.

3. Conclusions

This manuscript describes how synergies between research and business plan competitions facilitate efficient inclusive development of transferable interdisciplinary STEAM skills. It

uses the case of three first-gen minority business students, two of them female, to illustrate the process of parallel preparation toward research and plan competitions. The students envisioned in 2019 the creation of an app to provide study-abroad agency services to fellow international students. The development of the app required at least market research on the pricing of the service as well as features that would be most valued by potential clients. The market research was done following standard quantitative research analysis and was presented first in the research competition. Two years later, in 2021, the three students reflected on their learning experience and provided suggestions based on the challenges they faced, opportunities they found and outcomes they benefited from. This arguably would increase the impact of scaled-up synergies.

The development of student-envisioned projects brings about numerous inclusive benefits in student development, including perseverance, resilience and adaptability. The authentic project-based training and preparation toward parallel research and business plan competitions reinforce the development and practice of quantitative research skills. In addition, synergies between research and entrepreneurship competitions facilitate more opportunities to develop written, oral, group and communication skills, to showcase learning and receive feedback. As a result, students and their employers value synergies and parallel preparation toward research and business plan competitions, especially in relation to transferable skills.

Overall, students emphasized in 2021 that the experience led to confidence and a long-term interest in data analytics. The case illustration and suggestions describe how synergies and alignments of deadlines between research and business plan competitions can facilitate student inclusion and provide an enhanced authentic learning experience for sizable student cohorts.

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Appendix

The Appendix is available online for this article.

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