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A Framework for Developing Nascent Entrepreneurs: Entrepreneurship Education's Kobayashi Maru

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ABSTRACT

Experiential entrepreneurship education is consistent with resource-based theories of entrepreneurship, which, among other things, regard the impacts of education and experience on entrepreneurial outcomes. Hands-on educational programming is a reification of such theoretical work, combining both of those elements. Such programs often utilize a coaching or mentoring approach, with the expectation that practice under the guidance of a qualified mentor develops the resources and capabilities the entrepreneur may leverage to perform entrepreneurial activities successfully and consistently. Specifically, entrepreneurship literature points to entrepreneurial self-efficacy (ESE) as well as confidence in the business and commitment to entrepreneurship as impactful elements in the entrepreneur's bringing an idea to fruition and to venture performance (Trevelyan, 2009). Related pedagogical research indicates that teaching theory-based competencies, rather than exclusively providing prescriptive or technical solutions, is important to student success. In educating and training aspiring entrepreneurs, our discipline requires a blended framework for encouraging entrepreneurial persistence among students as nascent entrepreneurs. Following resource-based literature, we assert this outcome may be accomplished through the development of resilience and ESE as personal resources, and that resilience may be taught using theory. Thus, we draw on the resource-based theoretical stream and the constructs of entrepreneurial resilience and persistence to propose a theory-inclusive pedagogical model with practical implications.

Keywords: entrepreneurship education, entrepreneurial self-efficacy, resource-based theory, entrepreneurial resilience, entrepreneurial persistence, persistence after failure

Introduction

Experiential entrepreneurship education is consistent with resource-based theories of entrepreneurship, which, among other things, regard the impacts of education and experience on entrepreneurial

outcomes. Hands-on educational programming is a reification of such theoretical work, combining both of those elements. Such programs often utilize a coaching or mentoring approach, with the expectation that practice under the guidance of a qualified mentor develops the resources and capabilities the entrepreneur may leverage to perform entrepreneurial activities successfully and consistently. Specifically, entrepreneurship literature points to entrepreneurial self-efficacy (ESE) as well as confidence in the business and commitment to entrepreneurship as impactful elements in the entrepreneur's bringing an idea to fruition and to venture performance (Trevelyan, 2009). Related pedagogical research indicates that teaching theory-based competencies, rather than exclusively providing prescriptive or technical solutions, is important to student success. In educating and training aspiring entrepreneurs, our discipline requires a blended framework for encouraging entrepreneurial persistence among students as nascent entrepreneurs. Following resource-based literature, we assert this outcome may be accomplished through the development of resilience and ESE as personal resources, and that resilience may be taught using theory. Thus, we draw on the resource-based theoretical stream and the constructs of entrepreneurial resilience and persistence to propose a theory-inclusive pedagogical model with practical implications.

Rationale from Teaching

The impetus for this inquiry stems from the results of a current teaching tool, in which a nearly nonexistent level of venture launch among unsuccessful first-round participants points to the need for an improved framework that will increase student persistence with an entrepreneurial endeavor. This program, implemented in a large public university in the southeastern United States, is a multi-round pitch competition and development program for [nascent] student entrepreneurs (see Figure 1). The pitch competition features more than \$100,000 in cash and in-kind awards, as well as workshops, mentoring, and consulting to accelerate growth. It does not include theory explication. The first round of the program includes four to six development workshops and three information sessions; sessions cover topics related to entrepreneurial development and success in the first round of the competition such as creating an elevator pitch, brand development, innovation, and tips from previous winners. Individualized coaching is available on request. The first round of the competition is an open-air trade show with three ways to advance to the second round. Judges select approximately 40% of the finalists, public vote selects approximately 40% of the finalists, and the faculty from the entrepreneurship school select approximately 20% of the finalists. \$2,000 is awarded to participants based on percentage of the public vote.

The second round of the competition is a mentor placement round. Five consultants select teams with whom to work through the final round. Teams are supported leading up to the second round with additional practical workshops, mentoring, and volunteer legal consulting. \$350 is awarded to winners of the second round as seed money. Individualized consulting with the mentors continues until the final

round when \$31,000 of cash is awarded to winners, in addition to professional services valued at \$68,000.

Figure 1: Entrepreneurship Challenge – Existing Program

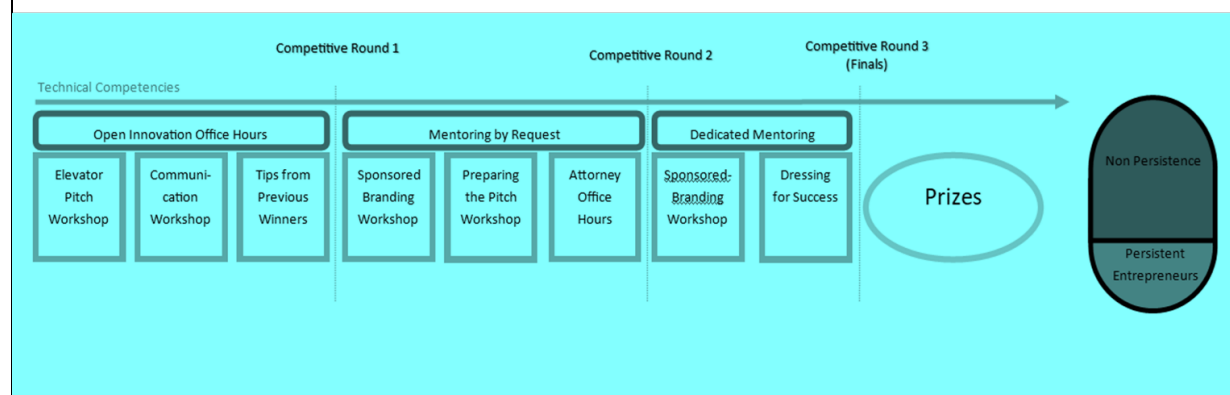


Figure 1. Existing program before enhancement with theory and controlled “failure experience”

The program may be considered successful overall, as it attracts 300-500 students annually from every college on campus and representing more than 50 majors. Such participation supports the stated goals of engaging a diverse campus community in startup activities, teaching students how to be entrepreneurial, and developing promising startups to launch. In 2019, approximately 3,000 votes were cast to advance teams to the second round. Based on program data tracking and personal contact, instructors note teams that move to the final round of the competition have a 90% chance of starting their businesses. Of 20 finalists over the duration of the program, 18 are still in business currently. The competition has been effective at launching and helping sustain new ventures in the final rounds. Typically, however, only first round finalists continue participating into the second round, and only rarely do instructors see first-round ‘drop-outs’ returning to compete in a subsequent program. Thus, most students who do not advance from the first round do not persist, do not launch a venture, and do not become involved in other entrepreneurial programming; thus, they are “lost” to the world of entrepreneurship at least for the foreseeable future. Potential explanations for this abandonment include:

- Students may be motivated to enter primarily for the prize money, such that, once the prize money is not attainable (failure to advance), the student abandons the venture.
- Students do not believe that their idea has enough merit to pursue based off public and judges’ feedback.
- They may not avail themselves of resources provided to help their venture despite failure to advance.
- Sense of failure may cause them to abandon the idea.
- Students may have had a negative experience in the program and accompanying low entrepreneurial self-esteem.

- The program's impact may be negligible, such that the finalists would have persisted with or without it.

Despite the success of students who do persist and the temptation for program instructors to pat themselves on the back for a job well done, instructors are concerned with the nearly 100% "dropout rate" of students who do not advance from round one to round two. All students have self-selected as nascent entrepreneurs for this opportunity. However, other than this self-selection, the students in the program have no prevailing common characteristics, including demographics beyond being college students, psychological or personality traits, minimum GPA threshold, etc. That is, with nearly all "failed" round one participants making up our population of interest, the only mutual theme is the program itself. Moreover, the students who do persist also have only the program in common and no known systematic individual differences from those who drop out. This fact has led the instructors to question the program's effectiveness and how it may be improved. Further, as its current iteration is generally quite successful considering the outcomes for students who do persist, a revised program's impact on the likely dropouts may be helpful for other applied entrepreneurship instruction.

Although instructors state that most of the students who do not advance to the later rounds simply "disappear" and do not give explanations for their attrition, they were able to provide examples from the program that elucidate their concerns.

In their observations of students who did not advance from round one to round two, instructors could cite only one example of persistence. This student entered the program, did not advance from round one, but did enter other accelerators. He is reportedly working on three new ventures. Other non-advancing student anecdotes included:

- one who noted "other commitments" as her reason for not persisting, but who instructors assessed lack entrepreneurial self-efficacy related to the fact her idea was not validated in the early round of the competition;
- several who did not wish to advance because they did not think their ideas were good enough for commercial success, but who also were not even interested in new ideas;
- one who stated he needed more business knowledge and decided to get another degree, and who lacked confidence in his abilities and self-efficacy.

The other examples consisted of persistent students and included those who progressed in the competition:

- One high-placing student launched a venture. Even though it did not scale, this individual did switch to another project.

- One student advanced to the finals, entering in multiple categories. This person did not win the overall event, but persisted to work on at least five ventures, eventually finding success.
- Another student created and launched a *beta* of an app but thought he did not have enough resources to push forward after failing to advance to the final round. Instructors observed his lack of educationally derived resources as contributing to the student's lack of self-efficacy.

This anecdotal evidence is consistent with, and may help apply, literature calling for improvements in the educational paradigm. Specifically, Tae, Qian, Miao, and Fiet's (2014) findings have implications for the current program's results (or, in the case of the non-progressing students, lack thereof). They note that, when pre- and post-education entrepreneurial intentions are considered, entrepreneurial education has *no significant impact* on entrepreneurial intentions. This is quite a startling and disturbing statistic for educators, not to mention administrators and donors! Accordingly, Tae, et al. (2014) state that entrepreneurial education needs to be improved and much more targeted than what exists in the current paradigm. Following them, we assert entrepreneurial education must become something more holistic than training students how to "do" entrepreneurship; rather, it must develop them to "be" entrepreneurs. In the current focal program, the students gain practical tools via the mentoring available in the second and final rounds; what is lacking is early direction in personal resource development.

Thus, we turn to pedagogical theory for insight as to how to revise the program to be more effective for these first-round dropouts as well as not detrimental to those who do progress. Fiet (2000; 2000a) follows Kuhn (1970) in asserting that good entrepreneurial pedagogy must include the teaching of theory. They suggest, in fact, that theory is the most *practical* thing to teach. By itself, prescriptive ("how to") teaching is too restrictive because it does not impart generalizable knowledge in a fast-changing environment, nor can it possibly be applicable in all contexts (Schmutzler, Andonova, & Diaz-Serrano, 2019). Likewise, using examples of exceptional entrepreneurs is not effective teaching because students may perceive highly successful entrepreneurs' achievements as unattainable. We also note the idea from diversity research that perceived similarity with role models impacts minority individuals' academic choices (Allen & Collisson, 2020); and we infer that the likelihood of any exemplar's relatability to all students is quite low. On the other hand, using examples of "average" entrepreneurs lacks specificity; and "rules of thumb" often lead to mediocre results. Additionally, suggesting that students follow the practices of failed entrepreneurs is not logical (Fiet, 2000). Clearly, the "how to" and exemplar approaches are insufficient, pointing to the need for a more holistic design.

Teaching theory addresses patterns and processes that allow for contextually appropriate entrepreneurial flexibility (Fiet, 2000). That is, understanding theoretical patterns and processes may prove quite useful in assorted and unforeseen circumstances. Theory may also be applicable to individuals from various backgrounds, situations, and ethnicities. Moreover, internalizing theory is part of a nascent entrepreneur's development in making him or her both adept and adaptable; this is an

important outcome because of the constantly changing external environment and its consistency with resource-based scholarship. Thus, we assert that augmenting such a program with theory is vital to its improvement. We follow Tae, et al. (2014) to contend that the experiential context provides an effective way both to implement theory and to test its effectiveness, particularly regarding persistence as opposed to mere intention. The next consideration, then, regards which entrepreneurship theory would likely have the most positive effect on students and, thus, should be included in educational programs.

Human Capital Theory and Antecedents of Entrepreneurial Persistence

Resource-based theories of entrepreneurship pertain to the individual entrepreneur's access to financial, social, and human resources (Kwabena & Simpeh, 2011). Within this theoretical stream, human capital theory (Becker, 1975) relates specifically to an individual's resources as derived from education and experience. Since the applied instructional program's goal is for students to persist to venture launch, developing persistence as a personal resource is important. Research on entrepreneurial persistence is, indeed, consistent with human capital theory, highlighting the applicability of human capital theory to the program's objectives. Thus, we assert the program's framework should be geared to developing student entrepreneurial persistence via the addition of related theory.

One highly researched and supported antecedent of entrepreneurial persistence is self-efficacy (Brandstatter, 2011; Cardon & Kirk, 2015; Markman, Balin, & Baron, 2002). Consistent with this pattern, St-Jean and Mathieu (2015) inform our efforts as they suggest a direct relationship between ESE and intention to stay in the profession (persistence). Mentoring, while an important influence, has only an indirect impact, leading to persistence *through* ESE. Relatedly, in their entrepreneurship context for growth mindset intervention, Burnette, Pollack, Forsyth, Hoyt, Babij, Thomas, and Coy (2019) suggest that future research should focus on antecedents of entrepreneurial self-efficacy, and we echo this call as it applies to pedagogy.

Sutcliffe and Vogus (2003) and Youssef and Luthans (2007) offer resilience as another important antecedent of persistence. They find that the resilient individual is strengthened through adversity and demonstrates heightened resourcefulness and adaptability. Chadwick and Raver (2020) adopt the psychological conceptualization of resilience, which they suggest "...is an essential personal resource that entrepreneurs can leverage to better interpret and respond to their stressful start-up context" (p. 235). They found that the positive emotions associated with resilience led to view adverse circumstances as challenge situations through which they could continue to function as entrepreneurs. We follow this scholarship to propose that developed resilience can improve entrepreneurial persistence for nascent entrepreneurs. That is, even though a venture may be altered or abandoned, the resilient individual will persist with entrepreneurial activities.

Chadwick and Raver (2020) also differentiate the impacts of self-efficacy and resilience on nascent entrepreneurs' business survival, finding psychological resilience to be uniquely beneficial above and beyond ESE. Thus, we approach the development of our educational frame with a mentoring context

that we propose will have a strong influence on both ESE and resilience, resulting in a combined positive effect on persistence. In this effort, we offer a mechanism intended to enhance the impact of mentoring on ESE and resilience, and that we assert will increase student persistence. Figure 2 represents our theoretical model in support of the new framework.

P1: Teaching human capital theory will have differential, positive impacts on students' entrepreneurial persistence through the mechanisms of entrepreneurial self-efficacy and resilience.

Figure 2: Supporting Theoretical Model

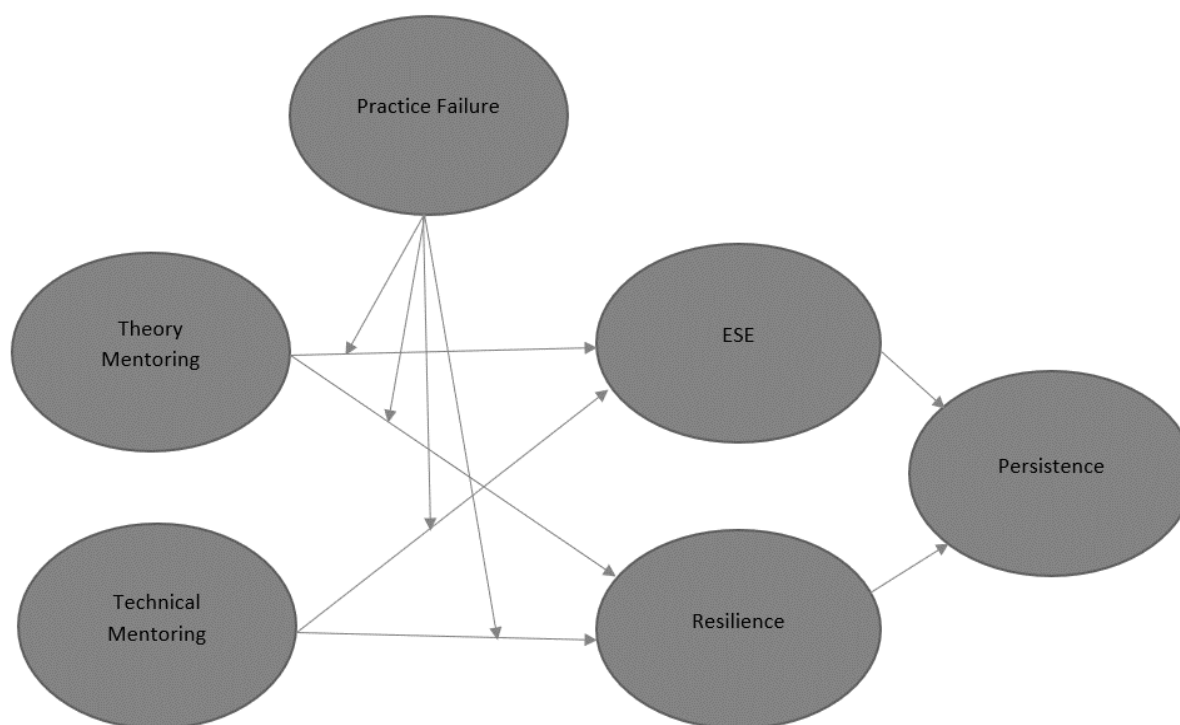


Figure 2. This theoretical model shows potential relationships between constructs, particularly the moderating role of an experience of failure on the relationships between different kinds of mentoring and entrepreneurial self-esteem, resilience, and persistence.

The Kobayashi Maru of Entrepreneurship

The question then becomes: How can instructors develop entrepreneurial self-efficacy and resilience in students as nascent entrepreneurs? Corner et al. (2017) suggest both ESE and resilience should be taught via theory. Further, their recommendations are consistent with Yamakawa et al. (2015), who

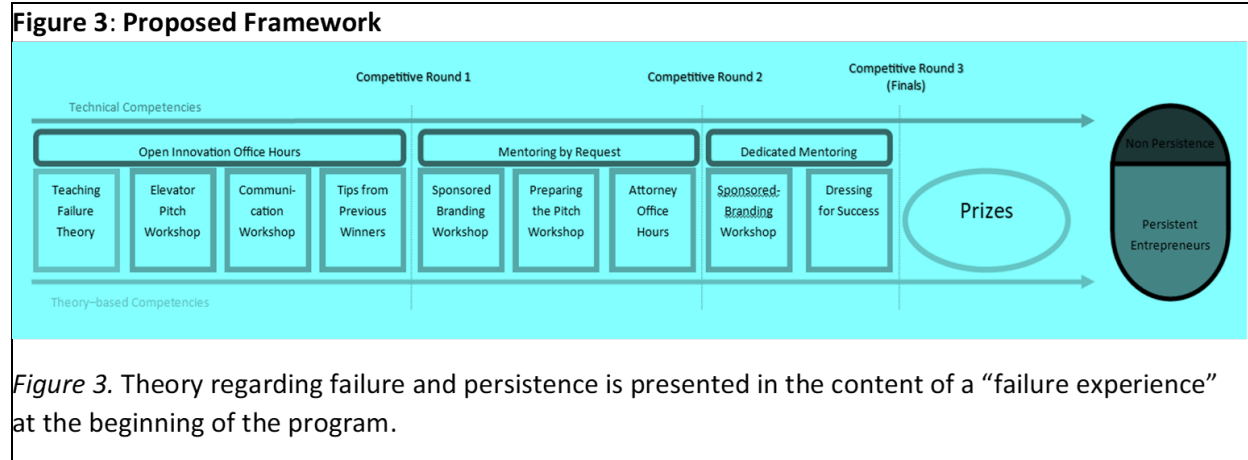
assert the importance of a context of failure to avoid a fixation with success and an anti-failure bias. Educators need to teach theory and intentionally set up failure, not for project/venture recovery, but for the phenomenon of post-failure functioning (Corner, et al., 2017). We infer that the experience of failure and post-failure functioning builds ESE and resilience that would lead to persistence. In the case of the focal program, we assert that the context of an intentionally impossible situation will enhance the impact of human capital theory on ESE and resilience. From popular culture, *Star Trek's* (Sallin et al., 2009) Star Fleet Academy officer training program included a no-win scenario, the Kobayashi Maru, which the faculty deemed essential to the cadets' leadership development. Here, the experience of failure followed by continued functioning as a leader instilled these cadets with a sense of resilience and self-efficacy.

While we would expect the elements of an educational environment to be relatively safe and supportive, this approach may not be ideally developmental. Students must learn that having a failed venture does not make someone a failure. Rather, it may just make that individual an entrepreneur! This is true in two ways: 1. They are in good company; failure is the one of the most common things entrepreneurs share. In this sense, failure is simply an indicator that one is participating in entrepreneurial activities. 2. Successful entrepreneurs are those who have learned through trying and failing and have continued to perform entrepreneurial actions. Failure is the crucible in which entrepreneurs are developed, and the experiences of failure and functioning beyond failure can make an individual into a resilient and persistent entrepreneur.

P2: The effectiveness of teaching human capital theory will be enhanced through the experience of a no-win scenario and post-failure functioning.

Instructional Model

Using human capital theory and our related proposals, we base our planned instructional framework (see Figure 3) on research regarding persistence through venture failure. Further, we concur with Corner, et al. (2015), who question the prudence of teaching students to attempt to *recover* a failing venture. Such an effort may involve extensive resource depletion in a situation that does not warrant further investment of time or treasure; it may also result in a nascent entrepreneur's withdrawal from the discipline. Instead, we follow these scholars in suggesting the importance of students' learning how to *function* after a venture has been rightfully abandoned. We, thus, suggest augmenting the technical components of the current program with an applied theoretical lesson, an experience of [intentionally planned] failure, followed by an applied debrief of the experience and potential functional trajectories. The instructors' implementing a no-win scenario will contextualize both this theory teaching and the subsequent workshops and competitive rounds.



Implementation and Evidence of Module Effectiveness

Instructors implemented a new module in the focal program. Preliminary results indicate the workshop is effective in enhancing ESE as a mechanism toward developing longer-term entrepreneurial persistence. The Appendix provides selected PowerPoint slides from the workshop, in which the no-win scenario in this instance was a virtual escape room experience intentionally designed to prevent success. Following this simulated experience of failure, instructors presented video related to the Kobayashi Maru and discussed several alternative responses to the no-win scenario. Using theory, they related these alternatives to possible responses to a failed or failing venture and suggested the pragmatic approach is functioning after failure and persisting to launching a venture. The instructors then debriefed the escape room experience and shared personal examples of entrepreneurial failure and post-failure functioning. They used this interaction to provide descriptions of the various ways that success in the competitive program and entrepreneurial success may emerge.

As part of a program teaching effectiveness review, students were asked to describe the impact the content of this theory-based workshop had on several elements of their confidence as an entrepreneur and on their intention to launch a venture, either during or outside of the competitive program. Instructors used rating and discussion prompts following Zhao, Seibert, and Hills’ (2005) work including development of a measure of entrepreneurial self-efficacy based on specific entrepreneurial tasks. Additionally, they asked students to reflect on their attitudes toward failure and post-failure functioning (resilience), as well their overall intention to launch a venture.

Regarding “the impact of this session’s content on your confidence that you can identify new business opportunities successfully,” student narrative responses included:

- *It reinforces the concept of learning from failures.*
- *Reinforcing that failure is not final but an intermediate step on the success journey.*

Student narrative responses about “the impact of this session’s content on your confidence that you can create new products,” included the student comment:

- *I found this resourceful and I’m excited for the upcoming competition.*

Students were also asked to provide feedback to instructors on the session’s contents in several aspects related to their entrepreneurial self-esteem and resilience. Instructors used a 5-item Likert scale to assess these responses out of a possible 5.0, with 5 = *extremely impactful* and 1 = *not at all impactful*. Table 1 displays the mean, mode, and standard deviation for the student responses. Generally, the feedback was quite positive, with “extremely impactful,” and “very impactful” the most common responses to each of the evaluative prompts. Instructors interpret this feedback as an encouraging indicator of the viability and potential helpfulness of the improved framework, proposing its replication and related refinement in future programs.

Table 1.
Student Feedback

Feedback Question	Impact Rating out of 5.0 on 5-item Likert scale; extremely impactful = 5, not impactful at all = 1		
	Mean	Mode	SD
How would you rate this session's impact on your confidence that you can identify new business opportunities successfully?	4.2	5	.75
How would you rate this session's impact on your confidence that you can create new products?	4.2	5	.75
How would you rate this session's impact on your confidence that you can think creatively?	4.4	4	.49
How would you rate this session's impact on your confidence that you can commercialize an idea or new development?	4.5	5	.50
How would you rate this session's impact on your confidence that you can function after venture failure?	4.25	5	.83
How would you rate this session's impact on your intention to launch a venture in the near future?	4.33	4	.47

Limitations

The implementation of the new, theory-based module was not seamless. In fact, because of the university's response to COVID-19, the entire entrepreneurship challenge program was moved online. Thus, the workshop and simulated "failure experience" were virtual. As these things go, there were a few technical glitches, including some difficulty with sharing the video clip for perspective on the Kobayashi Maru (Sallin et al., 2009). The one negative student comment (*The video sucked!*) the instructors received was related to this hiccup, even though the same student indicated the content was very or extremely helpful. Additionally, it is possible that the virtual context of the program hindered student participation among those that were already reluctant. Relatedly, the majority of students who self-selected for it may already be quite persistent, making the impact of the content difficult to determine. This virtual interaction could have both negative and positive ramifications for the framework's effectiveness, and we believe future implementation in a more conventional setting could allow instructors to learn the implications of modality on student assessments of the theory-based content.

Conclusion and Future Efforts

Given the high failure rates of entrepreneurial ventures, we take the stance that failure is nearly inevitable in the "real world." We note, however, that the tendency in education, and in entrepreneurship education specifically, is to encourage students to avoid failure, or at least to *fix* failing ventures. The implication is that failure is exceptional and is bad, and that educators should protect their students from negative experiences. We relate this mindset to a Karate program that does not allow hits, or a football practice without tackling; here, the shock of a hit or a tackle in a real situation produces trauma and a delay or halt to functioning. We assert via entrepreneurship pedagogy and human capital theory that nascent entrepreneurs must *experience* failure and post-failure functioning to develop the entrepreneurial self-efficacy and resilience that will lead to their persistence as entrepreneurs. We propose a no-win scenario as an application of theory to augment a competitive program to encourage persistence via venture launch. Student evaluations of this module and the simulated failure experience are encouraging in terms of impact on entrepreneurial self-efficacy, which may lead to persistence. Future efforts may consider other relevant theoretical streams and their potential for enhancing entrepreneurial resources in such entrepreneurial programs, as well as careful monitoring of actual failure experiences and implications for ESE, resilience, and persistence.

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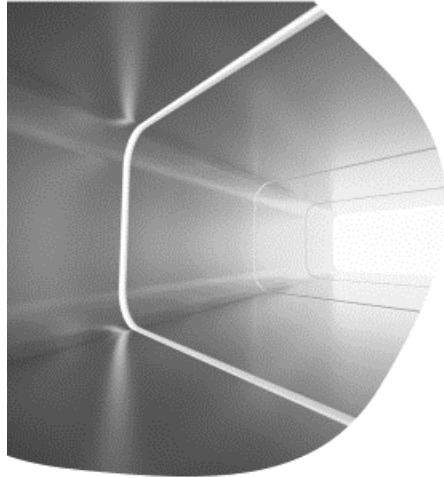
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Appendix. Kobayashi Maru and Theory Module: Selected Slides

Entrepreneurial Persistence and Resilience

*Theory and practice for becoming lifelong,
successful entrepreneurs*



Virtual Escape Room

COMPETE AND WIN

Complete the virtual escape in 10 minutes or less and become eligible for the leaderboard

 TechSmith Camtasia™

If the Kobayashi Maru Were Your Troubled Venture: The No-Win Scenario

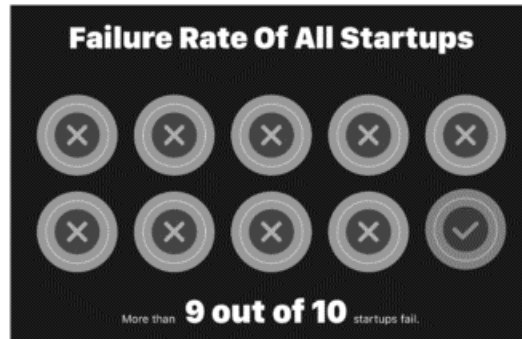
- <https://www.youtube.com/watch?v=m6tWmSckE40>



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 TechSmith Camtasia™

Having a failed venture does not make you a failure.
It may, however, make you an *entrepreneur!*



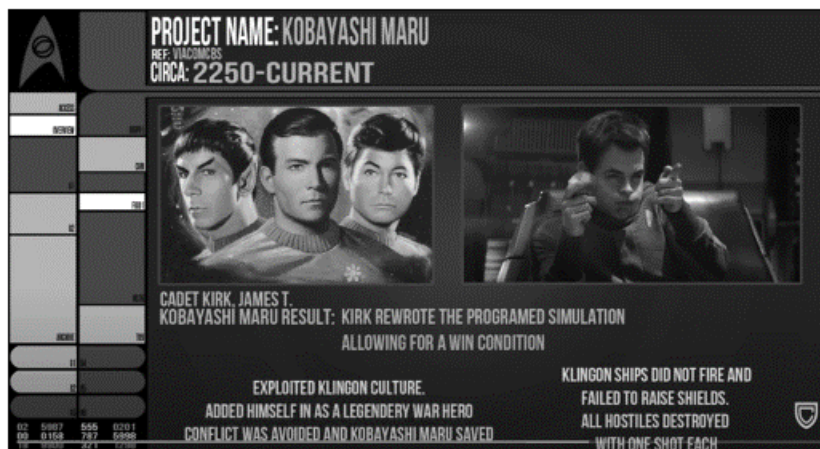
<https://www.failory.com/blog/startup-failure-rate>

(Karriker & Mayo, 2020)

TechSmith Camtasia™

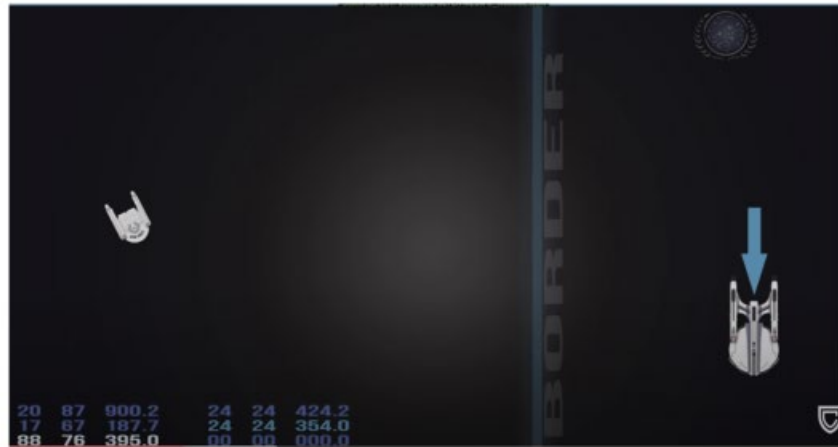
Possible Responses to the No-Win Situation

SuperKirk: Change the rules



TechSmith Camtasia™ (https://www.youtube.com/watch?v=zdTfyKkaQ_Y)

Let it go...



TechSmith Camtasia

Table 1. Constructs from failure research and possible insights gained from exploring stability in functioning (resilience).

Constructs	Knowledge from existing failure research	Suggested relationships between resilience (stable functioning) and constructs
Grief	<ul style="list-style-type: none"> Entrepreneurs experience grief, a strong negative emotion, after failure; grief obstructs learning from failure (Shepherd, 2003). Scholars look for mechanisms that may reduce impact of grief: <ul style="list-style-type: none"> Anticipatory grief reduces negative emotion during failure and its aftermath (Shepherd et al., 2009). Entrepreneurs who cognitively appraise failure as involving less loss, especially to self-esteem, experience less grief (Jenkins et al., 2014). 	<p>Resilience may</p> <ul style="list-style-type: none"> prevent or substantially lessen grief of failure, thereby enabling learning from venture demise.
Coping	<ul style="list-style-type: none"> Failed entrepreneurs coped with and learned more about economic aspects of failure compared to psychological, social and physiological aspects of failure (Singh et al., 2007). Emotion-focussed coping helped deal with negative emotions due to failure, generating positive emotions that facilitated cognitive processing of failure (Byrne and Shepherd, 2015). 	<p>Entrepreneurs exhibiting resilience may</p> <ul style="list-style-type: none"> use different and/or fewer short-term coping microprocesses than those needing recovery. use emotion-focussed coping to emotionally detach from ventures.
Learning	<ul style="list-style-type: none"> Venture failure can spark higher level learning about self, venture demise and 'pressure points' of venture management; but recovery time from trauma of failure is needed (Cope, 2011). Entrepreneurs perceived greater learning (transfer of knowledge to subsequent ventures) when they (1) attributed failure to internal causes and (2) started a new venture quickly after failure (Yamakawa and Cardon, 2015). 	<p>Entrepreneurs exhibiting resilience may</p> <ul style="list-style-type: none"> exhibit more high-level learning (Cope, 2011) than entrepreneurs exhibiting recovery after failure. learn and apply learning from failure faster than entrepreneurs exhibiting recovery after failure. start new ventures more quickly after failure than entrepreneurs exhibiting recovery after failure.

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(Corner, et al, 2017, p. 692)

Failure IS an Option – embrace it and use it

Entrepreneurship scholars (and common sense) contend that to succeed as an entrepreneur, you must persist!

“Let us not become weary in doing good, for at the proper time we will reap a harvest if we do not give up” (Galatians 6:9)

“Never give in, never give in, never, never, never, never-in nothing, great or small, large or petty - never give in except to convictions of honour and good sense.” – Winston Churchill



Never give up! No matter what!

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[Resilient] Persistence in the PEC – and beyond - looks like:

- improving my project and persisting to launch based on feedback from mentors and the external environment, **or**
- abandoning, not fixing, my “failed” project, **and**
- trying again and **persisting to launch!**



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