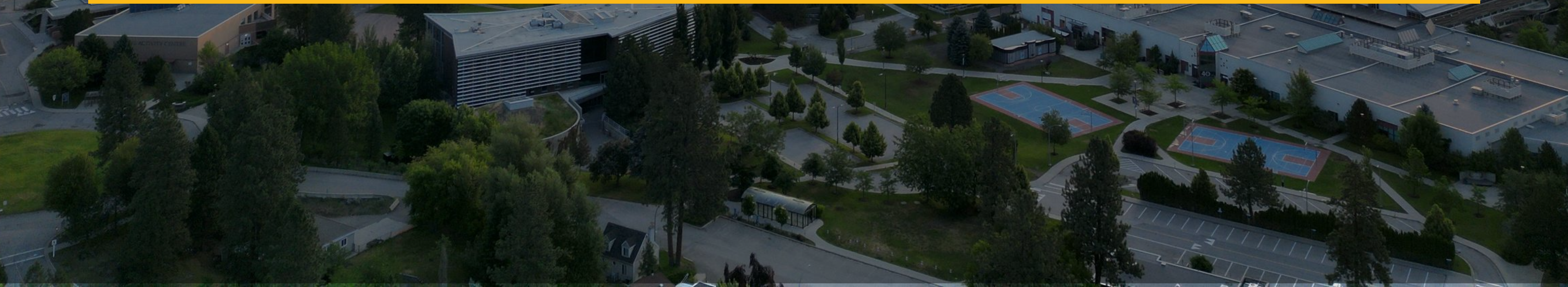




THOMPSON
RIVERS
UNIVERSITY

Career &
Experiential
Learning

Integrating Undergraduate Research into a Co-op Prep Course



Territorial Acknowledgement

The campuses of Thompson Rivers University are located on the ancestral and unceded territory of the Secwepemc Nation within Secwepemcul'ecw



About Us



Leanne Mihalicz

Co-operative Education
Coordinator, Computing
Science, Mathematics



Sarah Gibson

Co-operative Education
Coordinator Arts and Science



Harshita Dhiman

Co-operative Education
Coordinator Software and
Computing Engineering



Angel Masano

Amazing Research Assistant,
Computing Science Grad,
Freelancer



Agenda

- Integrating Research in Undergraduate Programs: WHY?
- Project Background and Inspiration
- Student Perspective
- Group Activity





RESEARCH COACH

"The Research Coach program was an entirely rewarding experience that allowed me valuable access to a faculty member I wouldn't have had a one-on-one engagement with otherwise.

The structure pushed me to delve deeper into subjects and topics in which I was already interested. Teaching what I learned to students ingrained this knowledge in me and gave me a lot of confidence in what I learned."

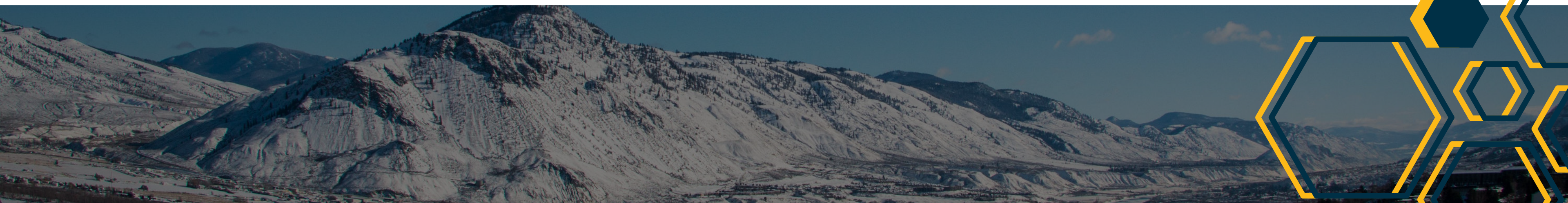
- KRISTEN GARDNER

Integrating Research in Undergraduate Programs: WHY?

- to integrate experiential learning into Co-op (prep course)
- to develop job search and employability skills (networking, public speaking, etc.)
- to evaluate information & to develop evidence-based arguments
- to be exposed to undergraduate research elements
- to engage students and community

References:

- *Undergraduate research experiences have emerged as some of the most beneficial high-impact practices in education*
- *Benefits: critical thinking, scientific reasoning (Buffalari et al., 2020)*
- *Improves academic performance, retention in STEM & college ([Dolan, 2016](#); [Linn et al., 2015](#))*



Openness In Teaching



Practice of sharing teaching materials, methodologies openly with students and community



Enables scope for collaboration, engagement, and knowledge sharing



Promotes open pedagogy
Empowering students to take ownership of their learning (i.e. improving course materials, set learning goals, and engage in self-directed learning).

Collaborative Approaches



**For Faculty and
Students**



**Fosters
interdisciplinary
research-teaching
integration**



**Community & industry
collaborations**



Project Background

COOP 1000, Career Prep course
Fall 2023, 2024, Fall 2025 (five sections)

~200 students from a variety of academic programs
(Business, Sciences, Engineering, Arts, and Tourism)

Instructors awarded funding to hire one Research Coach
for each class.



Project Inspiration



Year 1 Project: Imposter Syndrome

Students begin to normalize feelings of confidence verses competence becoming more self-aware and better prepared for career.

Year 2 Project: Curiosity, Courage and Authenticity

Students explored how curiosity and courage contributes to personal growth and learning.

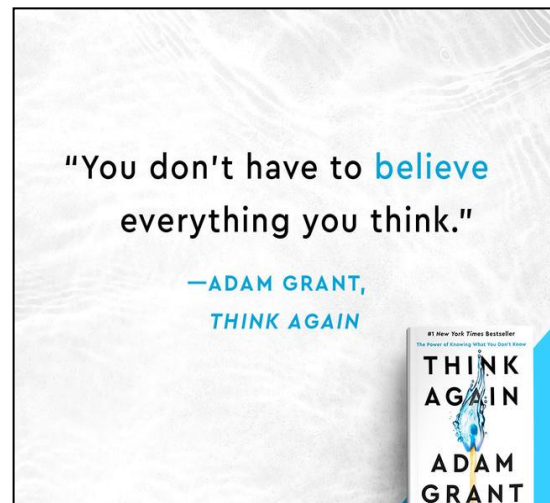
Year 3 Project: Human Skills in a Time of AI and Automation

Students examined how the use of generative AI and automation is changing knowledge-based professions, and will there be a demand for human skills such as critical thinking and emotional intelligence



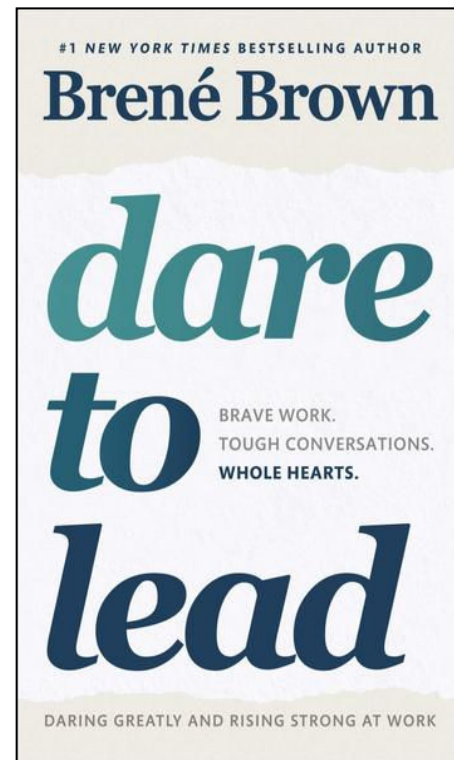
Project Inspiration

Literature Review



"If knowledge is power, knowing what we don't know is wisdom."

-Adam Grant

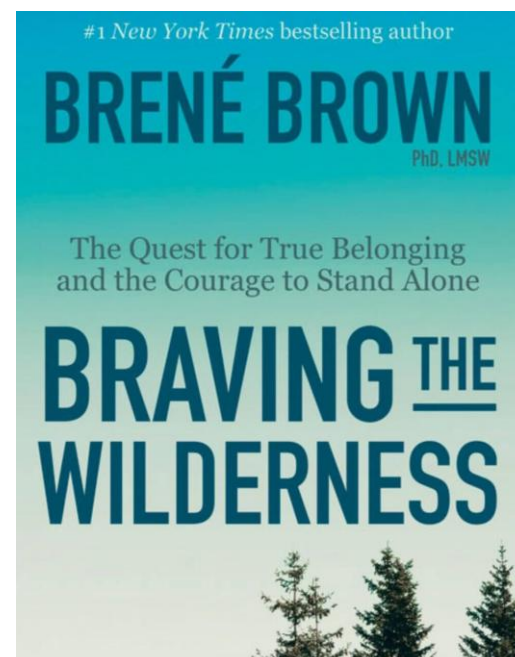


"Curiosity is an act of vulnerability and courage."

Curiosity is a superpower. It unlocks creativity and innovation.

Curiosity leads to grounded confidence"

-Brené Brown



"To ask "What's best for me?" Is finite thinking."

To ask "What's best for us?" Is infinite thinking."

"Human skills are the competitive advantage in a tech-driven world."

-Simon Sinek





Workplace Skills Survey

Oct 21, 2024

87%

say human skills are necessary for career advancement.

65%

want teamwork & collaboration prioritized over tech skills

“Organizations that overemphasize technical training at the expense of enduring human capabilities – like divergent thinking, emotional agility, and resilience – could end up impeding innovation and leaving employees ill-equipped to lead teams, adapt to market opportunities, and fully harness the potential of technology,” said [Anthony Stephan](#), chief learning officer, Deloitte US.

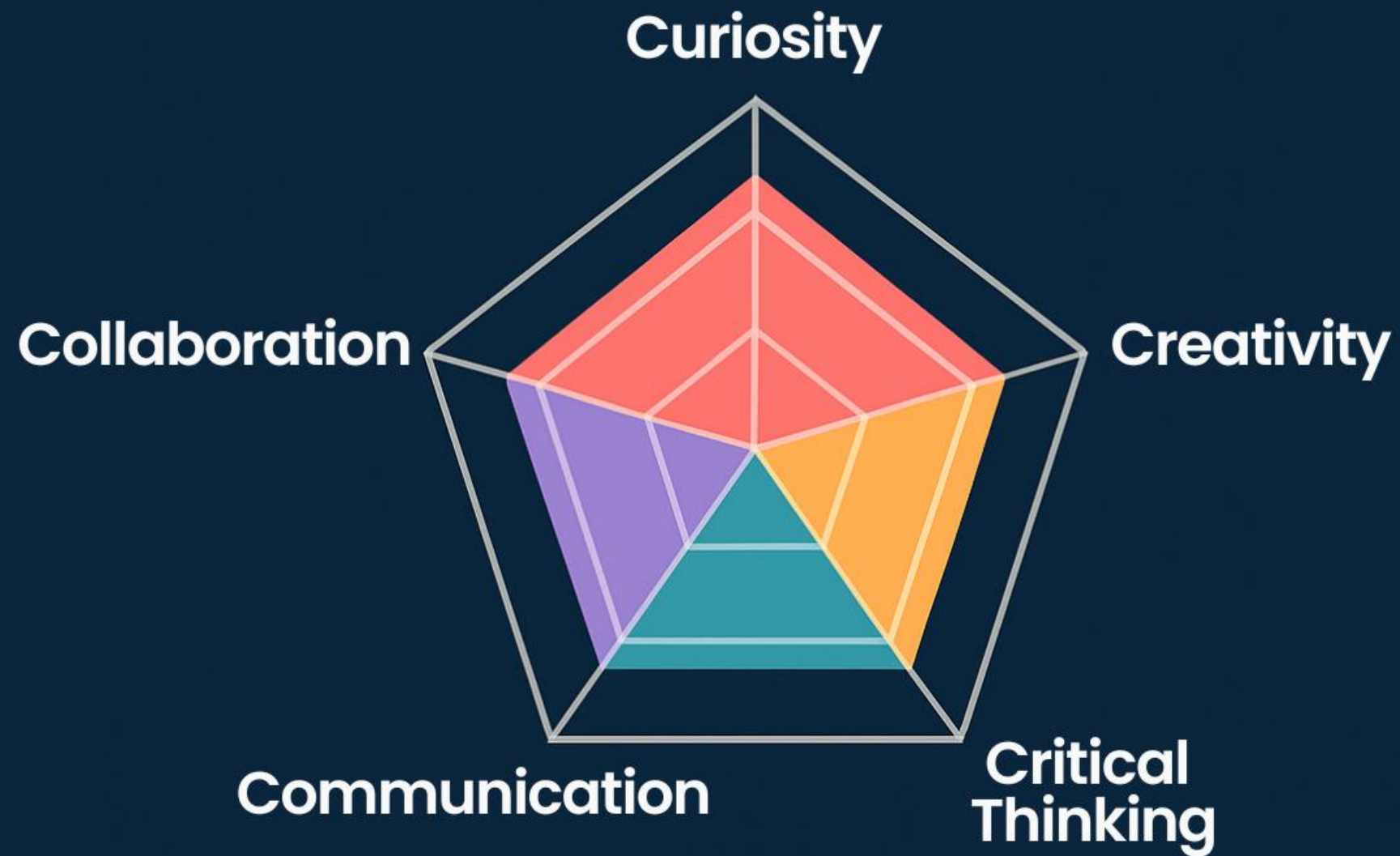
94%

worry future generations will lack adequate human skills.

95%

agree human skills are “timeless” and always important.

POWERED BY HUMAN SKILLS



References:

- 5 C's inspired by Anush Raman, Chief Economic Opportunity Officer, LinkedIn
- Image by Copilot

Research Coaches

Instructor

Role of the Research Coach

Assist students in the course with:

- Exploring & understanding research topic
- Developing focus group questions
- Facilitating employer interaction
- Designing poster dissemination
- Encouraging critical thinking

Employer



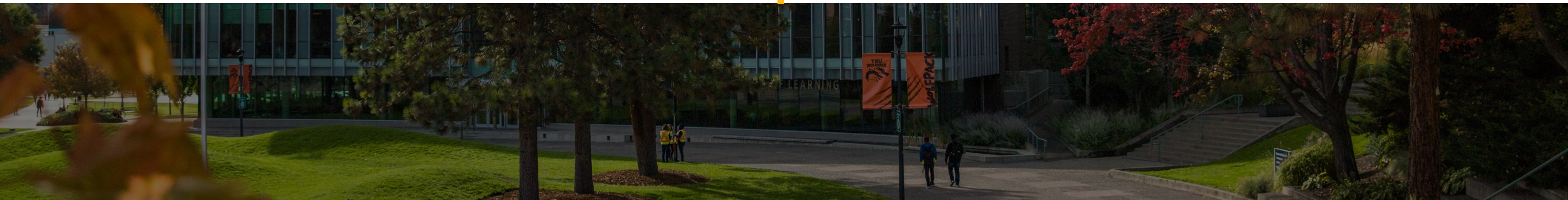
Overview

Project Objectives

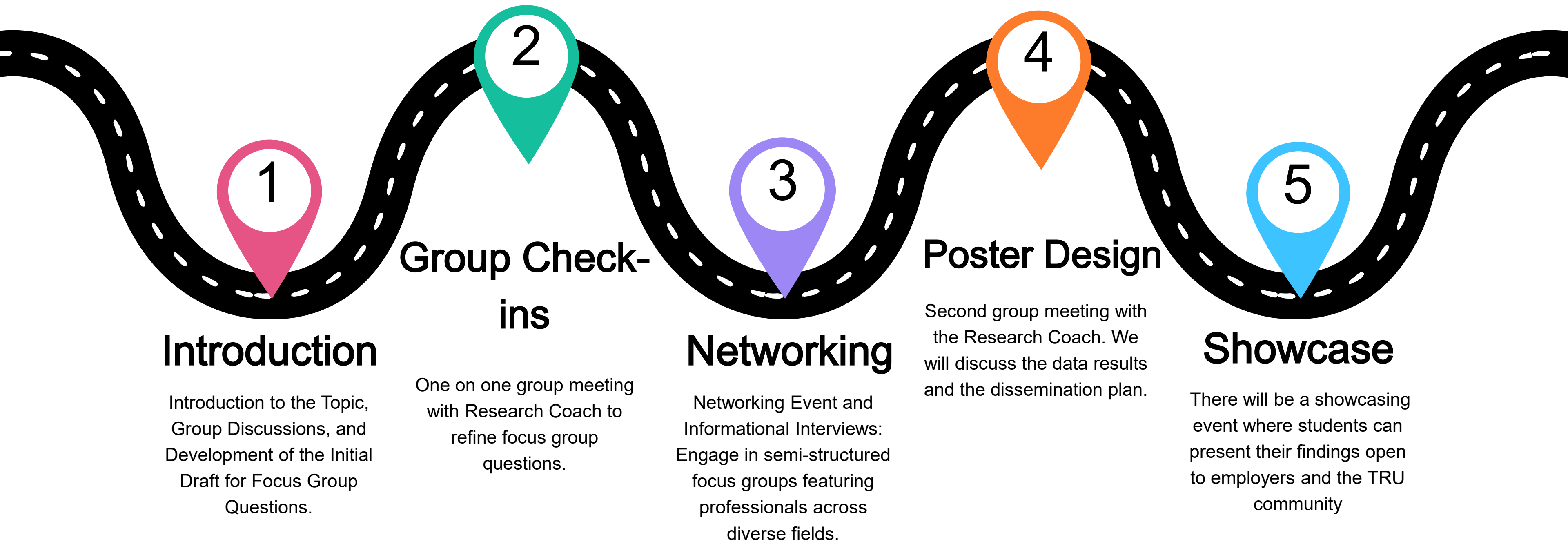
Understand and explore research topics and how it affects professionals in the workplace

Enhance skill development, confidence, and preparation for future career development

Learn some of the elements of research



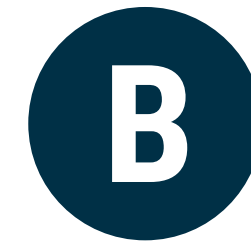
PROJECT TIMELINE



Methodology - Focus Group



Informational Interviewing



Networking

Research Questions:

Year 1

How do people in professional roles experience feelings of imposter in their workplace and in their field of expertise?

Year 2

How can students showcase curiosity while on Co-op, in interviews & in their career development?

How can co-op students demonstrate authenticity, courage, and curiosity in their career journey?

Year 3

How is the increasing use of generative AI and automation changing knowledge-based professions, and will there be a demand for human skills such as critical thinking and emotional intelligence?

Testimonial from the TRU Research Office

**Sukh Heer Matonovich,
BSW, MA**

Director, Student
Research and Graduate
Studies



Testimonial from Our Research Coach

Angel Masano, BCS
Graduate

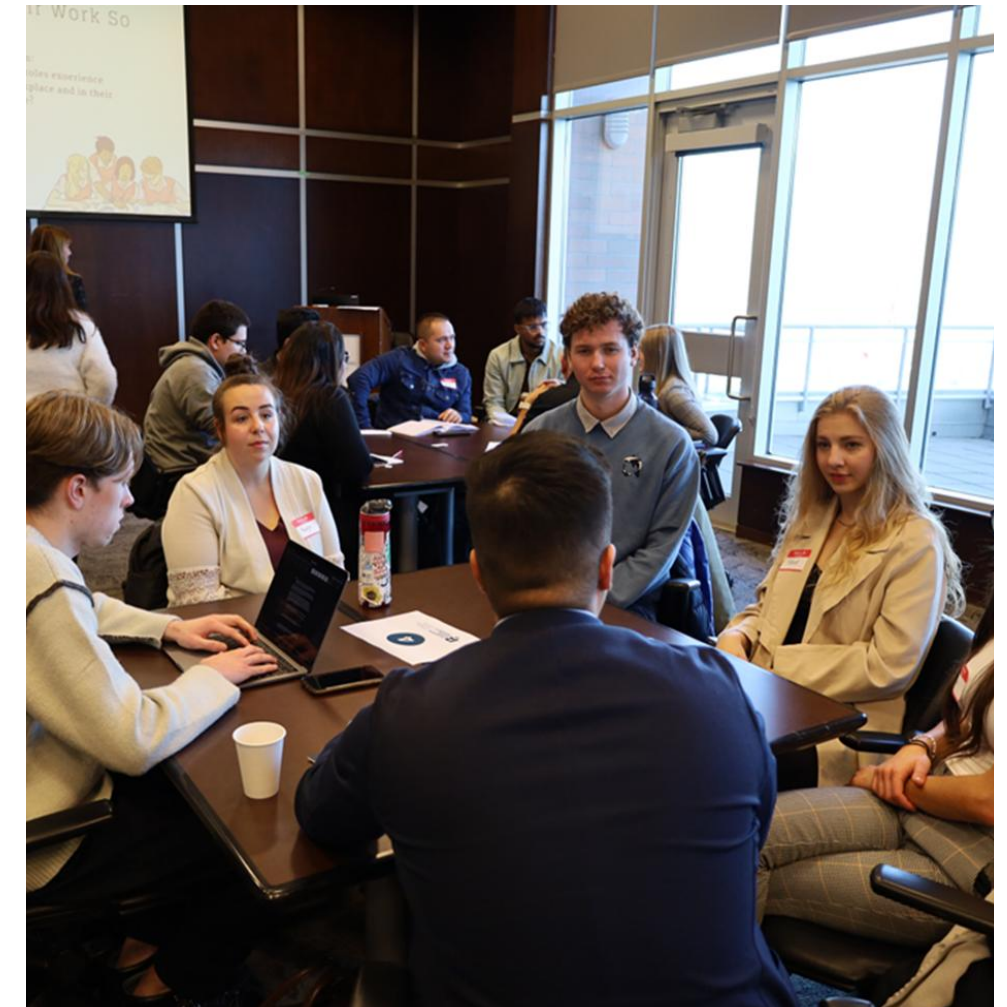
Co-op Alum, Research
Assistant, AI Evaluator
Freelance

- Introduced me to research
- Opportunity to work with a research team as a research assistant
- Gained confidence to pursue more roles
- Became a research coach after 16 months of co-ops

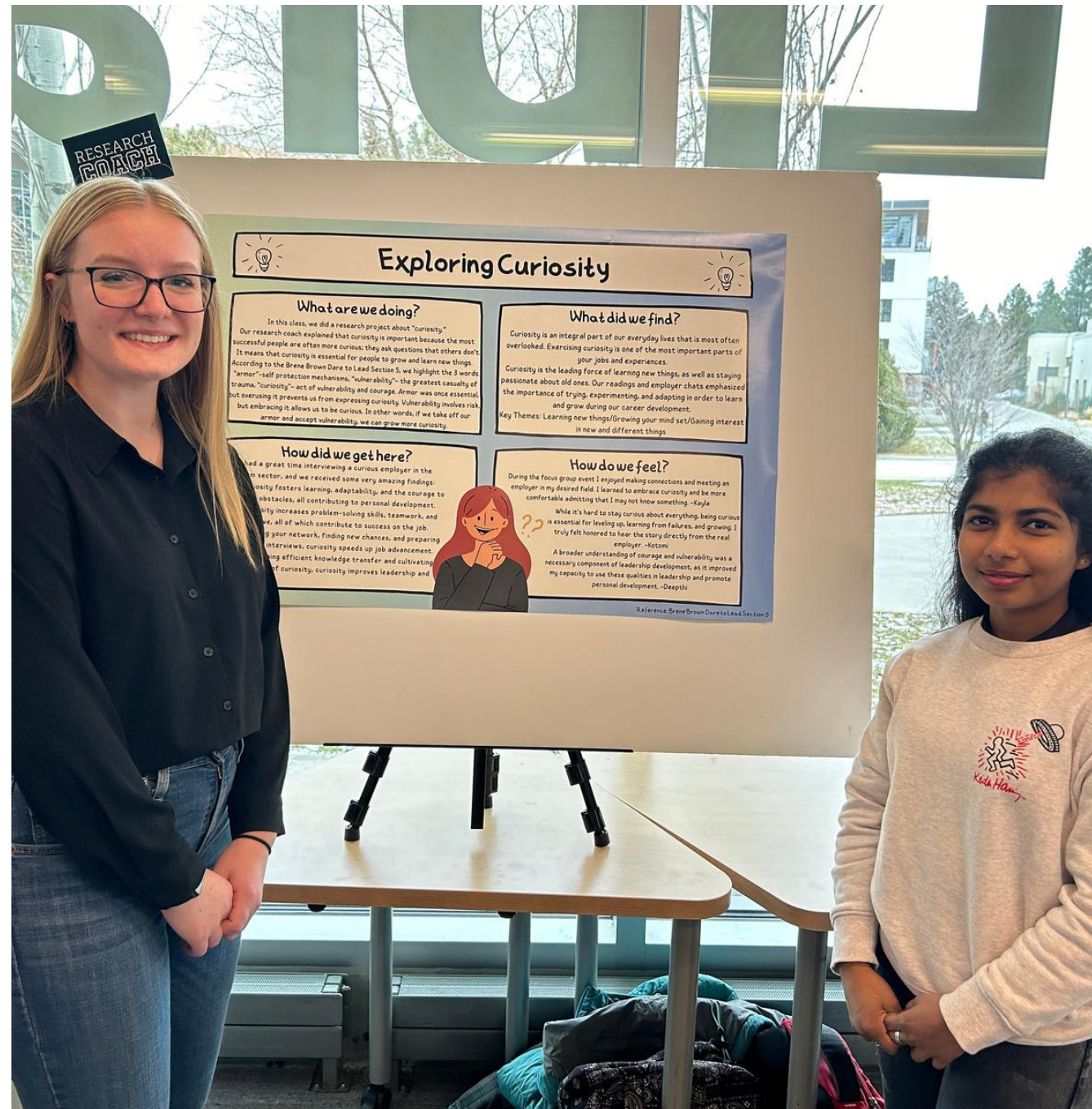
Instructors and Research Coaches



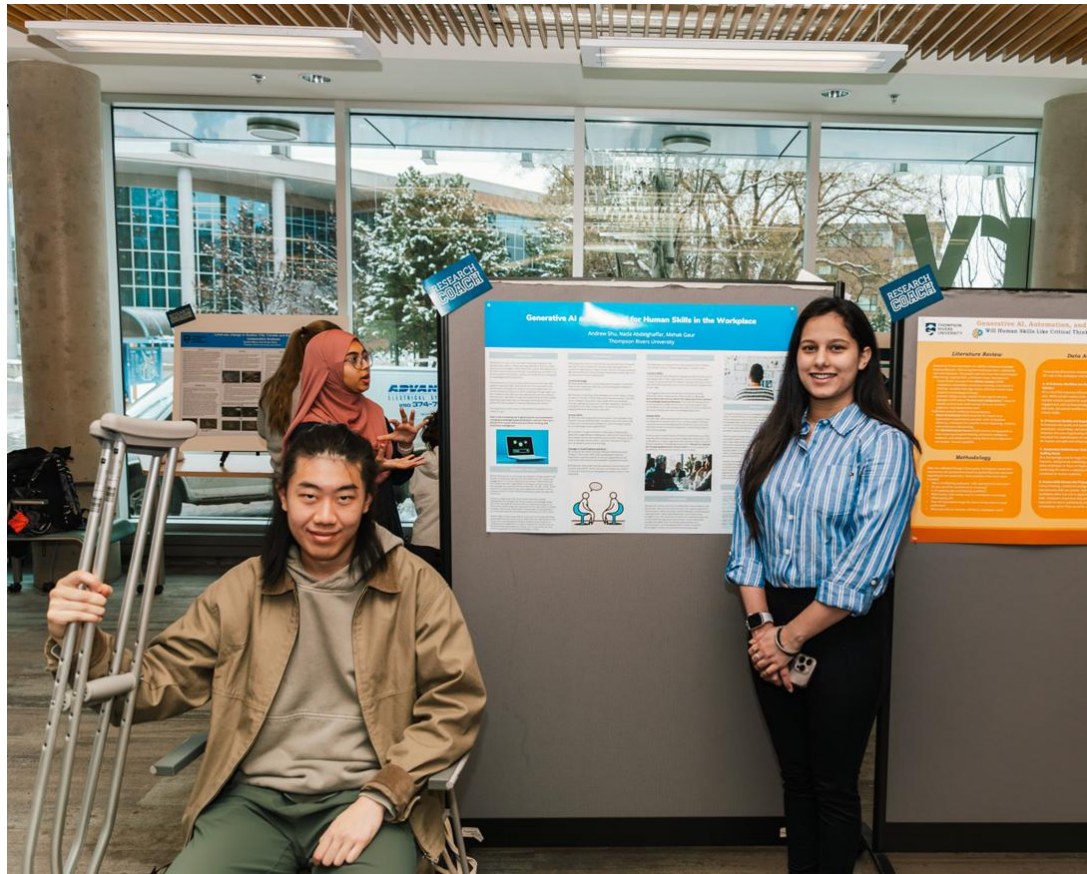
Focus Groups: The Employer Networking Event




Poster Showcasing



Poster Showcasing




Example Posters



Exploring Effects of Imposter Syndrome in the Workplace


Leah Makhoul, Yana Voitenko, Logan Hendry, Joshua Eaket



Contextual information

IMPOSTOR SYNDROME REFERS TO A PSYCHOLOGICAL PATTERN WHERE INDIVIDUALS DOUBT THEIR ACCOMPLISHMENTS AND HAVE A PERSISTENT FEAR OF BEING EXPOSED AS A FRAUD, DESPITE EVIDENCE OF THEIR COMPETENCE. PEOPLE EXPERIENCING IMPOSTOR SYNDROME OFTEN ATTRIBUTE THEIR SUCCESS TO LUCK OR EXTERNAL FACTORS RATHER THAN ACKNOWLEDGING THEIR OWN ABILITIES AND EFFORTS. THIS PHENOMENON CAN IMPACT VARIOUS ASPECTS OF LIFE, INCLUDING WORK, RELATIONSHIPS, AND PERSONAL DEVELOPMENT.

CONFIDENCE vs. COMPETENCE



Types of Imposter Syndrome include:

- SUPERHERO - OVERWORKING
- NATURAL GENIUS - SETTING UNREALISTIC GOALS
- EXPERT - NEVER SATISFIED
- PERFECTIONIST - FIXATED ON FLAWS
- SOLOIST - FEAR OF APPEARING INCOMPETENT

Analyzing Our Results

OUR GROUP WAS LUCKY TO RECEIVE THE OPPORTUNITY TO PRESENT OUR QUESTIONS TO REPRESENTATIVES OF EMPLOYERS TO UNDERSTAND HOW IMPOSTOR SYNDROME AFFECTS PEOPLE IN THE WORKPLACE. WE WERE ABLE TO GATHER VALUABLE INFORMATION WHICH WILL BE DISPLAYED THROUGHOUT THIS POSTER.

Questions

IF YOU COULD GIVE ADVICE TO PEOPLE, WHO ARE STRUGGLING WITH THE FEELING OF IMPOSTOR SYNDROME, WHAT WOULD IT BE?

BIGGEST PART WE CAN CONTROL: PLAYING THE PART, BEING PROFESSIONAL, ASKING LOTS OF QUESTIONS, DON'T BE AFRAID OF BEING THE NEW PERSON, BEING SELF-AWARE OF WHO YOU ARE AS A PERSON IN YOUR WORK ENVIRONMENT CAN PUSH YOU TO WORK AND ALLOW YOU TO EVALUATE YOURSELF AT THE END OF THE DAY.

FOCUSING ON YOUR STRENGTHS AND KNOWING YOU HAVE CONFIDENCE IN A CERTAIN ASPECT CAN BENEFIT YOUR CONFIDENCE OVERALL.

HAVE YOU FOUND THAT CERTAIN ENVIRONMENTS OR WORK CULTURES CONTRIBUTE MORE TO IMPOSTOR SYNDROME?

WE ARE ALL CONFIDENT IN OUR OWN CERTAIN FIELDS, BUT IN HIGH STRESS OR HIGH STAKES SITUATIONS LIKE PRESENTING IN FRONT OF MANY COLLEAGUES, THE FEELINGS OF IMPOSTOR SYNDROME RAMP UP.

HOWEVER, UNDERSTANDING THAT SOME DAYS WILL GO BETTER THAN OTHERS IS CRUCIAL IN NAVIGATING THROUGH IMPOSTOR SYNDROME. THE KEY IS TO GET RIGHT BACK UP AND START WORKING, ACKNOWLEDGING FEAR AND WORKING THROUGH IT.

HAVE YOU EVER FELT INADEQUATE BECAUSE OF YOUR AGE AND HESITATED OR DOUBTED YOURSELF WHEN TAKING ON DIFFICULT RESPONSIBILITIES AT WORK?

IT'S AN INTERESTING TRANSITION GOING FROM CO-OP STUDENT TO GRADUATING AND BECOMING AN EMPLOYEE. GETTING THE NEW ROLE AND THE BIGGER OFFICE CREATES ANXIETY, AND STUDENTS WON'T HAVE ALL THE EXPERIENCE NEEDED, BUT YOUR LACK OF EXPERIENCE IN A PARTICULAR FIELD DOES NOT MEAN WEAKNESS.

Reflection

SINCE INTERVIEWING THE FOCUS GROUP, WE HAVE BEEN ABLE TO REFLECT ON WHAT WE HAVE LEARNED, AND GATHER KEY PIECES TO TAKE AWAY FROM THIS PROJECT.

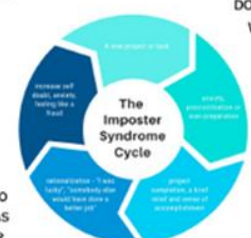
"TO OVERCOME AN EXCUSE OF I'M NOT GOOD ENOUGH IS TO DO THE WORK."

"YOU ARE WHERE YOU ARE FOR A REASON."

"A LOT OF CONFIDENCE STEMS FROM KNOWLEDGE."

"IMPORTANT TO BE ENGAGED, AS THE EMPLOYER CANNOT ACT AS A PARENT."

"IT'S A KNOWN FACT THAT STUDENTS WON'T ALWAYS HAVE ALL THE EXPERIENCE."



The Impostor Syndrome Cycle

"LACK OF EXPERIENCE IN A PARTICULAR AREA, DOESN'T MEAN A WEAKNESS."

"CHALLENGE NEGATIVE SELF-TALK."


"UNDERSTAND THAT EVERYONE FACES LEARNING CURVES."

"IT IS IMPORTANT TO UNDERSTAND YOURSELF AND YOUR PERSONALITY."

Overall


THE MAIN TAKEAWAYS ARE TO EMBRACE GENUINENESS, CULTIVATE CURIOSITY, AND ENDURE IN AN ENVIRONMENT OF UNCERTAINTY ABOUT YOURSELF.


EMBRACING NEW ROLES, ASKING QUESTIONS, AND SEEKING ENGAGEMENT ARE PROACTIVE STEPS. UNDERSTANDING ONESELF AND THE ENVIRONMENT IS CRUCIAL. ULTIMATELY, CONFRONTING IMPOSTOR SYNDROME INVOLVES DOING THE WORK, ACKNOWLEDGING FEARS, AND LEVERAGING STRENGTHS.



References and Acknowledgements


1. THINK AGAIN - CHAPTER 2: THE ARMCHAIR QUARTERBACK AND THE IMPOSTOR BY ADAM GRANT
2. FOCUS GROUP EMPLOYER REPRESENTATIVES





Demystifying How and Why People in Professional Roles Experience Feelings of Imposter Syndrome

Sajani Gunasekera, Praise Akinade, Manik Singh, Angel Masano
Department of Career and Experiential Learning, Thompson Rivers University



Introduction

Impostor syndrome, first identified in 1978, by Psychologists Clance and Imes is a common psychological phenomenon characterized by persistent feelings of inadequacy and fear of being exposed as a fraud, despite external evidence of success.

Objective

To raise awareness and promote a positive mindset in professional settings by addressing the issue of impostor syndrome. Ultimately, it is to inspire professionals to embrace their expertise, break the impostor syndrome cycle, and create a sense of confidence and belonging in their respective fields.

Background

Adam Grant's observations on impostor syndrome challenge the popular narrative that frequently characterizes it as exclusively harmful.

Benefits of Impostor Syndrome as argued by Adam Grant in his book "Think Again":

1. **Motivation to work harder:** Self-doubt can drive individuals to put in more effort and take on challenges outside their comfort zone.
2. **Openness to new approaches:** Impostor feelings can make individuals more receptive to feedback and different perspectives, leading to innovative problem-solving.
3. **Getting better at learning:** Acknowledging knowledge gaps can encourage active learning and seeking out guidance from others, fostering continuous improvement.

Traci Foster, a renowned Radiologist described Impostor Syndrome in her article *Feeling Like a Fraud: Impostor Syndrome and the Workplace*.

Methodology

Approach: ask multiple focus group questions to the industry professionals in a networking event. Each group member asked questions and the responses were noted down.

Purpose: get the underlying answer to the main research question: "How do people in professional roles experience feelings of impostor in their workplace and in their field of expertise?"

The curated research question had 2 levels:

1. How does impostor syndrome affect education and career?
2. How has impostor syndrome affected your education/career experiences?

8. *What can we do to demystify, normalize, or rethink impostor syndrome?*

1. How can an employer recognize impostor syndrome in their employees?
2. How can different ways of assessing mistakes at the workplace negatively affect impostor syndrome in employees?

How to reduce impostor syndrome in new employees

- Ensuring safety and equity in the workplace
- Communication
- Open to learn
- Having a mentor

Benefits of impostor syndrome

- Motivation
- Recognition of your mistakes and take corrective actions
- Humility
- Equity
- Belief in yourself

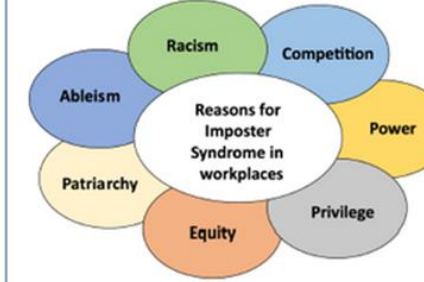
Figure 3. Reducing impostor syndrome and benefits of impostor syndrome

Analysis and Key Implications

Findings: impostor syndrome is more of a social issue rather than an individual issue since the society and the environment we live in feed us feelings of inadequacy of impostor syndrome.

Example: impostor syndrome gives a sense of inadequacy that can lead to exploitation by employers to overwork to prove ourselves at work.

Fig 2. The reasons for impostor syndrome in workplaces



Conclusions

Impostor syndrome is usually perceived as an internal issue. However, the external factors that help foster the feelings of impostor syndrome are overlooked.

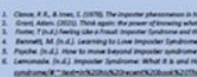
The usual focus is on the idea that feelings of impostor syndrome arise solely because of an individual's shortcomings. This focus overlooks the culture, environment, and relations that the individual has which contribute to the feelings of impostor syndrome.

The networking event that was attended by all group members and professionals, helped the group members become more confident in their ability to ask employers meaningful questions.

Group members gained insights about the importance of self-reflection while also considering the bigger picture of elements that we can not control but affect our lives.


Acknowledgements

- Dr. Leanne Mihalcz, TRU COOP 1000_04 instructor
- Jill Hayes, TRU Undergraduate Researcher leading the research on this topic
- All the professionals who attended the networking event
- Everyone who assisted in planning, coordinating and running the networking event
- TRU Department of Career and Experiential Learning
- TRU Faculty of Student Development



References

1. Clance, P. R., & Imes, S. (1978). The impostor phenomenon in high-achieving women: Concept and structure. *Journal of Personality and Social Psychology*, 44(1), 55-61.
2. Grant, A. (2013). *Think again: The power of knowing what you don't know*. New York: Penguin.
3. Foster, T. (2019). *Feeling Like a Fraud: Impostor Syndrome and the Workplace*. *Journal of Career Assessment*, 27(1), 1-15.
4. Masano, A. (2021). *Learning to Love Impostor Syndrome*. Retrieved from <https://www.mullerwell.com/learning-to-love-impostor-syndrome/>
5. Proulx, J. (2021). *How to move beyond impostor syndrome and thrive*. *Psychology Today*. Retrieved from <https://www.psychologytoday.com/us/articles/202103/how-to-move-beyond-impostor-syndrome-and-thrive>
6. Lammiman, D. (2021). *Impostor Syndrome: What It Is and How to Overcome It*. *Psychology Today*. Retrieved from <https://www.psychologytoday.com/us/articles/202103/impostor-syndrome-what-it-is-and-how-to-overcome-it>
7. Traci Foster, a renowned Radiologist described Impostor Syndrome in her article *Feeling Like a Fraud: Impostor Syndrome and the Workplace*.



Example Posters

“Mask off Cape on: Unveiling imposter syndrome in the workplace”

AUTHORS
 Noori Anwar (Bachelors of Computer Science)
 Krista Mae Pasillo (Bachelors of Business Administration)
 Yuting Gao (Bachelors of Business Administration)
 Sharad Ali (PhD in Tourism and Destination Development)

“How does imposter syndrome manifest across personal and professional domains?”

THOMPSON RIVERS UNIVERSITY

SPECIAL THANKS TO:
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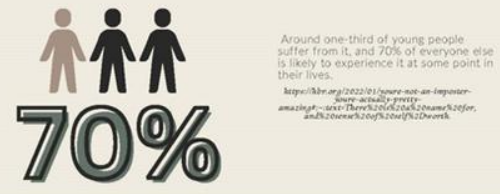
Background

What is it?
 Imposter syndrome is a psychological pattern in which an individual has doubts about his or her accomplishments and persistently internalizes the fear of being exposed as a “fraud.”

What can imposter syndrome tendencies lead to?
 People who struggle with “impostorism” are more likely to experience anxiety and depression. When these individuals experience failure, they are more likely to have low self-esteem and feel less satisfied with their lives.

Signs and symptoms
 People with imposter syndrome often attribute their success to luck or external factors rather than their own abilities and efforts. This syndrome is often accompanied by feelings of inferiority and fear of not being able to meet the expectations of others.

Who is affected?
 This syndrome can affect anyone, regardless of their achievements or qualifications.

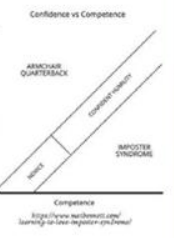


Methodology and Questions

This research employed a qualitative interview approach to investigate the manifestation of imposter syndrome across the workplace. The study involved two participants. The primary research question guiding the interviews was, “How does imposter syndrome manifest across personal and professional domains?”

The selection of participants was randomized and selected by the event organizer, aiming to capture a range of insights and experiences related to imposter syndrome. The participants were encouraged to provide detailed accounts of their experiences with imposter syndrome, exploring its impact on both personal and professional aspects of their lives.

To maintain consistency and reliability in data collection, a set of predetermined questions guided the interview process, focusing on aspects such as challenges faced, coping mechanisms employed, and the influence of organizational and societal factors on imposter syndrome experiences. The interviews were conducted in a networking setting to create a comfortable environment for participants to share their thoughts openly.



Results

The research findings show a generational dimension of imposter syndrome, exemplified by a military veteran grandfather's struggles in adapting to evolving workplace dynamics, particularly in the context of new technologies and changing cultural norms. Additionally, the study highlights a recurrent theme in the experiences of seasoned professionals, as observed in the participant's parents, who grapple with imposter syndrome when venturing into unfamiliar career territories. Both participants expressed a common challenge of readily offering reassurance to others while experiencing difficulty in self-assurance, frequently questioning the origins and legitimacy of their own achievements.

One participant noted missing opportunities giving an example of a missed networking opportunity due to feeling like he wasn't qualified enough to be talking to experts in the field. Contrarily, the other participant acknowledged that imposter syndrome has opened up opportunities but at the same time made the very same opportunities challenging than it had to be. He acknowledged the anxiety that came with imposter syndrome.

Both participants work within the same field and industry. One participant being from a start up company while the other from a larger company. The industry and their line of work affects them. The participant from a larger industry noted that his line of work had the reputation of being work problems as well as finding the competitive job economy in the race of finding the best programmers and learning the newest technology. The other participant start up company emphasized the evolving landscape of the industry as a key factor impacting their internal dialogue. In most cases they find themselves having to act like they know everything this notion despite being a programmer since the age of 13 leaves one of the participants questioning his capabilities.

Both participants asserted that imposter thoughts prompt a deeper self-examination, serving as a catalyst for the acquisition of additional skills and expertise to enhance confidence and competence within the educational or professional domain. Furthermore, drawing from their own experiences, the participants advocated for intentionally seeking discomfort as a strategy to foster confidence and facilitate career growth.

How to Cope

In response to the question of advice for individuals, particularly students or aspiring managers, grappling with imposter syndrome in the workplace, the following recommendations emerge: emphasizing the importance of adopting a constructive perspective, fostering open dialogues, embracing continuous learning, and deliberately seeking discomfort as a means of personal and professional development.

Reflections

Imposter syndrome is a crucial topic that demands increased discussion. Though it is widely recognized, it is insufficiently discussed, presenting various unexplored research opportunities. As students that are in pivotal moments of life where imposter syndrome is prevalent, learning from the findings enables one to refine imposter thoughts as common experiences tied to growth, fostering a more positive outlook and reducing self-doubt. Despite these challenges, the research underscores the potential for imposter syndrome to be harnessed as a catalyst for achieving success.

On the other hand, imposter syndrome hinders professional development, leading to a stagnant career and reduced productivity. Individuals who struggle with imposter syndrome often find themselves questioning their abilities and doubting their accomplishments. This self-doubt can lead to a lack of confidence and a reluctance to take on new challenges or responsibilities. The phenomenon hinders individuals from reaching their full potential and achieving their career goals. It is essential for individuals to recognize the signs of imposter syndrome and seek support to overcome it. Strategies such as seeking mentorship, celebrating small wins, and practicing self-compassion can help individuals build confidence and overcome imposter syndrome. The research also highlights the importance of creating a supportive work environment that encourages growth and learning. Organizations should provide opportunities for professional development and offer support to employees who may be struggling with imposter syndrome. By addressing this issue, organizations can foster a culture of continuous learning and innovation, leading to increased productivity and success.

Thu Tran
GROUP #6
Mayank Mehan

BACKGROUND

Imposter Syndrome refers to chronic feelings of inadequacy in individuals' professional and personal lives. The term was introduced in an article written in 1978 by Pauline Clance and Suzanne Imes.

Symptoms include a persistent fear of failure, lack of self-confidence, and difficulty accepting praise, all of which can negatively impact performance in the workplace or at home.

Our group met with an HR coordinator from NewGold Mining in Kamloops named Paige Martin to discuss her experience with IS has had on her

RESEARCH

After conducting an interview with Paige, we discovered that she experienced a form of imposter syndrome that can be described as superhuman.

Initially, she struggled to manage various tasks. She often thought that she was not good enough. Fortunately, she was able to confide in her supervisor and other colleagues helped her settle in and overcome her challenges. Today, she feels confident in her work and is familiar with the entire company.

ANALYSIS

5 types of Imposters

- The Expert
 - Over-prepared
 - Knowledge hoarder
- The Perfectionist
 - Flawless
 - Overachiever
- The Natural Genius
 - Quick learner
 - Mastery expectation
- The Soloist
 - Avoid collaboration
 - Self-reliant
- Superhuman

Adapted from The Secret Thoughts of Successful Women by Dr Valerie Young

Paige Martin

- Self-doubt
- Feeling unworthy
- Negative self-talk
- Pressure

DISCUSSION

Symptoms of IS are present in more people than one might expect and can affect even the highest-achieving business executives, politicians, and artists.

Tips for Overcoming Imposter Syndrome:

- Don't compare yourself to others
- Change negative thoughts patterns
- Accept that you are in work progress
- Learn to fail better
- Seek support

REFERENCES

Cuncic, A. (2023, November 2). *Imposter Syndrome: Why You May Feel Like a Fraud*. Verywell Mind. <https://www.verywellmind.com/imposter-syndrome-and-social-anxiety-disorder-4156469>

Edinburgh, K. A. (2022, November 23). *How to overcome imposter syndrome: 10 actionable strategies to try today*. Exam Study Expert. <https://examstudyexpert.com/imposter-syndrome/>



Impacts and Future Planning

Project topics align well with curriculum

Hands on and experiential learning

Students less intimidated by the idea of a research project to empowered and excited

Employer and student connection and engagement

Potential to develop into a WIL or SoTL research project

Opportunities to explore other career development topics and have different options for dissemination

TRU Undergraduate Research Conference March 2024



Brainstorming & Poster Gallery Walkout

➤ In small groups, answer the following questions: ◀

1. Which topics do you like the best?
2. Can you think of other “trending” workplace topics or resources?
3. How could you adapt this type of project in other settings?
4. What elements could we change in the format/structure?

