Learning Objectives for Michigan State University's Undergraduate Entrepreneurship Programs

According to the Network for Teaching Entrepreneurship[1], parents, educators, researchers and policymakers have all become skeptical of standardized tests as the sole barometer of student achievement. There is growing interest in identifying and measuring critical "noncognitive" skills, such as grit, conscientiousness, goal orientation, and others.[2] Research shows that these skills are predictive not only of academic achievement, but also of future success in the labor market.[3]

In the context of entrepreneurial education, these skills form an important mosaic of noncognitive skills known as *the entrepreneurial mindset*. The entrepreneurial mindset is comprised of skills like initiative, adaptability, communication, critical thinking and problem solving—skills that help people overcome challenges, identify and make the most of opportunities and succeed in a variety of settings.

The whitepaper published by the Network for Teaching Entrepreneurship, "On-Ramp to Opportunity,"[4] presents evidence about the entrepreneurial mindset to make several important and related points:

- Entrepreneurial thinking is an essential 21st century skill and a key contributor to academic and career success.

- The entrepreneurial mindset is a malleable characteristic that can be taught and learned.

- The entrepreneurial mindset is valued by employers. In today's economy, entrepreneurial skills are employment skills.[5]

After considerable thought, research, deliberation and discussion, we at Michigan State University have adopted the principles that are articulated above, borrowing heavily from NFTE, as our guidepost.
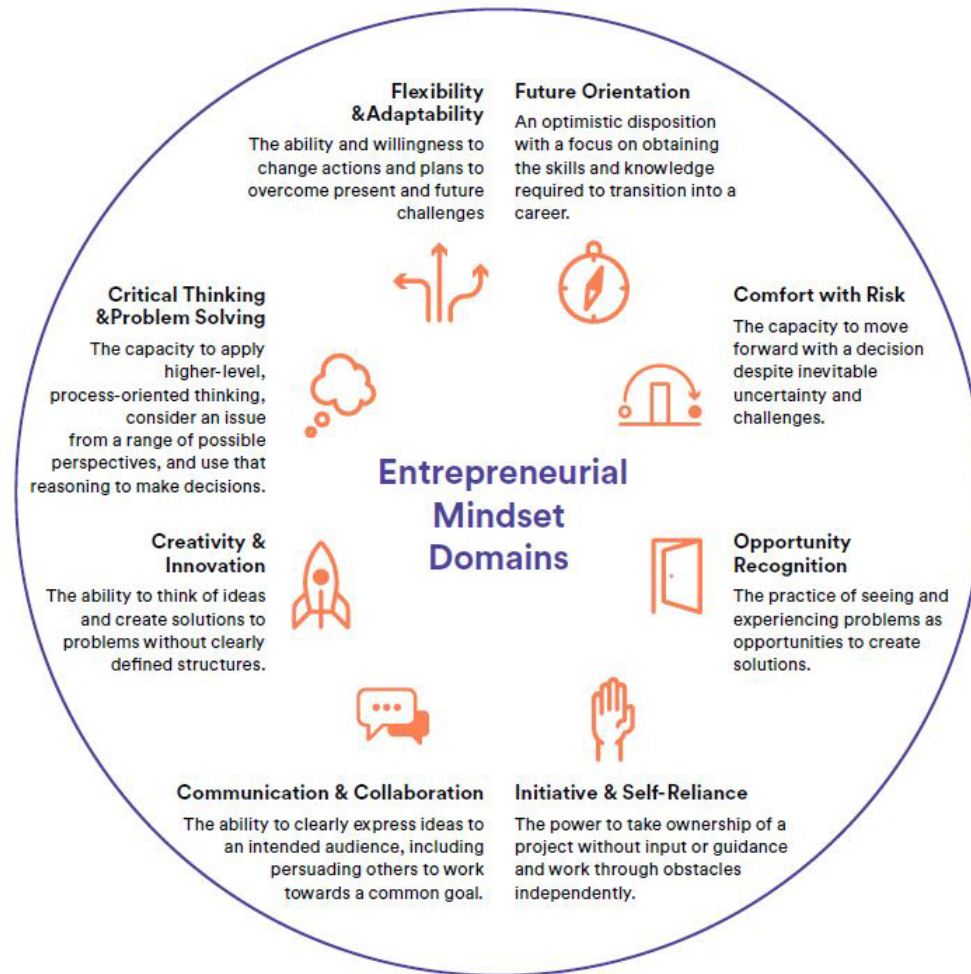

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[1] We are deeply indebted to the Network for Teaching Entrepreneurship for significant portions of this document.

[2] Lipnevitch and Roberts 2012; Farrington 2011.

[3] Kautz et al. 2014

[4] http://www.nfte.com/wp-content/uploads/2017/08/On-Ramp-to-Opportunity_final.pdf

[5] http://digital.graphcompubs.com/article/Entrepreneurship+Empowers+Students+With+Career+Readiness/2763554/400785/article.html

Flexibility & Adaptability
The ability and willingness to change actions and plans to overcome present and future challenges

Future Orientation
An optimistic disposition with a focus on obtaining the skills and knowledge required to transition into a career.

Critical Thinking & Problem Solving
The capacity to apply higher-level, process-oriented thinking, consider an issue from a range of possible perspectives, and use that reasoning to make decisions.

Comfort with Risk
The capacity to move forward with a decision despite inevitable uncertainty and challenges.

Entrepreneurial Mindset Domains

Creativity & Innovation
The ability to think of ideas and create solutions to problems without clearly defined structures.

Opportunity Recognition
The practice of seeing and experiencing problems as opportunities to create solutions.

Communication & Collaboration
The ability to clearly express ideas to an intended audience, including persuading others to work towards a common goal.

Initiative & Self-Reliance
The power to take ownership of a project without input or guidance and work through obstacles independently.

The Entrepreneurial Mindset

The entrepreneurial mindset is, simply, the way an entrepreneur thinks and acts. At its core, the entrepreneurial mindset (EM) is a set of characteristics, behaviors and skills that drive action. A person with an entrepreneurial mindset recognizes an otherwise overlooked opportunity, develops the confidence to take a risk, communicates their ideas clearly, and can adjust to and learn from setbacks. The term entrepreneurial mindset embodies a set of cross-functional life and professional skills that describe someone who is innovative, resourceful and creates value.

When we teach entrepreneurship, the emphasis is on developing skills, not about starting businesses. We support and encourage, however, those students who are passionate about starting their own companies. The entrepreneurial mindset can be applied in many contexts. It applies to employees in large, hierarchical entities, and it applies to community organizers, academics, inventors, doctors, politicians, musicians and public servants. In no way is it unique to startup companies nor is it unique to for-profit ventures. Social innovators (or social entrepreneurs), who focus on social change, must possess the same set of characteristics to be successful.

The NFTE has developed a scale to measure the entrepreneurial mindset. Their Entrepreneurial Mindset Index (EMI) measures eight core domains they have identified as critical to becoming entrepreneurial. These domains are:

1. Opportunity recognition
2. Initiative and self-reliance
3. Communication and collaboration
4. Creativity and innovation
5. Critical thinking and problem solving
6. Flexibility and adaptability
7. Future orientation
8. Comfort with risk.

The Association of American Colleges & Universities reports in their 2013 National Survey of Business and Non-Profit Leaders[6] that nearly all employers surveyed say they give a hiring preference to college graduates with skills that will enable them to contribute to innovation in the workplace. Their report goes on to describe attributes of employees that employers value, and although they sometimes use different terminology, the skills and traits they describe are very similar to the domains of the entrepreneurial mindset as described by NFTE.

Management Skills

Developing an entrepreneurial mindset is not always sufficient to become a successful entrepreneur. Since we also have students who aspire to become entrepreneurs, and because we support them in these pursuits, we note other attributes that are needed to cultivate this select group of students into successful entrepreneurs. These are the managerial skills that entrepreneurs must possess.[7] We emphasize that these skills are distinct from having developed an entrepreneurial mindset.

- Optimizing the use of scarce resources
- Effective leadership
- Motivating employees
- Having a winning strategy
- Developing people
- Building a productive organization
- Beating or outflanking the competition.

While the overall objective of the undergraduate entrepreneurship and innovation program is to develop in all students the entrepreneurial mindset, some students may also develop their skills as an entrepreneur.

Social Entrepreneurship

Social enterprises can be for-profit or not profit organizations. The difference between a social enterprise and a traditional business is that although fiscal sustainability is vital to social enterprises, their sole aim is not to maximize profits. Instead, social enterprises exist to address a social or environmental problem. Although many traditional non-profit organizations also exist to address a social or environmental problem, social enterprises differ from these in that they aim to establish financial sustainability that does not depend upon donations and grants for continued operation. Rather, once established, their activities provide enough revenues to cover the costs of operations and ensure the perpetuity of the organization. An underlying principle of social enterprises is that good business practices (*e.g.*, marketing, financial management, human resources management, systems

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[6] https://www.aacu.org/leap/presidentstrust/compact/2013SurveySummary
[7] https://www.entrepreneur.com/article/283135

management, strategic thinking, etc.) must be used to successfully operate the enterprise.[8] It therefore follows that students who aspire to become social entrepreneurs or "change agents" must also develop an entrepreneurial mindset and learn many of the same skills as traditional entrepreneurs.

Learning Objectives

The context and the domains above provide the scaffolding for the learning objectives of the entrepreneurship and innovation programs at MSU. Specifically, students should develop the following skills, approaches, and characteristics in the core courses of the Undergraduate Minor in Entrepreneurship and Innovation ("E&I Minor"):

CAS/AL 114: Creativity and Entrepreneurship
- Familiarize students with creative processes and brainstorming tools.
- Engage students in thinking creatively and in fostering and facilitating creativity with others.
- Equip students with failing forward and learning to learn habits of mind.
- Engage students in critical thinking and analysis, especially in contexts of "creative" projects and creativity.
- Foster connections between creativity, innovation, and entrepreneurship.

BUS 190: The Art of Starting
- Learn to recognize the characteristics and behaviors of individuals who are entrepreneurially minded and gain insights as to how to acquire those characteristics and behaviors.
- Explore entrepreneurial interests and aptitudes (their own and other's).
- See entrepreneurship as a viable lifestyle and career choice.
- Understand basic venture creation principles and methods.
- Recognize area entrepreneurial networks and entrepreneurial service providers.
- Develop the concepts and skills required to start, manage, and grow a new venture.

All courses
Courses that are electives in the E&I Minor should support students in developing the following skills, approaches, and characteristics:

- Flexibility and adaptability: ability and willingness to change actions and plans to overcome present and future challenges
- Future orientation: optimistic disposition with a focus on obtaining skills and knowledge required to understand possible futures with sustainability at the center
- Comfort with risk: capacity to move forward with a decision; ability to overcome uncertainty and challenges and learn from one's mistakes
- Opportunity recognition: ability to see and experience problems as opportunities; understanding the differences between ideas and opportunities; orientation toward problem-identification and solution creation
- Initiative and self-reliance: ability to take ownership of an idea and to see input or guidance as appropriate
- Communication and collaboration: ability to clearly express ideas to an intended audience, drawing upon the appropriate means, technologies, and resources to do so
- Creativity and innovation: ability to think of ideas and create solutions to problems without clearly defined structures

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[8] Thanks to the CSUS 473 syllabus for much of the preceding text.

- Critical thinking and problem solving: capacity to apply higher-level, process-oriented thinking; consider an issue from a range of perspectives; and use that reasoning to make decisions.

Social Innovation Track

The MSU Minor in Entrepreneurship and Innovation also has a Social Innovation Track. For a course to be listed as an elective in the Social Innovation Track, it must have content specifically related to Social Innovation (SI) defined as:

The process of pursuing innovative solutions to social problems that creates value for
society as a whole, rather than for private individuals

Characteristics of Social Innovation

- Critical reflection;
- Global awareness and cultural understanding;
- Creativity and imagination;
- Human-centered values and prosocial behavior, including respect and empathy;
- Teamwork and collaboration;
- Practicing both leading and following; and
- Critical thinking and problem-solving skills.

Core Aspects of Social Innovation and the Social Innovation Mindset

Systems Thinking—enhances students' ability to identify new ways of addressing complex problems, understand how elements within a system are connected, and identify root causes in order to propose interventions for systemic transformation

Innovation—requires students to create solutions that are more effective or more efficient than pre-existing solutions

Scale—students learn how to create models that have relevance beyond one particular situation (*e.g.*, a school) and can be applied at a systems level (e.g., to an entire school system).

Financial Sustainability—students aims for a triple bottom line of economic, social, and ecological value in effort to align resources of all types combining private, public, and philanthropic support with income generation to ensure ongoing sustainability.

Collective Impact—requires students to solve problems through involving multiple sectors (nonprofit, public, and private) and diverse stakeholder perspectives with the goal of collaborating and addressing issues determined as a collective.

The Learning Objectives are discipline agnostic; the content or disciplinary area in which this knowledge is developed is not as important as the fact that these skills, approaches, and characteristics be developed with an entrepreneurial orientation in mind.

Experiential Opportunities

The Entrepreneurship and Innovation Experiences Option ("E&I Experience" or "E&I Option"—the terms are used interchangeably) creates an alternative approach to learning, discovery and engagement for MSU under-graduates. The concept expands a student's academic platform and provides a valuable active learning compo-nent.

The E&I Experience affords undergraduates the opportunity to add entrepreneurial content to courses already in their program, thus providing a flexible alternative for those interested in exploring entrepreneurial ideas beyond normal course requirements. There are no specific courses designated for the E&I Option, and each qualifying activity is an independent, student-initiated, instructor-approved activity.

The E&I Option is modeled after the H-Option that is available to students in the Honors College. Much like the H-Option:

- The satisfactory completion of an E&I Experiences Option will be noted on a student's transcript.
- It is open to all undergraduates.
- Students earning a Minor in Entrepreneurship and Innovation are required to complete two E&I Op-tions.

An E&I Option project requires only the approval of the instructor who is teaching the course. It can be done in any course except independent study project. An E&I Option is always done in a course in which the student is enrolled.

NB: If students are pursuing the Minor in Entrepreneurship and Innovation, then ONE of the TWO required E&I Options must be done in a course that does NOT COUNT toward the student's 15 credit-hours for the Minor.

Expectations of an E&I Option are:

- Should require at least 20 hours to complete but typically not more than 30 hours.
- Should be declared as early as possible in the semester, but there is no deadline.
- If a student intends to participate in an external program, such as Startup Weekend, then all approvals should be granted PRIOR to the beginning of the program (*i.e.*, before Startup Weekend begins).
- It is up to the faculty member's discretion when the work must be completed, but it cannot be any later than the beginning of the following semester.

A detailed set of instructions for the student about the program can be found online at https://entrepreneurship.msu.edu/experiences/. Administrative guidelines can be found there as well.

The official language on the registrar's website can be found at: https://reg.msu.edu/AcademicPrograms/ProgramDetail.aspx?Program=6072

Connecting Entrepreneurship to MSU Learning Goals

As a land grant university, Michigan State is focused on the creation of students who are capable of being engaged citizens who can make a positive difference in the world around them.[9] To reach this objective, MSU has identified five core categories for undergraduate learning goals.[10]

- Analytical Thinking
- Cultural Understanding
- Effective Citizenship
- Effective Communication
- Integrated Reasoning

These traits are all parts of a mindset, rather than specific skills taught in classes. One does not, for example, take a course on effective citizenship or integrated reasoning. Rather, over time, experiences and knowledge gained through courses and extracurricular activities build towards an understanding of how one's actions impact the world around them and how complex ideas and facts connect to make meaning. The Entrepreneurial Mindset, described earlier, links to each of MSU's undergraduate learning outcomes—sometimes directly, and sometimes indirectly. In the table below, these links are explored in greater depth.

Entrepreneurial Mindset Domain	MSU Learning Goal(s)	Entrepreneurship students will…
Opportunity Recognition	Cultural Understanding	Seek new markets through understanding needs in specific cultural contexts and empathizing with customer problems.
Initiative and Self-Reliance	Effective Citizenship	Gain awareness of how the government can act as a driver for entrepreneurial activity. Be encouraged to act as active agents of change within their communities.
Communication and Collaboration	Effective Communication	Learn effective communications skills, both for determining customer needs and communicating value to customers. Work extensively within teams and with additional partners.
Creativity and Innovation	Integrated Reasoning Effective Communication	Integrate technical facts and cultural details to determine the context within which the solution is to be deployed. Develop creative solutions by collaborating as group and communicating with potential customers.
Critical Thinking and Problem Solving	Analytic Thinking	Learn to analyze and correlate data from multiple sources and iterate on viable solutions.
Flexibility and Adaptability	Integrated Reasoning	Adapt their ideas and challenge their preconceptions through active engagement with customers and other stakeholders.
Future Orientation	Integrated Reasoning Effective Citizenship	Imagine what the future could hold and create solutions leading towards that future. Face global "wicked problems" that cross many stakeholder boundaries and have no singular solution.
Comfort with Risk	Integrated Reasoning	Learn about risk from both the investment standpoint as well as from an inventor's point of view and explore what threshold of risk is acceptable to them.

The goal of both the MSU Learning Goals and the growth of an entrepreneurial mindset converge to enhance the potential for students to be effective leaders and life-long learners. It is unlikely that the university will pro-

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[9] http://president.msu.edu/advancing-msu/msu-mission-statement.html
[10] http://undergrad.msu.edu/programs/learninggoals

vide students with all the specific skills they will need to solve the world's problems in coming decades as many of those skills do not yet exist. However, an entrepreneurial mindset combined with strong analytical, cultural, and communication skills will enable students to learn what is required for their success outside of the confines of their undergraduate degree. Problem solving as an entrepreneur requires identifying the problem though customer interaction, researching existing/creating new solutions to the customer's problem, creating a plan for deploying the solution, and having a deep understanding that the solution devised may require many iterations before its final success or failure. This process is similar in form whether it applies to the development of a product on a startup team, working within an existing company on an existing product, operating in the political sphere, or creating and sharing works of art. Regardless of the path an MSU student takes after leaving the university, their chances of success will be improved by embracing the entrepreneurial mindset.

Below, we introduce some of the specific competencies and approaches that are currently valuable tools/skills and best practices within entrepreneurship as a practice and within entrepreneurship pedagogy. We believe incorporating these competencies and approaches to entrepreneurship learning environments at MSU will have a profound impact on how successful students are at growing an entrepreneurial mindset and developing proficient or exemplary abilities with regards to the broader undergraduate learning goals.

Example Competencies

- The Business Model Canvas – A method for mapping out how a company functions and why it exists.
- Project budgeting – the rudiments of financial statements and start-up costs.
- The ability to test the feasibility of new ideas and concepts.
- Customer discovery—the ability to identify a target market and interview people in that segment to learn of their beliefs, preferences and needs.
- Presenting/pitching ideas, public speaking, and handling questions.
- Working in a group.
- Creative collaboration through structured brainstorming and design activities.
- Develop a sense of empathy—the ability to see issues/problems through someone else's eyes.
- Tolerating ambiguity and making decisions when the data is unreliable or missing.
- The ability to work with partners and communities using an asset-based approach.

Recommended Approaches

- An active learning orientation
- Collaborative projects
- A variety of communication modes (*e.g.*, written, oral presentation, digital delivery)
- Connect to real world problems
- Interact with groups across campus and outside of campus
- Applying these concepts in other countries through education abroad offerings
- Applying these concepts in a community engaged learning and/or social innovation mode
- Internships
- Hands on, project-based learning with a digital or physical "product"
- Interdisciplinary collaboration between STEM and humanities
- Capstone projects
- Activities which integrate MSU's student incubator, The Hatch.

Code of Conduct

We have adopted a Declaration of Principles which is featured on the home page of the entrepreneurship portal (https://eship.msu.edu). It says:

WHAT WE STAND FOR

It is vitally important for us, as Michigan State University's community of entrepreneurs, to commit to our stakeholders—our students, their parents, our alumni, and our community—and to be clear about our values. You can count on us adhering to our Declaration of Principles:

- *Our Students Come First. We mean it.*
- *We Believe in Honesty and Transparency.*
- *Our Community Is Built with Uncompromising Integrity.*
- *Inclusion Is the Bedrock of Our Community.*
- *Freedom of Constructive, Respectful Expression.*
- *Accountability—to Our Community, Our Stakeholders, and to One Another.*
- *Respect for the Individual Is Essential.*
- *The Expectation of Excellence—We Demand It of Ourselves and We Expect It of Our Students.*

Signed,

MSU Undergraduate Entrepreneurship and Innovation

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