

Navigating Your Future Through Design

Guiding Students
Through The College
Experience and Beyond

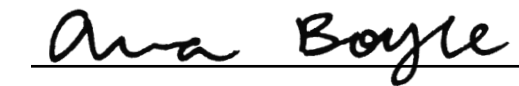
ANNA BOYLE



Navigating Your Future Through Design

Guiding Students Through The College Experience and Beyond

A thesis submitted to the School of Design, Carnegie Mellon University,
for the degree of Master of Design in Design for Interactions.



Anna Boyle, Author



Stacie Rohrbach, Advisor

Date of Original: May 19, 2021

IRB: STUDY2020_00000293

IRB: STUDY2021_00000054

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Acknowledgments

First and foremost I would like to thank my advisor Stacie Rohrbach for her steadfast encouragement, patience, and guidance throughout my entire thesis journey. Thank you for helping me push my research and ideas to achieve an effective outcome, for which I am proud.

I would also like to extend a thank you to all of my research participants, including school counselors across Pennsylvania and Colorado, college students across the nation, and first

year students in the School of Design who participated in my two research workshops. Your time, feedback, and insights were invaluable to my study.

Lastly, I would like to express my sincere appreciation to my peers and colleagues within the School of Design at Carnegie Mellon University, in addition to my friends and family who provided unconditional love and support throughout the whole process. Thank you!

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Abstract

For students who are transitioning from high school into college, navigating academic learning experiences alongside self-discovery and personal growth can be challenging and stressful. Although some students can see a clear path ahead of them, the majority of students feel uncertain about their future and their fit within it.

Students who are pursuing higher education face many obstacles that can lead to confusion and uncertainty, which can keep them from achieving their goals to graduate and receive gainful employment. The drawbacks of the current higher education system pose the following obstacles for students:

- **A limited understanding of the connections between their academic goals and career goals.**
- **A lack of support in keeping their educational momentum going to stay on track, graduate, and avoid accruing additional debt.**
- **A lack of structure in identifying clear career paths forward after receiving their degree and entering the workforce.**

(“Complete College America”, 2021)

Due to these shortcomings, there is a significant need for research that investigates how the design of an academic tool can help students transition from high school into

college, while empowering them to take control of their future over time. A well-designed academic tool has the potential to assist students in the process of understanding their fit and purpose, aid them in their long-term planning, build their confidence in decision making, and provide them insights into career opportunities while engaging them throughout the process. These four design principles served as a foundation and guide for my research and design concept.

- **Fit and Purpose**
- **Long-Term Planning**
- **Confidence in Decision Making**
- **Insights Into Career Opportunities**

A well-designed academic tool could have a significant impact in providing young adults the guidance they need to follow a clear career path, achieve financial security, and contribute to their communities. In addition, a tool of this nature could also reduce college dropout rates and the frequency of students changing majors, ultimately saving them time and money while streamlining their process of self-discovery (“The Boomer Cult of Self-Realization Is Killing College”, 2020).

1.0

Introduction

The objective of this project is to identify areas for intervention within the space of academic tools available to students pursuing higher education. My goal was to understand the affordances of existing tools, identify ways that they could be improved to address the challenges that students face when navigating their academic experiences alongside the goals that they hope to pursue in their future careers, and leverage design to realize my objectives.

My decision to initially investigate post-secondary education in the form of Bachelors, Associates, and Certificate Programs derives from the fact that they serve as immediate educational opportunities available to students after their high school graduation. After conducting my exploratory research, I narrowed my design direction to support first and second year undergraduate students as they transition between high school and college. I made this decision based on the research I conducted comparing high school academic tools to post secondary academic tools. Through my analysis, I identified a lack of support in career and future planning for undergraduate students in their first and second years of college following high school graduation.

The higher education system has the opportunity to shape individual lives and strengthen the foundations of our society. However, the current dropout rate for undergraduate students remains at 40%, with approximately 30% of college freshmen dropping out before their sophomore year (“College Dropout Rates”, 2021). Although higher education is a critical next step to personal and professional growth for young adults, completing forms of subsequent education after high school remains difficult for them. Students often face financial, parental, and personal pressures that keep them from achieving their individual goals and career aspirations. My inquiry aims to teach students how to reflect on their individual experiences while assisting them in discovering professional opportunities outside of their educational practice.

RESEARCH QUESTION

How can the design of an academic tool help students transition from high school into college, while empowering them to take control of their future over time?

Research Question

Through my research I investigated:

How can the design of an academic tool help students transition from high school into college, while empowering them to take control of their future over time?

I then identified specific sub-questions that aligned with the four design principles, which served as a foundation and guide for my research. The key below was used to ensure that all of my research questions were addressed through the activities I conducted throughout the study.

KEY

- Literature Reviews
- Artifact Reviews
- Survey
- Expert Interviews
- Generative Activity
- Evaluative Activity

Understanding Fit & Purpose	Long Term-Planning	Confidence & Decision Making	Insights Into Career Opportunities	Existing Tools	Digital Tools v.s. Mentorship Programs	Design of the Student Journey
<p>What goals or achievements do students associate with finding their fit or purpose?</p> <p>● Generative Activity</p> <p>What currently supports them in this process?</p> <p>● Survey</p>	<p>What assistance might students need to engage in long-term planning for their future?</p> <p>● Expert Interviews</p> <p>● Survey</p> <p>What does planning for the future currently look like and how do students guide their decisions when planning?</p> <p>● Expert Interview</p> <p>● Literature Reviews</p> <p>● Survey</p>	<p>How are students making career decisions with confidence?</p> <p>● Survey</p> <p>How confident are they in the decisions they are making?</p> <p>● Survey</p> <p>What fosters confidence in students’ decision-making?</p> <p>● Survey</p> <p>What is informing students’ career decisions?</p> <p>● Expert Interview</p> <p>● Survey</p>	<p>How can the design of an academic tool help students understand the opportunities that are available to them and to help them make decisions?</p> <p>● Generative Activity</p> <p>What career opportunities exist for students outside the classroom?</p> <p>● Artifact Reviews</p> <p>● Survey</p> <p>● Expert Interviews</p> <p>● Evaluative Activity</p> <p>● Generative Activity</p>	<p>What tools currently exist?</p> <p>● Expert Interviews</p> <p>● Survey</p> <p>● Artifact Reviews</p> <p>What are these tools doing well and what areas warrant improvement?</p> <p>● Artifact Reviews</p> <p>What are the differences between digital tools and in-person mentorship programs?</p> <p>● Artifact Reviews</p>	<p>How are they similar and how are they different?</p> <p>● Artifact Reviews</p> <p>How are they specifically helping students define their fit and purpose in society?</p> <p>● Artifact Reviews</p> <p>What are the differences between digital tools and in-person mentorship programs?</p> <p>● Artifact Reviews</p>	<p>How are students visualizing their own academic journey? What mental models have they developed?</p> <p>● Evaluative Activity</p> <p>What is working well and what areas warrant improvement?</p> <p>● Artifact Reviews</p> <p>● Evaluative Activity</p> <p>How are existing tools representing the design of the student journey?</p> <p>● Artifact Reviews</p>

3.0

Exploratory Research

I began the exploration of this problem space through the review of literature within the fields of learning experience methodologies, future studies, educational theories, and design in planning. This literature helped identify different design methodologies and frameworks that structured the design and evaluation of my activities and tools.

Alongside this exploration, I also conducted expert interviews with school counselors and an informational survey with current students. I conducted the interviews, survey, and literature and artifact reviews simultaneously to support my understanding of the problem space from the first person perspective of school counselors and current students.

Literature Reviews

Learning Experience Methodologies

Future Studies

Educational Theories

Design in Planning

The literature reviews included in my study helped me gain insight into the role of design in the following four areas: learning experience methodologies, future studies, educational theories, and design in planning.

Design for How People Learn

This book outlines key principles that support both learners and educators in developing memorable, meaningful, and engaging learning experiences. In Chapter three Dirksen identifies four foundational steps that educators can use to define a path for learners within a learning experience. The four steps include:

1. Identifying the problem that warrants solving
2. Setting the ‘destination’, which refers to the learning goal
3. Determining the gaps between the starting point and the destination
4. Defining suitable and feasible learning expectancies

In my examination of the design of academic tools, I found it important to identify the specific learning gaps that lie between students’ educational experiences and their end goal of defining their career aspirations. I studied existing tools and identified themes and patterns in learning gaps that challenge students in determining their career or educational trajectory. I then evaluated the problems using Dirken’s classification of gaps which include: knowledge gaps, skills gaps, motivation or attitude gaps, and communication gaps. This model helped me identify the key features in each tool and the gaps they did/didn’t bridge. Through this analysis, I identified mentorship, internships, and hands-on learning as approaches that would address all five learning gaps in achieving a holistic learning experience for students.

Understanding by Design: The Six Facets of Understanding

In this book, Chapter four outlines the *Six Facets of Understanding* within the following areas: explanation, interpretation, application, perspective, empathy, and self-knowledge. Wiggins and McTighe refer to these areas as a multifaceted view of what makes up a level of mature understanding. This chapter is specifically framed as an analysis of developing levels of understanding between teachers and students.

In the development of my design, I drew upon the Six Facets in my assessment of each activity. The facets that I found to be the most relevant include:

- **Explanation**
- **Interpretation**
- **Application**
- **Perspective**
- **Self Knowledge**

I focused on these five facets because they specifically support an individual level of understanding. In contrast, “empathizing”, the facet I did not include, emphasizes interactions among people, which falls outside of the scope of the individual.

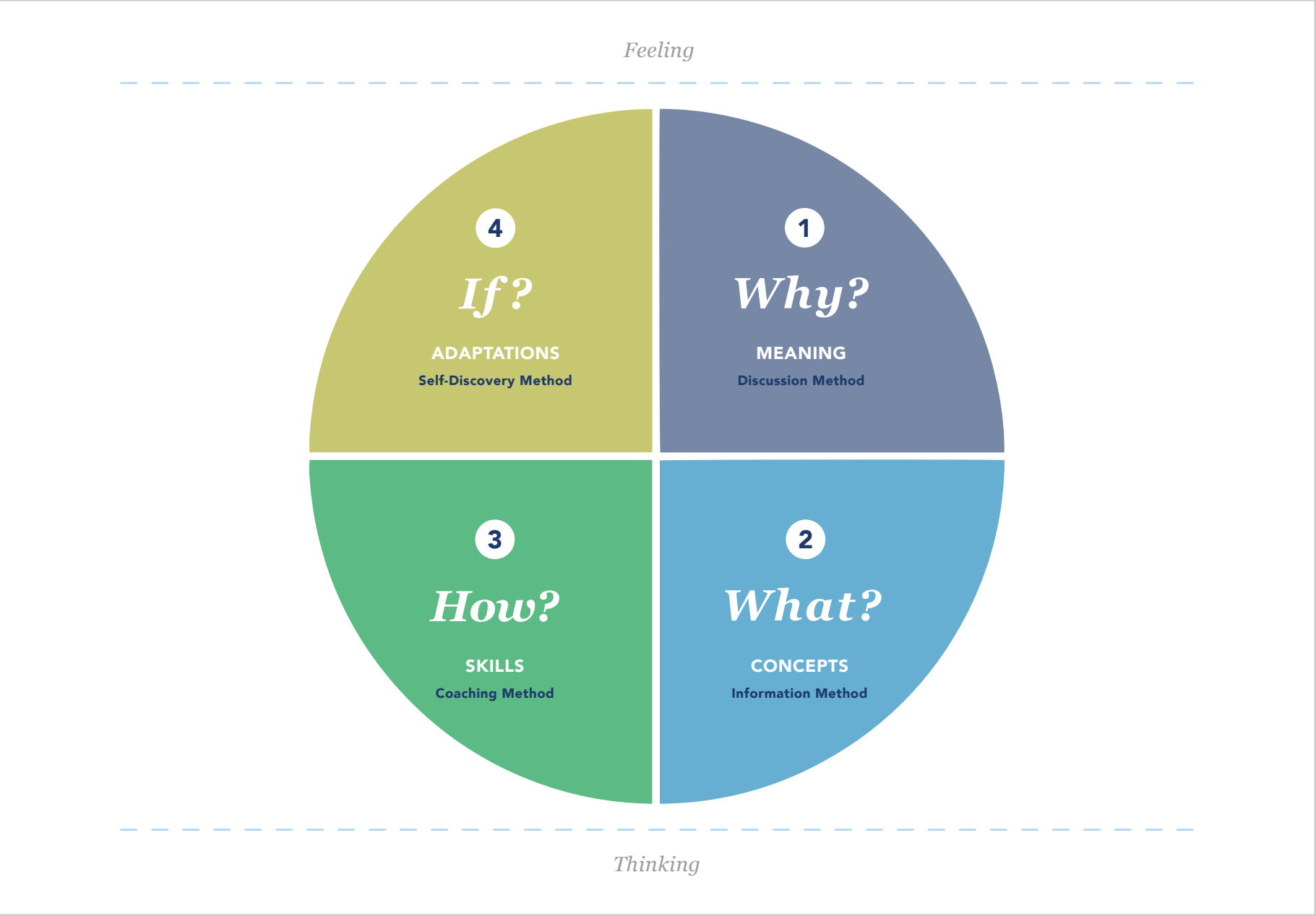


Fig. 1.0
Shown here is McCarthy's 4MAT Learning Cycle that she proposes as a guide for teaching and learning. (McCarthy, 2000)

About Learning

This book describes the structure and affordances of The 4MAT Learning Cycle, which represents a comprehensive learning cycle that takes into account the various ways information is perceived and processed. In this model, Bernice McCarthy outlines four distinct quadrants that embody a successful learning cycle that students move through by focusing on specific questions, which includes:

- Quadrant 1: Asking ‘Why?’ to gain meaning
- Quadrant 2: Asking ‘What?’ to conceptualize concepts
- Quadrant 3: Asking ‘How?’ to engage with problem-solving
- Quadrant 4: Asking ‘What if?’ to apply concepts to new, related contexts

In the design of the activities I developed, I used this model to understand how a successful learning cycle could be leveraged by students and school counselors.

Therefore, The 4MAT Learning Cycle system played an integral role in my approach to structuring the learning

experiences that I designed for first year undergraduate students and their counselors. In my design, I strived to move students through all four quadrants of the learning cycle as opposed to only focusing on the first and second quadrants, where teachers or counselors are often more actively engaged in the process. This approach provides students increased agency and control over their learning and how they apply concepts to themselves throughout the process. Specifically, I focused on providing students the opportunity to engage in the process of learning about themselves through activities that prompt them to problem solve, adapt, and transform through self-discovery. While providing a strong foundation for the structure of my activities, The 4MAT Learning Cycle also helped me consider the benefits of various learning environments that can be leveraged throughout each activity to foster collaboration and conversations between students and their counselors.

How Learning Works: 7 Research-Based Principles for Smart Teaching

This book outlines seven principles of applying the science of learning to education, specifically within higher education. In Chapter two, Ambrose et. al explain how students organize their knowledge in order to structure their understanding of new material and how instructors can implement strategies for their students to “develop a deep functional understanding of a multifaceted complex domain” (Ambrose et. al, 2010, p. 41-42).

This chapter informed my understanding of how students create mental models to organize their thinking and frame their learning outcomes. When considering the design of activities for first-year undergraduate students, I defined various design approaches that aimed to help students practice expert knowledge organization, including creating concept mapping, comparing and contrasting different outcomes, and applying their learnings to more complex systems of understanding.

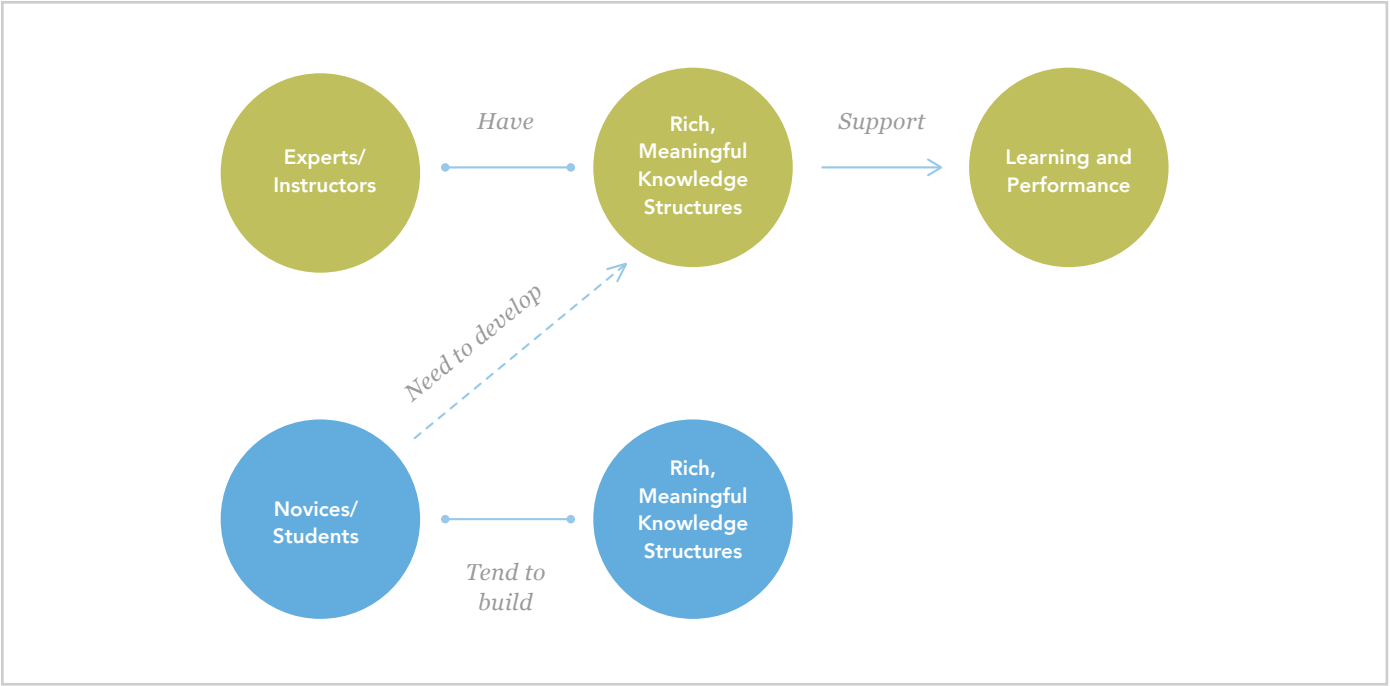


Fig. 1.1
Shown here is Ambrose’s differences in how experts (instructors) and novices (students) organize knowledge. (Ambrose et. al, 2010, p. 45)

The Six Pillars: Futures Thinking or Transformation

This paper outlines six foundational concepts for investigating possible futures alongside case studies and methods that engage both individuals and organizations in the practice of future studies. Sohail Inayatullah presents the six pillars in the form of mapping, anticipating, timing, deepening, creating alternatives, and transforming the future. In my study, I found the application of three of the six pillars useful in exploring how school counselors prepare students for college and future work. The three pillars that I utilized include:

- 1. Mapping
- 2. Anticipating
- 3. Deepening of the Future

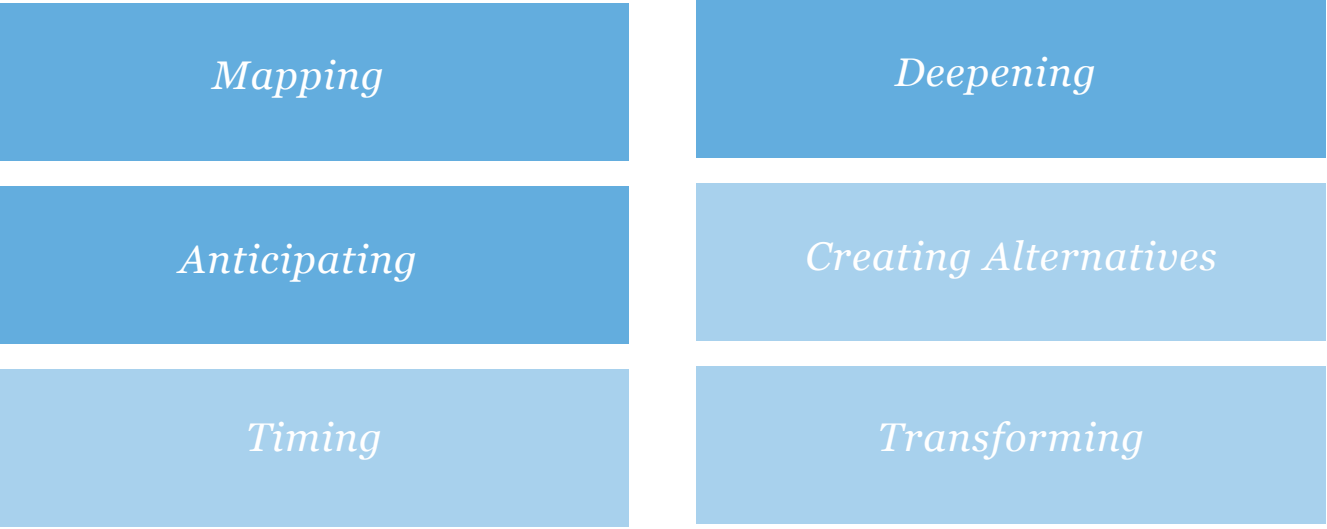


Fig. 1.2
Shown here is Inayatullah’s complete Six Pillars framework. Indicated are the three pillars I leveraged in darker blue.

I chose to utilize these three pillars because I discovered merit in applying future practices that are proven effective at an organizational level to the design of a tool geared to individuals at a personal level.

This framework helped me understand the different ways I can help students scaffold their future aspirations to clarify their vision of their future. Through the six pillars, I gained insight into approaches, methods, and activities that support future studies and how individuals can learn and apply them in their everyday lives.

Human Communication:
Elements and Context

This book explains the elements and context of human communication through a systems-based approach. It aims to unify the understanding of human communication and make connections between how people perceive human communication within different environments. Specifically communication is analyzed through a system of different inputs, outputs, feedback, and processing that are involved between people in interpersonal relationships.

In Chapter two, Emmert and Donaghy introduce the Motivational Sequence of Ehninger, Monroe, and Gronbeck (1978). It is composed of five steps: attention, need, satisfaction, visualization, and action. The sequence guided my design of an experience between first-year undergraduate students and counselors, informing each activity and discussion that they have with one another.

In addition to the Motivational Sequence outlined in Chapter two, I was also influenced by the model of dyadic communication developed by Emmert and Donaghy. This model helped me establish my own mental model of how students communicate with teachers and how counselors and mentors run interference between messages and feedback in an effort to guide students’ understanding of their interests and next steps in pursuing their future career aspirations.

MOTIVATIONAL SEQUENCE

- 1. **The Attention Step** -The receiver’s attention is caught.
- 2. **The Need Step** - The listener is made to feel a definite need regarding the topic presented in the message.
- 3. **The Satisfaction Step** - The listener is shown a way in which the need can be satisfied. The way to satisfy this need is to adopt or accept whatever is advocated by the speaker.
- 4. **The Visualization Step** - The benefits to the listener for accepting the recommendations of the speaker are visualized for the listener. The listener is shown, in a graphic form, what acceptance of the recommended course of action will do for him or her.
- 5. **The Action Step** - The speaker gives the listener a specific course of action that can be followed in order to achieve the satisfaction suggested in the message.

(Emmert, P., & Donaghy, W. C., 1981, p. 32)

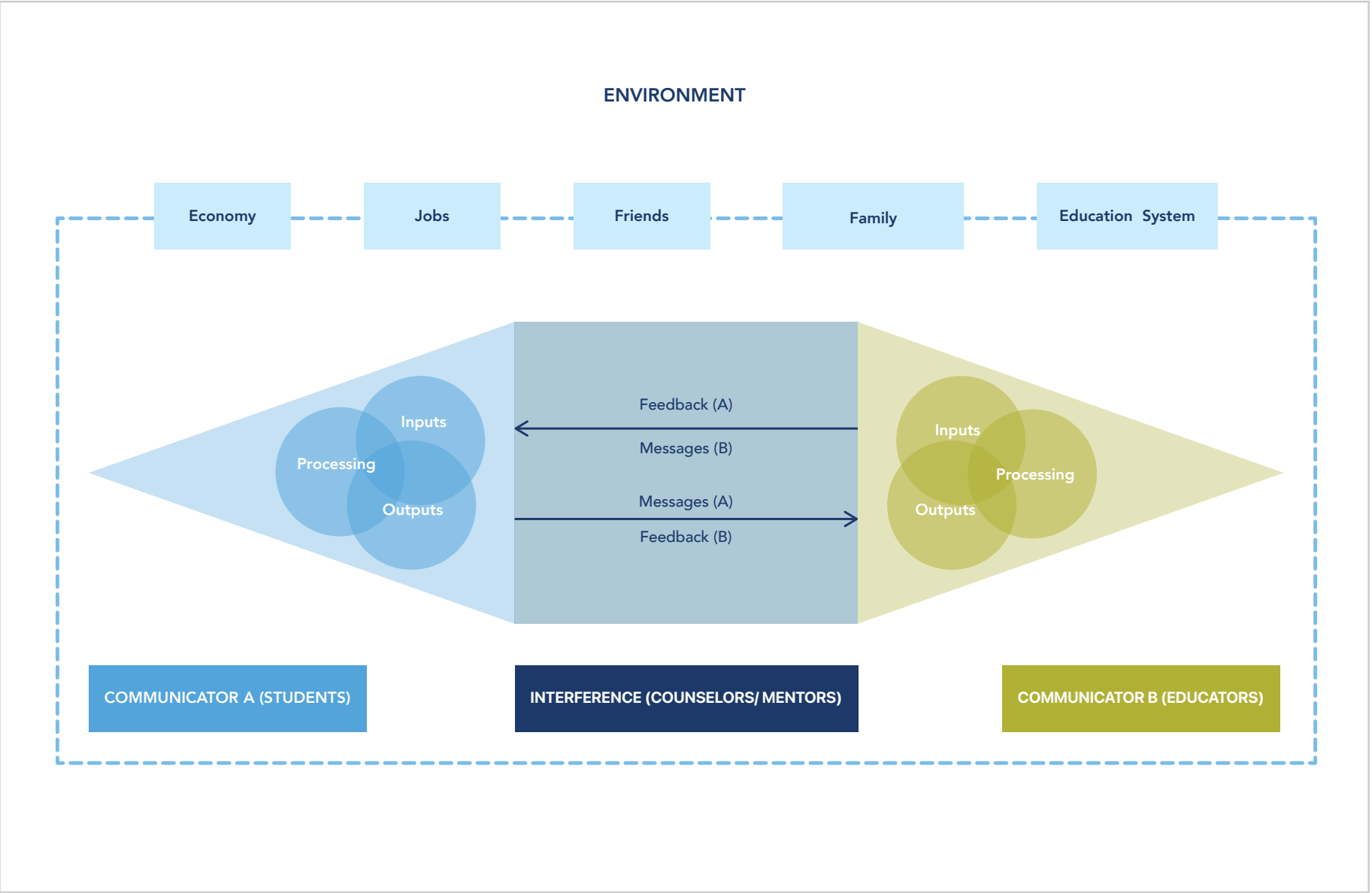


Fig. 1.3
Shown here is the Dyadic Communication System framework.
(Emmert, P., & Donaghy, W. C., 1981, p. 40)

Experience & Education

In this book, John Dewey describes the differences between traditional educational and progressive educational practices, and how different approaches to teaching influence students’ perspectives on how they apply what they learn in the future. In Chapter three Dewey summarizes the principles of an educational experience within the principles of continuity and interaction. Within the principle of continuity, he states that if education is positioned to engage curiosity, develop initiative, and aid individuals in thinking about their future, then every experience can be seen as a moving force (Dewey, 1938, p. 38).

Within the study of academic tools that help students define their fit and purpose, I believe there are opportunities to use the principles of “interactions” and “continuity” to help students participate in activities that foster their growth in future professional experiences. For example, through a series of student interactions, whether in the form of interviews with professionals or formative internship experience, the act of reflection through writing or conversation with mentors or counselors develops a level of continuity surrounding the experiences. This process can then lead to personal growth and the ability to engage in relevant future experiences.

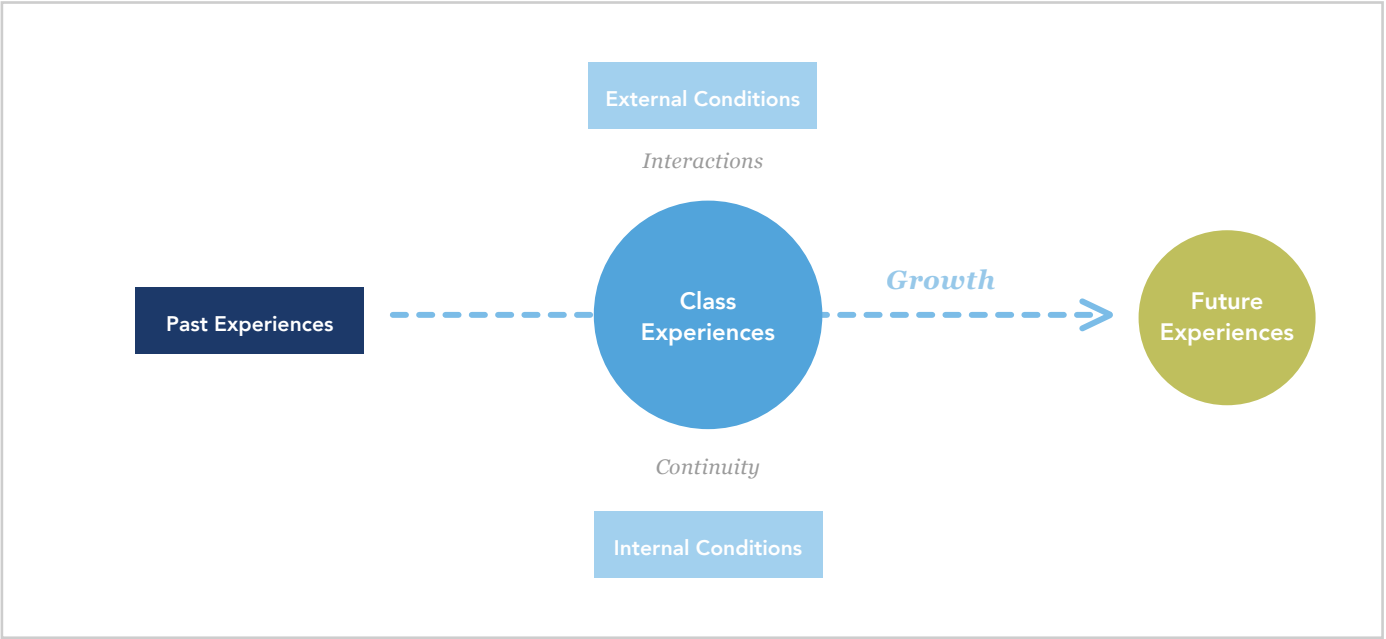


Fig. 1.4
Shown here is an illustration of Dewy’s principles of an educational experience within the principles of continuity and interaction. (Krutka et. al, 2017 , pg. 217)

The Calling Process: A Step by Step Guide to Finding Purpose and Pursuing Your Dream Job

This book is a short step-by-step guide written to help individuals who feel lost in their current job or job search develop a framework for making decisions for themselves to find their “dream job” and develop a sense of meaning and purpose. Cumberland breaks down the original stereotypes and mental models that we associate with work, such as work shouldn’t be fun or that making good money is all that matters and re-frames them by finding themes and meaning in our past experiences. From here, Cumberland suggests applying these themes and patterns to work that

one has done and to which they have felt connected; such as self-achievement or helping other people.

I appreciated Cumberland’s framework that prompts individuals to look into their past experiences, both in life and in their work, to help them find their purpose for their future. Cumberland’s framework influenced my decision to include self-reflection in the activities designed for first and second year undergraduate students.

Artifact Reviews

Digital Tools

Mentorship Tools

Following my literature reviews, I reviewed seven digital tools that provided insights into what students in high school and college are afforded and use. I also reviewed digital collaborative communication platforms such as SkillShare, Slack and Miro to better understand the effectiveness of new and evolving platforms in leveraging communication tools in a digital context online. In addition to the seven digital tools that I reviewed, I also analyzed four existing online mentorship tools to understand how interactions between students and mentors in a digital environment are encouraged and facilitated.

Canvas

Canvas is a learning management platform that supports teaching and learning for K-12, Higher Ed, and Business Training programs. The Canvas platform focuses on developing virtual student and instructor interactions that enhance online learning environments and experiences. As a tool that has been scaled for Higher Education, Canvas has emerged as one of the leading learning management platforms in the industry. The adoption and evolution of Canvas within Higher Education highlights the strengths of online learning tools.

The evolution of online learning is encouraging because contemporary advances provide communication and interaction opportunities within higher education academic counseling. This begs the question of whether a university design mentorship program can also be integrated effectively into an existing established system.

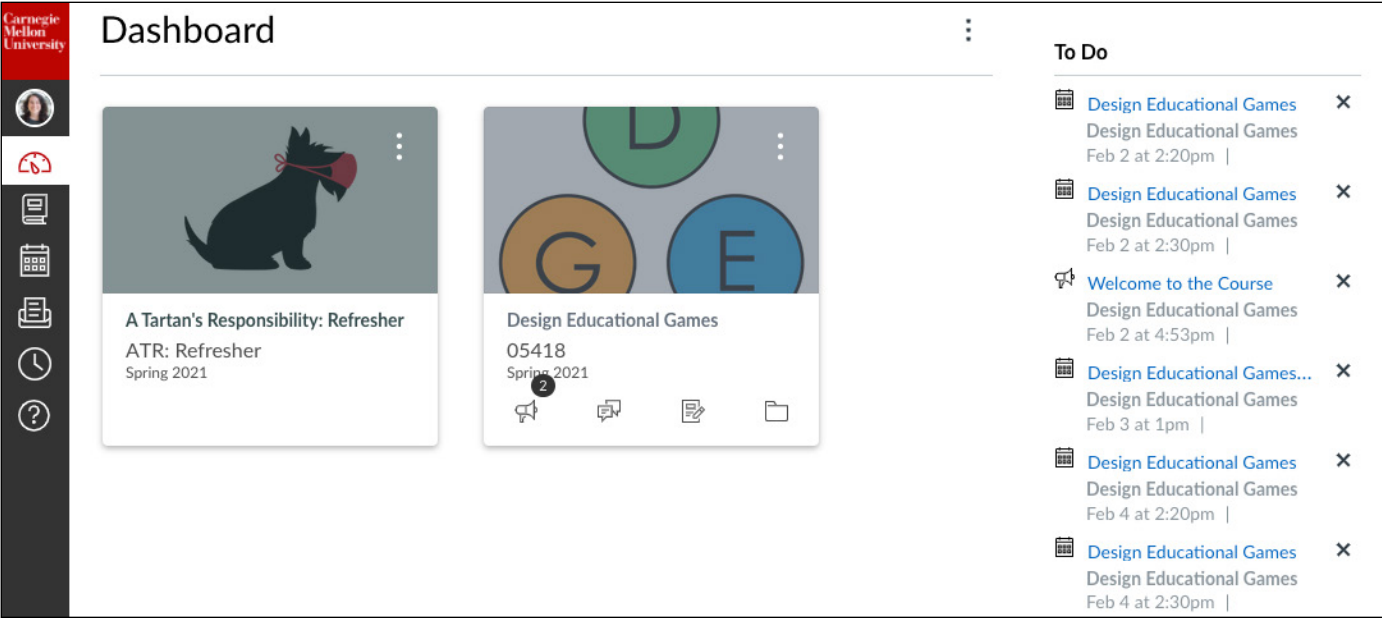


Fig. 1.5
The interface of Canvas.

Xello

Xello is a Canadian education software. It specifically aims to support students in elementary school, middle school, and high school, helping them develop their own career interests and education paths by becoming “future-ready”. The software uses engaging, visual, and age-appropriate user interface designs that strive to “bridge the gap between young people and the working world” (Xello, 2021). Other product goals include providing students the ability to uncover future opportunities and equipping them with custom knowledge and insights so that they can make informed decisions and follow through on next steps for their future.

As a digital product, Xello has established goals specifically focused on helping students become “future-ready”. Xello’s specific features, which scaffold the experience for students in a way that provides them with individualized and custom-

ized experiences, aligns nicely with the goals I hold for my project. Xello features also lead students to make confident decisions about their future career aspirations, which I strived to integrate into my work as well.

Although Xello does offer its services to elementary, middle school, high school, and high school students, they currently don’t address the needs of students post-high school graduation, which highlights the need for design approaches that support students pursuing post-secondary education. I strongly believe that Xello’s features would be effective in all aspects of people’s educational journeys, which often don’t stop after they graduate from high school.

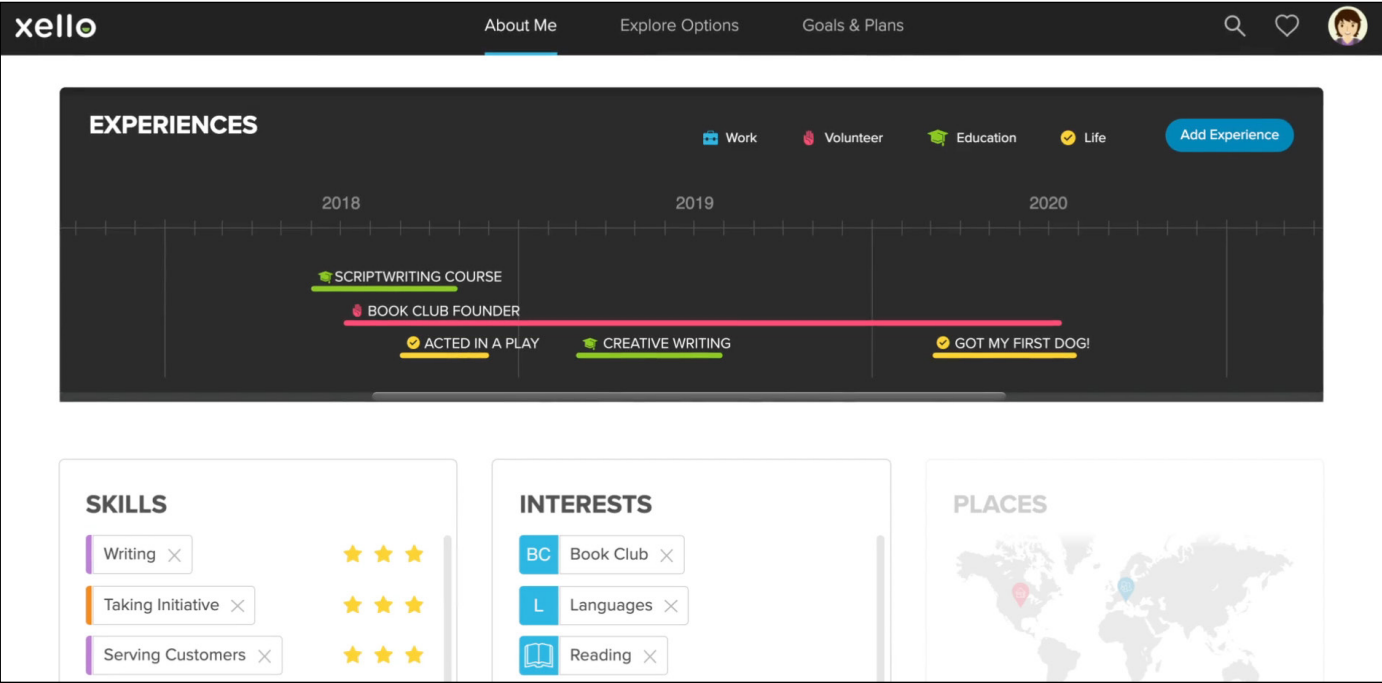


Fig. 1.6
The interface of Xello.

HOBSONS | Educational Advances

Hobsons, Educational Advances is a Software Company that offers digital solutions that aim to support educators and schools in improving their college, career planning, admissions, enrollment management, student success, and advising process. Specifically, Hobsons has developed tools to support both K-12 and Higher Education. Known as Naviance: For College & Career Readiness to support K-12 students and Starfish: Student Success & Advising and Intersect: Best Fit Recruitment to support Higher Education.

Through the analysis of these tools I learned that Naviance continues to be one of the industry leaders in supplying high schools and school counselors across America with college and career readiness tools. Overall, Naviance is successful in its ability to align their services with government education initiatives, such as student competency levels in college,

career and life readiness. It also offers a holistic view of college and career planning with a focus on developing student interpersonal skills. However, the design of the platform’s layout and language for subsequent activities and interactions that students perform appear prescriptive, and at times overwhelming. As a result, there is a need for tools that are designed specifically for a young adult audience and align with students’ individual needs and preferences.

Although Hobsons offers services within Higher Education, I identified that the career readiness tools that are currently offered to high school students in Naviance are not offered within the Higher Education services. This insight strengthened my identification of a gap and a need for career planning tools that are geared towards students who are pursuing college.

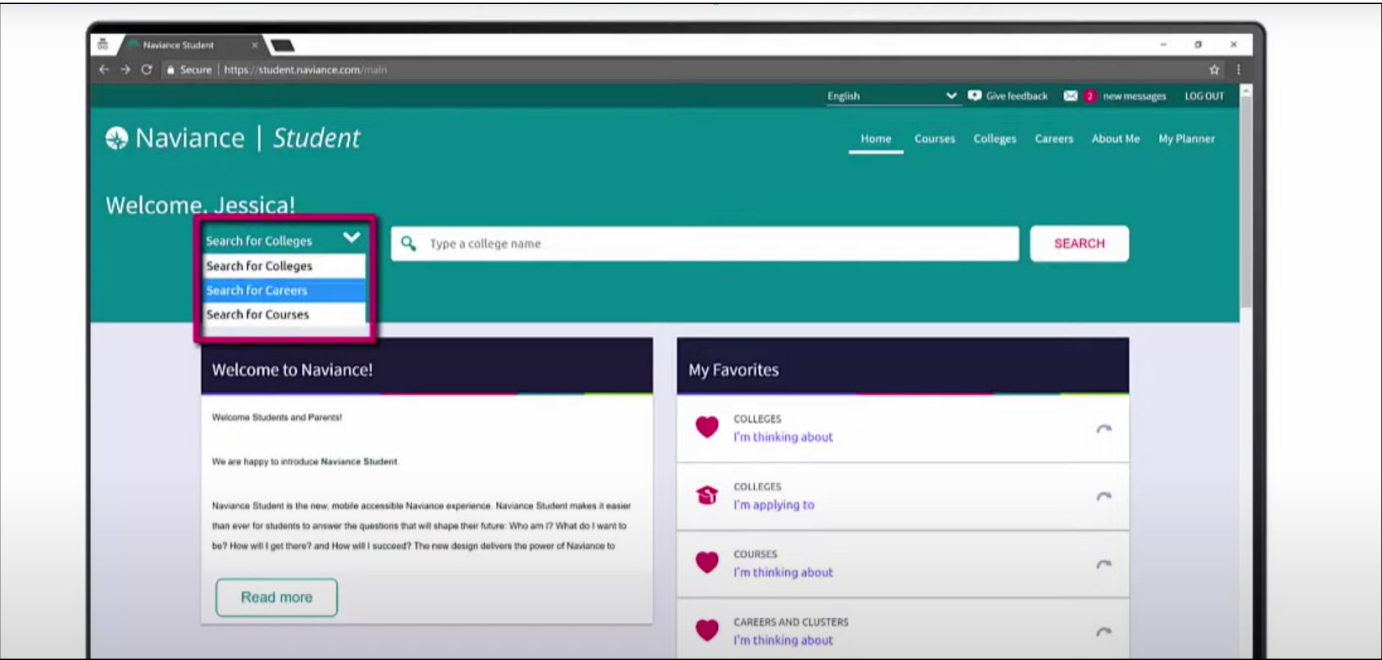


Fig. 1.7
The interface of
Hobsons Naviance.

Skillshare

Skillshare is an online learning community platform that offers online educational videos focused on developing creative skills, business skills, and lifestyle skills. Skillshare subscribers can take online classes, listen to audio-based classes, or attend live online workshops with instructors based on their interests.

In my analysis of Skillshare in relation to my study, I was particularly inspired by the design and structure of the online class experiences. Skillshare does an excellent job of creating videos that are engaging and fun while fostering a sense of community with a focus on participation and conversation. I found the discussion and shared project features

of Skillshare to be particularly insightful. Within a specific project, students can ask a question directly to the instructor as well as share their work or progress on a particular skill. The design of these interactions within the class feels very thoughtful, personal, and meaningful. Although thousands of people take the classes, students are still able to receive personal communication and feedback on their work directly from a teacher. This element of personalization and connection enhances the experience of learning and sharing as students try something new or push themselves to advance their skills. I found these features relevant to my study and important to leverage as a means of increasing trust and a sense of support through a digital communication medium.

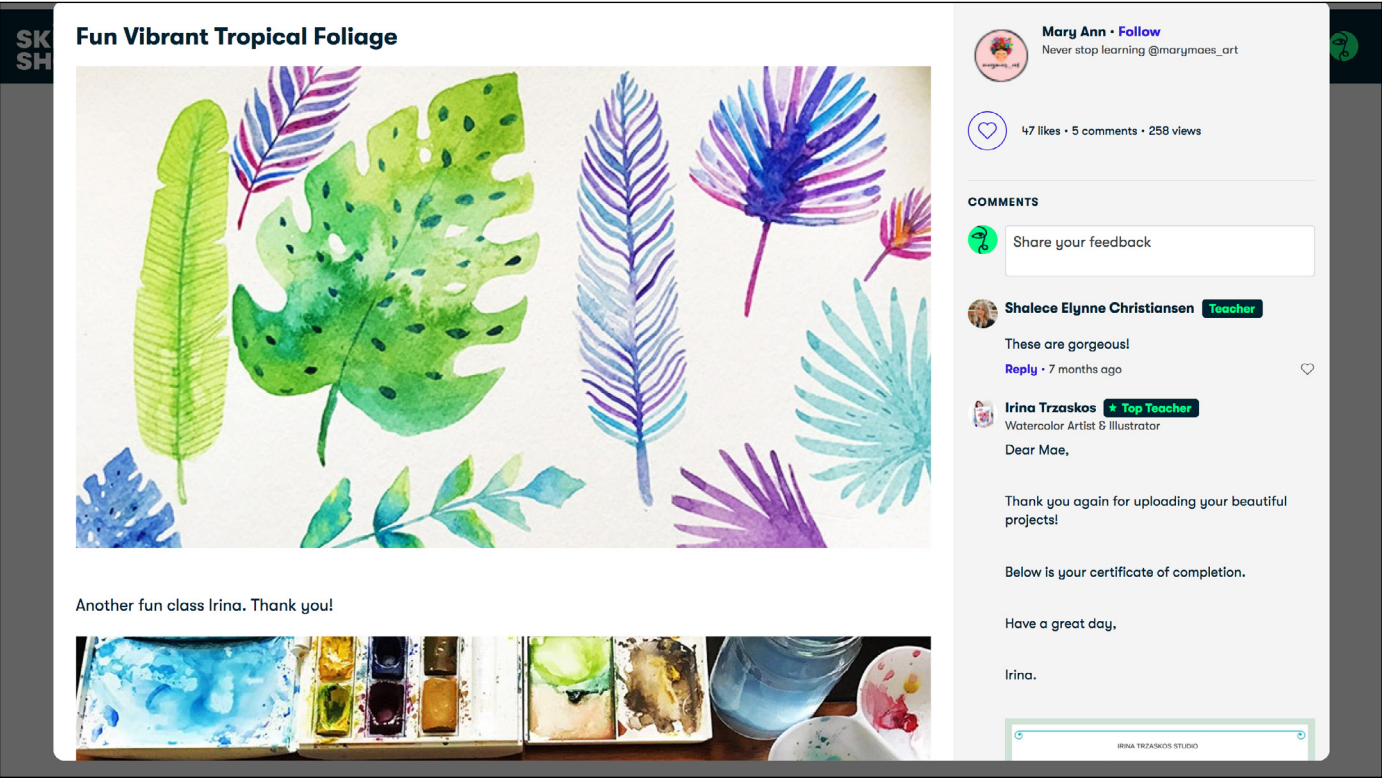


Fig. 1.8
The interface of
Skillshare.

Roadtrip Nation

Roadtrip Nation is an organization that focuses on helping individuals find their career and life purpose. The organization is known for its distinguished fleet of RV's that people use to travel around the world, interview individuals, and film stories that speak to an individuals' life/career journeys. In addition to documenting and filming career stories, Roadtrip Nation has also developed a podcast, book, curriculum, and career exploration platform to help individuals investigate their own career paths.

In my analysis of Roadtrip Nation's multifaceted experiences, I was particularly impressed by their Career Exploration tool that works in partnership with the College Board. This digital experience gives students the opportunity to

research different career paths based on their interests while exploring a robust catalog of stories from professionals that work in a variety of jobs and roles. I found inspiration in the design of the "Related Leaders" profiles and how their career paths were defined by the personal milestones that they achieved and the hurdles they encountered. This information is coupled with advice that they offer based on their own experiences. Providing authentic testimonials makes the experience realistic and engaging. The design of the "Leader Profiles" provided me with an understanding of questions that are important for students to ask when wanting to learn about peoples' career paths.

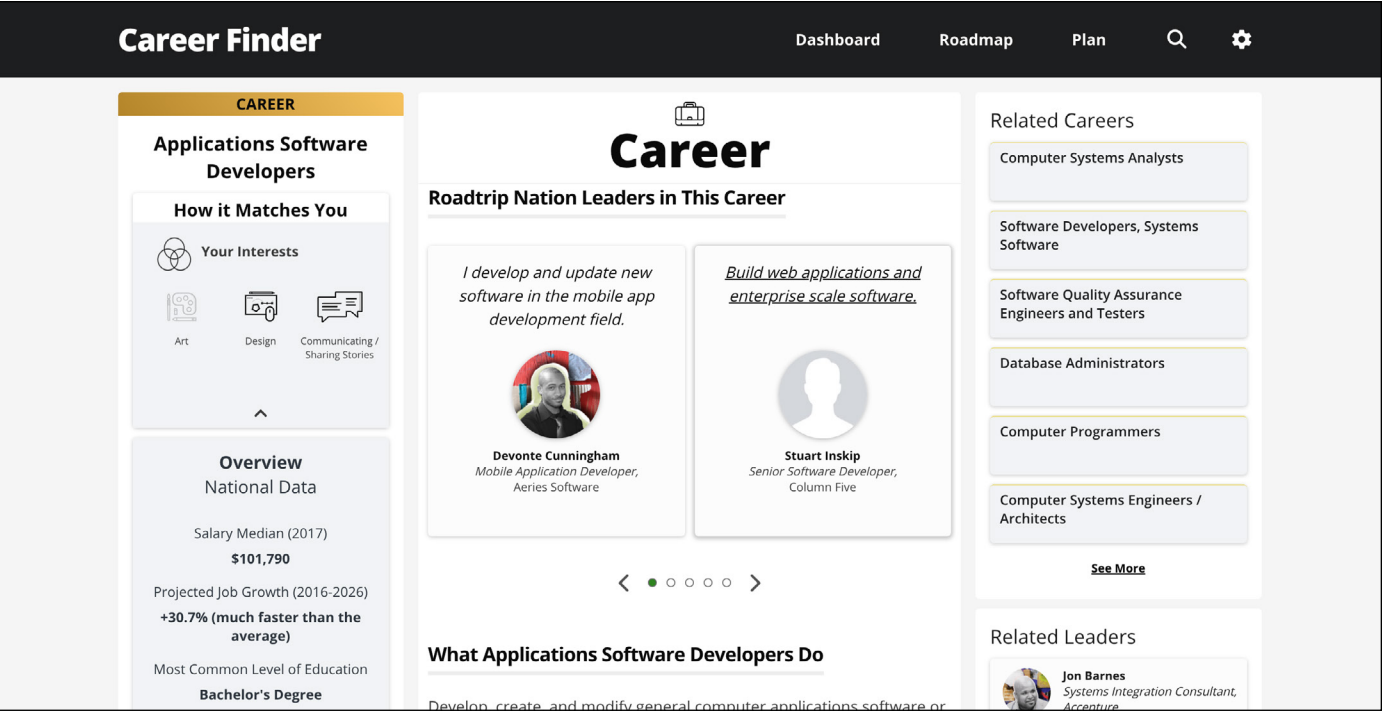


Fig. 1.9
The interface of Roadtrip
Nation Career Finder.

Slack

Slack is a business communication platform that provides small and larger groups of individuals the opportunity to communicate via an Internet relay chat system. Slack is designed to optimize communication through organized chat rooms, private group channels, and direct messaging. Developed in 2013, Slack has surfaced as one of the premier work productivity tools that continues to grow in popularity as a communication resource within larger corporations, small teams, and schools.

The intuitive and easy-to-use chat-based interactions of Slack emojis, comments, and notifications serve as a guide for structuring simple, effective, and interactive communication interactions between students and counselors.

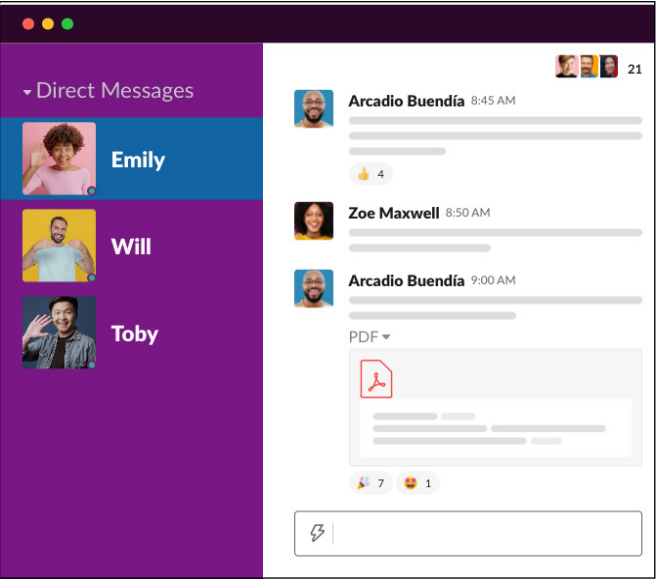


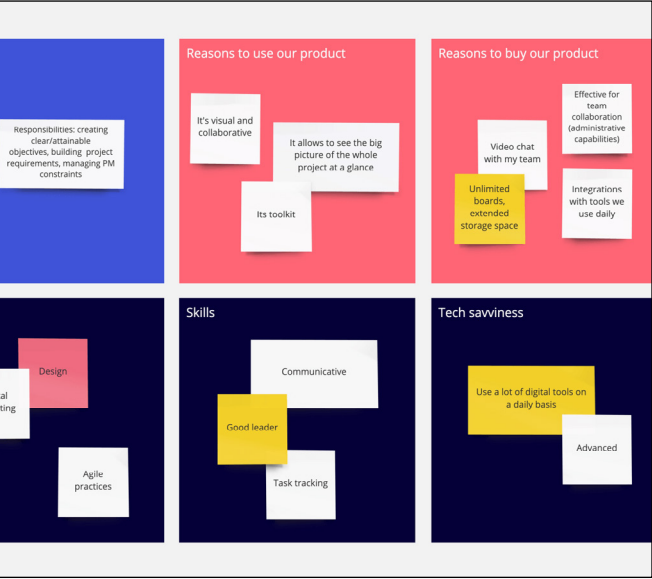
Fig. 1.10
The interface of Slack.
Shown on the left.

Fig. 1.11
The interface of Miro.
Shown on the right.

Miro

Miro is an online visual collaboration tool that is designed to provide virtual and interactive whiteboard resources to individuals and groups of people. The Miro software includes collaboration templates, text boxes, virtual sticky notes, comments. It enables files to be uploaded, downloaded, and shared, and offers the inclusion of clickable links, and images directly to a personal artboard.

As a collaboration tool, Miro provides insight into the effectiveness, simplicity, and flexibility of specific features like online diagrams and sticky notes. Miro provides users access to visual resources and tools, which can enhance discussions and interactions between people in an online context.



iMentor

iMentor is a non-profit national program that partners with high schools to match students in low-income communities with a mentor who has received a college education. In the iMentor program, mentors guide and support high school students on their college journey through an integrated curriculum and online and in-person interactions, which develop and foster personal relationships. The iMentor model takes a holistic and comprehensive approach to guiding high school students’ journey with mentorship and human interaction at the core of the experience.

This holistic and thorough approach to mentorship had a strong influence on my understanding of how mentorship within schools can be done meaningfully and effectively. In my initial research of the program, I found that first-generation high school students are their primary user group. However, through further analysis of the program, I learned that iMentor has recently begun to develop curriculum and programming for post-secondary education. This finding helped reinforce the relevance and need for mentorship experiences and interactions post-high school graduation, as students transition from high school into adulthood.

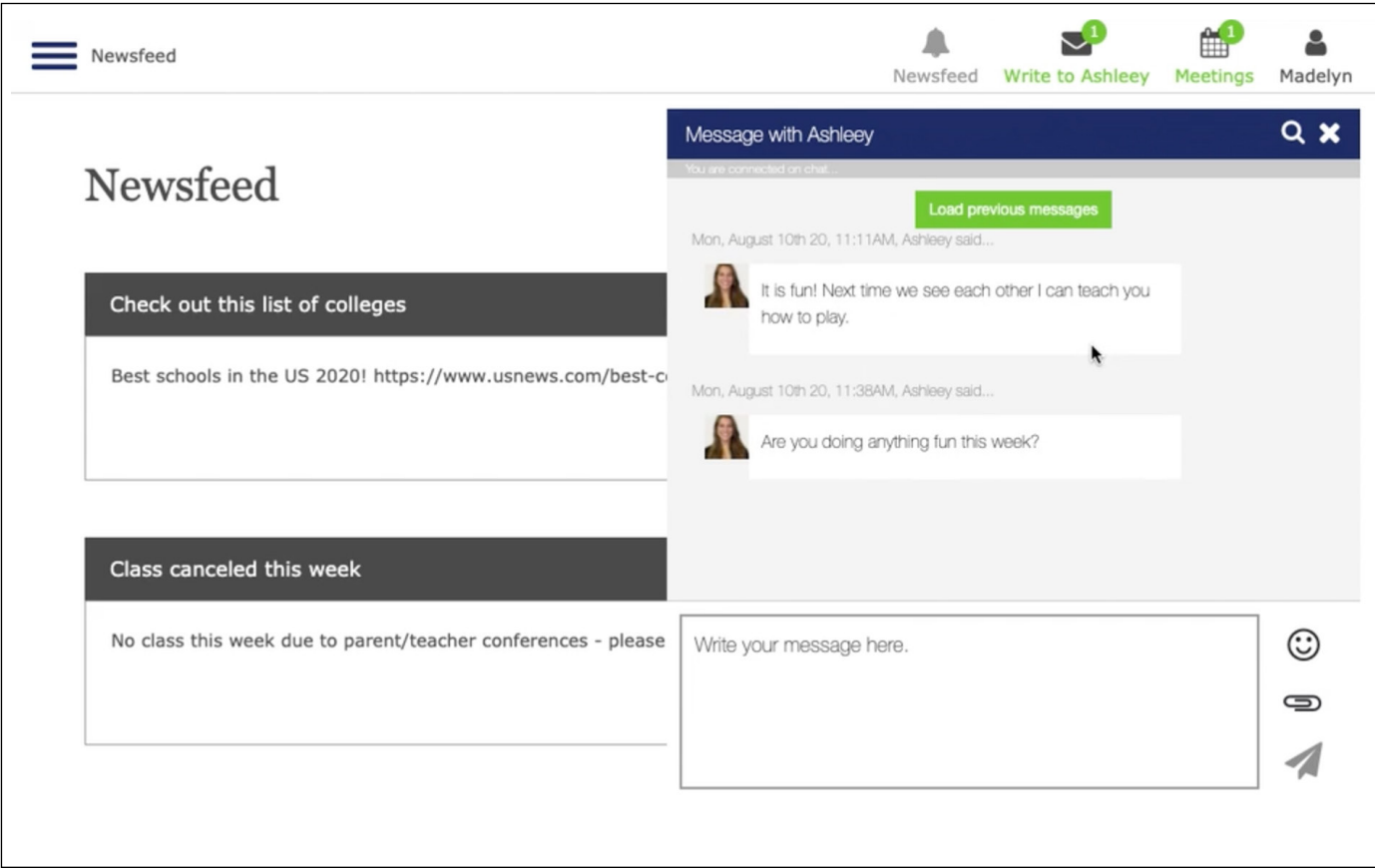


Fig. 1.12
The interface of iMentor.

Amazing Design People List

The Amazing Design People List (ADPList) is a virtual mentorship website that leverages online mentorship opportunities among the international design community. Within this platform, users have the ability to request mentorship from others in their field. They can also offer their own personal experiences as a form of mentorship for other designers. Although this website is designed to support the design network exclusively, the model seems very scalable for other disciplines as well.

The design and model of the APDList website served as inspiration for opportunities that can be experienced outside of, or in addition to, my design. It can function as the next step for students after they graduate, fostering relationships and providing mentorship. I also appreciate the design of the website as its overall look and feel, and the information it provides for each mentor is simple, informative, and inviting.

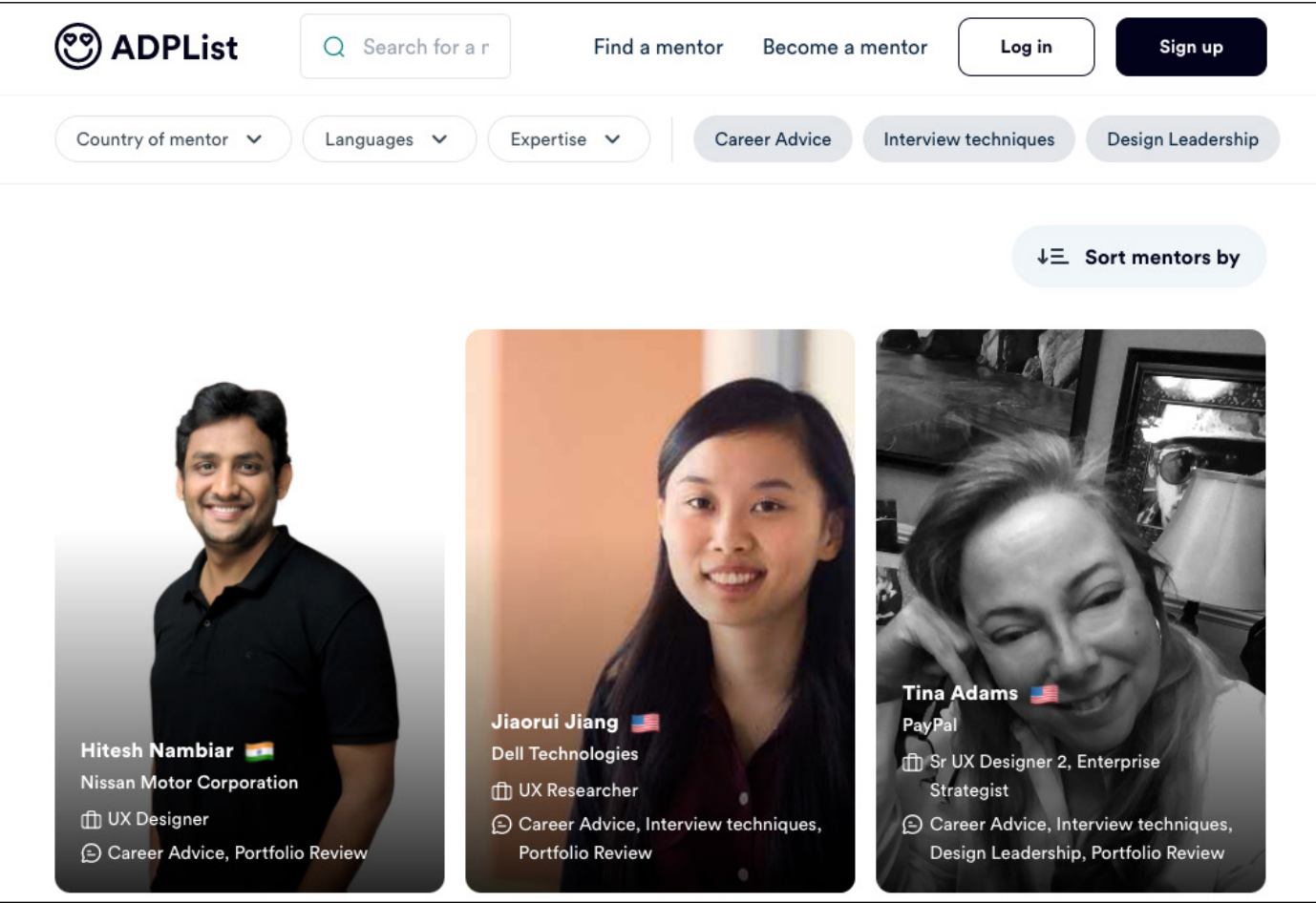


Fig. 1.13
The interface of ADPList.

MyCoach

MyCoach is a digital application designed by Beyond 12, an educational non-profit, and IDEO, a global design innovation company. The two worked together to create a digital experience that could assist first generation college students in navigating their college experience. The challenge of the project proposed to IDEO was to “Design and scale a coaching model using technology to help first-generation college students stay on track” (“Helping Students Navigate College and Beyond”, 2016). The outcome of the project was the MyCoach app available now on Google Play and the Apple Store.

As a mobile app MyCoach is designed specifically to assist students with staying on track during their college experience through the logistical processes of applying for financial

aid, registering for classes, and meeting academic and personal deadlines. The MyCoach user experience is closely attuned to the needs of young people and their abilities to navigate complex and intuitive digital systems. Although MyCoach focuses on navigating the different systems and processes that are involved when pursuing higher education, the app also offers a chat feature that connects students to a personal coach that can help them with any questions they have throughout their college experience.

The design approach of the MyCoach app and chat feature serve as an inspiration for leveraging communication tools between students and counselors in a way that is engaging, inviting, and comfortable for young people.

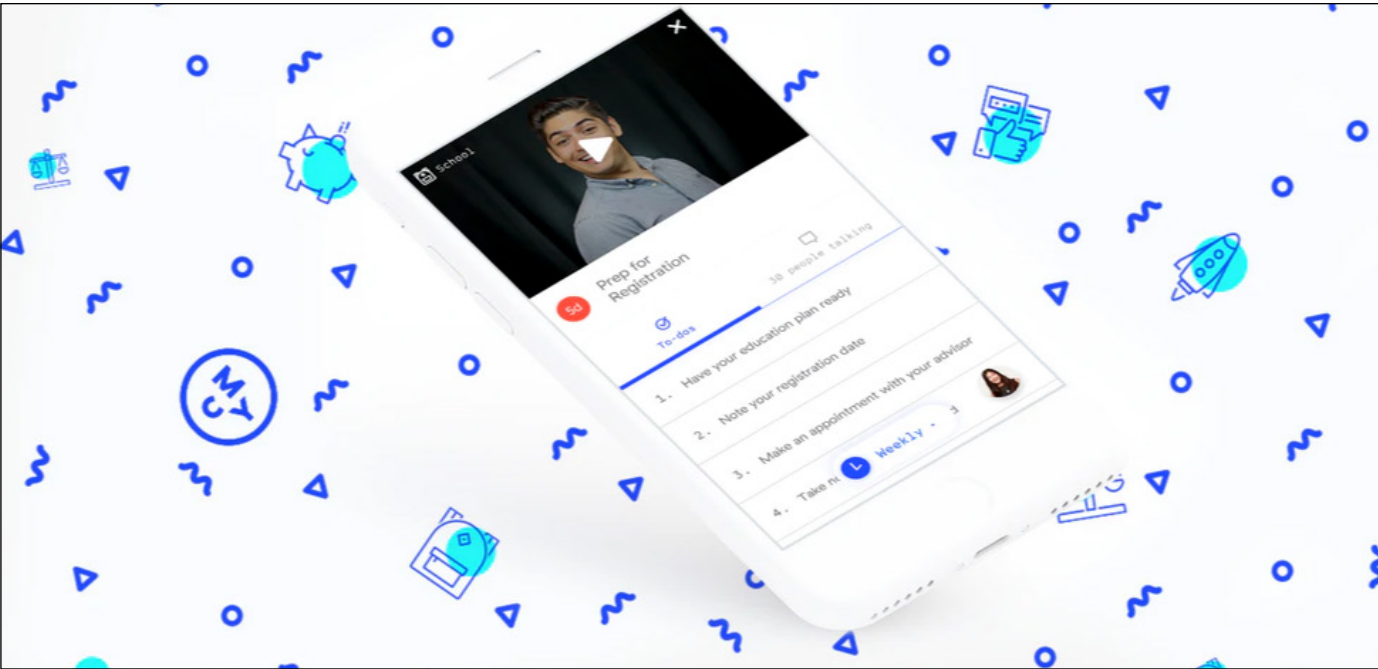


Fig. 1.14
The interface of MyCoach.

Chronus

Chronus is an online virtual mentoring software that caters to larger organizations by providing scalable and measurable mentorship opportunities for employees. In addition to Chronus’s traditional organizational mentoring structure, it offers mentorship opportunities that cater to higher education and the student experience. Service offerings include: student mentoring, alumni mentoring and faculty mentoring. On their website Chronus highlights the success of the platform as one of their customers has found that students are “40% more likely to secure a job after graduation when they have participated in a student-alumni mentoring program” (“Academic Mentoring”, 2021).

Since many universities face challenges both managing and maintaining mentorship programs that are manually run within schools, the Chronus academic mentorship service offers insight into its successes as well as the need for scalable mentorship within higher education.

The design of the Chronus dashboard and interface for managing and maintaining mentorship relationships virtually served as a framework for my development and design of an effective online mentorship platform that can be scaled to a large student audience.

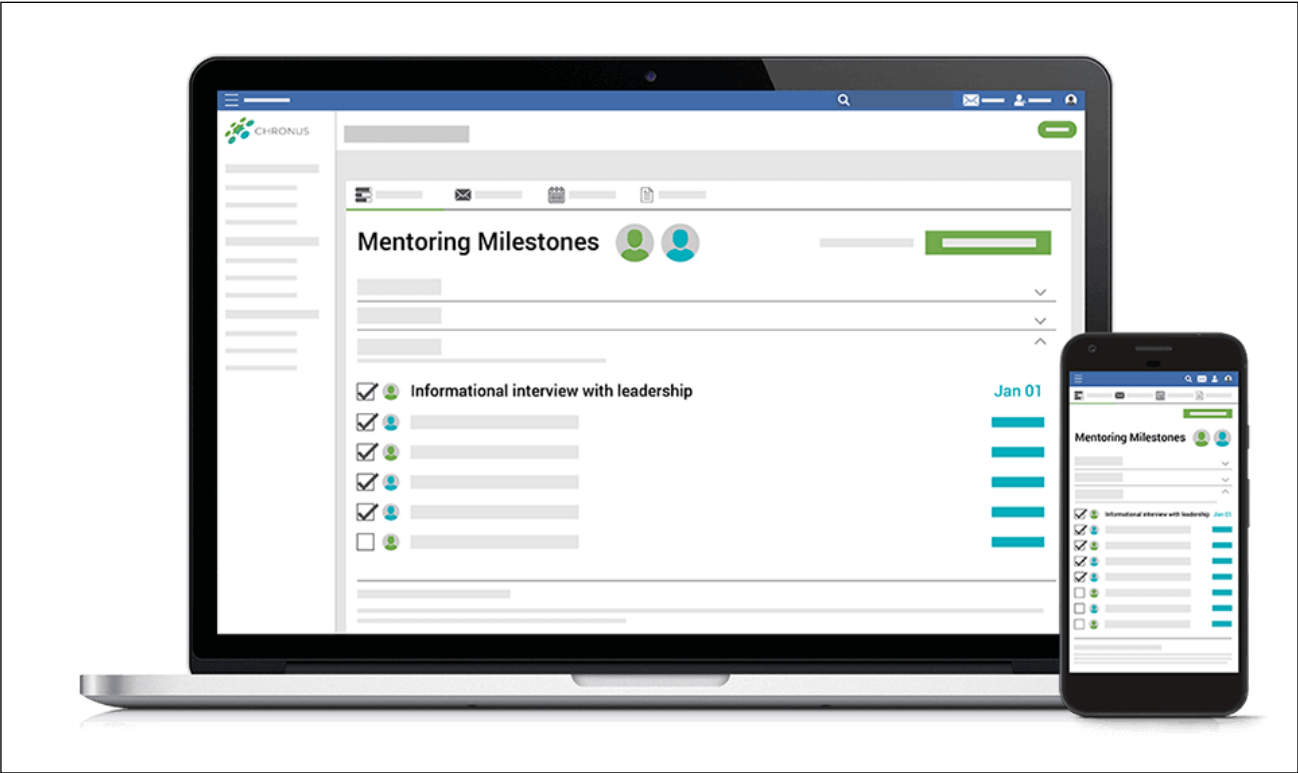


Fig. 1.15
The interface of Chronus.

Comparative Analysis

- Career Planning
- Self Learning
- Mentorship

Following my literature and artifact reviews, I began an in-depth comparative analysis of 15 tools and the features that they use to provide career planning, self-learning, and mentorship to students and adults. In my analysis of these features, I found that a majority of the tools are not supporting human connections nor are they integrating necessary digital tools, in the form of calendars, maps, sharing achievements, and long-term thinking, into their offerings. Based on my overarching findings, I mapped Dirksen’s learning gaps of skill, motivation, knowledge, communication, and environmental gaps to each feature, to identify which features aim to address each gap. For example, (Fig. 1.16) illustrates that providing mentorship, internships, and hands-learning would address all five gaps in achieving a holistic learning experience.

Although the literature reviews provided a strong foundation in building my understanding in the fields of learning experience methodologies, future studies, educational theories, and design in planning, two of the readings in my review were specifically seminal in informing my approach to the comparative analysis.

- Defining Learning States and Bridging Gaps by Julie Dirksen
- The Dyadic Communication Model by Philp Emmert and William C. Donaghy

I pulled inspiration from Julie Dirksen’s Model of Defining Learning States and Bridging Gaps in my analysis of academic tools, which highlights existing gaps between students’ current and preferred states in relation to career planning. Academic tools can bridge the gap between current and preferred states by providing features that specifically support students in developing skills, motivation, knowledge, communication, and environmental understanding.

Emmert and Donaghy’s model of Dyadic Communication provided insights into establishing a mental model of how students communicate with teachers and how counselors and mentors run interference between the messages and feedback between the two in an effort to guide students’ understanding of their interests and next steps.

In the comparative analysis of critical features, I found that a majority of tools are not providing adequate assistance in facilitating human connections or long-term thinking, nor are they offering digital tools in the form of calendars, maps, sharing achievements.

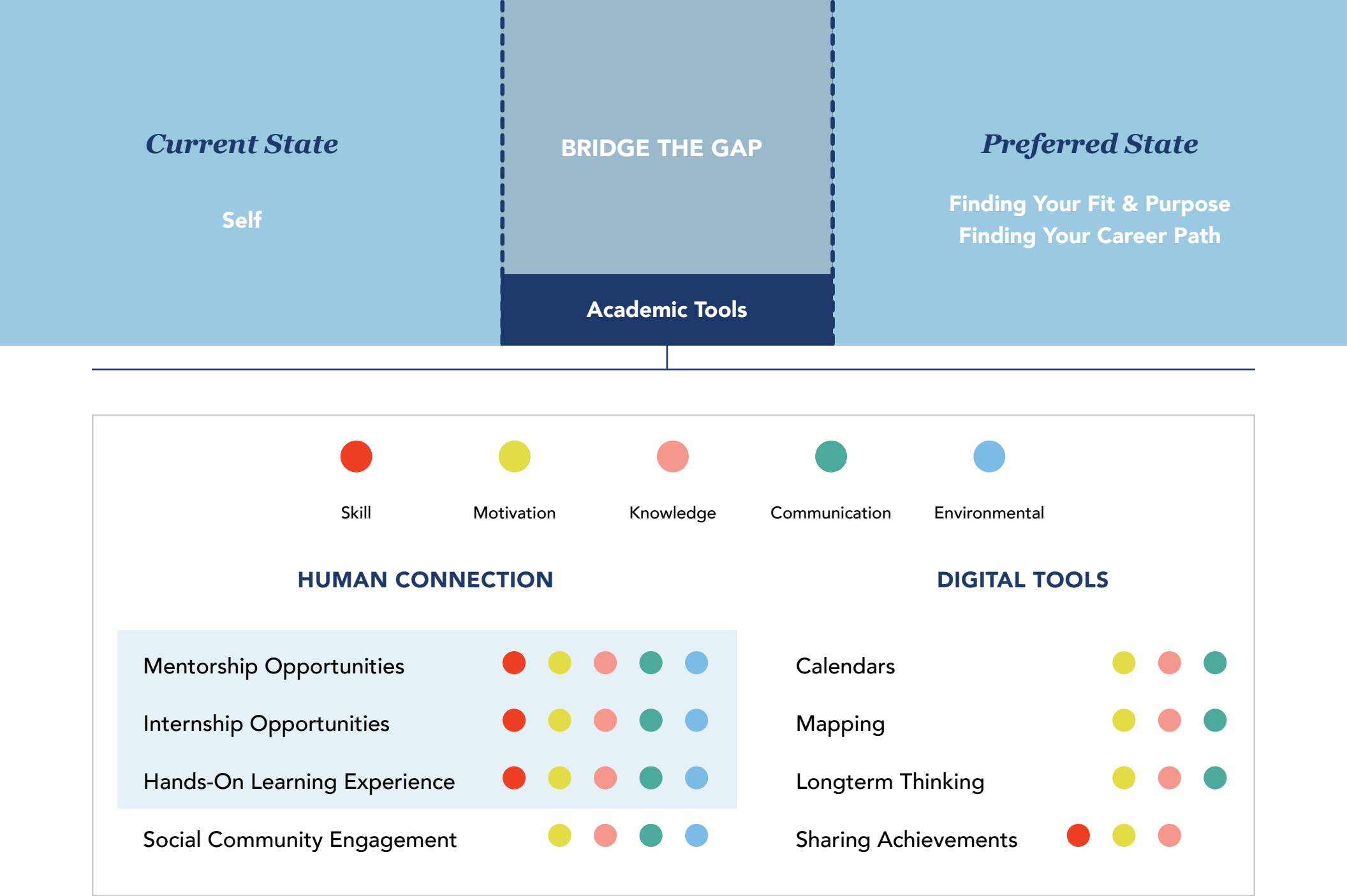


Fig. 1.16
Shown here is an illustration of Dirksen’s Bridging Gaps.

Artifact Analysis

This table indicates specific features that are not represented in academic tools that exist currently. The X in the table indicates features that are present in the existing tool. Features represented in dark blue indicate opportunities for intervention. Features represented in light blue indicate features catered to high school students.

- High School Features
- Areas for Opportunity

Fig. 1.17
Shown here is an illustration of my comparative analysis of my artifact findings.

	Xello	Hobsons Naviance	Hobsons Starfish	myKlovr	College Board Big Future	Career Finder Roadtrip Nation
Self Assessment Tool	X	X		X	X	X
College/School Searching	X	X		X	X	X
Career Planning/Searching	X	X		X	X	X
College Preparation	X	X		X	X	X
Life Readiness/ Interpersonal Training	X	X				X
Student Profile	X	X	X	X	X	X
Parent Profile	X	X		X		
Advisor Role	X	X	X			
Mentorship Opportunities	X					
Internship Opportunities	X					
Online Courses or Lessons	X	X				X
Online Counseling	X	X	X			
Hands-On Learning Experiences						
Financial Planning	X	X		X	X	
Support/ Resources for Families	X			X	X	
Support/ Resources for Non-Traditional Students			X		X	
Student Social Community Engagement		X	X			
Calendar	X	X	X			
Mapping	X	X	X	X		X
Long Term Thinking	X	X	X	X		X
Goal Setting	X	X		X		X
Sharing Achievements	X					
Decision-making Tools	X	X		X	X	
Informational Videos		X			X	X
Tracking Individual Progress	X	X	X	X		

(Xello, 2020)

(Hobsons, 2020)

(Hobsons, 2020)

(Student Global, LLC, 2020)

(CollegeBoard, 2020)

(Roadtrip Nation, 2020)

Mapping Your Future	Career Onestop	Degreed	LinkedIn Learning	SkillShare	The Boys & Girls Club of America	MyFuture The Boys & Girls Club	Big Brothers, Big Sisters of America	iMentor
	X	X						
	X							
X	X		X		X			
	X				X	X		X
	X		X		X	X	X	X
		X	X	X		X		
						X		X
	X							
		X	X	X	X	X		X
				X	X	X	X	X
X	X		X	X	X	X		X
X					X		X	X
	X		X	X	X	X		X
		X	X	X	X	X	X	X
X	X				X			
	X	X	X	X	X	X		X
		X	X	X		X		X

(Mapping Your Future, 2020)

(U.S. Department of Labor, Employment and Training Administration, 2020)

(Degreed Inc., 2020)

(LinkedIn., 2020)

(Skillshare Inc., 2020)

(Boys & Girls Clubs of America, 2020)

(Boys & Girls Clubs of America, 2020)

(Big Brothers Big Sisters of America, 2020)

(iMentor, 2020)

Expert Interviews

To gain a better understanding of the importance and significance of school counselors and how counselors support students in their decision making practices and their ability to plan for the future, I conducted eight in depth expert interviews with counselors in the domain of education including high school counselors, private and public college counselors, and counselors in technical and trade schools. I chose to interview a variety of counselors within education to understand what tools they collectively found useful in their work as well as grasp differences that arise in career counseling tools and methods that are available between high school and post secondary education.

In these interviews I posed the following questions to counselors:

- How do you typically assist students in planning for their future?
- Are there specific tools or methods that you find effective in fostering the development of students’ long- term planning for their future career aspirations?
- Are there specific tools or methods that you find effective in fostering the development of students’ long- term planning for their future career aspirations?
- Are there specific tools or methods that you find effective in fostering the development of students’ confidence in their decision making?
- Are there specific tools or methods that you find effective in fostering the development of students’ excitement for opportunities that fit their personal interests?
- Are there specific tools or resources that you wish were more readily available or accessible when working with students?
- When considering your relationship with students in your current role, what are some of your hopes or aspirations for them in finding their purpose and fit as they pursue subsequent academic and professional goals?

INSIGHTS

In Seeing the Big Picture

Students frequently have a hard time seeing the big picture.

Power of Conversations

Conversations with counselors and other professionals give students the ability to talk through their ideas and receive feedback on what may work for them in the future and what might not be the right fit. Conversations are also a gateway to networking opportunities.

Opportunities to Explore

Exploring various opportunities helps students realize their affordances and learn how to connect with other resources.

The framework for career and education decision making: “looking at self (and) seeing what’s out there to make the best educated guess.”

COUNSELOR

Student Survey

Current Students Pursuing Post Secondary Education

To understand how students currently plan for their future I conducted a survey with +100 students pursuing post secondary education. I chose to focus on students pursuing post secondary education because resources that support planning for the future are quite minimal for students who have graduated high school. In my artifact review I found that many tools that exist for post secondary students focus on the logistics of navigating college or post-secondary education including: financing education, graduating on-time, and managing credit hours, yet there is very few resources that aid students’ in tracking their personal growth and developing their understanding of their individual interests while exploring career opportunities. Therefore, in the student survey, I focused on positioning my questions on a students’ educational history, their decision making practices, and how they approach planning for the future.

My survey posed the following questions to students in the topic areas of decision making and planning for the future.

Decision Making

- What factors are guiding your decision-making with regard to your future career aspirations?
- On a scale of 1-5, how confident are you in your decision to pursue the program you are completing.
- What do you think may be affecting your confidence in making this decision?
- When you were in high school did you have access to any tools and/or resources that helped you plan and prepare for your future and career aspirations?
- If yes, please select the nature of the tools and/or resources that you used.

- If yes, which tools or resources did you find particularly useful?
- If yes, which tools or resources did you not find useful?

Planning for the Future

- Since graduating from high school what specific tools or resources do you use for planning or preparing for your future and career aspirations? Select all that apply.
- What have been the most difficult things to prepare and plan for in regards to your education?
- Looking forward, what aspects of educational and professional planning would you like more assistance with?
- When planning for your educational and professional future how far ahead do you typically plan?
- How do you feel about completing your next level of education?
- Looking forward, in a post-pandemic world, what are some of your concerns regarding your career and education?
- Looking forward, in a post-pandemic world, what are some of your hopes/aspirations regarding your career and education?
- Have your views shifted recently? If so, why?

INSIGHTS

Through my survey, I learned that students who had access to tools or resources in high school that helped them plan or prepare for the future, that 50% found meeting with a counselor 1:1 to be useful. In contrast, 47.5% found the online digital tools supplied by their high schools not useful.

Also when asked what educational assistance students wish they had now, their top three responses included assistance participating in an internship, outlining a long-term plan and different career paths, and reviewing how to represent themselves in-person/online/ and on paper.

“(Naviance) I didn’t think it was helpful during the college application process because it felt very vague...It also lacked any human element.

It just felt really standardized and robotic so I didn’t really trust it.”

STUDENT

Tools that were identified as useful in high school

Which tools or resources did you find particularly useful? Select all that apply. (78 Responses)

50%

Meeting with a Counselor 1:1

39 respondents

48.7%

Searching the Internet

38 respondents

Tools that were identified as not useful in high school

If yes, which tools or resources did you not find useful? Select all that apply. (61 Responses)

47.5%

An online digital software supplied by the school

29 respondents

36.1%

Self-Assessment Test

22 respondents

32.8%

Meeting with a Counselor 1:1

20 respondents

What assistance do you want now?

Looking forward, what aspects of educational and professional planning would you like more assistance with? Select all that apply. (102 Responses)

69.6%

Participating in Internship

71 respondents

68.6%

Outlining my long term plan and the different career pathways I can take

70 respondents

68.6%

Reviewing how I represent myself (in-person and on-paper/online)

70 respondents

Exploratory Research

Summary

Through the review of the insights I collected in my exploratory research, patterns emerged in my analysis. For example, in the review of existing artifacts, I identified that many tools are limited in providing human connections and conversations between people. They also do not effectively support students in their long-term thinking. These gaps were reinforced in my interviews with eight academic counselors where they collectively expressed students having difficulty seeing the big picture while pursuing higher education. In addition to this insight, the counselors expressed that students thrive in self-discovery when they have the opportunity to engage in conversations with others through

networking. By engaging in conversations and networking, students have the opportunity to explore and evaluate their interests. Lastly, students also expressed wanting assistance tools that facilitate their long-term planning and participating in internships.

Analyzing existing tools and hearing from academic counselors and college students enabled me to discover thematic opportunities to improve the design of academic tools by providing mentorship or counseling, facilitating internships, fostering networking opportunities, and helping students see the big picture long term.

4.0

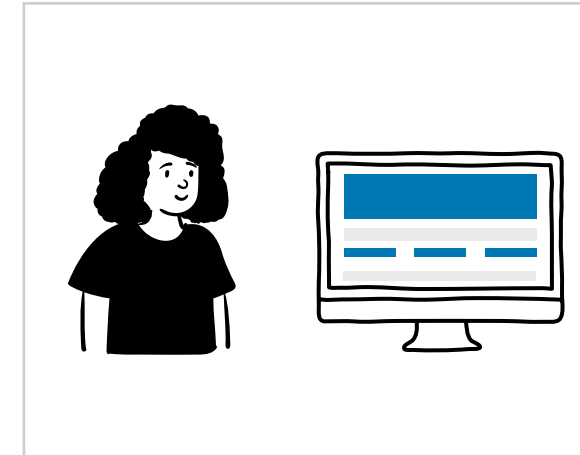
Generative Research

The synthesis of my exploratory research indicated that the design of an academic tool needed to provide individualized mentorship or counseling to students in order to facilitate meaningful conversations about their future. Following this research, I developed two initial design concepts 1. Advancing Existing Tools, for post secondary students and 2. Identifying Mentors within and outside your network.

In addition to the two design concepts I generated, I also developed two variations for positioning them—each within different learning environments. I imagined one of the concepts being integrated into an existing university system like a “career counseling department” and one of the concepts being positioned as a tool to help students talk to their parents about their future career aspirations. After developing these design directions, I shared the concepts with a group of individuals in the context of midpoint review “Thesis Science Fair”. The event provided me with initial feedback and impressions of the concepts and helped me narrow my design direction.

Fig. 2.0

Shown on the right is an illustration of my design concept storyboards. Illustrations courtesy of Open Peeps by Pablo Stanley (Retrieved, 2020) icons courtesy of the Noun Project (Retrieved ,2020-21).



Advancing Existing Tools

This concept integrates into an existing mentorship service. It focuses on virtual/hybrid modes of mentorship that can foster conversations and experiences between students and a counselor or mentorship figure.

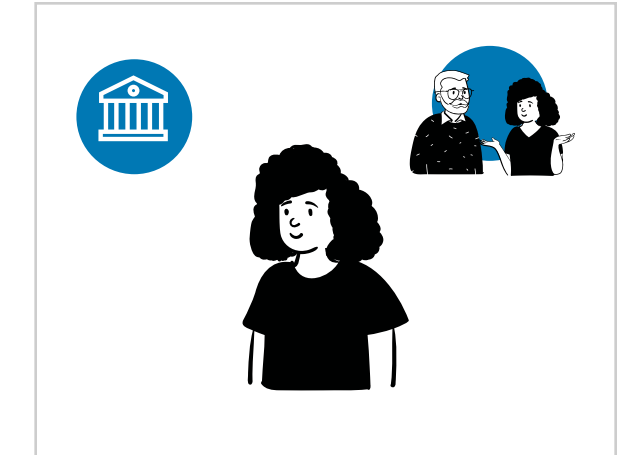
Through my artifact review I identified merit in the approach taken by the existing online mentorship platform, iMentor, which currently provides 1:1 academic mentorship to high school students in low income communities (“iMentor”, 2021). In the iMentor model, students are guided through their high school experience via a series of activities. The tool facilitates experiences and conversations between a student and their mentor as a means of supporting them in planning for their future post high school graduation. Advancing Existing Tools integrates this feature into its offerings as a means of addressing the interaction holes I identified in other existing tools.



Identifying Mentors

This concept functions as a service that helps students identify mentors within their own network through conversational and digital experiences that support this process.

One of my interviews with a career counselor emphasized the importance of students being able to talk to other professionals in their fields of interest. Through talking with professionals, students are able to gain a real world understanding of a profession on a day-to-day basis and the journey that an individual takes to achieve specific career goals. Unfortunately, although this activity can be very useful and informative, reaching out to mentors or professionals within or outside of a students’ network is often intimidating and challenging. Therefore, I built supporting activities for this task that aim to build students’ confidence and encourage them to take action.



Positioning

When considering the position of my design within different learning environments I considered the possibility of these initial design concepts being integrated into an existing university system such as a career counseling department or the potential of these concepts being positioned as a tool to help students talk to their parents about their future career aspirations post high school.

These considerations were specifically influenced by my research of existing tools where I identified a need to support career planning for college students in a university environment. I was also influenced by conversations with school counselors because many of them expressed that parents often play an influential role in a student’s decision making about their career and future. This parental influence can often lead students to following a path that doesn’t meet their individual needs.

Evaluation of Ideas

After sharing my project concepts during the midpoint review “Thesis Science Fair”, I received feedback on my work that helped me hone the direction of my design concepts.

Some of the key insights I gleaned from the feedback

I received included:

The Need to Narrow Down My Key Stakeholder Group

- Insight - One participant stated that they believed that the demographic of students pursuing post secondary education was too broad for a target audience. Recommendations for potential focal student groups included high school students, young males lacking self identity, LGBTQ students, students of color, first generation students, and undergraduate students.
- Implementation - After careful consideration I decided to narrow my key stakeholder group to first and second year undergraduate students. My research showed the transition point between high school and college to be a critical point for intervention.

The Value of Parents/ Caregivers Learning to Talk with their Children About Their Future or Career Paths

- Insight - Some participants highlighted the potential value of looking into the roles parents play in their children’s decision making and the various relationships that exist between caregivers and children. For example, it was suggested that it may be helpful to consider the specific conversations about the future that first generation students have with their parents, and how other types of parental figures and caregivers have conversations with their children about their future.

- Implementation - Although I decided not to focus on conversations about the future between parents, caregivers and their children, this feedback helped me focus on how to empower students to make their own decisions and understand themselves individually through the activities that I designed.

The Role of Future Studies and How it Connects to Career Counseling Practices

- Insight - One participant expressed the close connection between school counselors and futurists and how the field of future studies could influence or complement existing career counseling practices?
- Implementation - This comment guided the direction of my research and the development of my design significantly. By following-up on this piece of feedback I was introduced to the work of Sohail Inayatullah’s “Meta Futures School” and his paper, *Six Pillars: Futures Thinking For Transformation*. This paper and the different future activities and workshops that it supplies was integral to the structure of my design concepts from a futures studies perspective.

The Importance of Students Feeling Safe and Comfortable When Interacting with Mentors

- Insight - I received feedback that there are many different opportunities and possibilities to foster mentorship among students. However, I also sought to consider the constraints, limitations, and barriers that many

students face when seeking mentorship or when asking for advice or assistance about their future. Specifically, how could I ensure that students feel safe and comfortable when reaching out to a mentor within or outside of their own network?

- Implementation - This feedback helped guide the language and implementation of each of the activities that I designed to be accessible, friendly and inviting to a young adult student audience. Also, when considering the design of students’ engagement with mentors or professionals within or outside of their own network, I focused on supplying students with specific tools and resources to assist them in that process. This approach functioned as an effort to help them feel more comfortable and confident throughout the process.

The Need to Consider Where This Tool Could Live and When

- Insight - One participant expressed the importance of considering where the tool I designed would live and when? They specifically asked if this tool would exist within a university setting or if it would live as something outside of the university system that schools

would have to buy into. This participant also provided some additional questions surrounding the scope and development of my concept, inquiring if I could see my design being developed now thorough conversational workshops or activities or if it was a design concept I could envision needing future implementation.

- Implementation - This feedback helped me think more critically about the scope of my design and if I wanted to position it within or outside of a university setting. I used this feedback to help guide some of the questions that I asked students that focused on the effectiveness of my design and where they could envision it being useful; either within a university environment or within an existing platform like LinkedIn or Handshake.

Taking into consideration the feedback I received during the midpoint review “Thesis Science Fair” in relation to my initial design concepts, I determined that an effective course of action was to focus on designing an academic tool to assist first and second year undergraduate students. I positioned the tool within a collegiate environment as a digital service offered to university programs to enhance the student career counseling experience.

Prototyping Activities

In the development of the design of career planning activities for first and second year undergraduate students, I used the following four frameworks to structure my prototype activities and guide their design:

- *The 4MAT Learning Cycle* - Engaging students in the comprehensive learning cycle to help them gain agency and confidence in their decision making skills
- *Taxonomy of Educational Objectives* - Developing a learning tool designed to engage and motivate students
- *Six Pillars: Futures Thinking For Transformation* - Providing examples of activities that effectively initiate future thinking and planning
- *The Six Facets of Understanding* - Developing a framework for understanding the effectiveness of each activity and how a student developed different levels of understanding through their engagement

The 4MAT Learning Cycle

Using Bernice McCarthy's, *4MAT Learning Cycle*, I aimed to move students through all four quadrants of the learning cycle and structure the design of my activities to engage students in the following ways:

- **Quadrant 1:** In this stage, learners leverage meaning they have constructed from past experiences and connect it to new content to support their learning. For example, in this stage, students may talk about their experiences with others while remembering personal events in an effort to strengthen their grasp of new, related information.
- **Quadrant 2:** In this stage, students define their learning by gathering pertinent information and facts. Learners organize their understanding by comparing and contrasting information, which helps them identify

patterns and relationships in their learning.

- **Quadrant 3:** In this stage, students engage in problem-solving by actively practicing, experimenting, and predicting. This process helps learners see how things work while also applying problem-solving skills to everyday life.
- **Quadrant 4:** In this stage, learners engage in activities that help them refine their understanding and create new meaning by verifying, adapting, and synthesizing what they've learned through self-discovery.

(McCarthy, 2000)

Taxonomy of Educational Objectives

In Benjamin Bloom's, *Taxonomy of Educational Objectives*, which is traditionally used to structure academic curriculum or learning activities, I identified specific actions as critical learning objectives for students' to achieve that informed the design of my prototypes.

- **Evaluate** - Justify a stand or decision; appraise, argue, defend, judge, select, support, value, critique, weigh.
- **Analyze** - Draw connections among ideas; differentiate, organize, relate, compare, contrast, distinguish, examine, experiment, question, test.
- **Apply** - Use information in new situations; execute, implement, solve, use, demonstrate, interpret, operate, schedule, sketch.
- **Understand** - Explain ideas or concepts; classify, describe, discuss, explain, identify, locate, recognize, report, select, translate.
- **Remember** - Recall facts and basic concepts; define, duplicate, list, memorize, repeat, state.

(Armstrong, P., 2010)

Six Pillars: Futures Thinking For Transformation

I was strongly influenced by the Six Pillars framework of mapping, anticipating, timing, deepening the future, creating alternatives and transforming, in Sohail Inayatullah's, *Six Pillars: Futures Thinking For Transformation*.

Inayatullah states that "Futures studies seeks to help individuals and organizations better understand the process of change so that wiser preferred futures can be created" (Inayatullah, 2000, p.5). With this futures studies framework in mind, I used three aspects of the Six Pillar framework to develop the foundational structure for my activities, which include:

- **Mapping** - in Blast From the Past
- **Anticipating** - in Future Understanding
- **Deepening the Future** - in Explore Possibilities and Careers Come to Life

(Inayatullah, 2000)

The Six Facets of Understanding

I used the *The Six Facets of Understanding* framework presented by Wiggins and McTighe in to evaluate and assess the effectiveness of the activities that I developed. I used the framework to determine how well students achieve multiple levels of understanding within each activity. The facets that I implemented within each activity included:

ACTIVITY 1 | BLAST FROM THE PAST

Explain | Interpret
Students are able to explain their past experiences in a way that leads to an interpretation or understanding of themselves through telling meaningful and relevant stories.

ACTIVITY 2 | FUTURE UNDERSTANDING

Explain | Interpret | Apply
Students are able to explain and analyze their experiences from the past and present semester to understand the direction of their future.

ACTIVITY 3 | EXPLORE POSSIBILITIES

Apply | Perspective
Students are able to apply knowledge they have about their personal working styles and initial impressions of specific jobs that interest them to gain perspective on who they are and what they value.

ACTIVITY 4 | CAREERS COME TO LIFE

Apply | Perspective | Self Knowledge
Students are able to apply communication and networking tools to conversations with professionals pursuing careers within their areas of interest to gain a level of perspective and self knowledge.

(Wiggins, G. P., & McTighe, J., 2008, p. 44)

Activity Framework

This diagram illustrates the four different frameworks that I used to structure my proto-type activities. The four frame-works include the:

- The 4MAT Learning Cycle
- Taxonomy of Educational Objectives
- Six Pillars: Futures Think-ing For Transformation
- The Six Facets of Understanding

This diagram aims to provide a detailed visual representation of the specific elements that were used from each framework and how they were implemented across each activity.

Fig. 2.1
Shown here is an illustration of my design activity structure in association with my four frameworks.

Helping students transition from high school into college, while empowering them to take control of their future over time

1 Why?

BLAST FROM THE PAST

- REMEMBER - past experiences
- ANALYZE - how these experiences are influencing the present

1. MAPPING

● EXPLAIN | INTERPRET

Students’ are able to explain their past experiences in a way that leads to an interpreta-tion or understanding of themselves through telling meaningful and relevant stories.

2 What?

FUTURE UNDERSTANDING

- REMEMBER - past experiences
- ANALYZE - how these experiences are influencing the present
- UNDERSTAND - how the past and present are influencing the future

2. ANTICIPATION

● EXPLAIN | INTERPRET | APPLY

Students’ are able to explain and analyze their experiences from the past and present semester to understand of the direction of their future.

3 How?

EXPLORE POSSIBILITIES

- UNDERSTAND - what job and career possibilities you are gravitating to
- ANALYZE - how different jobs or career possibilities relate to your working style

3. DEEPENING THE FUTURE

● APPLY | PERSPECTIVE

Students’ apply knowledge they have about their personal working styles and initial impressions of specific jobs that interest them to gain perspective on who they are and what they value.

4 If?

CAREERS COME TO LIFE

- UNDERSTAND - the jobs or companies that may interest you
- ANALYZE - compare and contrast the different jobs or companies that interest you
- EVALUATE - different jobs or career paths to help take the next step forward
- APPLY - the learning of this activity in scenarios outside of school

● APPLY | PERSPECTIVE | SELF KNOWLEDGE

Student’s apply communication and networking tools to conversations with professionals pursuing careers within their areas of interest to gain a level of perspective and self knowledge.

- The 4MAT Learning Cycle
- Taxonomy of Educational Objectives
- Six Pillars: Futures Thinking For Transformation
- The Six Facets of Understanding



Activity 1

Blast From the Past

In Blast From the Past I focused on structuring the activity to align with the first pillar of the *The Six Pillars: Futures Thinking For Transformation* framework, Mapping.

In Activity 1 - “Blast From the Past” I focused on structuring the activity to align with the first pillar of *The Six Pillars: Futures Thinking For Transformation* framework, Mapping.

MAPPING

In the first pillar Inayatullah, explains that “By mapping time, we become clearer on where we have come from and where we are going” (Inayatullah, 2000, p.7). At the beginning of this activity students engage in the process of mapping time on an individual experience timeline by outlining specific work, volunteer, educational, and or life experiences that have had a formative impact on their decision to pursue their degree.

After identifying three formative experiences on their timeline, students focus on one at a time, writing answers to specific questions including:

- What did you like about the experience?
- What challenged you about the experience?
- What did you learn from the experience?

The goal of this activity is to help students internally leverage the experiences that led them to where they are in the present and guide their conversations with their counselor through explanations of the past in relation to their future.



Fig. 2.2
Activity 1 Prototype - inspired
by the Xello platform.

Activity 2

Future Understanding

In Future Understanding I focused on structuring the activity around the first and second pillar of the *The Six Pillars: Futures Thinking For Transformation* framework, including Mapping and Anticipation.

MAPPING

In the Mapping pillar, Inayatullah highlights the “shared story” method through a Futures Triangle method where participants in a futures workshop identify main trends and events that have led to the present. This activity is traditionally framed as a group activity facilitated within organizations. However, I decided to convert this framework to support the individual as opposed to the original framework that is designed to engage organizations or large groups.

The refining of the “Futures Triangle Framework” includes the following restructuring for undergraduate students:

- Weight of History > Reflections of the Past - What do you recall from your past experiences last semester (good or bad) that are shaping your thinking today as a student?
- Push of the Present - Thinking about where you are now what is shaping your current experience (good or bad).
- Pull of the Future -Now that you have completed your first semester, how are you envisioning the next steps in your career path (ie. internships, companies that interest you, skills you’d like to develop)? Are there clear steps ahead of you or is it still a little fuzzy?

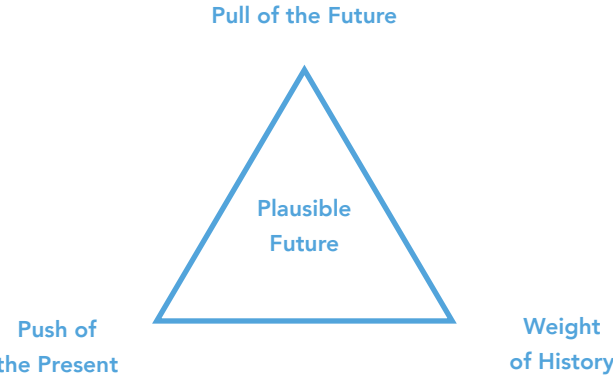
ANTICIPATING

Through this mapping exercise, I focused on aiding students in anticipating the future by supplying guiding questions associated with each section of the framework. These questions included:

- Last semester I enjoyed the following (Activity/Project)...Because...
- OR
- Last semester I struggled with the following (Activity/Project)...Because....

By helping students identify specific positive or negative experiences in their past and present, they begin to identify patterns or themes related to their interests that could inform their future.

This activity also aims to support the discussions that students have with their school counselor and help them explain how they are navigating their learning experiences through college. Through their identification of different personal experiences, this activity is designed to highlight specific topics that students dislike or enjoy and careers or jobs that may interest them for the future.



Activity 2 | Future Understanding

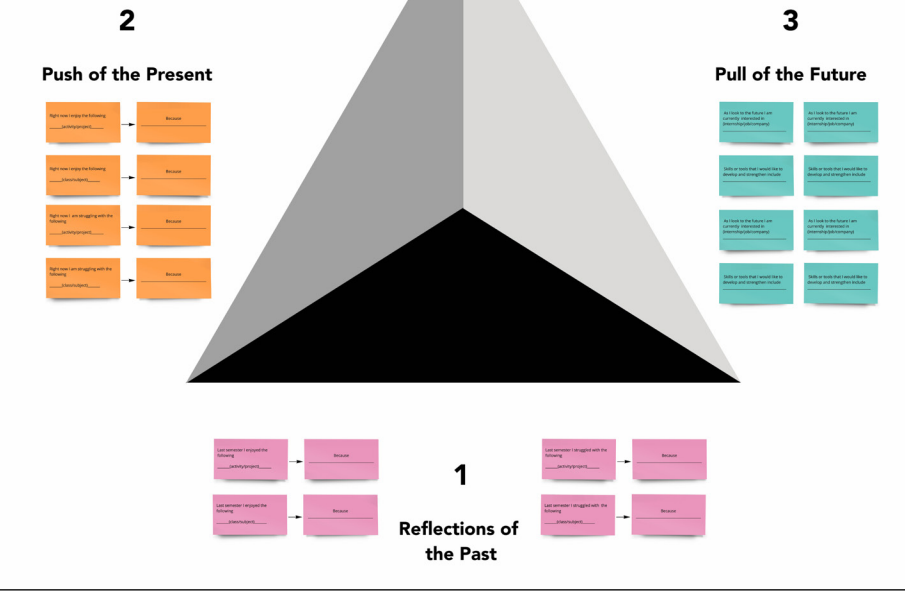


Fig. 2.3
Activity 2 Prototype in Miro.

Fig. 2.4
Shown here is Inayatullah’s Futures Triangle framework. (Inayatullah, 2000, p.8)

Activity 3

Explore Possibilities

In Exploring Possibilities I focused on structuring the activity based on the fourth pillar of *The Six Pillars: Futures Thinking For Transformation*, Deepening the Future.

DEEPENING THE FUTURE

In the Deepening of the Future pillar, Inayatullah identifies two methods used to facilitate strategic planning for shaping the future. These two methods include a causal layered analysis (CLA) and four quadrant mapping. Although not in direct correlation with the four quadrant mapping methods outlined in the paper, I used the general structure of this method to aid the design of the activities for Activity 3 - Exploring Possibilities.

The refining of the four quadrant mapping methods included the following restructuring for undergraduate students:

Inner-Individual Level > the meaning and feelings students have about their own working style and their individual strengths and emerging interests that aid in their understanding of jobs or careers that are beginning to interest them.

This activity is designed to help students consider how they are understanding themselves and their own working styles as well as realizing and verbalizing the inner ideas and questions that they have regarding their career path. This activity provides students with guiding questions that help them develop a list that they can reference and share with their career counselor. This activity aims to help students kick-start discussions with their counselor, define actionable next steps, and gain a deeper understanding of the jobs or companies that may interest them.

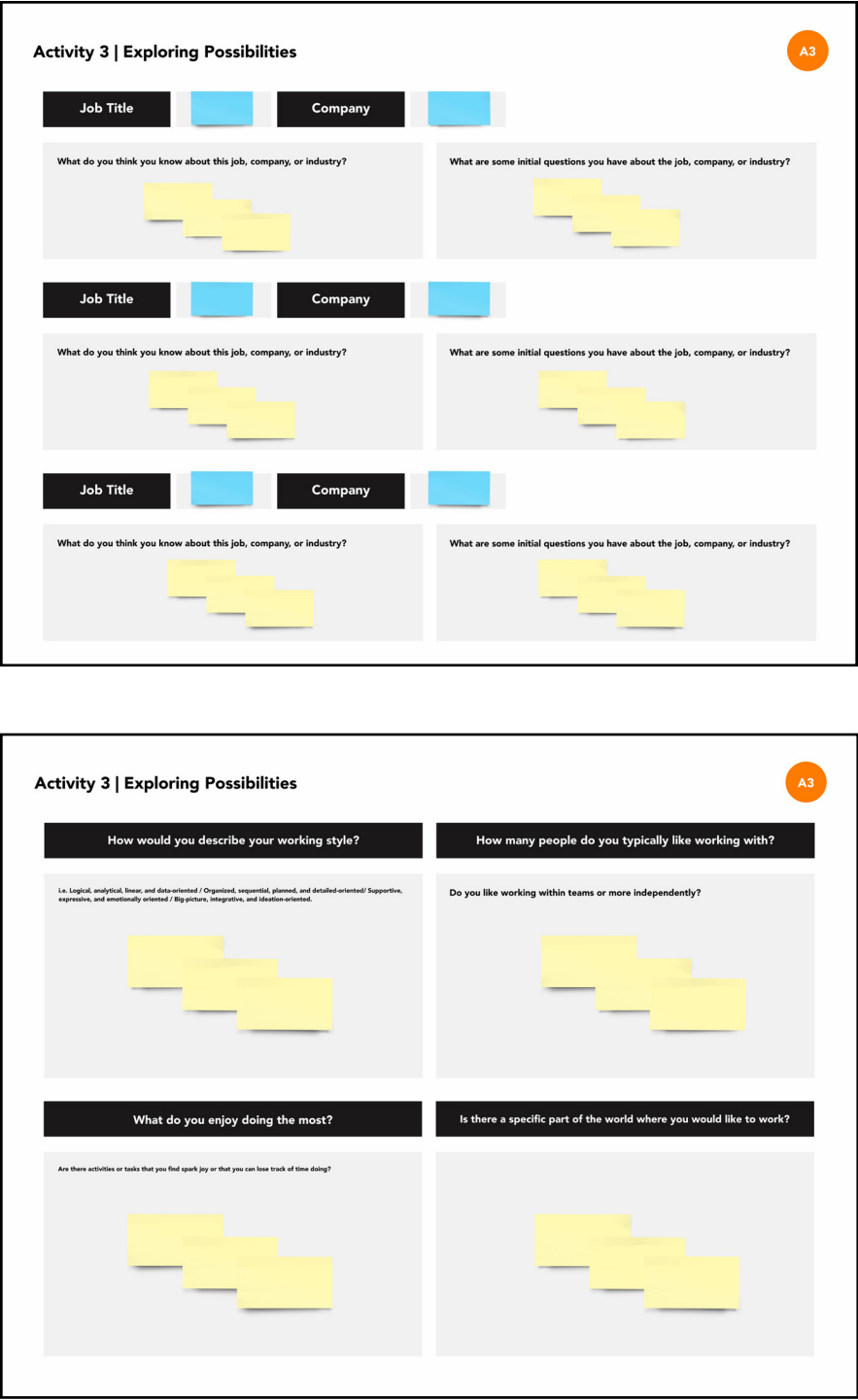


Fig. 2.5
Activity 3 Prototype in Miro.

Activity 4

Careers Come to Life

In Careers Come to Life I continued to focus on structuring the activity around the fourth pillar of *The Six Pillars: Futures Thinking For Transformation*, Deepening the Future.

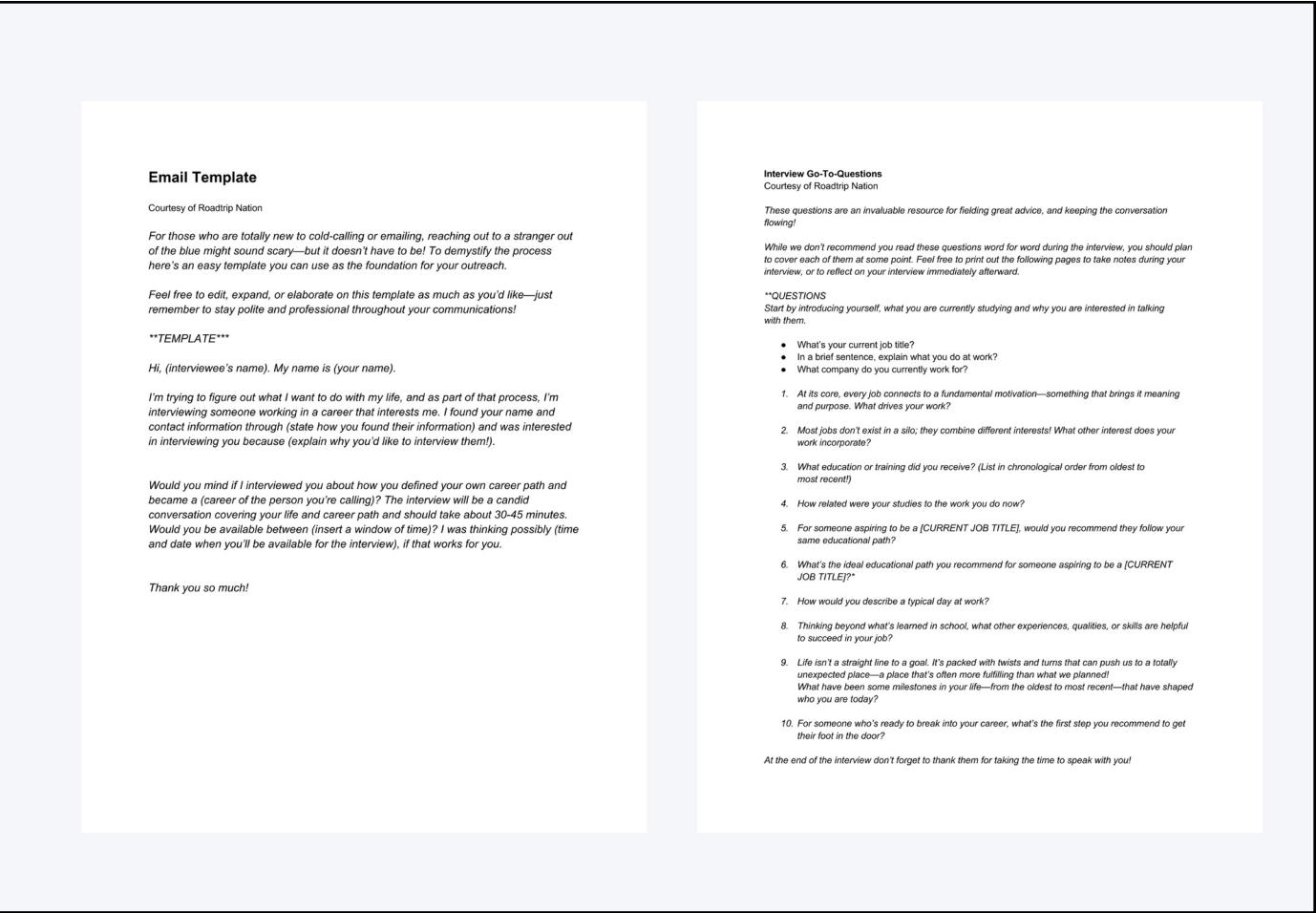
DEEPENING THE FUTURE

As an extension of Inayatullah’s four quadrant method, I transitioned from the “Inner-Individual Level” that was represented in Activity 3 to expanding on the “Outer- Collective Level” of understanding through “Careers Come to Life”. In “Careers Come to Life” students’ are encouraged to explore careers, jobs, and experiences outside of their “Inner-Individual Level” of understanding.

In this activity, students reach out to individuals, either within or outside of their own network that are pursuing a profession in their area of interest. Although reaching out to someone can often be intimidating the activity provides an email and interview question template to ease the process and assist students in making their first connections. Throughout the experience of conducting these interviews students; are able to reach out to their career counselor with questions.

This activity aims to support students’ in the process of networking to gain first hand knowledge and perspective about the careers or jobs that are beginning to interest them. This exercise provides them the opportunity to gain a clear understanding of the day-to-day experiences within a specific role, in addition to the different pathways to get there. Ultimately after conducting this activity students are empowered to self-reflect and evaluate the career opportunities that may interest them while developing the confidence to reach out to other professionals in the future.

Fig. 2.6
Activity 4 Prototype -
inspired by Road Trip Nation
Experience templates.



5.0

Evaluative Research

After designing the activities for the initial prototype, ‘career.colab’, I moved forward with evaluating their effectiveness in engaging and assisting students through the process of understanding their fit and purpose, aiding them in their long-term planning, building their confidence in decision making, and providing them insights into career opportunities.

My research strongly indicates that when transitioning from high school into college students lose access to career counselors and parental guidance that provide support in assisting them with their future and long term thinking. I decided to specifically test the activities with first year design students at Carnegie Mellon University as an initial sample group for my study. I was provided a list of 15 current first year design students by my faculty advisor. I then invited the students via email to participate in testing my prototype and indicated that I would provide them a \$30 incentive. Eight students agreed to participate.

This group of eight students participated in two 1.5 hour workshop sessions via Zoom virtual Miro boards, a collaborative whiteboard tool. These sessions were conducted, one on one with myself as the facilitator. In Miro students completed the four ‘career.colab’ activities in sequential order. After each activity, students were prompted to note their perceptions of the experience by placing a dot on a series of 24 semantic differentials. The results are represented in pages, 63- 69.

The semantic differential scale is represented by 5 dots on a negative to positive spectrum. In an effort to provide a clear and concise summary of the data I created a compila-

tion of the eight responses. It is represented by a grayscale with the number of responses indicated by each dot. Below the scale, a green bar provides a visual indication of the range of the responses.

In the review of all four of these activities, clear trends are indicated for each of the semantic differential questions.

Following their plotting, students were then asked to elaborate with comments on their reasoning, which provided greater insight into their thinking and decision making. Each student provided feedback on their responses to each of their semantic differential questions. The sessions were recorded and their comments were transcribed from the recordings.

The transcribed comments were then organized on a Miro board in association with the 24 semantic differential questions and subsequent follow-up questions. A simple color scale of green and red for positive and negative responses was utilized. Once again clear trends were illustrated in the responses providing further insights into the four activities.

Their comments and insight aided my understanding of the various challenges first year students face and what support and assistance they find valuable during this transitional period. Their feedback also provided key insights into the refinement and making of my final prototype.

Activity 1

Blast From the Past

EVALUATION

Activity 1, Blast From the Past, was followed by five of the 24 semantic differential questions. Questions 1 and 2 (Q1 and Q2) addressed the tools effectiveness in gaining perspective and being able to self-reflect on their past to inform the next steps for their future. Q3 asked about its usefulness in guiding conversations with a counselor, and Q4 and Q5 addressed engagement with the timeline and future implementation with formatting a resume.

Data Analysis

Although somewhat effective in helping students gain perspective about their personal experiences (an average of 3.7 / 5 for Q1) it was fairly effective in its ability to utilize their past to inform their future next steps (4.1 / 5 for Q2). In terms of the tools’ usefulness in helping them guide conversations, three students were neutral and the remaining five found it to be useful (3.8 / 5 for Q3).

The majority of the students did not feel like the timeline was something they would frequently engage with during college (2.9 / 5 for Q4). However, seven out of eight students thought it would be useful in helping them format their resume (4.5 / 5 for Q5) .

Student Feedback

An informal analysis was conducted of the comments that were obtained following the semantic differential scales - these comments were posted on the Miro board and color coded. Note that some students spoke more to one question v.s. another so the number of comments varied in frequency.

- Of the 19 comments received for Q1, 73% were positive
- Of the 18 comments received for Q2, 88 % were positive
- Of the 12 comments received for Q3, 92 % were positive

- Of the 18 comments received for Q4, 55% were positive
- Of the 19 comments for received Q5, 100% were positive

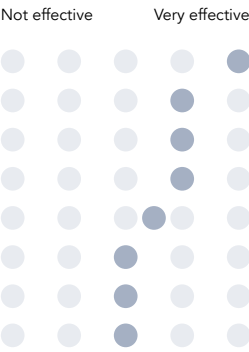
Students also provided specific design considerations for future implementation in Activity 1.

Design Considerations

Students expressed wanting the ability to sort and filter their experiences, import existing resumes into the timeline, and have the ability to customize and export resumes from the timeline for job applications.

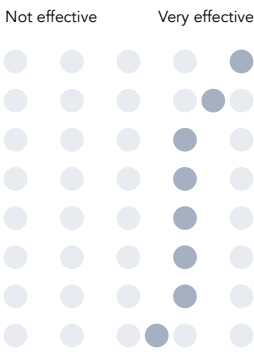
Q1

How effective do you think this tool would be in helping you gain a new perspective about your personal experiences?



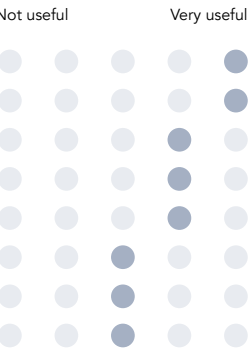
Q2

How effective do you think this tool would be in helping you self-reflect and evaluate your past while informing the next steps for your future?



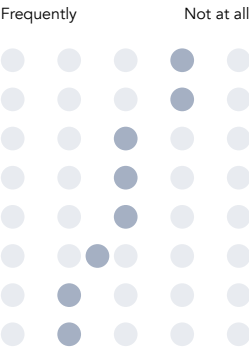
Q3

How useful do you think a visual aid of your experiences would help guide the conversations you have with your counselor?



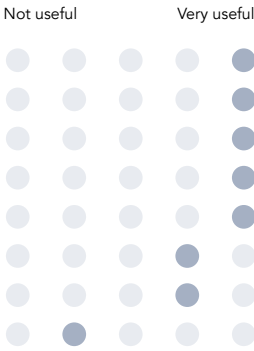
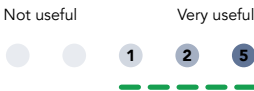
Q4

If you had access to this interactive timeline over 4 years how often do you think you would engage with it?



Q5

How useful would you find exporting your timeline as a formatted resume?



“I think going back to projects, or work experience, and volunteering that I valued in the past is almost centering...it definitely helps me focus more inwards instead of outward.”

STUDENT

“I haven’t looked back on anything I’ve done...I like how this stops you and lets you see the perspective.”

STUDENT

Activity 2

Future Understanding

EVALUATION

Activity 2, Future Understanding, was followed by six of the 24 semantic differential questions. Q1, Q2, and Q3 addressed the effectiveness of the activity in helping students gain a new perspective while assisting them with conversations about their past, present, and future to help them compare, contrast, and connect their different experiences through the futures triangle method. Q4 investigated how the activity made students feel on a scale of anxious > at ease, bored > interested, and unmotivated > motivated.

Data Analysis

Although somewhat effective in helping students gain perspective about their past, present, and future (an average of 3.9 / 5 Q1) this activity was highly effective in helping students discuss aspects of their past present and future with their counselor (4.5 / 5 for Q2). In terms of the tool's effectiveness in helping them compare, contrast, and connect their different experiences, there was a broad range of response from two to five (3.8 / 5 for Q 3). In evaluating the activity questions for feel, the respondents indicated that they remained mostly neutral regarding feeling anxious or at ease (2.8 / 5 for Q 4, a.). When asked how they felt on a scale of bored to interested two participants responded neutrally, and the remaining six students responded as somewhat to highly interested (4.8 / 5 for Q 4, b.). Lastly, although one student was unmotivated by the questions, the remaining seven responded as fairly motivated by the questions (3.8 / 5 for Q4, c.).

Student Feedback

An informal analysis was conducted of the comments that were obtained following their completion of the semantic differential scales.

- Of the 14 comments received for Q1, 78 % were positive
- Of the 14 comments received for Q2, 86 % were positive
- Of the 15 comments received for Q3, 53 % were positive
- Of the 8 comments received for Q4 a., 75 % were positive
- Of the 9 comments received for Q4 b., 78 % were positive
- Of the 8 comments received for Q4 c., 88 % were positive

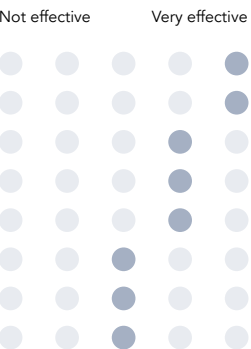
Students also provided specific design considerations for future implementation in Activity 2.

Design Considerations

Students expressed wanting the ability to rate their experiences to reflect on their ranking in the future. They also wanted to highlight companies that did not interest them alongside the companies that did interest them. This feature was requested to help them accurately express their personal values in addition to giving counselors the ability to comment on their experiences.

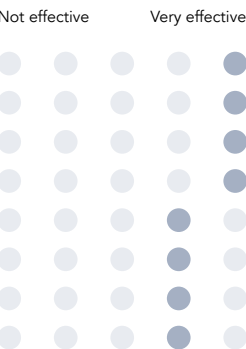
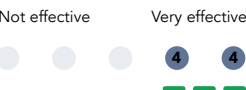
Q1

How effective do you think this tool would be in helping you gain a new perspective about your past, present, and future?



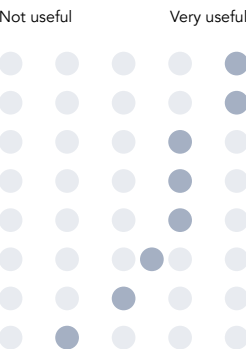
Q2

How effective do you think this tool would be in helping you discuss aspects of your past, present, and future with your counselor?



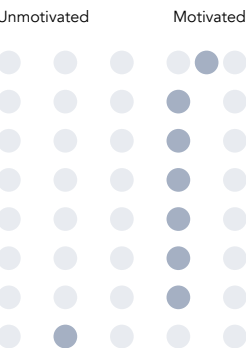
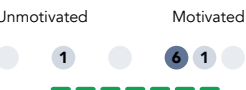
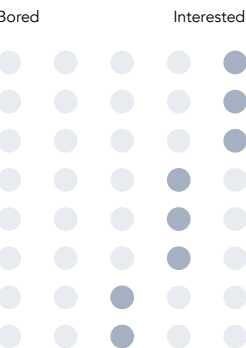
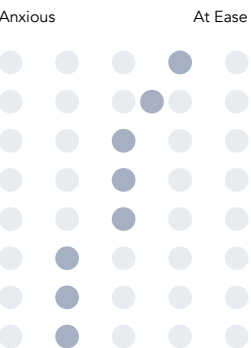
Q3

How effective do you think this tool would be in helping you compare, contrast, and connect your different experiences?



Q4

How did the activity questions make you feel?



“Right now I don’t really talk to my counselor unless I reach out to her and I think that if we had to do this ... it would give a level of personal connection that I would feel more comfortable, she would know my experiences and where I’m going.”

STUDENT

“Organizing my thoughts has made me interested and motivated, being like - ok I’m seeing some pathways here, definitely getting some ideas of like what interests me more than others.”

STUDENT

Activity 3

Exploring Possibilities

EVALUATION

Activity 3, Exploring Possibilities was followed by six of the 24 semantic differential questions. Q1 addresses the tools effectiveness in helping students describe their career path ideas. Q2 examines the activity’s ability to help guide conversations with their counselor and Q3 asked about the activity’s ability to help students compare and contrast jobs or companies that interest them. Lastly Q4 investigates how the activity made students feel on a scale of anxious > at ease, bored > interested, and unmotivated > motivated.

Data Analysis

Six students indicated a level four on the scale for the tool’s effectiveness in describing their career path ideas (an average of 3.8 / 5 for Q1). Furthermore six students indicated a level 5 on scale for the effectiveness of the tool in discussions with their counselor about jobs or companies that interest them (4.8 / 5 for Q2). Q3 saw a wider range of responses. Nonetheless, the tool was still deemed effective in comparing and contrasting jobs or companies (3.8 / 5 for Q3). In evaluating how the activity questions made them feel, the respondents indicated that they remained mostly neutral, although four students did indicate some level of anxiousness (2.3 / 5 for Q 4, a.). When asked how they felt on a scale of bored to interested there was a wider range, six students indicated a response of somewhat to highly interested (4.0 / 5 for Q 4, b.). Lastly, seven of the eight students felt somewhat motivated by the activity (4.0 / 5 for Q4, c.).

Student Feedback

An informal analysis was conducted of the comments that were obtained following their completion of the semantic differential scales. Although most students indicated a positive response to the activity, there were also some aspects of the activity that they noted warranted improvement.

- Of the 10 comments received for Q1, 70 % were positive
- Of the 8 comments received for Q2, 100 % were positive
- Of the 10 comments received for Q3, 60 % were positive
- Of the 8 comments received for Q4 a., 75 % were positive
- Of the 8 comments received for Q4 b., 88 % were positive
- Of the 7 comments received for Q4 c., 100 % were positive

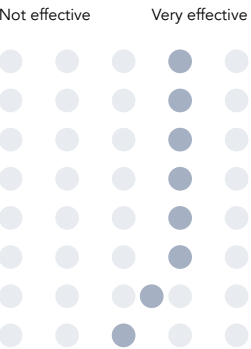
Students also provided specific design considerations for future implementation in Activity 3.

Design Considerations

Students expressed wanting access to a list of jobs and the ability to link to existing job descriptions for reference.

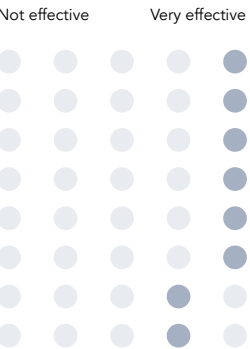
Q1

How effective do you think this tool would be in helping you describe ideas you have about your career path?



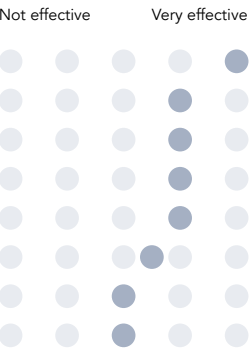
Q2

How effective do you think this tool would be in helping you have a conversation with your counselor about jobs or companies that may interest you?



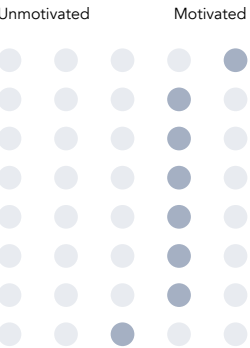
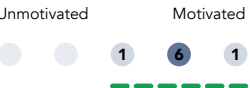
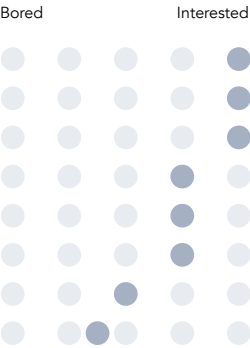
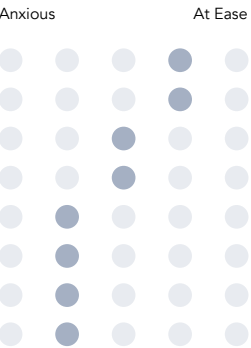
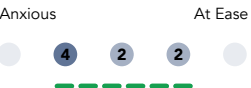
Q3

How effective do you think this tool would be in helping you begin to compare and contrast jobs or companies that may interest you?



Q4

How did the activity questions make you feel?



“Right now I really don’t know who I go to talk about this really...I don’t know how to go about it, so having this template of ways to bridge us a little bit more could help I think...I think it would help her get to know my where my direction is better.”

STUDENT

“It’s really helpful for getting the conversation started. But what this activity is nice about is it makes you consider all the things that you’ve been thinking about and the possibilities.”

STUDENT

Activity 4

Exploring Possibilities

EVALUATION

Activity 4, Careers Come to Life, was followed by seven of the 24 semantic differential questions. Q1 addresses the tools effectiveness in helping students’ self reflect and evaluate different career opportunities. Q2 and Q3 focus on how the activity helps students understand the different jobs and companies that interest them and evaluate them. Q4 focuses on fostering students’ abilities to reach out to other professionals for interviews after completing this activity. Lastly Q5 investigated how the activity made students feel on a scale of anxious > at ease, bored > interested, and unmotivated > motivated.

Data Analysis

It is worth noting that of the four activities, Activity 4 scored the highest amongst the students. In assessing the effectiveness of the tool’s ability to help students self reflect and evaluate different career opportunities, six of the eight students found that it was fairly to highly effective (an average of 4.3 / 5 for Q1). In Q2 all eight students found the activity to be fairly to highly effective in helping them understand the jobs or companies that interest them (4.6 / 5 for Q2). Similarly, in the effectiveness of the tool in evaluating different jobs or companies that interest them, the average response was very effective (4.8 / 5 for Q3). When asked how difficult or easy it would be to reach out to professionals for informal interviews after conducting this activity, all of the students indicated that it would be fairly to very easy (4.4 / 5 for Q4).

In evaluating how the activity questions made them feel, three respondents indicated that they remained mostly neutral, and three students did indicate some level of anxiousness (2.8 / 5 for Q 5, a.). It is worth noting that students expressed that their anxious feelings were not necessarily negative but expected and at times motivating. When asked how they felt on a scale of bored to interested all students indicated a response of fairly to highly interested (4.5 / 5 for

Q 5, b.). Similarly, seven of the eight students felt fairly to highly motivated by the activity (4.3 / 5 for Q5, c.).

Student Feedback

An informal analysis was conducted of the comments that were obtained following the semantic differential scales. Overwhelmingly the comments reflected the students enthusiasm for the Careers Come to Life activity.

- **Of the 10 comments received for Q1, 80 % were positive**
- **Of the 8 comments received for Q2, 100 % were positive**
- **Of the 9 comments received for Q3, 100 % were positive**
- **Of the 8 comments received for Q4, 100 % were positive**
- **Of the 8 comments received for Q5 a., 63 % were positive**
- **Of the 8 comments received for Q5 b., 100 % were positive**
- **Of the 7 comments received for Q5 c., 100 % were positive**

Students also provided specific design considerations for future implementation in Activity 4.

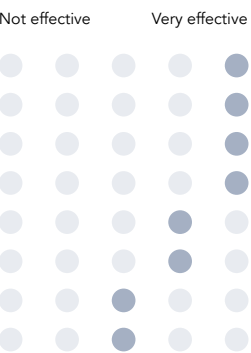
Design Considerations

Students expressed wanting tips on how to approach their email signature and sign off. They also wanted an option to customize their own email and interview questions from the templates.

They also expressed the value of Integrating with LinkedIn, Handshake, and ADPList or other existing career mentorship services or platforms, to identify contacts.

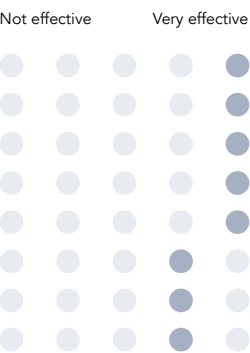
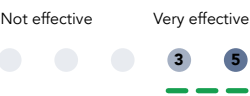
Q1

How effective do you think this tool would be in helping you self-reflect and evaluate different career opportunities?



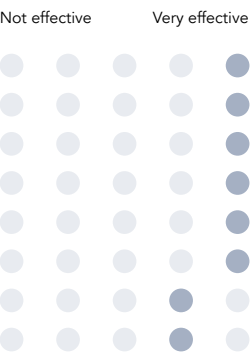
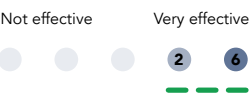
Q2

How effective do you think this tool would be in helping you understand different jobs or companies that may interest you?



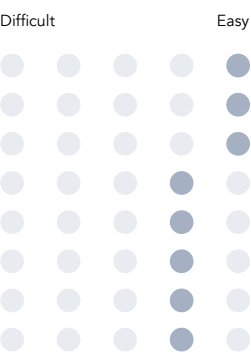
Q3

How effective do you think this tool would be in helping you evaluate the different jobs or companies that may interest you?



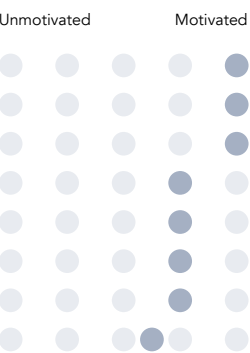
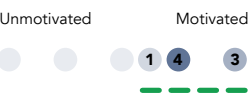
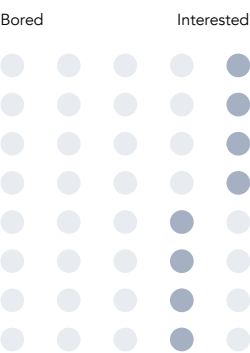
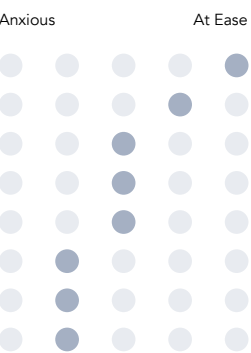
Q4

How effective do you think this tool would be in helping you reach out to other professionals for informal interviews after doing this activity?



Q5

How did the activity make you feel?



“ I think without this I would be a little anxious I would be a little unmotivated to reach out to mentors about their experiences. But I think this would help me to get the motivation to reach out to them, because I would have a starting point and I wouldn’t feel as lost or confused about the process.”

STUDENT

Key Insights

In spending three hours with each student during the two workshop activities the students preferences for specific activities became apparent. Their affinities were most clearly represented at the end of all four activities when I asked the following follow-up question: “Out of the 4 Activities outlined in ‘career.colab’ which activity did you find the most useful? Why/why not?”

Four out of the eight students found Activity 4 to be the most useful, where three students found Activity 2 to be the most useful, and one student resonated specifically with Activity 2 and 4. Ultimately this insight highlighted what I determined to be two distinct user behavior types.

Proactive Planner

These are students that are already actively considering the next steps for the future and career aspirations and appreciate tools or resources that help them engage in activities to take actionable next steps.

Reflective Thinker

These are students that haven’t yet considered or are still exploring the direction of their career path and future. These students appreciate activities that require them to connect aspects of their past, present, and future while verbalizing or writing down their experiences through self-reflection.

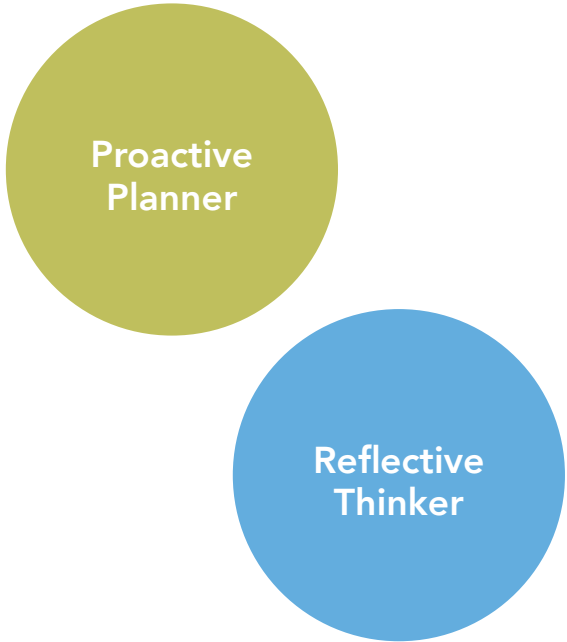
It is worth recognizing that students consider approaching their future in different ways and engage with aspects of this process at different times. Their individuality warrants a level of flexibility in the design and engagement of these activities based on where a student is currently positioned in the process and what resources they need.

At the end of the two workshop sessions each student was asked “if a platform built around these 4 activities was available to them would they use it” - 6/8 - indicated

definitely to very likely and the remaining two indicated somewhat to likely.

One student expressed that they would be very likely to use it -stating that “ So much of your university experience is focused on just learning about design but careers is a whole other side to it. And I think having that 1:1 counseling and mentorship with someone in the university would be really helpful. Because I feel like there is so much I don’t know about the industry.”

This data shows the relevance and need of an academic tool, such as ‘career.colab’ to support students in the process of planning for their futures.



5.0

Final Prototype

Based on the discoveries gleaned from the students' feedback that they provided when testing the activities for 'career.colab', and through informal design reviews conducted in an adjacent digital design course, I further iterated the concepts and refined the prototypes. These efforts led me to create the beginning phases of a university career mentorship platform.

'career.colab'

The design intervention 'career.colab' re-imagines the first year undergraduate experience by providing students a series of four activities coupled with 1:1 career counseling to support them in defining a path forward to support them during their first two years of college as they define a path forward through graduation. This digital application is designed to empower students to take control of their future and feel confident in their decision making while pursuing academic goals that align with their career path.

'career.colab' leverages a series of interactive and collaborative, digital, and hands-on activities to engage students in self-reflection and conversations about their career goals. It aims to help them engage in a process that focuses on strengthening their understanding of themselves while guiding the next steps.

Student Journey

'career.colab' consists of six interactive touchpoints. Four of the six touch points include learning activities that are conducted at the beginning and end of each semester. Each activity is designed to build on the prior step and assist students in gaining a holistic understanding of themselves and their path forward during their college experience.

1. Orientation & On-boarding

'career.colab' is introduced to first year students at orientation in the beginning of their first semester. Students attend a 'career.colab' seminar event where they set up their account and are assigned a personal counselor. This counselor is somebody that the student will work with and have access to as a resource for career planning throughout their entire college experience.

2. Experience Timeline | Activity 1

The Experience Timeline is the first activity that students complete following the 'career.colab' orientation and on-boarding event. In this activity students reflect on their past experiences before coming to college and enter them into a digital timeline for future reference. In addition to serving as a visual record of students' experiences and accomplishments, the Experience Timeline can also be translated into a resume template for job applications when students are ready to take that next step.

3. Future Understanding | Activity 2

The Future Understanding activity is completed at the end of students' second semester of study. In this activity students' reflect on their first semester and share their experiences through an

interactive futures activity. After completing this activity, students follow-up with their counselor to discuss their past and present experiences, and future aspirations once they have completed their first year of college.

4. Explore Possibilities | Activity 3

The Explore Possibilities activity is completed at the beginning of students' third semester in their second year of college. In this activity, students' begin to consider various careers, jobs, and companies that spark their interest. They are prompted to write details about their specific work style as well as list companies and jobs that are piquing their interest. In this activity, students include what they think they know about the company or industry and initial questions that arise. After completing this activity, students follow up with their counselor to discuss their thinking, notes, and questions that resulted from them doing this activity, which provides them with further insights.

5. Careers Come to Life | Activity 4

The Careers Come to Life activity is completed at the beginning of students' fourth semester in their second year of college. In this activity students further investigate the careers or jobs

that interest them by reaching out to someone within or outside of their own network, asking for an informal interview. This step is intended to deepen and strengthen their understanding of various professions.

This activity supplies students with email and interview question templates to make this process easy to initiate and less intimidating. After completing this activity, students follow up with their counselor to discuss what they learned from the experience and the possibility of interviewing another professional to gain more information. Subsequent sessions may include contacting their interviewee to request job shadowing or internship opportunities within the company to gain more insight in job roles and responsibilities.

After completing the first four activities in sequential order, students continue communicating with their counselors and revising or revisiting specific activities based on their individual needs.

6. Communication Channels

In between each 'career.colab' activity students receive updates and reminders from their counselor via email and text message.

career.colab

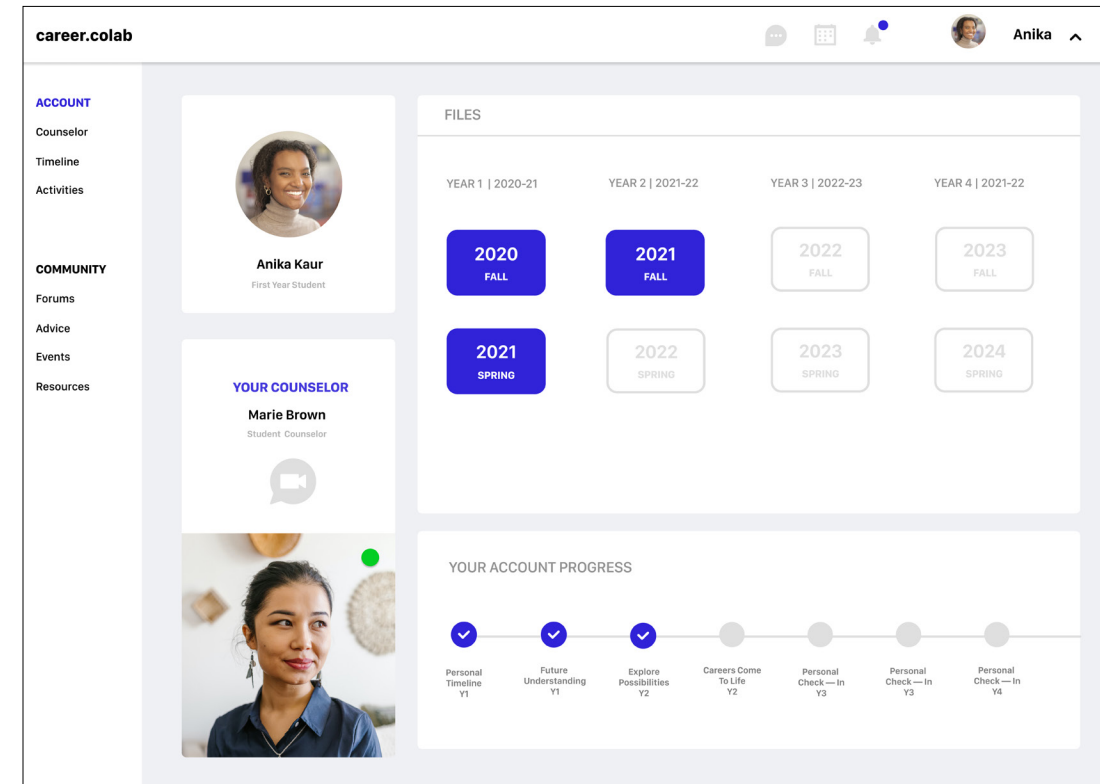


Fig. 3.0

The interface dashboard of 'career.colab'.

All images courtesy of Pexels. All icons courtesy of the Noun Project.

Student Dashboard

Following the completion of the 'career.colab' on-boarding seminar, students have access to their personal dashboard. In this dashboard, students are able to update their account information, communicate and schedule meetings with their assigned counselor, and keep track of their 'career.colab' progress. Specifically, in the files tab, students can access activities that they conducted in the past and identify activities they will be performing in the future.

Activity 1 | Experience Timeline

In the Experience Timeline, students reflect on their past experiences before coming to college,specifically outlining work, volunteer, educational, and/or life experiences that have had a formative effect on their decision to pursue higher education. The goal of this activity is to help students leverage and understand the experiences that have led them to where they are today and to guide the conversations they have with their counselor about their past to inform the steps they take in the future.

Some of the direct feedback I received when testing this activity includes:

- **Suggesting sorting and filtering experiences on the timeline to aid their reflection on their past experiences. Therefore, I integrated sorting and filtering features into the timeline that visualized their experiences.**
- **Requesting an importing option that would enable them to add their existing resumes into the system for ease of use when reflecting on influential experiences before college. Therefore, I included the upload resume feature in addition to the download resume feature to make this process easier for students.**
- **Highlighting the value of customizing downloadable resume templates to encourage individuality. Therefore, I included editable and customizable templates for students to use when downloading their resume.**

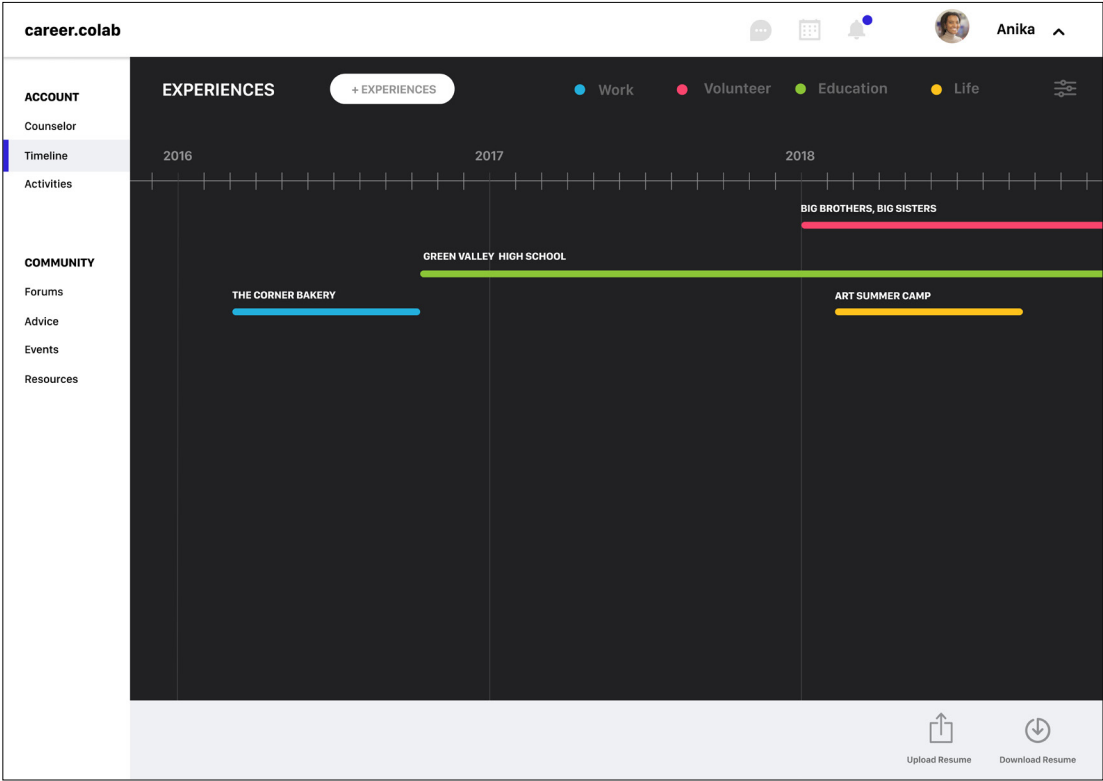


Fig. 3.1
The Experience Timeline interface.
Design inspiration courtesy of Xello.

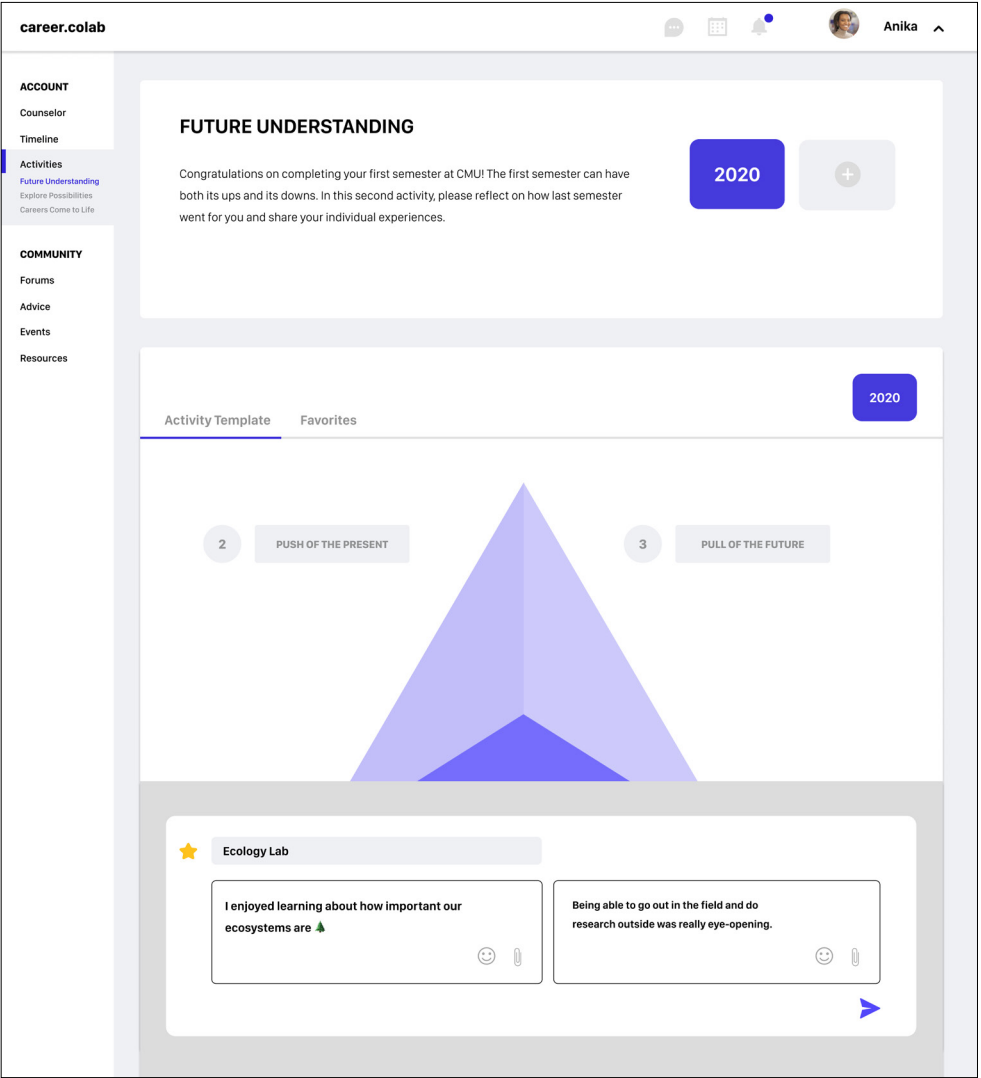


Fig. 3.2
The Future Understanding interface.

Activity 2 | Future Understanding

In the Future Understand activity, students reflect on their past experiences, think about what is currently shaping their college experience, and consider how they are envisioning the next steps in their career path. This activity engages students in self-reflection through writing and provides them with talking points to help guide the conversations they have with their counselor.

Some of the direct feedback I received when testing this activity includes:

- **Rating their experiences to evaluate what they want to reflect on in the future. Therefore, I included the “favorite” tagging feature associated with each activity for students to easily identify experiences that they would like to remember or revisit.**
- **Adding jobs or companies that do not interest them alongside the jobs that do interest them to accurately express their wants and values for the future. Therefore, I updated the questions in the “Pull of the Future” component of this activity to highlight student values.**
- **Giving counselors the ability to comment on specific experiences before or after their meeting with students. Therefore, I embedded the counselor comment feature to be included with each experience that is generated by the student. This feature enables counselors to provide specific and targeted feedback to students.**

Activity 3 | Explore Possibilities

In the Explore Possibilities activity students’ identify and real-ize their specific ideas and questions related to their career path. The goal of this activity is to help students kick-start discussions with their counselors about their future interests while defining actionable next steps to gain a deeper under-standing of the jobs or companies that interest them.

When testing this activity with students, they expressed wanting access to a list of jobs and links to existing job descriptions for their reference. Therefore, I included the “Search Jobs” feature to support students in conducting initial research surrounding the jobs that interest them.

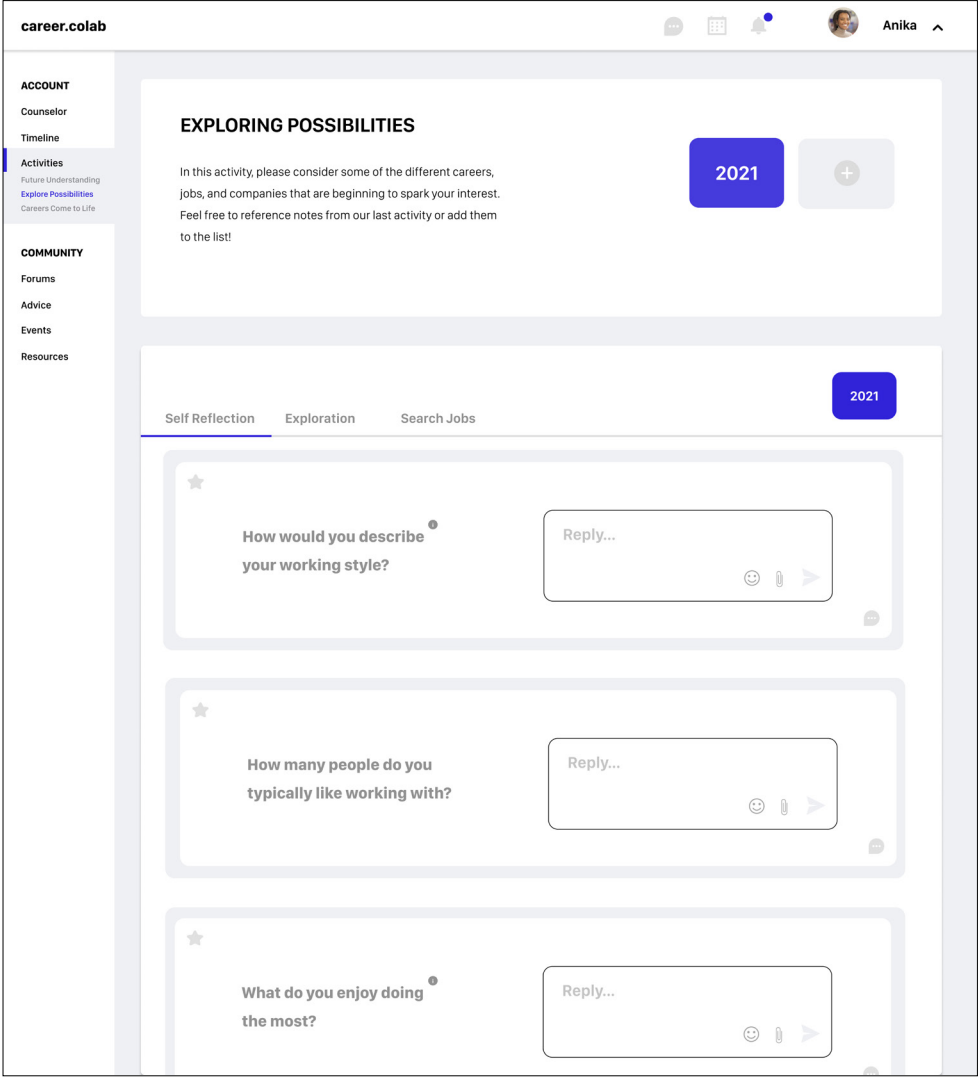


Fig. 3.3
The Explore Possibilities interface.

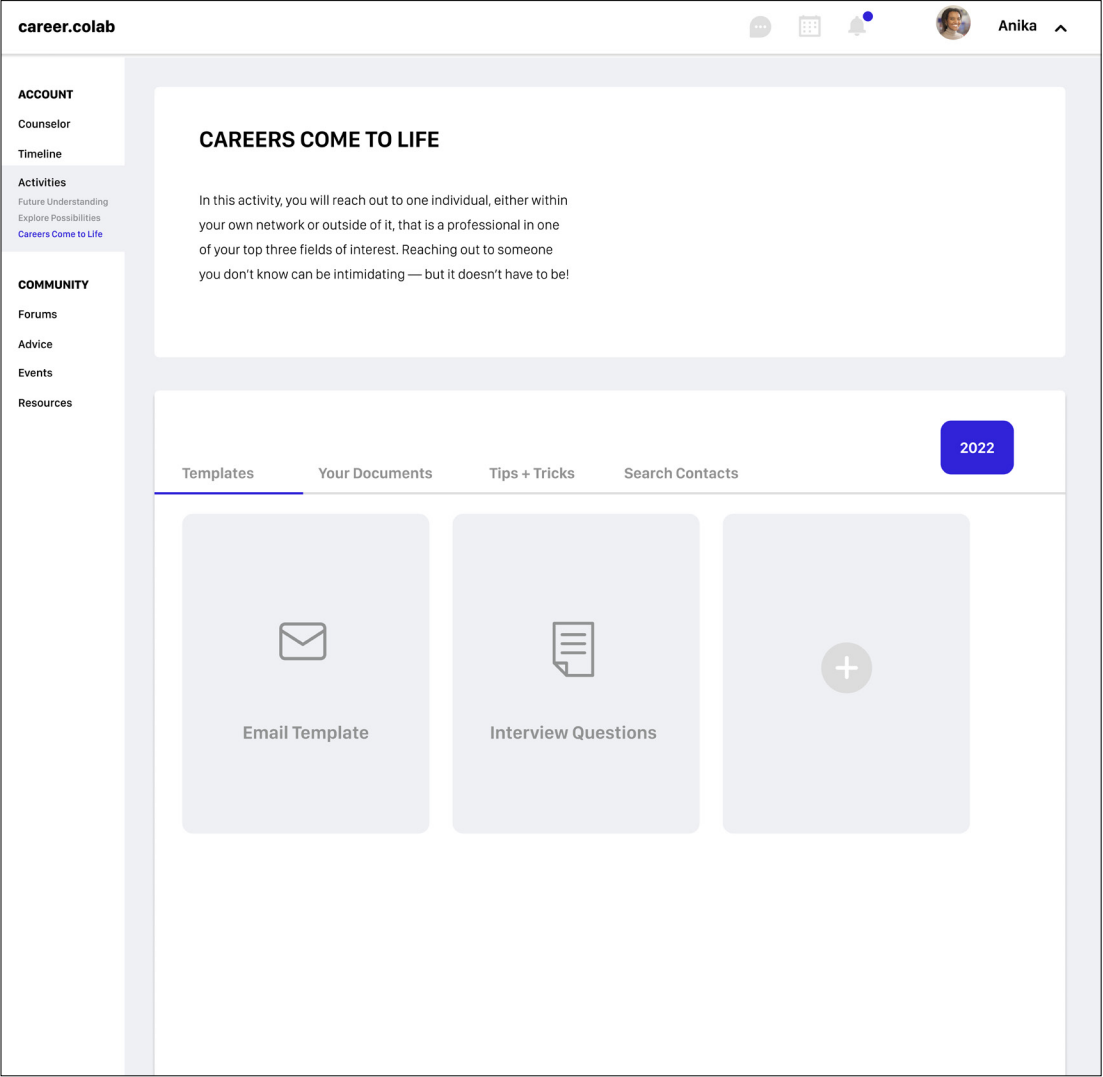


Fig. 3.4
The Careers Come to Life interface.

Activity 4 | Careers Come to Life

In the Careers Come to Life activity students practice reaching out to professionals to gain a first hand perspective about various companies, jobs, and careers that interest them. Having the opportunity to talk with someone and ask questions provides students with a novel perspective and outlook on their future and helps them understand and evaluate jobs or companies that interest them.

Some of the direct feedback I received when testing this activity includes:

- **Providing tips on how to approach their email signature and sign off. Therefore, I included the “Tips and Tricks” section for additional guidance and communication best practices.**
- **Having the ability to customize their own email and interview questions from the templates. Therefore, I enabled students to copy the templates that are provided to align with their individual needs.**
- **Integrating the prototype with LinkedIn, Handshake, ADPList and /or other existing mentorship services or platforms as a means of identifying new contacts. Therefore, I included the “Search New Contacts” section, which I envision being integrated with an online mentorship database that includes certified mentors from a variety of fields who are open to talking with students.**

Communication Platforms

When asking students if they would prefer to complete these activities on their phone or on a desktop computer and how they would prefer to receive reminder notifications they expressed an interest in using a desktop computer because it enables them to easily complete the reflection and writing activities. They also stated a preference for receiving notifications to complete activities or speak with their counselor either via email or text message.

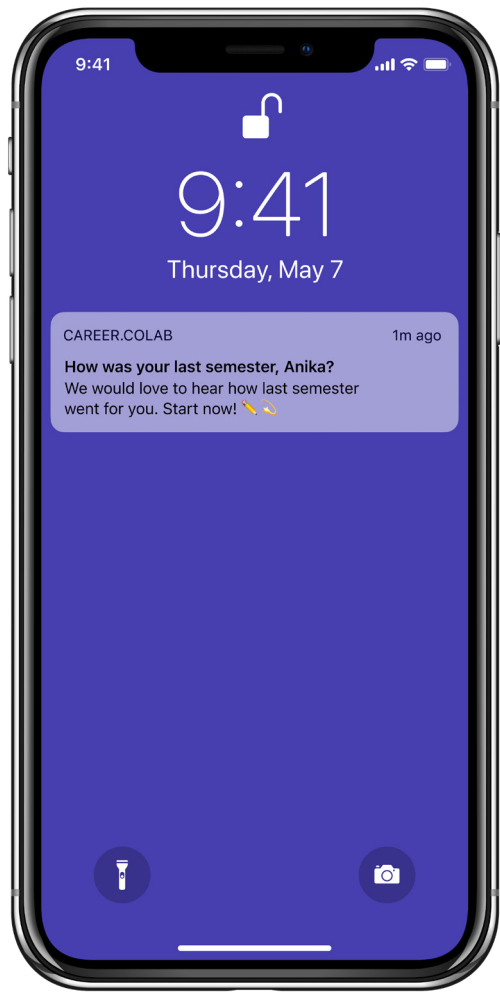


Fig. 3.5
The Push Notifications interface.

6.0

Conclusion

When I started this project, I aimed to identify areas for intervention within the space of academic tools available to students pursuing higher education. My goal was to understand the affordances of existing tools, identify ways that they could be improved to address the challenges that students face when navigating their academic experiences alongside the goals that they hope to pursue in their future careers, and leverage design to realize my objectives.

Through my research, I found that students prefer to talk to people about their future and steps they take, however, they need access to tools and resources to help guide these conversations. After testing my initial prototype of the four ‘career.colab’ activities, it became clear that having students engage in self-reflection writing and visualizing activities helped them identify behavioral patterns and ways of talking about their experiences that inform their path forward.

Therefore, I hypothesized that a combination of self-reflection, career planning, and mentorship/counseling activities could improve students’ confidence in their educational and professional decision-making.

My design approach, “career.colab”, provides a preliminary vision for how the higher education system can begin to re-imagine the college career counseling experience through customizable technology, hands-on-learning opportunities, and 1:1 counseling and mentorship. Providing individualized support and scaffolded career guidance, ‘career.colab’ has the potential to provide students insight and perspective into their college career and professional pursuits. By considering current trends in career planning application tools, such as Handshake and LinkedIn, a tool like ‘career.colab’ has the opportunity to supplement existing services for students by providing them opportunities to engage in self-discovery and an assessment of their interest before applying to jobs or internships.

In conclusion, understanding oneself within society is a lifelong pursuit, and pursuing a college education serves as an initial step to launching one’s future. Therefore, when defining their career path steps for the future, it is imperative that students are provided more support than they are currently afforded in order for them to make wise decisions with confidence.

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[Fig. 1.7] Interface of Hobsons Naviance. Retrieved November 23, 2020 from https://www.youtube.com/watch?v=2KSYfumcCDA

[Fig. 1.8] Interface of Skillshare. Retrieved November 19, 2020 from https://www.skillshare.com/projects/Fun-Vibrant-Tropical-Foliage/95633

[Fig. 1.9] The interface of Roadtrip Nation Career Finder. Retrieved Nov 8, 2020 from https://roadtripnation.com/edu/careerfinder

[Fig. 1.10] The interface of Slack. Shown on the left. Retrieved May 18, 2021 from https://slack.com/

[Fig. 1.11] The interface of Miro. Shown on the right. Retrieved May 8, 2021 from https://miro.com/index/

[Fig. 1.12] The interface of iMentor. Retrieved February 5, 2021 from https://learn.imentor.org/help/about-the-platform-using-the-imentor-platform

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[Fig. 1.14] The interface of MyCoach. Retrieved from May 8, 2021 from https://www.ideo.com/case-study/helping-students-navigate-college-and-beyond

[Fig. 1.15] The interface of Chronus. Retrieved May 18, 2021 from https://chronus.com/software/mentoring-software

Figures Listing

[Fig. 1.0] Shown here is McCarthy’s 4MAT cycle that she proposes as a guide for teaching and learning. (McCarthy, 2000)

[Fig. 1.1] Shown here is Ambrose’s differences in how experts (instructors) and novices (students) organize knowledge. (Ambrose et. al, 2010, p. 45)

[Fig. 1.2] Shown here is Inayatullah’s complete Six Pillars framework. Indicated are the three pillars I leveraged in darker blue.

[Fig. 1.3] Shown here is the Dyadic Communication System framework.(Emmert, P., & Donaghy, W. C., 1981, p.40)

[Fig. 1.4] Shown here is an illustration of Dewy’s principles of an educational experience within the principles of continuity and interaction. (Krutka et. al, 2017 , pg. 217)

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[Fig. 1.15] The interface of Chronus.

[Fig. 1.16] Shown here is an illustration of Dirksen’s Bridging Gaps.

[Fig. 1.17] Shown here is an illustration of my comparative analysis of my artifact findings.

[Fig. 2.0] Shown on the right is an illustration of my design concept storyboards. Illustrations courtesy of Open Peeps by Pablo Stanley (Retrieved, 2020) icons courtesy of the Noun Project (Retrieved ,2020-21).

[Fig. 2.1] Shown here is an illustration of my design activity structure in association with my four frameworks.

[Fig. 2.2] Activity 1 Prototype - inspired by the Xello platform.

[Fig. 2.3] Activity 2 Prototype in Miro.

[Fig. 2.4] Shown here is Inayatullah’s Futures Triangle framework. (Inayatullah, 2000, p.8)

[Fig. 2.5] Activity 3 Prototype in Miro.

[Fig. 2.6] Activity 4 Prototype -inspired by Road Trip Nation Experience templates.

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[Fig. 3.3] The Explore Possibilities interface.

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[Fig. 3.5] The Push Notifications interface.

