Credential Mapping:
A Talent Strong Texas Pathways Essential Practice for Student Success

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Texas Success Center | Talent Strong Texas Pathways

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Introduction

Texas community colleges have committed to redesigning the student experience through Talent Strong Texas Pathways (TS Texas Pathways)—a guided pathways strategy. TS Texas Pathways organizes essential practices into four pillars: (1) Mapping pathways to student post-completion goals, (2) Helping students choose and enter a pathway, (3) Keeping students on their pathway, and (4) Ensuring students are learning. Colleges implement and scale these practices with support from the Texas Success Center.

The Pillar 1 essential practices outline the structural changes necessary during the backwards design process to ensure the college is planning based on the students' post-completion goals, whether those goals include transfer to a baccalaureate program, transition into another credential program, or entry into the workforce. Between 2016 and 2022, colleges worked on developing program maps for all offerings at the college. Program maps are resources that clarify individual program requirements and timelines to completion for students. Program maps may include course sequences and milestone courses, along with K-12 alignment, baccalaureate alignment, and/or labor market alignment information.

By 2023, most colleges were at scale with the implementation of program maps and began the process of credential mapping. Credential maps are resources that clarify multiple stackable credentials and timelines to completion for more than one credential for students. For example, credential maps for workforce programs can include short-term certificates, Level 1 certificates, Level 2 certificates, Applied Associate Degrees, and relevant jobs/salaries. For academic programs, credential maps can include program maps, embedded short-term credentials, partner baccalaureate program maps, and relevant jobs/salaries.

In November 2023, colleges submitted credential maps to the Texas Success Center as part of the TS Texas Pathways Institute experience. These maps were collected and analyzed to create a typology. Then, samples of each type of map were used in a qualitative research study to glean insights to the utility of the credential map from the student point of view.

This research brief provides a comprehensive set of recommendations based on the insights gathered from the Student Focus Group discussions on credential maps. Texas community colleges should take action to develop credential maps based on student insights to enhance the effectiveness of these student success tools.

Methods

Prior to the study, all credential maps submitted by TS Texas Pathways colleges were examined to develop a credential map typology (Appendix A). Representative credential maps from each type were selected to present to students during focus groups. The types of maps included in the study were: (1) Flow Chart (three examples), (2) Road Map, and (3) X- and Y-Axis Chart.

Three focus groups were conducted at a large community college in the South region of Texas to gather information from student participants. The total number of students who participated in the focus groups was 15. The focus groups were conducted between March 5 through March 7, 2024. Students were presented with sample credential maps and researchers guided them through a prepared set of questions related to the maps. Researchers transcribed the responses and coded them to develop themes.

Participant Overview

Most participants identified as male, accounting for 71% of the sample, while the remaining 29% were female. The age range of the participants was primarily young adults, with 87% of them falling between the ages of 18 to 24 years. Most of the students were pursuing their studies full-time, making up 64% of the sample. Although the areas of study varied, 80% of the participants were enrolled in an academic program, while the remaining 20% were enrolled in a workforce program. 60% of the participants reported being employed. Lastly, the survey also revealed that the participants were from diverse racial and ethnic backgrounds. The majority of the respondents identified as Latinx or Hispanic, comprising 57% of the sample, followed by 15% Black or African American, 15% White, Non-Latinx or Non-Hispanic, and 7% Asian, Asian-American, or Pacific Islander.

Key Findings

The focus group sessions conducted with current students provided valuable insights into the strengths and weaknesses of credential maps. The data collected highlights the elements that students find most important in credential maps and how these elements influence their educational and career decisions. In this section, we highlight the overall impression of each type of credential map and provide a set of important elements for credential map development.

Overall Impressions of Credential Map Types

Credential Map 1
Credential Map 1 was a Flow Chart (Figure 1).

- Pros: Easy to understand mapping, bold and complementary color choice, favorite pathway diagram.
- Cons: Extraneous information about student starting point, misleading times from semesters to years, unclear font in blue boxes, confusion about what information is most important.
- Recommendations: Improve clarity of starting point, clarify font and color choices, ensure key information is prominent.

Figure 1
Network Administration and Electronic Systems Credential Map
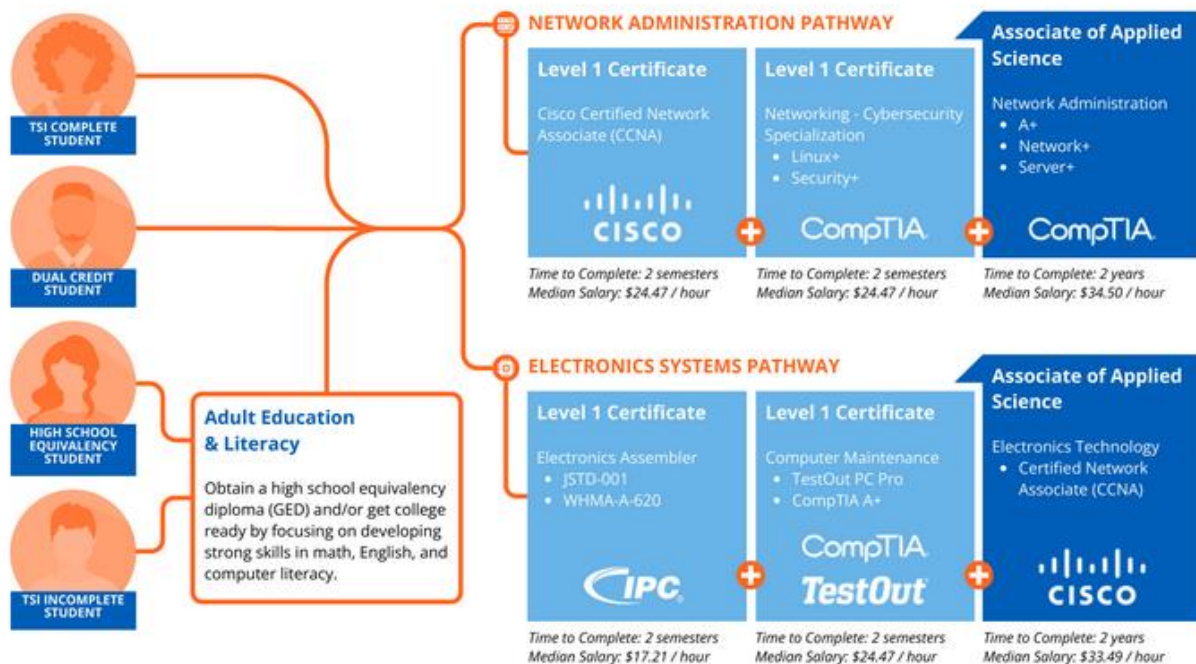
Credential Map 2:

Credential Map 2 was a Flow Chart (Figure 2).

- Pros: Clear and detailed information about courses and pathways.
- Cons: Conflicting information, unclear time frame, extraneous information about class codes, lack of clarity in title and layout.
- Recommendations: Resolve conflicting information, provide a clear timeline, remove extraneous details, improve title clarity and overall layout.

Figure 2
Financial Services Professional Credential Map
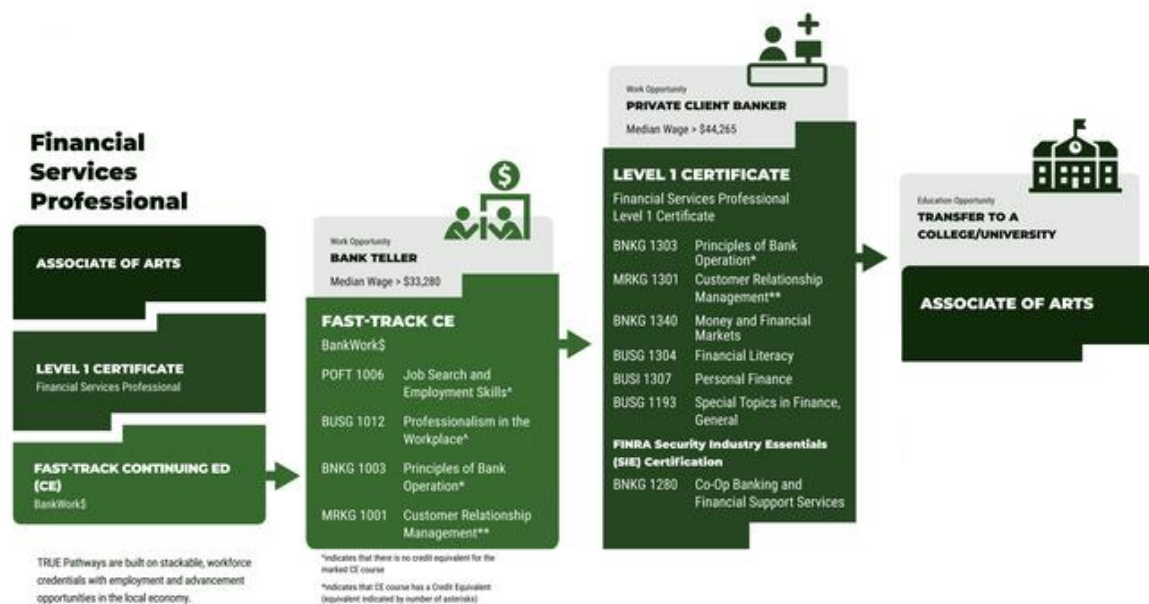
Credential Map 3:
Credential Map 3 was a Road Map (Figure 3).

- Pros: Informative and interactive, straightforward layout.
- Cons: Wordy, unclear end goal, overwhelming information.
- Recommendations: Simplify language, clarify end goal, organize information into more digestible sections.

Figure 3
Health Science Pathway Credential Map

HEALTH SCIENCE PATHWAY

DREAM STARTS HERE!

AHA Basic Life Support
Time to Completion: 1 day
MICROCREDENTIAL
Required for all Patient Care Tech and Phlebotomy clinicals/credentials
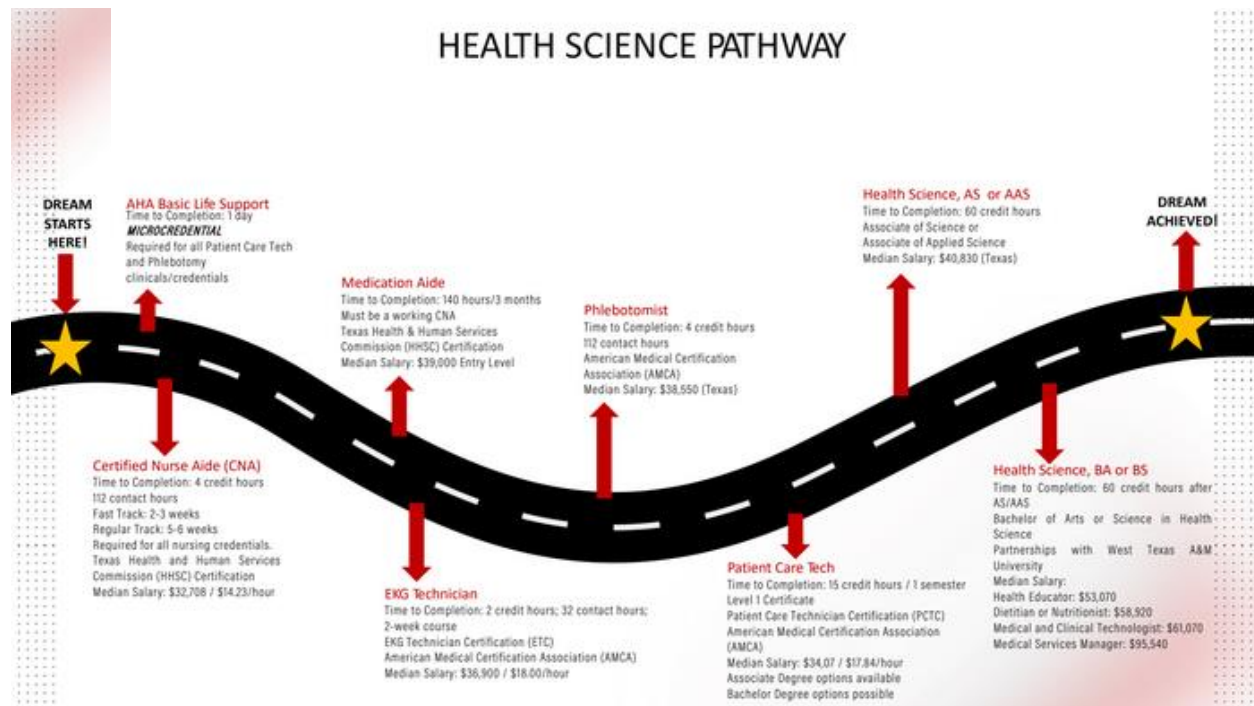
Certified Nurse Aide (CNA)
Time to Completion: 4 credit hours
112 contact hours
Fast Track: 2-3 weeks
Regular Track: 5-6 weeks
Required for all nursing credentials.
Texas Health and Human Services Commission (HHSC) Certification
Median Salary: $32,708 / $14.23/hour

Medication Aide
Time to Completion: 140 hours/3 months
Must be a working CNA
Texas Health & Human Services Commission (HHSC) Certification
Median Salary: $39,000 Entry Level

EKG Technician
Time to Completion: 2 credit hours; 32 contact hours; 2-week course
EKG Technician Certification (ETC)
American Medical Certification Association (AMCA)
Median Salary: $36,900 / $18.00/hour

Phlebotomist
Time to Completion: 4 credit hours
112 contact hours
American Medical Certification Association (AMCA)
Median Salary: $38,550 (Texas)

Patient Care Tech
Time to Completion: 15 credit hours / 1 semester
Level 1 Certificate
Patient Care Technician Certification (PCTC)
American Medical Certification Association (AMCA)
Median Salary: $34.07 / $17.84/hour
Associate Degree options available
Bachelor Degree options possible

Health Science, AS or AAS
Time to Completion: 60 credit hours
Associate of Science or Associate of Applied Science
Median Salary: $40,830 (Texas)

DREAM ACHIEVED!

Health Science, BA or BS
Time to Completion: 60 credit hours after AS/AAS
Bachelor of Arts or Science in Health Science
Partnerships with West Texas A&M University
Median Salary:
Health Educator: $53,070
Dietitian or Nutritionist: $58,920
Medical and Clinical Technologist: $61,070
Medical Services Manager: $95,540

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Credential Map 4:
Credential Map 4 was a X and Y Axis Chart (Figure 4).

- Pros: Contact information provided, clear layout.
- Cons: Lack of key for symbols, confusion about time periods, unnecessary information about fast food jobs.
- Recommendations: Include a key for symbols, clarify time periods, remove irrelevant information.
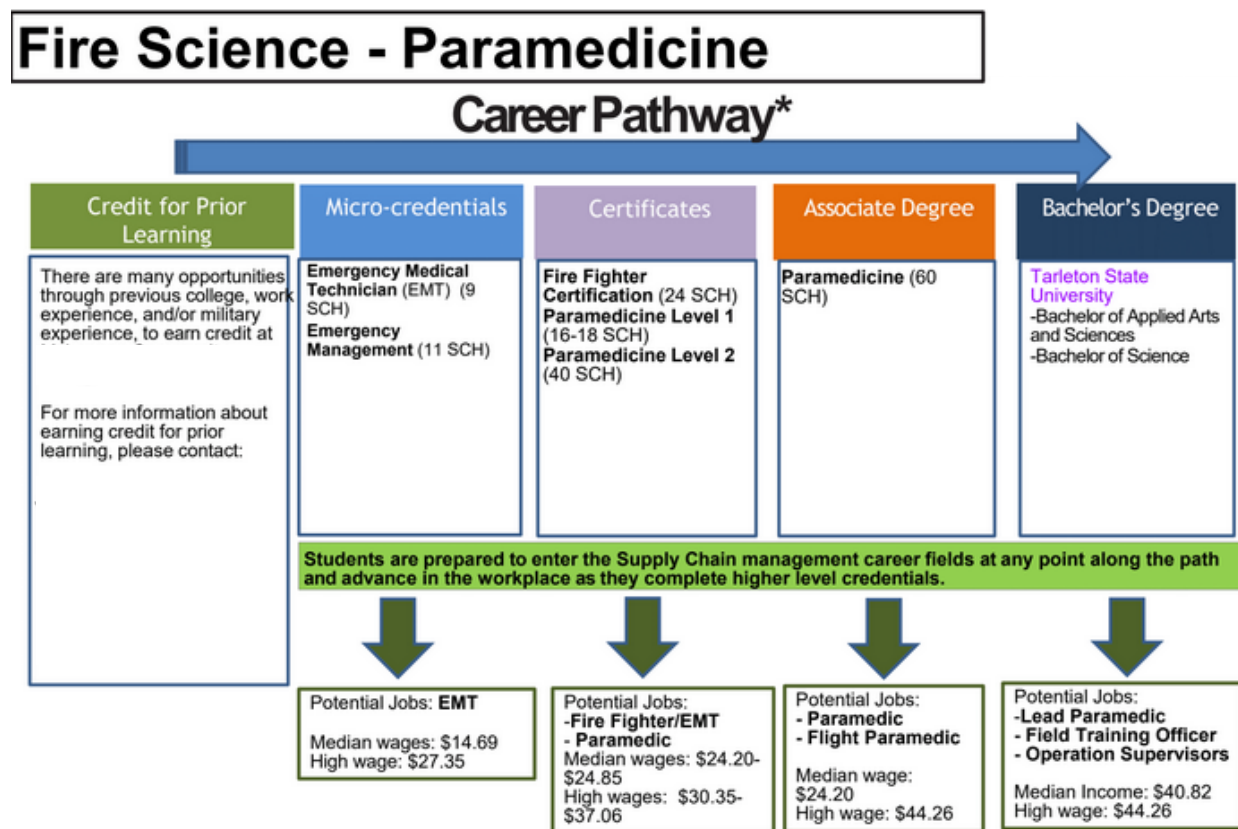
Figure 4
Nursing Credential Map
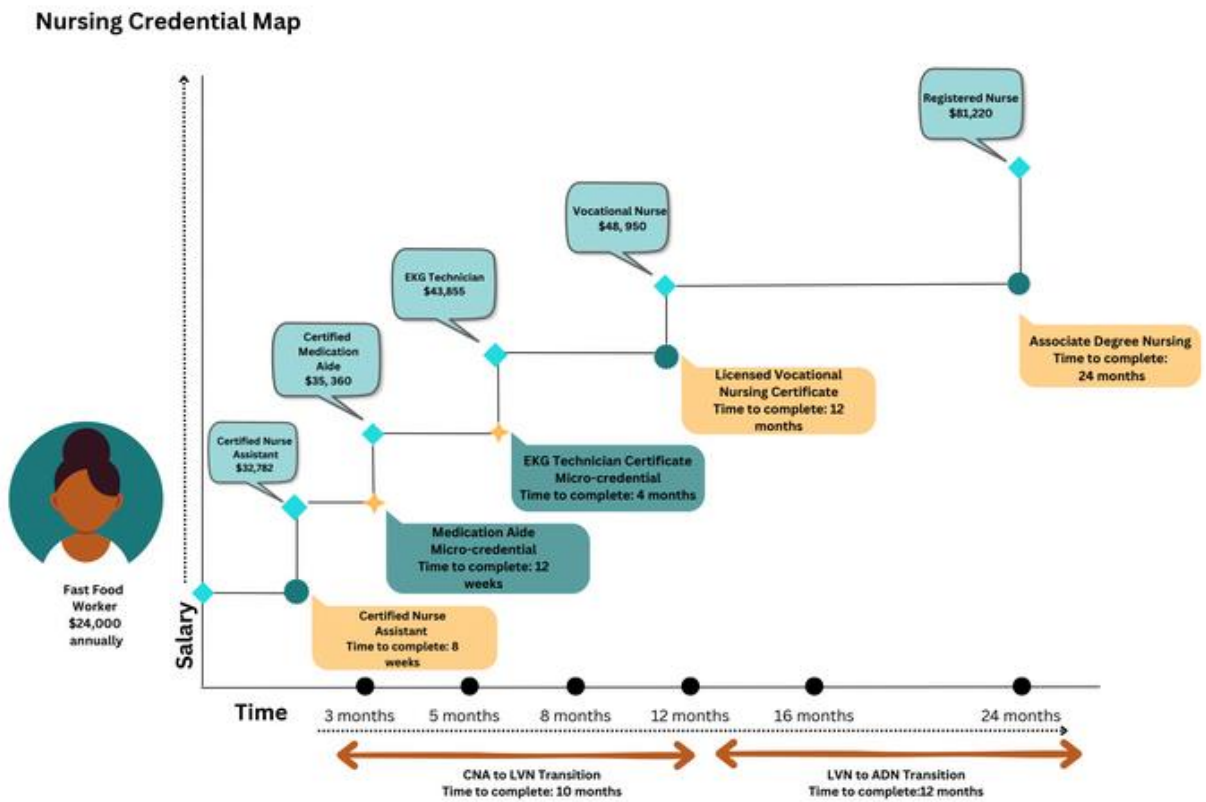
Credential Map 5:
Credential Map 5 was a Flow Chart (Figure 5).

- Pros: Color coding is helpful, simple layout.
- Cons: Poor formatting, too many words, unclear information.
- Recommendations: Improve formatting and spacing, simplify language, clarify information.

Figure 5
Fire Science – Paramedicine Credential Map

Fire Science - Paramedicine
Career Pathway*

Credit for Prior Learning	Micro-credentials	Certificates	Associate Degree	Bachelor's Degree
There are many opportunities through previous college, work experience, and/or military experience, to earn credit at For more information about earning credit for prior learning, please contact:	**Emergency Medical Technician** (EMT) (9 SCH) **Emergency Management** (11 SCH)	**Fire Fighter Certification** (24 SCH) **Paramedicine Level 1** (16-18 SCH) **Paramedicine Level 2** (40 SCH)	**Paramedicine** (60 SCH)	Tarleton State University -Bachelor of Applied Arts and Sciences -Bachelor of Science

Students are prepared to enter the Supply Chain management career fields at any point along the path and advance in the workplace as they complete higher level credentials.

| Potential Jobs: **EMT**

Median wages: $14.69
High wage: $27.35 | Potential Jobs:
-**Fire Fighter/EMT**
- **Paramedic**
Median wages: $24.20-$24.85
High wages: $30.35-$37.06 | Potential Jobs:
- **Paramedic**
- **Flight Paramedic**

Median wage: $24.20
High wage: $44.26 | Potential Jobs:
-**Lead Paramedic**
- **Field Training Officer**
- **Operation Supervisors**

Median Income: $40.82
High wage: $44.26 |

Ask about our scholarship opportunities
Wage data from CareerOneStop by U.S. Department of Labor

This map has been adapted with permission from Gateway Technical College under a Creative Commons Attribution 4.0 International License.

Important Elements on a Credential Map

Many students reported that guiding documents would benefit themselves and their families as they explored postsecondary opportunities at community colleges. Given that students connect with community colleges from a variety of backgrounds, providing clear, consistent, and relevant information is imperative. Students identified several elements that would be valuable on credential maps as they explore and select pathways to their post-completion goals at community colleges. These include:

1. **Clear Pathways:**
   - Rationale: Students need to see a clear and logical progression from entry to completion of a credential.
   - Recommendation: Use a clear visual layout with arrows or lines to show the pathway, including prerequisite courses and steps required for completion.

2. **Course Information:**
   - Rationale: Students need to know the courses required for each credential.
   - Recommendation: Provide detailed information about courses needed for each credential or degree.

3. **Time to Completion:**
   - Rationale: Students need to know how long it will take to complete each credential.
   - Recommendation: Clearly indicate the expected time to completion for each pathway, including the number of semesters or years.

4. **Job Outlook and Salary Information:**
   - Rationale: Students need to understand the potential job opportunities and earning potential associated with each credential.
   - Recommendation: Include information about the job outlook for each credential, including median salary and potential for advancement.

5. **Prerequisites:**
   - Rationale: Students need to know if there are any prerequisites required for entry into each credential program.
   - Recommendation: Clearly list any prerequisites for each pathway, including specific courses or qualifications required.

6. **Support Services:**
   - Rationale: Students may need additional support services to help them succeed in their credential programs.
   - Recommendation: Provide information about support services available, such as tutoring, counseling, or career advising.

7. **Transferability of Credits:**
   - Rationale: Students may want to know if credits earned in one credential program can be transferred to another program.
   - Recommendation: Include information about the transferability of credits between programs, including any articulation agreements in place.

8. **Cost of Program:**
   - Rationale: Students need to understand the cost associated with each credential program.
   - Recommendation: Provide information about the total cost of each program, including tuition, fees, and other expenses.
9. **Contact Information:**
   - Rationale: Students may have questions or need additional information about the credential programs.
   - Recommendation: Include contact information for the appropriate department or advisor who can provide more information about each program.
10. **Interactive Features:**
    - Rationale: Interactive features can enhance the usability and engagement of the credential map.
    - Recommendation: Consider incorporating interactive elements, such as clickable links or pop-up windows, to provide additional information or resources.
11. **Accessibility Features:**
    - Rationale: All students, including those with disabilities, should be able to access and use the credential map.
    - Recommendation: Ensure that the map is designed following accessibility guidelines, including providing alternative formats for students who may need them.
12. **Course Scheduling Options**
    - Rationale: Flexibility in course scheduling is highly beneficial for students.
    - Recommendations: Ensure that flexible scheduling options are well-publicized.

Final Actionable Recommendations

Based on this study, the following recommendations are proposed:
- **Clear Pathways:** Provide clear, easy-to-follow pathways for different credentials and career goals.
- **Time Frames:** Clearly indicate the time it takes to complete each pathway.
- **Salary Information:** Include median salary expectations for each credential.
- **Course Details:** Provide detailed information about courses and requirements.
- **Contact Information:** Include contact information for relevant departments or advisors.
- **Key Symbols:** Provide a key for any symbols used in the map.
- **Simple Language:** Use simple, easy-to-understand language throughout the map.
- **Visual Appeal**: Use colors and graphics to make the map visually appealing and easy to navigate.

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Conclusion

Based on the focus group responses, students value clarity, simplicity, and relevance in credential maps. It is essential to provide clear pathways, detailed information, and visual appeal while avoiding extraneous details and unclear language. Incorporating these elements when designing credential maps can help students make informed decisions about their academic and career pathways in TS Texas Pathways colleges.

Appendix A. Credential Map Typology

Overall Layout: The overall layout of college credential maps plays a crucial role in effectively conveying information to students, advisors, and other stakeholders. A well-designed layout should be visually appealing, intuitive, and organized to facilitate a clear understanding of the program structure.

- **Linear Progression**: A straightforward pathway with a clear step-by-step order, with a predetermined path where students move through a set curriculum year by year.
- **Modular/Non-linear**: Allows students to choose from a variety of pathways, providing a customizable experience that appeals to diverse interests and career goals, allowing the student to tailor their academic journey.
- **Hybrid**: Combines a structured pathway with flexibility or specialization and offers both guidance and choices to students.
- **Other:** Other layout.

Organization: College credential maps involve structuring the information in a way that is clear, logical, and easily navigable for students.

- **Chronological Order:** Presents a logical, time-based sequence to provide a clear and linear progression through the academic journey and has sequential order of courses and requirements.
- **Grouped by Category**: Information is based on specific academic majors or concentrations and provides distinct tracks or specializations within the broader field.
- **Clustered by Skillset**: Groups information based on the skills students develop throughout the program, emphasizes skill development and specific competencies.

Tone: Involves considering the overarching style and communication approach to convey information effectively. The tone should align with the institution's values, appeal to the target audience, and create a positive and engaging user experience.

- **Professional**: Conveys information in a formal and professional tone.
- **Engaging**: Aims to make the information accessible and relatable, using clear and friendly language with a student-centered approach.
- **Motivational**: Seeks to inspire students by highlighting the transformative nature of the academic journey and uses language to encourage perseverance or personal growth.
- **Dynamic**: Conveys a sense of innovation and adaptability and provides an interactive online platform that allows users to customize and explore various educational pathways.
- **Informative**: Priorities delivering information in a straightforward manner.

Type of Map: The type of map refers to the visual representation or layout that illustrates the structure and progression of the academic program. Different types of maps can effectively convey the information to students and stakeholders.

- **Flowchart**: A visual representation of the progression through an academic program. It uses shapes, lines, and arrows to illustrate the sequential flow and connections between different elements, such as courses, requirements, and milestones. Illustrates the step-by-step progression through a program, showing prerequisites, core courses, electives, and any decision points that students may encounter.

- **Pyramid map**: Represents the program structure in a hierarchical pyramid shape. The broader, foundational elements are at the base, and as you move upward, the map narrows down, representing a narrowing focus or specialization. Programs have a tiered structure or multiple levels of advancement, where students build upon foundational knowledge as they progress.

- **Roadmap**: Presents a structured pathway, similar to a roadmap, for progressing through the program. It outlines the key milestones, courses, and requirements, providing a clear and linear view of the academic journey and is effective for conveying a straightforward and well-defined pathway, often used where there is a predefined sequence of courses.

- **Concept Map**: Visually represents the relationships between different program elements using nodes and connecting lines. It typically utilizes a hierarchical structure to show how various concepts or elements are interconnected and is deal for illustrating the holistic view of a program, showcasing the relationships between core concepts, courses, skills, and outcomes.

- **X and Y Axis Chart:** Provides a dynamic and multidimensional representation of a program's structure and uses a grid with two axes to plot and visualize different elements based on their characteristics or criteria allowing users to analyze and understand the program from various perspectives simultaneously.

- **Timeline Map:** Represents the academic journey along a timeline, highlighting key milestones, courses, and achievements at different points in time and has a fixed duration and clear progression over semesters or years."

- **Other**: Other representation.

Appendix B. Project Plan:
Texas Community College Credential Map Review

Project Overview
This project aims to evaluate the visual representations of credential maps featured on Texas community college websites, aligning them with the principles of the Talent Strong Texas Pathways strategy. The assessment will encompass an analysis of the maps' structural elements, typography, commonalities, as well as the formulation of review questions for student focus groups. Ultimately, the project seeks to design templates that better reflect the principles of guided pathways for utilization by Texas community colleges.

Research Question
What are the student perspectives on the design and content presentation of credential maps developed by Texas community colleges?

Purpose
The purpose of conducting student focus groups is to gather student perspectives on community college credential maps and their effectiveness in guiding academic or career decisions.

Methodology
The focus group conducted at College A will be used to gather information from the student's perspectives on community college credential maps and their effectiveness in guiding academic or career decisions. The type of information gathered from the focus groups will be student's experiences, opinions, and feedback on different types of credential maps. The participants are expected to interact and discuss their thoughts and opinions on credential maps within the group.

A focus group will include 6-8 participants from the college, as well as a facilitator and a notetaker to conduct the session. There will be 2-4 student focus groups conducted, depending on the number of participants recruited. At the beginning of each focus group, students will be required to sign a consent form before participating, and pizza will be provided afterward for all participants.

Purposeful sampling will be used to select participants for the study. The students will be recruited in person through the Campus Life office, the Kinesiology faculty, and flyers. The criteria for selecting participants will be that they are currently enrolled at College A in the spring semester and are 18 or older. In addition, the students will be asked to complete a demographic survey and have the option to leave any thoughts or comments.

Confidentiality
The focus group will be audio-recorded to maintain an accurate record of the discussion that will be a reference for any reports derived from the discussion. In addition, the researcher will summarize the information gathered in this focus group. Information derived from this focus group discussion may be used in publications and presentations to further the educational goals of this and other community colleges. The records from this project will be stored securely on an external hard drive for five years. Individual participant responses will be kept confidential, and no identifying information will be used.

Potential Benefits of the Project

The project's potential benefits are to provide insights on areas of improvement, enhance student satisfaction, and increase the effectiveness of credential maps for Texas community colleges, including College A. The potential benefits for students are to give them a voice in their educational experiences. They can help to provide future students with clear credential maps to help them make informed decisions about their future.

Appendix C. Focus Group Protocol

Consent Form (15 minutes):
Participants will be asked to confirm their identity and sign the consent form before the focus group begins. All participants will have to sign the consent form to participate in the group study.

Overview of Focus Group Introduction (5 minutes):
Good afternoon, I am pleased to welcome you to today's focus group discussion. My name is [facilitator name], and I will be facilitating this session. Our notetaker for today will be [notetaker name], who will be responsible for taking notes and organizing the information that you provide.

The purpose of this study is to gather student perspectives on community college credential maps and their effectiveness in guiding academic or career decisions. As participants, you have already signed the consent form and are free to stop participating at any time. I assure you that no names will be used in reporting, and all records from this project will be stored securely and kept confidential.

Before we begin, I would like to remind everyone that the focus group discussion will be audio recorded for the purpose of maintaining an accurate recording of our conversation. As the facilitator, my role is to guide the discussion by asking questions for the group to reflect on.

As participants, your role is to share your experiences and opinions, both positive and negative. There are no right or wrong answers, and everyone is encouraged to participate and share their thoughts. This is an opportunity for everyone to be heard.

Let's ensure that everyone has an equal chance to speak by allowing one person to speak at a time without any side conversations. Please confirm that your cell phone is on silent or off, and if you need to use the restroom or get a drink of water, they are located _____.

This focus group is scheduled for 60 minutes.

Are there any questions before we begin?

Focus Group Questions

Icebreaker (5 minutes):
I would like to start today's session by learning more about each of you. Please introduce yourself and share your current academic status and major.

Presentation of Pictures (10 minutes):
Display the different pictures of credential maps to the participants. Allow them a few minutes to review each picture silently and take notes on what they like, dislike, or find important about each map.

Discussion (40 minutes): Facilitate a discussion based on the following questions:

- **Initial Impressions of Credential Maps:**
    - What are your initial thoughts or impressions of the credential maps?
    - Are there any elements that stand out to you immediately?
- **Layout and Design:**
    - How would you describe the layout/design of each map?
    - What do you like or dislike about the visual presentation of the maps?
- **Information Clarity:**
    - Is the information presented in a clear and understandable manner?
    - Are there any areas where the information is confusing or could be improved for clarity?
    - Are there any terms or concepts that need better explanation?
- **Flow of Information:**
    - Does the flow of information in the maps make sense to you?
    - Are there any gaps or redundancies in the information provided?
- **Decision-Making Information:**
    - What information do you feel is necessary for making informed decisions about your educational path?
    - Are there any key details missing from the maps that you would like to see included?
    - How could the maps better support your decision-making process?
- **Tone and Messaging:**
    - What tone or message do you think the maps convey?
    - Do you think the tone is appropriate for a college audience?
- **Overall Preferences:**
    - Based on what you've seen, do you have a preference for any of the maps?
    - If so, what features or aspects stand out to you as particularly effective.
    - What elements from each map would you combine to create an ideal credential map?

Wrap-Up (5 minutes): Summarize the main points discussed, thank the participants for their input.

Facilitator Follow-up Questions:
- Remind participants of the value of differing points of view:
- Does anyone see it differently?
- Are there any other points of view?
- Probes
    - Would you explain further? Tell me more about that.
    - Can you give me an example of what you mean?
    - Would you say more?
    - Is there anything else?
    - Please describe what you mean.
    - Does someone have a similar/different experience?

OpenAI. (2024). ChatGPT [Large language model]. https://chat.openai.com

Appendix D. Consent Form for Students

Participation in this focus group is entirely voluntary. You are free to refuse to be in the project at any time, and your refusal will not influence current or future relationships with College A. The purpose of conducting student focus groups is to gather student perspectives on community college credential maps and their effectiveness in guiding academic or career decisions.

The information gathered in this focus group will be summarized by the research team. Information derived from this focus group discussion may be used in publications and presentations to further the educational goals of this and other community colleges. All written publications and reports will exclude any information that will make it possible to identify individual participants as project participants.

Students who participate in the project will be interviewed in a 60-minute focus group and will be asked to complete a short demographic survey.

College A needs a signed consent form for every student participating in this focus group project.

By signing this consent form, you agree to participate in the project. The records from this project will be stored securely and kept confidential. Individual participant responses will be kept confidential; however, in the event that a participant indicates a clear, serious, and direct harm to self or others, confidentiality will be broken, and necessary information will be reported to a college counselor. Authorized persons from the college have the right to review focus group records and will protect the confidentiality of those records to the extent permitted by law.

If you have any questions about this project, please contact [facilitator] at [email]. You will be given a copy of this information to keep for your records.

Consent

I, _____, a student at College A understand that:

1. This focus group will be audio recorded for the purpose of maintaining an accurate record of the discussion that will be a reference for any reports derived from the discussion;
2. The information gathered in this focus group will be summarized by the researcher; and
3. Information derived from this focus group discussion may be used in publications and presentations to further the educational goals of this and other community colleges.

I have read and understand this consent form and agree to voluntarily participate in this project.

Participant's Signature   Date

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Texas Success Center

The Texas Success Center supports the Texas Association of Community Colleges members' efforts to improve student success and directs Talent Strong Texas Pathways – a statewide strategy focused on building capacity for community colleges to design and implement structured academic and career pathways at scale, for all students. For more information, visit tacc.org/tsc.