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E-COIL

EXPERIENTIAL COLLABORATIVE ONLINE INTERNATIONAL LEARNING

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Land Acknowledgement

We acknowledge the land for sustaining us and providing us with the necessities of life. This territory is covered by the Dish with One Spoon treaty and the Two Row Wampum treaty which emphasize the importance of joint stewardship, peace and respectful relationships. As we reflect on land acknowledgments, let us remember that we are all stewards of the land and of each other. We recognize the land on which we gather has been and still is the traditional territory of several Indigenous nations, including the Anishinaabe, the Haudenosaunee Confederacy, the Wendat, the Métis and the Mississaugas of the Credit First Nation. Since time immemorial, numerous Indigenous nations and Indigenous Peoples have lived on and passed through this territory. Sheridan affirms it is our collective responsibility to honour the land, as we honour and respect those who have gone before us, those who are here, and those who have yet to come. We are grateful for the opportunity to be learning, working and thriving on this land.

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What is an E-COIL?

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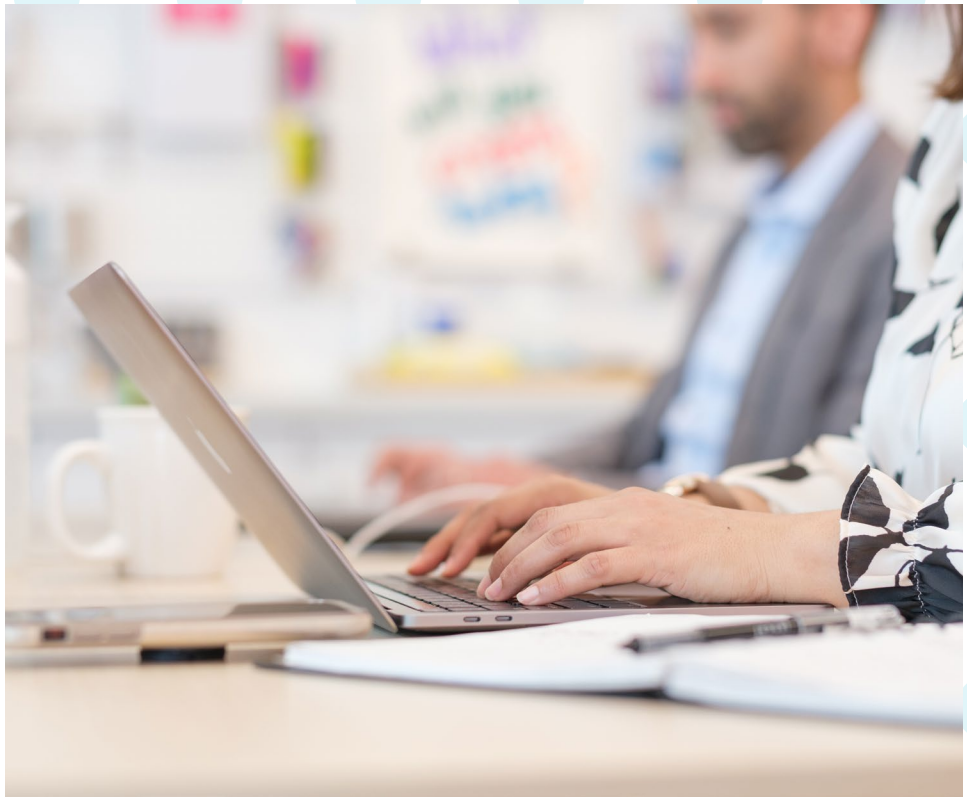
What is an E-COIL?

Experiential Collaborative Online International Learning Opportunity

Collaborative Online International Learning (COIL) traditionally involves collaboration between academic institutions from different parts of the world, where instructors pair their students to work on a project. Students may belong to the same discipline or different disciplines, complementing each other's work with their unique skills.

Experiential learning engages students in hands-on activities that allow them to apply their classroom knowledge in real-world contexts.

Experiential-Collaborative Online International Learning (E-COIL) expands these concepts by incorporating experiential learning, allowing students to collaborate with a international industry partner who presents a real-world problem. Under the guidance of an instructor, students work through a structured framework to develop solutions. Students may work exclusively with their classmates or be paired with students from another academic institution, enhancing the diversity and breadth of the learning experience and helping students develop Sheridan Career Catalysts to prepare for their career.



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Introduction

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Introduction

Experiential Collaborative Online International Learning Opportunity

Many global industries and international organizations currently face a range of complex and interconnected challenges such as climate change, recessions or refugee rights which requires a coordinated, collaborative and sustainable approach to navigating these challenges.

The E-COIL is a framework that will engage groups of discipline specific students who will work in teams to research and propose solutions for the critical issues facing a international industry and devise a practical resolution for a particular problem or challenge.

Introduction

Experiential Collaborative Online International Learning Opportunity

The overarching aim of this framework is to foster global citizens who consider the impact and consequences of their ideas, innovations and their stance in the world. This instructor guide will provide guidance on how E-COILs can be used to engage students in researching and developing solutions for industry challenges in an international context. A Sheridan faculty member will seek out an international industry partner to work with.

The industry partner will be provided with an Industry Guide to support their involvement in the E-COIL. The international partner will be asked to present a problem or challenge to a group of students who will then engage in the process of:

- Defining the problem
- Empathizing
- Ideation
- Prototyping
- Strategy
- Testing and refinement
- Final pitch of their potential solution

Introduction

Experiential Collaborative Online International Learning Opportunity

This process of developing a solution will be a 6-12 week process which is overseen by a Sheridan professor. At the end of the 6-12 weeks, the international industry partner will be presented with one or more pitches depending on the number of groups working on a solution. For example, if there are 30 students in a class and students are grouped into teams of five, there would be six pitches presented to the industry partner.

The engagement of the international industry partner would be 6-18 hours which involves presenting the problem to the student groups, consultations with student groups to provide feedback and reviewing the final pitches and providing additional feedback.

Introduction

Benefits

Sheridan Students

- Provides global connections for students
- E-COIL can be delivered virtually or in a blended mode
- Opportunity for building intercultural competency
- Provides an Experiential Learning (EL) opportunity
- Build on 21st Century learning skills or Sheridan Career Catalysts
- Opportunity to engage in sustainability efforts

International Industry Partners

- Idea generation from discipline specific students
- Access to Sheridan student talent
- Potential solutions for your proposed challenge/problem
- Low-cost exploration of new business ideas (students work on a project without financial obligation from the industry partner)
- Intellectual Property can be assigned to your company or organization

Introduction

Commitments

Faculty Commitments

- Approval by AD
- Find International Industry Partner
- Collaborate with International Industry Partner to understand a potential challenge or problem
- Develop required lessons or self-guided modules to support students through the problem-solving process to prepare students for their final pitch
- Provide ongoing feedback to students
- Assess Students

International Industry Partners

- Present challenge/problem to students
- Attend or view final student pitch and provide feedback
- Attend scheduled "consulting" meetings with students or provide feedback at certain points through the steps.

Introduction

Support and Guidance

Faculty

- An E-COIL guide with a detailed explanation of phases to lead the students through including a TOOLBOX for each step that provides additional materials
- Sheridan's COIL team to offer support or guidance when needed

International Industry Partners

- A guide for the partner outlining expectations for both sides
- Connect with the Sheridan Professional for additional questions/support

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Getting Started

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Getting Started

Experiential Collaborative Online International Learning Opportunity

It would be ideal to begin reaching out to International Industry Partners early on before you intend to run your course that will involve an E-COIL. This may be at least a year out.

You may already have international connections with a global company or organization that you may want to contact, otherwise a quick google search of companies related to your discipline can be a great starting point. A suggested templated email is provided in the TOOLBOX.

Once a connection is established set up a virtual meeting to discuss the potential partnership, ensuring the partner has an understanding of their commitments (provide them with the Industry Guide). They may need some time to consider the partnership and what challenge or problem they would like students to solve. Once they have an idea, meet with them again so that you can discuss the problem and the scope of the challenge to ensure it is something that will be manageable and applicable for the students in the course.

Establishing a connection early will also allow the professor to identify the required skills students may need so that these skills can be scaffolded leading up to or during the course.

A TOOLBOX with additional resources and materials is available to support you through "Getting Started" and each step of the E-COIL.

The icon below can be found throughout this guide. By clicking the icon it will take you to the TOOLBOX.

Click to TOOLBOX

Getting Started

Working with the Industry Partner to Develop a Rich Learning Experience

Before getting started on your E-COIL, it will be imperative to understand the learning objectives of your project and determine how you will evaluate the students in your course. Start by looking at your course learning outcomes and your evaluation matrix as these will determine what you want your students to be able to know, learn and do by the end of their course.

To develop a meaningful learning experience, professors may identify industry challenges relevant to the program or recent courses. This involves having in-depth discussions with the industry partner to pinpoint current issues or opportunities within their organization, ensuring that the problem is grounded in real-world scenarios. By focusing on practical and relevant issues faced by the partner, students gain valuable experience that mirrors professional environments.

Additionally, it's crucial to align the identified problem with the course objectives and competencies. This ensures that the problem addresses industry needs and integrates the learning outcomes of the course. By setting clear goals, the professor can define what success looks like from both an academic and industry perspective, providing a structured framework for the students' project.

Getting Started

Including an International Institution

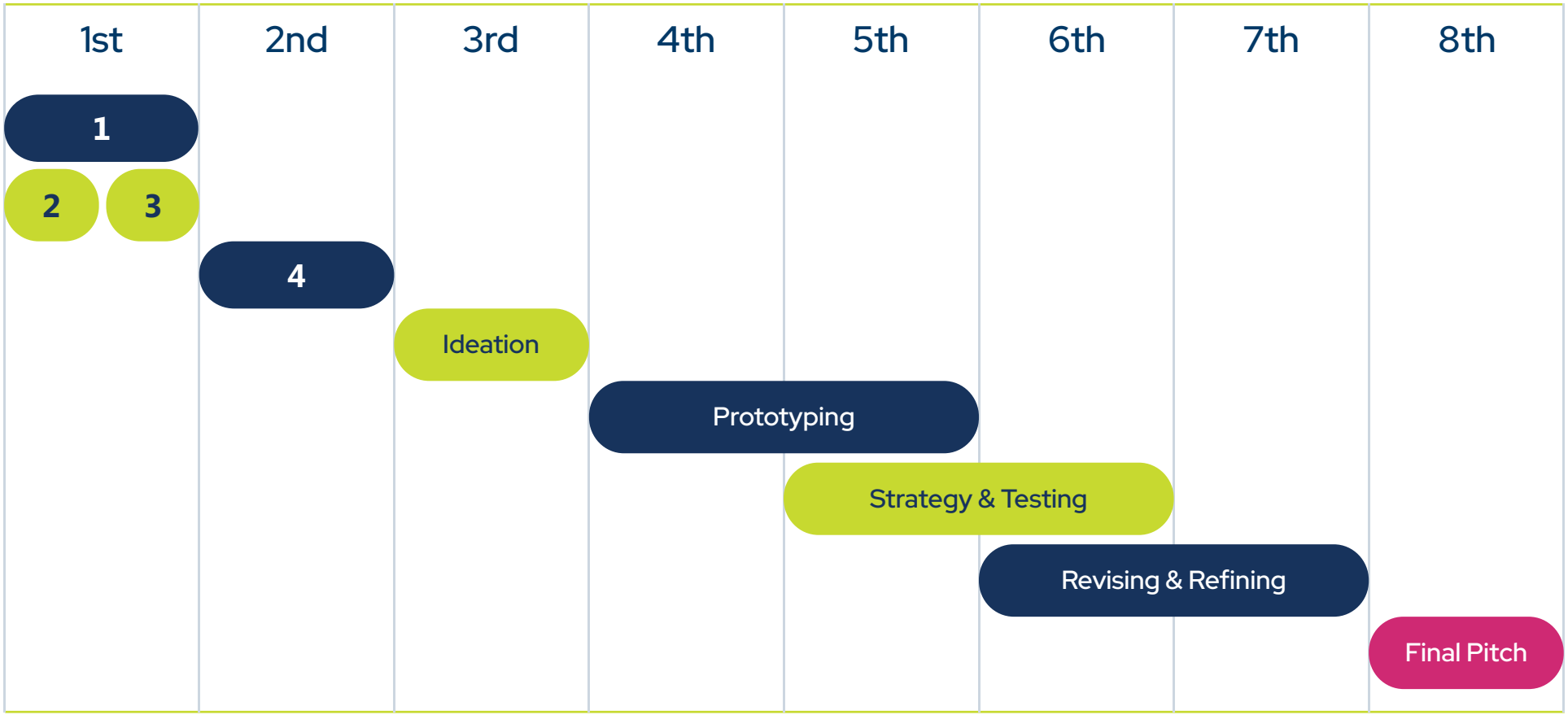
In the traditional sense of a COIL, you could also look to partner with an international institution where students can be paired with international students to work through this project. This will involve more logistical planning in terms of having students collaborate over different time zones, but it will provide an even deeper intercultural learning experience.

If you are interested in pairing up with another academic institution, you can reach out to the Global Learning Coordinator to learn how to connect with a partnering institution at coil@sheridancollege.ca.

Once a partnership is established with an industry member and perhaps another academic institution, group the students into teams for them to work together through the problem-solving process. Consider assigning a "team leader" role in each group who can then act as a point of communication and feedback. These teams will work together through each step of the E-COIL framework that takes a design thinking approach and will collaboratively develop the final pitch to the international industry partner.

Project Steps

Weekly Outline and Suggested time



1 Intercultural Competency Building

2 Ice Breakers and Team Building

3 Industry Presentation of Challenge/Problem

4 Project Definition & Empathize

Getting Started

Important to Note Intellectual Property (IP)

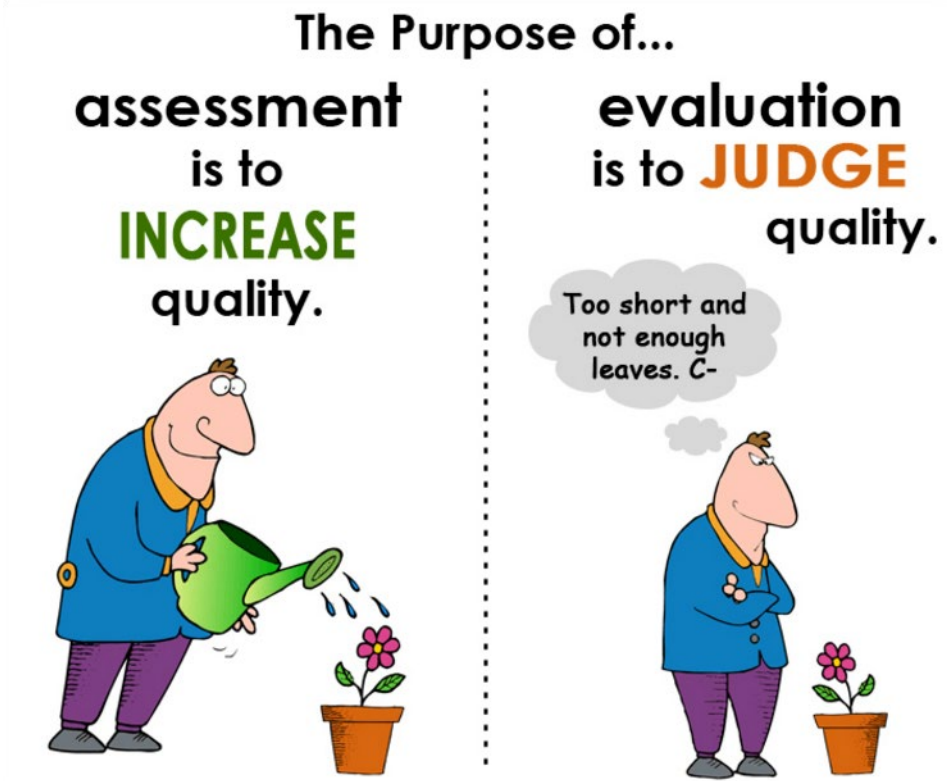
A partnership with Sheridan can help industry and community partners mitigate some of the risks and costs associated with innovation and growth. Sheridan's Intellectual Property (IP) expectation, in the majority of cases, is that IP will be assigned to any companies or external organizations engaged in an applied research project or collaboration with employees and/or students at Sheridan.

Employees and students participating in these projects must provide their informed consent and sign an Employee/Student Participation Agreement, which acknowledges the IP rights set out in the Collaborative Research Agreement between Sheridan and the external partner. More information along with a sample agreement for collaborators can be found on the Sheridan College Website.

Getting Started

Important to Note
Assessment & Evaluation

A consistent assessment throughout E-COIL can offer crucial insights that inform your instructional approach for current and future projects. Engaging with students during each step of the project is a tangible assessment that is vital for meaningful improvements. Using formative assessment practices throughout the project will lead to a better summative product that will be evaluated in the end (the Final Pitch). Read Sheridan's Assessment and Evaluation Policy to understand how Sheridan defines formative and summative assessment and evaluation. This cartoon gives you an idea of the purpose of assessment and evaluation.



(Module 6-L a & E, Weekend.pptx, 2022)

Co-Constructed

Involving students in the development of the assessment or evaluation criteria can help students have a better understanding of the project objectives and encourage them to take ownership of their learning. Invite the students to work with you to develop the criteria to get them thinking more deeply about the components of what their work might entail and what quality work looks like. This can be done through a group brainstorming session.

Assessment

Using Thought Books

In an academic or professional context, a "thought book" could be a notebook where students keep notes, observations and reflections related to their work or studies. It might contain research notes, project ideas, or reflections on meetings and discussions. You could provide guidance and prompts for them to reflect on and document their learning progress through each phase of the project and you could use this to assess student learning.

Check-Ins

Having frequent check-ins with students will ensure students are on track to the final pitch. An effective method to conduct a check-in would be asking each team leader to specify the team's progress concerning project goals and deadlines. Additionally, if you're not using the "Thought Book" method, you could encourage students to maintain a daily project log, documenting their learnings, achievements and upcoming plans.

Exit Passes

Exit passes or "ticket to leave" could also be used at the end of class or at the end of each step to provide feedback about the class or project. They require the students to do some synthesis of the day's content; challenge the students with a question requiring some application of what was learned in each step, or the lesson for the day. Questions could be in the form of paper or creating a Google Form or MS Form and can be anonymous or include names. Some examples of exit pass questions could be:

An exit pass, or "ticket to leave," is a quick formative assessment tool that can be completed on paper or digitally via Google Forms or Microsoft Forms. It can be anonymous or include student names, depending on the instructor's preference. Exit passes are typically used at the end of a class or after completing specific steps to gauge students' understanding of the material or gather feedback on the project. The exit pass usually involves responding to a prompt or question related to the day's lesson before leaving the classroom.

Some examples of exit pass questions could include:

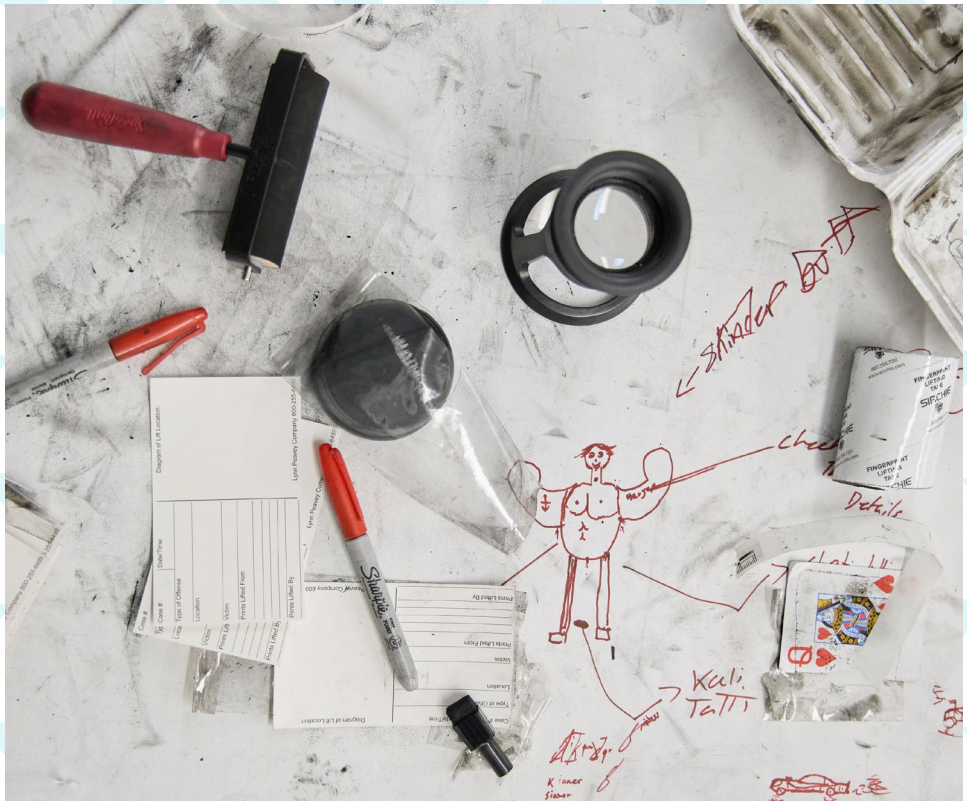
- What are the three important things you discovered today?
- What did you find frustrating?
- What do you wonder?
- What should you do tomorrow?

Evaluation

The Final Product

The final product of this E-COIL is the last step- the Final Pitch which is what you will be evaluating the students on. Using a rubric or checklist would be an ideal way for evaluating this final step. This should be provided to students at the beginning of the project so that students understand the project expectations and can ask clarifying questions if needed.

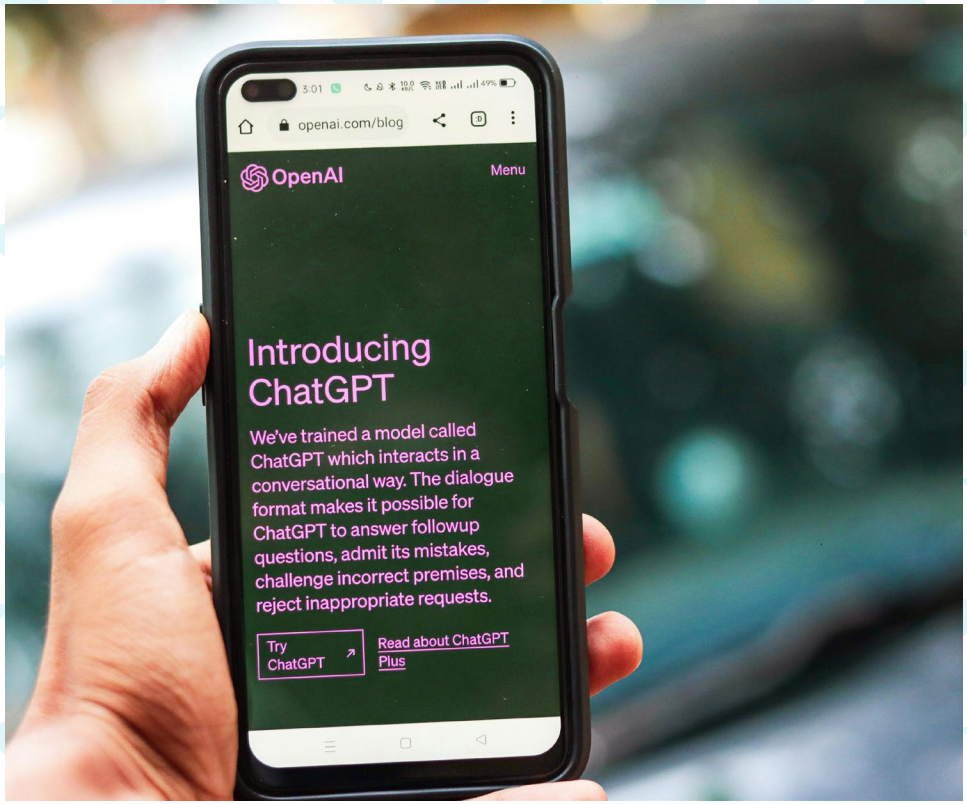
As mentioned above, co-creating the rubric or checklist can make the evaluation more meaningful and authentic and can lead to increased "buy-in" from students. A rubric is also available for the industry partner to evaluate the final pitches and provide feedback.



Evaluation

A note on Using Generative Artificial Intelligence (AI) in This Phase

Although AI often has a negative connotation to it in the realm of education, it can be a valuable tool in the arena of idea generation and prototyping. If you feel comfortable, you could encourage students to use AI to augment and prototype their own work. For example, students can use AI to generate programming code, visual graphics and other products that enhance their projects, perhaps beyond what they could normally do. In some cases, students may be able to produce prototypes where they could previously only produce ideas. As a general rule, students should be asked to properly attribute the content they create using AI and note the tool used to generate it.



(Mishra, 2023)

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Project Steps

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Step 1

Intercultural Competency Building

Intercultural competency skills are essential in today's globalized world. When working with international organizations, it enables individuals to effectively navigate and communicate across cultural differences.

Cultural norms, values, beliefs and communication styles vary widely across different countries and regions. Without intercultural competency, misunderstandings and conflicts can arise, leading to inefficient collaboration and potentially damaging business relationships.

Building intercultural competency involves developing an understanding of different cultural perspectives, recognizing and managing cultural biases and adapting communication and behavior to better align with the expectations of different cultural contexts.

Going beyond cultural competency is cultural humility. Cultural humility involves recognizing and respecting the inherent worth, dignity and uniqueness of individuals and communities from diverse cultural backgrounds. It focuses on acquiring knowledge about different cultures, by emphasizing an ongoing commitment to self-reflection, openness and learning. There is an excellent video in the TOOLBOX on cultural humility that you could share with your students.

TOOLBOX

1

Week
Recommended Time

Step 1

Intercultural Competency Building

At the beginning of the project, students should research the industry partner and the country in which the partner operates. This includes exploring social, economic and cultural norms. This comprehensive understanding will help students appreciate the partner's context and identify potential audiences more effectively.

Sheridan College offers Intercultural Competency modules in SLATE (Effective Intercultural Communication –EIC) for students that can help foster more productive and respectful relationships with international partners, and better understand the needs and expectations of clients and customers from different cultures. Connect with the Global Learning Coordinator to learn how to enroll your students at coil@sheridancollege.ca. A student COIL Libguide is also available to help support students in various ways; this is also found in the TOOLBOX.

TOOLBOX

Step 2

Ice Breakers and Team Building

Icebreakers are important because they can help to create a positive and inclusive atmosphere in a group setting, they can also form the essence of cross-cultural understanding. When people are meeting for the first time or coming together for a new project or activity, there may be initial awkwardness or discomfort due to unfamiliarity or differences in personalities or backgrounds. By starting off with a fun and interactive activity, participants are more likely to be energized and engaged, which can lead to greater productivity and creativity throughout the duration of the project. In addition, icebreakers can help to break down barriers and promote inclusivity by creating a safe and welcoming environment for all participants. By focusing on shared experiences or common interests, icebreakers can help to bridge cultural, language or other differences that might otherwise make some participants feel isolated or excluded.

It is recommended that icebreaker activities be planned between not only the groups or "teams" that are being formed, but if capacity permits- with the industry partners. By engaging in an icebreaker activity, participants can get to know each other better, build trust and rapport and develop a sense of community. They can also help to prepare students for "international thinking" and "application".

1-2

Classes
Recommended Time

Step 2

Ice Breakers and Team Building

By helping the teams socialize with students from another institution (if you have made that connection) or with the industry partner in an online environment, it helps set them up for a successful E-COIL experience by learning from other cultures. Even when you feel you have limited time for your project and would like to begin by introducing the main task: don't! Investing at least one week in an icebreaker period will see a return on investment down the road. Another option to consider is weekly icebreakers with the student team members to continue to build rapport throughout the project.

If students are working with team members from their own institution only, and they are meeting in person, providing them options for icebreakers could be another approach. For example, options for icebreakers could be going for a walk around the school together, sharing your favorite memory or describing your career aspirations. These "levels" could help with accessibility and preference of icebreakers as it accommodates how much specific students are willing to give away.

Whatisculture.org is an Open Educational Resource (OER) that was created with Eva Haug, Daniel Stanford and Hope Windle who are well known in the realm of COIL. This resource is intended to help faculty and students with the facilitation of intercultural learning. In it, you'll find some activities that might be used as an icebreaker. Further examples can be found in the TOOLBOX.

Good COIL Icebreakers Should be

- **Engaging and inviting**: students should be engaging with one another via dialogue
- Fun and non-threatening: students should feel safe and comfortable in the activity and with one another
- **Culturally appropriate**: be mindful that the activity does not reinforce negative stereotypes
- **Personal & cultural**: activities should enable students to get to know each other and to learn or share about their cultures to develop intercultural awareness

TOOLBOX

Step 3

Industry Presentation of Challenge/Problem

Introducing a new challenge or problem to a team to solve requires careful consideration to ensure that the team understands the challenge and is motivated to find a solution. It will be the responsibility of the industry partner to introduce the challenge or problem to the groups/teams.

The next page provides detailed tips on presenting a problem or challenge, as outlined in the guide the partner will use when formulating and presenting their challenge.

- Provide context
- Set clear goals
- Provide relevant information
- Encourage discussion

1
Classes
Recommended Time

TOOLBOX

Step 3

Industry Presentation of Challenge/Problem

Tips on How to Effectively Introduce a New Challenge or Problem to a Team:

1

Provide Context

Start by providing the team with background information on the challenge or problem. Explain why it is important, what the potential impact is, and what has been done so far to address it. This will help the team to understand the broader context and why their work on this challenge is significant.

2

Set Clear Goals

Clearly define the goals and objectives of the challenge or problem. This will help the team to understand what is expected of them and what they are working towards.

3

Provide Relevant Information

Provide the teams with all the necessary information they need to understand the challenge or problem. This may include research, data or other relevant materials.

4

Encourage Discussion

Encourage the team to ask questions and share their thoughts on the challenge or problem. This will help to generate ideas and encourage active participation from everyone.

TOOLBOX

Step 3

Industry Presentation of Challenge/Problem

Suggestions for the Instructor on How to Effectively Support the Students

1

Foster a Positive Mindset

Encourage a positive mindset by focusing on the potential opportunities that the challenge or problem presents (develop connections, foster real-world skills, gain experience relevant to the industry) rather than just the difficulties. This will help to create a sense of excitement and motivation around the challenge.

2

Set Expectations

Clearly communicate what is expected of the team, including timelines, milestones and deliverables. This will help to ensure that everyone is on the same page and working towards a common goal.

3

Establish a Timeline

Set a timeline for the challenge or problem-solving process. This will help the team stay focused and ensure progress is being made towards the goal.

TOOLBOX

Step 4

Project Definition & Empathize

After the problem has been identified by the industry partner, the team will need to define and analyze the problem before spending time and resources on generating possible solutions.

Starting off by understanding who the user is and what their needs are will help capture what the teams will want to achieve with their solution, not how.

Keep in mind: users do not always know what they need, even though they may say they do.

A famous quote, attributed to Henry Ford, says, ***"If I asked people what they wanted, they would have said faster horses."*** It is the job of the team to understand the real need of the user.

1

Week
Recommended Time

TOOLBOX

Step 4

Project Definition & Empathize

Empathy can be a valuable problem-solving tool that can lead to more effective solutions, increased stakeholder buy-in, improved collaboration, and better communication. By cultivating empathy in your problem-solving approach, you can build stronger relationships and achieve better outcomes.

1

Identify the User Needs

Start by summarizing who a particular user is, the user's need, and why the need is important to that user. The objective will be meeting that need which should be rooted in empathy.

2

Identify the Objective

Start by defining the objective or goal of the project. This should be a clear and specific statement that outlines what the project aims to achieve.

3

Define the Scope

Determine the boundaries of the project by defining its scope. This includes identifying the deliverables, stakeholders, resources, timelines and constraints.

4

Create a Project Plan

Develop a project plan that outlines the steps, tasks, and milestones required to achieve the project objective. This plan should include timelines, budgets and resources required. A Gantt chart could be a useful tool and can be found in the TOOLBOX.

TOOLBOX

Step 4

Project Definition & Empathize

Some Ways That Empathy can be Used as a Problem-solving Tool

1. Develop Better Solutions

By understanding the perspective and needs of the person experiencing the problem, you can develop solutions that are more tailored to their specific situation. This can increase the effectiveness of your solutions and improve outcomes.

2. Foster Collaboration

Empathy can also facilitate collaboration by encouraging a more inclusive and open problem-solving process. When team members feel heard and understood, they are more likely to contribute their ideas and expertise, which can lead to more creative and effective solutions.

3. Identify Underlying Issues

When you empathize with someone, you can better understand the underlying issues that may be contributing to their problem. By identifying these issues, you can develop solutions that address the root cause of the problem, rather than just treating the symptoms.

4. Increase Stakeholder Buy-in

When you show empathy towards those impacted by a problem, it can increase their buy-in and support for the proposed solutions. By acknowledging their needs and concerns, you can build trust and credibility, which can lead to greater acceptance and commitment to the solution.

5. Improve Communication

Empathy can also improve communication by encouraging active listening and creating a more positive and supportive environment. This can lead to more open and honest conversations, which can help to identify and resolve issues more quickly and effectively. Some active listening games can be found in the TOOLBOX.

Step 4

Project Definition & Empathize

This is a good opportunity to also review how the project could align to the United Nations Sustainable and Development Goals (SDGs). The increasing complexity of global issues such as climate change, economic inequality and geopolitical conflicts has made it difficult for international organizations to effectively address these challenges. An E-COIL may provide an opportunity for an international industry partner to tap into Sheridan talent to present a solution that has a sustainability focus. This could involve incorporating environmentally, socially and economically responsible solutions. The Sustainable Development Goals are a universal call to action to end poverty, protect the planet and improve the lives and prospects of everyone, everywhere. The 17 Goals were adopted by all UN Member States in 2015, as part of the 2030 Agenda for Sustainable Development which set out a 15-year plan to achieve the Goals.

(Martin, 2024)

TOOLBOX

Step 4

Project Definition & Empathize

Questions to Consider

- Could you identify one or two specific goals and targets (indicators) your course or project addresses or can help work towards?
- Are there other SDGs that you and your students want to address when tackling their project?
- How might you convey goals and targets to your students?
- What kind of alignment across the project would they see?
- How would that help their learning?
- How can you adapt methods of instruction through this project to increase student engagement in sustainable development?

This guide titled 'Achieving SDG 4.7 by matching sustainability learning outcomes to subject-specific curricula' created by Ron Johnson of UNESCO may be helpful. It assists with embedding education for sustainable development into post-secondary courses by linking to learning outcomes of the core subject being taught.

Find Project Definition and Empathy activities to conduct with your students in the TOOLBOX.

TOOLBOX

Step 5

Ideation

The core of ideation is creativity and divergent thinking. Engaging in this creative process will lead to the generation of many ideas, making connections and possible solutions.

Divergent thinking involves generating as many ideas as possible without initially evaluating or judging them. Students should be encouraged to thinking broadly, creatively and without constraints. It is important to explore a wide range of possibilities before focusing on the most promising ideas. Generating a large pool of potential solutions will lead to identifying the best-fit solution that can be developed further.

This stage may require research to be conducted to inform and promote the ideation. This could be in the form of secondary research (journal articles, reports, news, etc.) or primary research (focus groups, interviews, questionnaires or surveys, etc.). Research can provide insight to the teams to generate more relevant, context-aware and innovative ideas. It may help them identify opportunities and constraints within the problem space and lead to successful and impactful design solutions.

1
Week
Recommended Time

TOOLBOX

Step 5

Ideation

5 Guiding Principles of Ideation Brainstorming

1. Embrace Wild Ideas

Encourage the exploration of unconventional ideas, these may lead to innovative solutions.

2. Quantity Over Quality

Focus on gathering as many ideas as possible before evaluating or refining them as this could lead to a broader range of possibilities.

3. Create a Safe Space

Ensure all participants feel welcome to share their ideas in a non-judgemental way which can foster a more open and creative environment.

4. Record All Ideas

There are no bad ideas, record everything so that teams can provide a comprehensive review of their thoughts and analyse their generated ideas or concepts.

5. Stay Focused on the Topic

While diverse perspectives are valuable, try to keep the discussion on target to stay aligned with the main goal.

TOOLBOX

Step 5

Ideation

The key to a good ideation or "brainstorming" session is that everyone feels comfortable contributing their ideas. Start off by asking everyone to defer judgement completely: no negative thoughts, no "yes, but", no "nah-faces". Research conducted by Google on team effectiveness found that psychological safety was the most crucial factor distinguishing innovative teams from non-innovative ones. In a two-year study between 2014-2016 involving 280 teams, Google's researchers discovered that when team members felt psychologically safe, they were more confident about sharing their opinions and ideas openly (https://journals.sagepub.com/doi/10.2307/2666999).

Potential Brainstorming Apps/Tools

- *Google Slides*
- *Miro*
- *Google Draw*
- *FigJam*
- *Microsoft Whiteboard*
- *ClickUp Whiteboard*
- *Padlet*

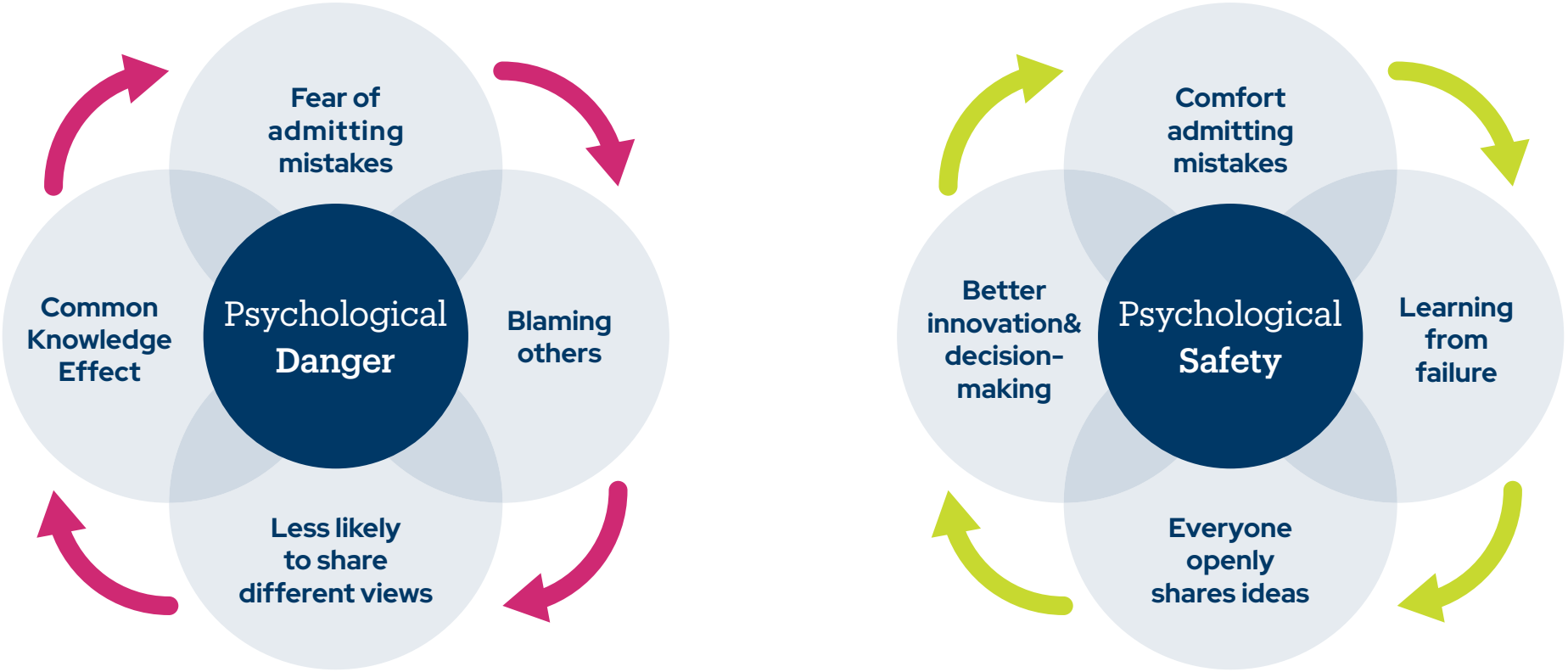
TOOLBOX

Step 5

Ideation

TOOLBOX

The diagram below illustrates how psychological safety refers to a shared belief that the team is safe for admitting mistakes and learning from failure. In such an environment, individuals feel comfortable being themselves without fear of negative consequences. This fosters an atmosphere of trust and respect, which in turn encourages creativity, risk-taking, and innovation. Google's findings highlight the critical role of psychological safety in unlocking the full potential of teams and driving innovation within organizations.



(Is "Psychological Danger" Killing Your Team's Performance?, 2024)

Ideation

Selecting the Ideas to Move Into Prototyping

The end of an ideation phase, or brainstorming session can be daunting. Students will have generated a wide range of new ideas and may feel overwhelmed and wonder how they will narrow their ideas down. At this point, you will ask the students to look for patterns, themes and similarities in their ideas. You can have students cluster the ideas by sorting and ordering or combining them. Clustering can be used to organize and analyse large numbers of ideas by categorising them. By organizing and reorganizing ideas, students can gain a better appreciation of, and dialogue about, their ideas. As students create idea clusters, new context and connections about them may emerge and lead to a shared understanding of the team. This will aid in selecting and moving ideas into the prototyping phase.

You can find a slide deck that can be adapted as a workshop to help you initiate brainstorming and clustering with your students in the TOOLBOX.

TOOLBOX

Step 6

Prototyping

After the ideation stage and the narrowing down of the generated ideas or solutions imagined, it will be time to create prototypes. This involves finding a means to bring the ideas to fruition with a working concept. This could include a sample, model or product that can be tested. There can be various ways to create a prototype that may work best for the ideas you want to explore.

The development of prototypes will lead to:

- Iterative testing
- Developing a strategy
- Learning
- Refinement of components
- Complete solutions

1-2
Week
Recommended Time

TOOLBOX

Step 6

Prototyping

Prototyping Could Include

Building

Depending on the program your students are in, they may have access to materials to build a prototype or even a low-resolution 3D model using everyday objects. Or they could be using discipline specific software to build their prototype.

Prototyping

Sketching

This form of quick drawing helps students to visualize their ideas quickly. They can sketch with paper and pencil or find an online tool that they could use to help sketch their ideas. Ideally, they don't get caught up in details and making it perfect but keep it simple to convey the ideas to others.

Role Playing

Again, depending on the discipline, role playing may be a good method to convey ideas that focus on interaction between people. It can help students communicate the experience. For example, if they are designing a service, they could act out an interaction between a customer and employee.

TOOLBOX

Step 7

Strategy & Testing

After developing a prototype, the teams must develop a detailed plan or "strategy" for how their project will be accomplished and tested to ensure it is successful.

This plan will act as a road map for how the project solution could be executed, monitored and controlled.

By strategizing and testing, the team can identify and address issues early on and reduce risk along the way.

TOOLBOX

1-2

Week
Recommended Time

Step 7

Strategy & Testing

International Partner Check-Ins

Depending on the involvement of the collaborating partner, they should be "checking-in" and consulting with teams to help provide feedback on their prototypes in order for them to revise and refine their final solution. Using a feedback grid can be a useful tool to have students record the feedback they receive and prioritize it and then use that feedback in the next step of revising and refining.

Industry partners have a strong understanding of their business and industry, but need to understand how the ideas the students are creating can connect with their business. Encouraging students to think strategically can help enable the success of their ideas. Encourage students to think about the choices they're making and why they made the choices they did so that they can better articulate why their ideas may be of value to the partner.

TOOLBOX

Step 7

Strategy & Testing

Testing Process

Testing is a repetitive process that can provide valuable insights to the teams to assess whether they need to rework a new solution or if it's meeting the end user's needs. Teams should be collecting the data and feedback from the industry partners, users and from the professor to make necessary adjustments to the prototypes. It is also important to emphasis with the students that there really is no such thing as failure and that in design thinking, testing doesn't use the scientific method; we're not testing to see if something is false or potentially true, rather it is attempting to grow your ideas and figure out what must happen to ensure the idea is successful. Thomas Edison noted that "I have not failed. I have just found 10,000 ways that won't work." (https://er.educause.edu/articles/2015/1/using-design-thinking-in-higher-education)

A Feedback Grid activity can be found in the TOOLBOX.

TOOLBOX

Step 8

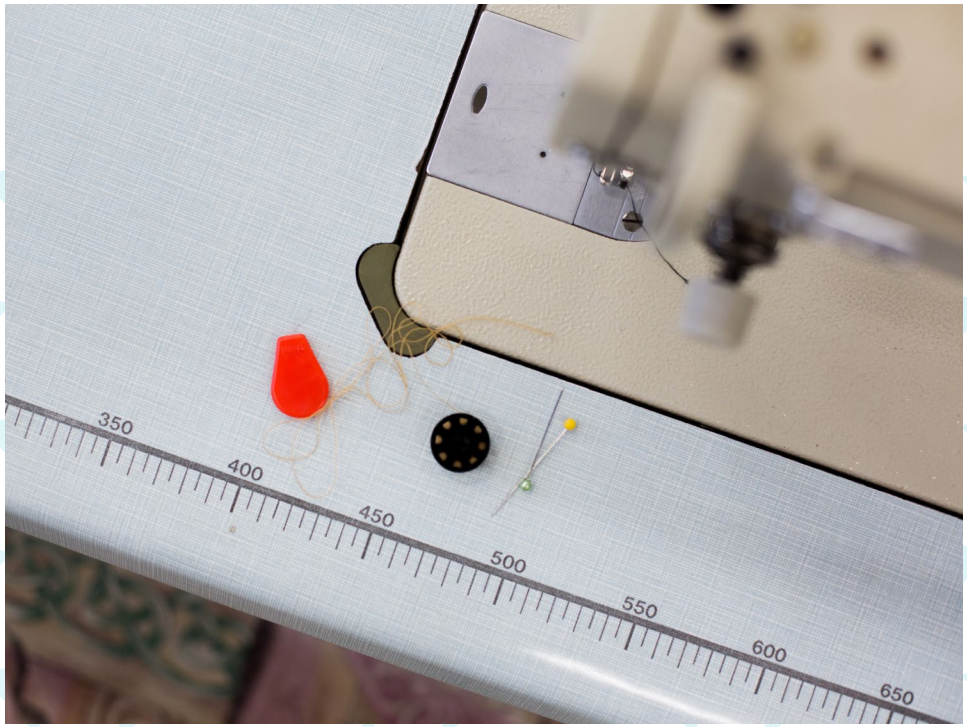
Revising & Refining

After testing and receiving feedback, this stage involves the iterative process of evaluating, improving, and fine-tuning the solutions or prototypes. Teams will want to test their prototype, tweak it, and repeat the cycle with the goal of getting closer to the solution.

You may want to consider having students create a storyboard to capture their process and ideas as they begin to refine their final solutions. This could take the form of a user experience storyboard where teams organize the user experience of the prototype or solution onto a panel or slide. Storyboards could be hand-drawn, or digitally created by using a template.

During this step it will be a good idea to encourage teams to start thinking about the best way they will present their solution to the industry partner in their final pitch. The solution and/or prototype should be able to clearly demonstrate how it works to address the challenge or problem and how the end user will benefit from using it.

Find ideas and templates for storyboards in the TOOLBOX.



1-2

Week
Recommended Time

TOOLBOX

Step 9

Final Pitch

The final pitch is the culminating activity for this E-COIL. Teams will be expected to either present their solutions to the industry partner in a live virtual call or record their pitches to be shared with the partner. Depending on time zones and availability, recorded pitches will most likely be the most practical option.

Student teams should be highlighting the main benefits of their solution including how it will add value, save time, reduce costs or solve a particular pain point for the industry partner. They should include visuals and keep their presentation concise and focused. They should anticipate potential questions or concerns the partner may have and address them proactively in their pitch.

Teams must adhere to the timelines agreed upon when submitting their final pitch just as though they are submitting work to potential clients, it is imperative to meet deadlines to be successful. It would be expected that the industry partner will not accept pitch recordings submitted after the deadline.

1
Week
Recommended Time

TOOLBOX

Step 9

Final Pitch

Some Suggestions to Consider for the Final Pitch

Pitch Deck templates and a rubric for a Pecha Kucha approach for presenting their project can be found in the TOOLBOX.

TOOLBOX

Suggestions

- The pitch should include photos/visuals/drawing or mock ups of the prototype.
- The pitch should be no longer than 5 minutes. You could consider taking a Pecha Kucha approach.
- The pitch should include a presentation deck (PowerPoint, Keynote, Google Slides, etc.).
- If the pitch is being done synchronously, they could invite question from the partners/audience for another 5 minutes.

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Conclusion

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Conclusion

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The E-COIL 9 Step process was presented here as a linear progression for simplicity, however tackling design challenges allows for flexibility in the sequence of design modes. Additionally, there are several design frameworks that exist that could be a better option for you. The process outlined here is merely a suggested framework; the goal is to personalize and adapt it to suit your style and work preferences for your own students. Craft and refine a process that resonates with you.

Celebrate your accomplishments! It is vital to recognize students' hard work and achievements which can boost their morale and motivation. It provides an opportunity for reflection, stress relief and the strengthening of team spirit. Celebrations mark progress, create lasting memories, foster a positive attitude towzards future challenges, and reinforce the value of effort and dedication in their academic and personal growth.

If you would like to assess your own project design for your students. Take a look at the instructor self-assessment rubric in the TOOLBOX.

TOOLBOX

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E-COIL

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