

**Bureau of Career Development
Career and Technical Education (CTE) Non-Traditional Fields Grants
Request for Applications (RFA) 2024-2025**

Overview

The New Hampshire Department of Education (NHED), Bureau of Career Development is seeking applications from NH local education agencies (LEAs) with approved regional Career and Technical Education Centers (CTE) for grant awards to fund activities to prepare students for fields in non-traditional for their gender using Promising Evidence Based Practices. The Strengthening Career and Technical Education for the 21st Century Act (Perkins V) includes in Section 112 (a): “From the amount allotted to each State under section 111 for a fiscal year, the eligible agency shall make available...not more than 10 percent to carry out State leadership activities...of which, not less than \$60,000.00 and not more than \$150,000.00 shall be available for services that prepare individuals for non-traditional fields”. Section 3 of the Act defines non-traditional fields: “The term non-traditional fields, means; occupations or fields of work, such as careers in computer science, technology, and other current or emerging high skill occupations, for which individuals from one gender comprise less than 25 percent of the individuals employed in each such occupation or field of work.

Table One: Most Common Non-Traditional Fields in NH

For Men	For Women
Education/Training	STEM (IT, Engineering)
Health Science (Nursing)	Advanced Manufacturing
Cosmetology	Automotive Tech
	Building Construction Trades

NHED is making six awards of \$10,000.00 to each eligible LEA with an approved regional CTE centers. Activities outlined in the application must provide a clear plan of action. This plan will include an explicitly stated explanation of how integrating one or more of the evidence- based practices for supporting non-traditional students from the Gallup promising practices literature review (included as Appendix A) results in an increase in numbers of non-traditional students enrolled in CTE programs identified as non-traditional or a significant increase in supports or services for students already enrolled.

Distribution of grant funds by the Department of Education is completed through the Grants Management System (GMS). The district i4see coordinator must assign permissions to any personnel responsible to manage the grant.

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Directions

1. Review the following RFA information to ensure that the program meets eligibility requirements and that all grant application materials can be provided at the time of application submission. Incomplete applications will not be accepted. Please submit one application per LEA.
2. Submit the CTE Non-Traditional Student Supports Grant Application by the deadline **Monday, September 30, 2024, at 4:00 p.m.** Applications will continue to be accepted past the deadline depending on the availability of funds, priority will be given to applications received by the deadline. Applications will be scored by independent peer reviewers.

Eligibility

Must be for a Regional Career and Technical Education Center with Perkins eligible CTE programs approved by NHED.

Use of Funds

Allowable uses of funds for the CTE Non-Traditional Support grant include costs associated with:

- CTE educator or administrator professional development and training in best practices to support non-traditional students, including any travel costs
- Developing and initiating mentoring programs pairing non-traditional students at the secondary level of CTE with either non-traditional industry professionals or non-traditional students at the postsecondary level of CTE including travel or transportation costs
- Developing and initiating programs or activities fostering a sense of belonging for non-traditional students, including purchases of items such as uniforms, protective gear, items such as screens for donning uniforms or other items
- Developing and initiating a comprehensive recruiting strategy for non-traditional students. Such costs may include inclusive or representational messaging and images, website or video development, and other outreach materials but should not be limited to such strategies
- A comprehensive review of CTE center policies and procedures related to inclusion of non-traditional students in CTE programs, including any costs for consultants to facilitate such a review

Priority

Priority will be given to applications integrating strategies to include members of special populations into planned programming, especially promising practices such as industry mentors for students preparing for careers non-traditional for their gender. Applications including some or all of the promising practices included in “*A Literature Review of Non-Traditional Students in Career and Technical Education*”, published by Gallup, INC for the New Hampshire Department of Education in 2023 will have a competitive scoring advantage. The five promising practices are listed below:



- The first promising practice focused on maintaining individuals' interest in non-traditional fields beyond childhood. Focusing on increasing students' self-efficacy and providing role models and mentors are key strategies towards retaining students' interest in fields traditionally dominated by a gender different than their own.
- Despite teachers', counselors' and organizations' best efforts, it is possible that individuals pursuing careers non-traditional for their gender may face discrimination in the workplace. As such, the second promising practice focused on building an individual's resilience to better prepare students when they are faced with potentially threatening situations. This is essential for retention and to ensure the wellbeing of students and employees. Two potential training courses were discussed: a value-affirmation writing exercise and an action-oriented affirmation exercise.
- The third promising practice focused on the classroom's climate and how fostering a sense of belonging can improve students' GPAs. Research has revealed that even a one-hour intervention can greatly impact student outcomes.
- The fourth promising practice discusses recruitment strategies that may increase students' interest and enrollment in CTE fields. Research has shown that it is important to include student testimonials and information surrounding the advantages of a career in the field. Additionally, hosting events focused on connecting with young students in their community has been successful, as well as outreach events focused on dispelling CTE rumors and demonstrating connections with organizations within their community.
- Finally, the fifth promising practice is for organizations to review their current policies and practices to promote inclusivity.

Application Template

Please complete all information. NHED will not consider incomplete applications.

1. LEA Information

- Local Education Agency Name, and Superintendent Name
- CTE Program Name(s)
- CTE Administrator Name and contact information
- Business administrator information (required as they are the main contact for the fiscal administration of the grant)

2. Budget

The maximum amount for each application cannot exceed \$10,000 Funding is based on need so be as accurate as possible with estimated costs. No more than 5% of the total proposed budget may be used for administrative costs associated with activities outlined in the application. Please note, that once the funds are awarded, schools will have 90 days from the award to submit their activity description for the project along with the budget into the NHED Grants Management System (GMS) for approval. Grants not submitted in GMS within 90 days of award will be reallocated to other programs. The grant funds must be obligated by September 30, 2025. Final monthly reports for this grant must be submitted in GMS by November 14, 2025. Remaining funds will not be available for carry over.

Note: The BCD will fund applications in rank order based on available funds. The BCD will not fund applications that do not meet the criteria outlined in the sections above.

Budget Template Example

	Budget Line Items	TOTAL GRANT REQUEST
Bus Transportation		
Equipment		
Supplies		
Texts/Printed Materials		
Administrative Costs		
Salaries		
Fringe		
Stipends		
TOTAL		



3. *Summary*

- Provide a brief description of the programs offered at the regional CTE center. Include data from the past three years about numbers of CTE concentrators, number of non-traditional participants and concentrators, and any projections or other information about middle school students who have expressed an interest in CTE.
- Provide a summary that details how the funding request will meet Priority 1. Outline the activities you are proposing for funding. Include details about who will facilitate or complete the activities outlined in the proposal, the timeline for activities, and any specific deliverables (such as student participation rates, report of findings on comprehensive policies and practices review, results of CTE educator PD plan).
- Provide a complete and clear budget narrative and cost breakdown for the proposed activities.

Note: The BCD will fund applications in rank order based on available funds. The BCD will not fund applications that do not meet the criteria outlined in the sections above.

Scoring Rubric

	15	10	5	0
Priority One	More than three allowable uses of funds connecting promising practices supporting projected increase in non-trad student population in CTE.	Two to three allowable uses of funds connecting promising practices supporting projected increase in student population in CTE.	One allowable use of funds connecting promising practices supporting projected increase in student population in CTE.	No evidence of connection to projected increase in student population in CTE
Promising Practices	Activities incorporate 3 or more promising practices	Activities incorporate at least 2 promising practices	Activities incorporate 1 promising practice	No promising practices included
Detailed Plan	Plan outlines 3 or more promising practices and identifies 5 or more individuals responsible for implementation including fiscal, program, and administrative roles.	Plan outlines at least 2 promising practices Plan names 3 individuals responsible for implementation including fiscal, program, and administrative roles.	Plan outlines one promising practice and identifies one or two individuals responsible for implementation.	No individuals responsible for implementation named.
Budget	Budget includes clear explanation for all costs for each activity connected to allowable uses of funds and outcomes	Budget is complete and connects costs to allowable uses of funds and outcomes	Budget is complete; connection of costs to outcomes unclear	No budget included

A Literature Review of Non-Traditional Students in Career and Technical Education

September 2023

Background

Gender has shaped the U.S. labor market since its inception, largely because of cultural norms and organizational policies that have suppressed women from obtaining positions of power in society. In the early 20th century, just 20% of women overall, and 5% of married women, worked outside the home;¹ and those in the workforce were typically relegated to low-status jobs in sectors like teaching.²

While society has made great strides to ensure women and men have equal opportunities to pursue their desired career paths, the influence of gender on the roles individuals hold remains a reality across many industries today, including healthcare, education, protective services, architecture and engineering. Women remain a minority in historically male-dominated careers — just 6% of firefighters and 16% of engineers are women, for example.³ And the same can be said of men in historically female-dominated fields like teaching and nursing — just 12% of registered nurses nationally are male, and men represent 2% of the early childhood teacher workforce.⁴

The workforce in New Hampshire mirrors these national trends. For example, data from a 2019 report by the New Hampshire Economic and Labor Market Bureau found that, across both the public and private sectors, women were disproportionately represented in healthcare, education and food services, while men dominated the transportation, construction and manufacturing industries. Occupations with the largest gender gaps included nurse practitioners (98% female) and mechanical engineers (95% male).⁵

Differential rates of labor market participation by gender are especially stark in fields historically supported by career and technical education programs (CTE) at the secondary and postsecondary levels. For example, in New Hampshire, all heating, air conditioning and refrigeration installers and mechanics identified as male, as well as over 96% of workers in skilled trades such as plumbing, carpentry, brick

¹ Zhavoronkova, M. (2022, March 29). *Occupational segregation in America*. Center for American Progress. <https://www.americanprogress.org/article/occupational-segregation-in-america/>

² Yellen, J. L. (2020, May). *The history of women's work and wages and how it has created success for us all*. The Brookings Institution. <https://www.brookings.edu/articles/the-history-of-womens-work-and-wages-and-how-it-has-created-success-for-us-all/>

³ U.S. Bureau of Labor Statistics. (25, January 2023). *Labor force statistics from the current population survey*. <https://www.bls.gov/cps/cpsaat11.htm>

⁴ Ibid.

⁵ Economic and Labor Market Information Bureau. *Educational attainment of New Hampshire's workforce*. New Hampshire Employment security. <https://www.nhes.nh.gov/elmi/products/documents/ed-attain.pdf>

masonry and roofing. Moreover, at least 95% of New Hampshire workers in the childcare, secretarial and administrative roles were female.⁶

The continued bifurcation of these sectors by gender is concerning — both nationally and in New Hampshire — because the occupational gender divide 1) depresses productivity and economic growth by leading to suboptimal matching of workers to jobs; 2) constrains the labor force participation rate in specific sectors by discouraging individuals from pursuing particular careers; and 3) suppresses wages, fueling the gender pay gap.⁷ The occupational gender gap is especially concerning in CTE fields like healthcare, manufacturing and trade, which are some of the fastest-growing sectors yet are projected to have millions of jobs left unfilled.⁸

A potential way to address these gaps in the labor force — especially in gender-bifurcated fields like CTE — is to focus on recruiting and retaining individuals in non-traditional fields for their gender.

This literature review offers insights into effective strategies for supporting students pursuing non-traditional CTE roles for their gender. In doing so, the review aims to provide New Hampshire educators, employers and policymakers with evidence-based practices to promote the success of New Hampshire students and the state’s workforce.

The literature review first presents the historical drivers of the gender gap in occupations, including school and organizational contexts. Next, five promising practices for supporting non-traditional CTE students are discussed: (1) increasing student interest, (2) strengthening individual resiliency, (3) improving the classroom climate, (4) utilizing creative recruitment strategies and (5) reviewing organizational policies and practices to promote inclusion. The literature review concludes with two case studies that provide insight into potential communication tools that New Hampshire organizations can leverage to support nontraditional students within CTE programs.

Drivers of the Gender Gap in Occupations

Two explanations for the occupational gender divide are prevalent in the literature: (1) gender socialization occurring early in children’s lives and (2) stigmas and stereotypes.

Gender Socialization

Research has focused on understanding why young adolescents change their desired occupation from a non-traditional field when entering adulthood. For example, one study focused on understanding why young women change their occupational aspirations from careers focused on math and physical sciences

⁶ Ibid.

⁷ Fact sheet: Occupational segregation in the United States. (2017, October 3). *Equitable Growth*. <https://equitablegrowth.org/fact-sheet-occupational-segregation-in-the-united-states/>

⁸ Franklin, C. (2017, February 13). Healthcare, manufacturing, and trade among fastest-growing CTE sectors. *ACTE*. <https://industryconnect.acteonline.org/2017/02/healthcare-manufacturing-and-trade-among-fastest-growing-cte-sectors.html>

when entering young adulthood.⁹ They found that young women who desire a family-flexible job, are concerned about time demands posed by their future career and have a low intrinsic interest in physical sciences are more likely to change their desired occupation from a male-dominated field. The authors discussed that it is important to encourage young women to take math and physical sciences courses to increase their inherent interest in these fields and introduce them to successful role models in male-dominated fields. Furthermore, this research demonstrates the importance of organizations creating flexible practices and policies and advertising them to children at young ages.

Less research has focused on understanding the characteristics that influence whether men pursue nontraditional roles for their gender.¹⁰ Some work has examined the career aspirations of young boys, as aspirations are an important predictor of later life outcomes.¹¹ One study focused specifically on understanding the aspirations of young men for occupations traditionally held by women. It found that the proportion of one's friends that are female, having a parent that has attained a bachelor's degree and the expected growth of the occupation they are interested in were all positively associated with aspiring to a career traditionally dominated by females.¹² This research suggests that fostering friendships among boys and girls at a young age can expose boys to information they may not have previously considered about traditionally female-dominated occupations and insulate young men from pressures to pursue more male-dominated roles.

Stigma and Stereotypes

The second stream of research has focused on the impact of stigma on individuals entering classrooms and careers non-traditional for their gender. Currently, there is a pervasive stereotype for successful students in STEM classes (e.g., white male students from middle-class families), potentially affecting both students' and teachers' behaviors.¹³ This stereotype can discourage students who do not hold those attributes from being successful in STEM classes. Even if students can overcome stereotypes in the classroom and pursue careers non-traditional for their gender, they are still likely to encounter stereotypes in the workplace. Gendered stigmas can influence their position in an organization, the tasks they are assigned, the authority they are granted and the behaviors they engage in.¹⁴

⁹ Frome, P. M., Alfeld, C. J., Eccles, J. S., & Barber, B. L. (2006). Why don't they want a male-dominated job? An

investigation of young women who changed their occupational aspirations. *Educational Research and Evaluation*, 12(4), 359-372. <https://doi.org/10.1080/13803610600765786>

¹⁰ Hardie, J. H. (2015, April). Women's work? Predictors of young men's aspirations for entering traditionally female dominated occupations. *Sex Roles*, 72, 349-362.

¹¹ Baird, C. L. (2012). Going against the flow: A longitudinal study of the effects of cognitive skills and gender beliefs on occupational aspirations and outcomes. *Sociological Forum*, 27(4), 986-1009. <https://doi.org/10.1111/j.1573https://doi.org/10.1111/j.1573-7861.2012.01365.x.7861.2012.01365.x>.

¹² Hardie, J. H. (2015, April). Women's work? Predictors of young men's aspirations for entering traditionally female dominated occupations. *Sex Roles*, 72, 349-362.

¹³ Rosenzweig, E. Q., & Wigfield, A. (2016). STEM motivation interventions for adolescents: A promising start, but further to go. *Educational Psychologist*, 51(2), 146-163.

<https://doi.org/10.1080/00461520.2016.1154792>

¹⁴ Dozier, R. (2017). Female Masculinity at Work: Managing stigma on the Job. *Psychology of Women Quarterly*, 41(2), 197-209. <https://doi.org/10.1177/0361684316682956>

There are strategies that individuals utilize to overcome threats to identity that occur when working in a non-traditional role for one's gender.¹⁵ A qualitative study about men working in traditionally female-dominated roles asked them to describe the strategies they employed to accommodate their masculinity in their jobs. They found that men who wanted to hold a more traditionally masculine identity would distance themselves from their female coworkers, while other men identified with their non-traditional occupation and either maintained traditional values with a reconstructed masculine identity or a fully reconstructed idea of masculinity. Interestingly, in their small sample, many men stated they did not discuss their job with new friends and people they met. Given that research has underscored the importance of relationship-building in shaping performance and retention in both school and the workforce, men who choose to isolate themselves from their female coworkers may be more likely to leave their non-traditional careers.

Communication

Beyond the two areas previously discussed, research is increasingly focusing on communication techniques utilized by individuals in non-traditional fields for their gender.¹⁶ One study focused on strategies that men embraced in the field of nursing. They found that nurses often used the word "we" to create a sense of group cohesion, gossiped about members not part of their nursing unit and drew on humor that demonstrated their shared background. Male nurses attempted to build a strong rapport with their coworkers, and nursing was a critical part of their professional identity. They focused on creating a sense of community with each other, including men not utilizing what is considered typical masculine linguistic tendencies (e.g., interruption, swearing and topic control).

¹⁵ Cross, S., & Bagilhole, B. (2002). Girls' jobs for the boys? Men, masculinity, and non-traditional occupations. *Gender, Work & Organization*, 9(2), 204-226. <https://doi.org/10.1111/1468-0432.00156>

¹⁶ McDowell, J. (2015). Masculinity and non-traditional occupations: Men's talk in women's work. *Gender, Work & Organization*, 22(3), 273-291. <https://doi.org/doi:10.1111/gwao.12078>

The Importance of the School and Organizational Environment

School and environment factors also shape students' interest in and likelihood to pursue and remain in careers non-traditional for their gender.¹⁷

Schools

Research has focused on measuring the impact of the school environment on students' interest in areas non-traditional for one's gender. Studies have found that the instructional approach that individual teachers utilize to engage students and teachers' beliefs, attitudes, behaviors and interactions with students can positively impact young women's performance in class, engagement with course material and their continued interest in pursuing a career in STEM-related fields. As such, research has focused on developing a deeper understanding of which strategies would most effectively impact students' engagement with classroom materials. For example, a dissertation utilizing a quasi-experimental study examined the effect of three strategies on young women's self-concept, enjoyment and perception of the teachers.¹⁸ The three strategies included providing females with role models, allowing females to work with other females during group activities and ensuring the teacher asked the same number of questions during lectures to male and female students. They found implementation of all three strategies was positively associated with young women's self-concept within science, enjoyment during science lessons and perception of their science teacher.

Workplace

Equally important to the school environment is the organizational climate individuals in non-traditional careers experience. One way organizations can increase their employee retention in careers non-traditional for their gender is to improve inclusivity. It is important to note that this will benefit not only individuals in non-traditional careers but also every worker within the organization. Research has demonstrated the effect of inclusion on individuals' job satisfaction and intention to leave.¹⁹ Gallup has found that ensuring employees feel like they belong at the workplace is a key way to recruit and retain top talent.²⁰ To accomplish this, organizations need to ensure that employees feel as if their opinions count, promote the development of meaningful relationships among employees and create an environment of cultural competence.

¹⁷ Sáinz, M., Fàbregues, S., Romano, M. J., & López, B. S. (2022). Interventions to increase young people's interest in

STEM. A scoping review. *Frontiers in Psychology*, 13, 1-17. <https://doi.org/10.3389/fpsyg.2022.954996>

¹⁸ Werner, A. G. (2017). *How female-oriented teaching strategies impact the attitude of middle school female science students* [Doctoral dissertation, Frostburg State University]. ProQuest LLC.

¹⁹ Brimhall, K. C., Lizano, E. L., & Mor Barak, M. E. (2014). The mediating role of inclusion: A longitudinal study of the effects of leader-member exchange and diversity climate on job satisfaction and intention to leave among child welfare workers. *Children and Youth Services Review*, 40, 79-88.
<https://doi.org/10.1016/j.childyouth.2014.03.003>

²⁰ Efron, L. (2022, July 26). *What drives a culture of belonging?* Gallup.com.

<https://www.gallup.com/workplace/395102/drives-culture-belonging.aspx>

Promising Practices

Evidence-based strategies can be utilized to better prepare individuals for careers non-traditional for their gender, as well as bolster the ability of organizations to serve non-traditional employees. This section will discuss evidence-based strategies that teachers, school counselors and organizational leaders can leverage to support individuals pursuing careers in fields non-traditional for their gender.

I. Increase Interest in Non-Traditional Fields

As previously mentioned, students' interest in non-traditional fields for their gender often diminishes throughout early adulthood. Therefore, a promising set of interventions are focused on encouraging children and adolescents to continue exploring careers non-traditional for their gender. These interventions focus on increasing the self-efficacy of youth and offering role models and mentors.

Increasing self-efficacy

A recent systematic review of interventions conducted over the past 20 years focused on increasing young students' interest in STEM fields and emphasized the importance of cultivating self-efficacy.²¹ One area that can increase students' self-efficacy is participation in after-school activities. Students may find afterschool activities engaging, as they often can receive more individualized attention and engage with instructional materials in ways not possible within the classroom. For instance, one program focused on increasing young women's self-efficacy toward computer technology involved pairing girls in middle school to design a computer program.²² The program consisted of 23 sessions and included four critical design elements: learning by design, scaffolding and modeling, collaborative learning, and identity formation. Learning by design focused on providing students with instruction on how to address the problem at hand (e.g., how to design a computer game to help incoming students), while scaffolding and modeling consisted of instructors providing resources for students to complete the task and solve problems independently. Collaborative learning focused on establishing a learning community for students that emphasized relationship-building activities and those that foster the development of communication and decision-making skills. Finally, in identity formation, the students explored future career options, interacted with female role models in the field and received recognition for their work. The study found that participants demonstrated an increase in computer knowledge and skills and reduced negative stereotypes about women in the information technology field. Engaging in after-school activities can thus provide students with skills they can use in classrooms and potentially in their future careers.

²¹ Sáinz, M., Fàbregues, S., Romano, M. J., & López, B. S. (2022). Interventions to increase young people's interest in

STEM. A scoping review. *Frontiers in Psychology*, 13, 1-17. <https://doi.org/10.3389/fpsyg.2022.954996>

²² Denner, J. (2007). The girls creating games program: An innovative approach to integrating technology into middle school. *Meridian: A Middle School Computer Technologies Journal*, 1(10).

Providing role models and mentors

It may be particularly beneficial to provide role models to young students to sustain their interest in careers non-traditional for their gender.²³ However, it is not only young students who can benefit from having role models. Research has found that exposure to role models during college positively affects students' interest in STEM fields, their perceived compatibility with STEM and their academic sense of belonging.²⁴ Fostering connections between students and successful role models can occur (1) within the classroom with guest speakers and (2) outside of the classroom through mentorship programs (e.g., alumni networks).

Building mentorship programs is a particularly powerful way for teachers and school counselors to encourage students to pursue careers non-traditional for their gender. Research shows that successful mentorship programs positively impact a range of outcomes, including academic achievement, engagement in school, wellbeing and self-esteem.²⁵ Mentorship goes beyond a one-time meeting and requires the formation of a high-quality relationship between mentor and mentee. Research focused on developing high-quality relationships has identified five critical factors for successful relationship building. The first is "the right who," which emphasizes the importance of selecting the right person for the mentor role. This includes evaluating their shared experiences with mentees, leadership qualities and ability to model positive behaviors and relationships. The second category, respect, focuses on being authentic and meeting the students where they are. The third factor is information gathering, which involves learning about the student's interests, academic engagement and living situation. This information can serve as the foundation for a high-quality relationship. Fourth, a mentor must be a consistent part of the mentee's life. Finally, mentors need to provide support to their mentees, including emotional support, advice and honest feedback to promote growth.

Mentorship is also an essential tool for organizations to utilize for non-traditional employees. In the workplace, mentorship often encompasses psychosocial and career-related support.²⁵ Psychosocial support entails counseling and friendship on the mentee's feelings of identity and competence, while career development focuses on facilitating advancement within an organization.

²³ Frome, P. M., Alfeld, C. J., Eccles, J. S., & Barber, B. L. (2006). Why don't they want a male-dominated job? An

investigation of young women who changed their occupational aspirations. *Educational Research and Evaluation*, 12(4), 359-372. <https://doi.org/10.1080/13803610600765786>

²⁴ Shin, J. E. L., Levy, S. R., & London, B. (2016). Effects of role model exposure on STEM and non-STEM student engagement. *Journal of Applied Social Psychology*, 46(7), 410-427.

<https://doi.org/10.1111/jasp.12371> ²⁵ Donlan, A. E., McDermott, E. R., & Zaff, J. F. (2017). Building relationships between mentors and youth: Development of the TRICS model. *Children and Youth Services review*, 79, 385-398. <https://doi.org/10.1016/j.childyouth.2017.06.044>

²⁵ Harvey, M., Napier, N. K., Moeller, M., & Williams, L. A. (2010). Mentoring global dual-career couples: A social learning perspective. *Journal of Applied Social Psychology*, 40(1), 212-240.

<https://doi.org/10.1111/j.1559-1816.2009.00571.x> 1816.2009.00571.x

II. Strengthen Resiliency

Despite educators' and organizational leaders' best efforts, individuals pursuing careers non-traditional for their gender will likely face discrimination in the workplace. This is especially true for women — according to a New Hampshire Women's Foundation report, 38% of all employer discrimination charges filed between 2010 and 2018 were related to pregnancy, gender, and sex-based discrimination and harassment.²⁶ As such, individuals in non-traditional gender roles need to be prepared in case they experience hostility in the workplace.

One way to better prepare individuals is to strengthen their resiliency, increasing their ability to cope with stress.²⁷ One intervention aimed at providing individuals with strategies to deal with potentially threatening situations is a value-affirmation writing exercise. This intervention was tested in a university setting where undergraduate students were asked to write down their self-defining values. It was designed to teach students that their self-identity is broader than just one active threat and to make the specific threat seem less worrisome and stressful. Another intervention focused on action rather than writing involved instructors guiding students to incorporate various aspects of their self-identity into their everyday lives. The primary result from both interventions was that women interpreted difficult challenges as more manageable and strengthened their identification with their own gender group.

Teachers, counselors, and other educators must consider the age of the students when identifying and implementing interventions focused on strengthening resiliency, as some might be less useful for younger students.

III. Improve Classroom Climate

Individuals in classes focused on subjects that are considered non-traditional to their gender can feel unwelcome and experience high levels of stress, facing exclusionary, rude and disrespectful behaviors regularly.²⁸ Not only does experiencing these events influence a student's sense of belonging, but an individual's psychological reaction to the environment has long-term impacts on their educational and career outcomes. For instance, if a young woman is uncertain whether she belongs in an engineering class, she may continually monitor other students' behaviors to determine if she should continue in the class. This can result in students considering everyday experiences, such as having difficulty forming connections with other students, as signs that they do not belong.

As such, teachers need to ensure they focus on the classroom climate to provide a positive learning experience for students in classes non-traditional for their gender. Prioritizing a sense of belonging should occur at the start of classes to ensure individuals are comfortable throughout the semester or school year. An example of a promising intervention is one that targeted first-year engineering students

²⁶ New Hampshire Women's Foundation. (n.d.). *The status of women in New Hampshire*.

<https://nhwomensfoundation.org/status-of-women-nh/>

²⁷ Walton, G. M., Logel, C., Peach, J. M., Spencer, S. J., & Zanna, M. P. (2015). Two brief interventions to mitigate a "chilly climate" transform women's experience, relationships, and achievement in engineering. *Journal of Educational Psychology, 107*(2), 468-85. <https://doi.org/10.1037/a0037461>

²⁸ Walton, G. M., Logel, C., Peach, J. M., Spencer, S. J., & Zanna, M. P. (2015). Two brief interventions to mitigate a "chilly climate" transform women's experience, relationships, and achievement in engineering. *Journal of Educational Psychology, 107*(2), 468-85. <https://doi.org/10.1037/a0037461>

and focused on fostering a sense of social belonging.²⁹ This intervention prepared students to experience events, such as feeling excluded, in a non-threatening way. During the intervention, the researchers emphasized that as first-year college students, individuals often feel as if they are struggling to belong. This is a transition period for everyone, and feelings of stress and worry are completely normal during this time. As such, materials were provided in one-hour small group sessions that highlighted that every first-year student, regardless of gender, worries about being treated with respect and focused on fostering a sense of belonging by emphasizing everyone's shared interest in engineering. This intervention was not only successful in eliminating gender differences in GPAs, but it also improved how women viewed their ability to overcome adversities and their attitudes toward engineering. This research demonstrates that students may be greatly impacted by teachers taking *an hour* out of their schedule to focus on fostering a sense of belonging among their students.

IV. Utilize Creative Recruitment Strategies

To increase the number of individuals in non-traditional CTE roles for their gender, CTE programs must utilize creative recruitment strategies.³⁰ In 2017, a national study on prospective students found that CTE programs are often valued because they focus on developing real-world skills.³² A study by Advanced CTE found that parents and students “want to hear more information about learning real-world skills through internships and hands-on projects inside and outside the classroom, as well as how CTE can offer pathways into college and careers through dual enrollment, internships, mentorships and networking.”³¹ As such, including information within marketing materials surrounding the advantages of a future career may be an important strategy for CTE programs to utilize. For instance, this can include information on the projected growth of the field, the salary range (including information on the average salary among graduates of their program), and the advancement opportunities available to students in this field.³² Additionally, marketing materials should include testimonials from students in the program whenever possible.³³ This may be particularly beneficial for individuals who are distrustful of higher education.

In addition to revamping the content of marketing materials, CTE programs can consider other outreach strategies to foster engagement in the school. One strategy implemented by a technical college was focused on increasing exposure of younger students in the community to students currently enrolled in

²⁹ Ibid.

³⁰ Dalporto, H., & Tessler, B. (2020, April). Voices from the field: how community colleges are advancing equity in career and technical education. MDRC.

https://www.mdrc.org/sites/default/files/Equity_in_CTE_brief.pdf³² Advance CTE. (n.d.). 2017 *Advance CTE annual report*. <https://careertech.org/2017-advance-cte-annual-report>

³¹ Fitzgerald, K. (2018, February). *Communicating the value and promise of CTE with parents and students*. Acteonline.org. <https://www.acteonline.org/wp-content/uploads/2018/05/Techniques-February2018https://www.acteonline.org/wp-content/uploads/2018/05/Techniques-February2018-CommunicatingValueOfCTE.pdfCommunicatingValueOfCTE.pdf>

³² Dalporto, H., & Tessler, B. (2020, April). Voices from the field: how community colleges are advancing equity in career and technical education. MDRC.

https://www.mdrc.org/sites/default/files/Equity_in_CTE_brief.pdf

³³ Davidson, B., Henthorne, T., Ilakkuvan, K., Perlstein, L., Witham, K., & Wyner, J. (2019). *The workforce playbook: a community college guide to delivering excellent career and technical education*. Aspen Institute.

CTE programs. To accomplish this, the college hosted an expo where individuals in the community could meet current students and alumni from their CTE programs.³⁴ In addition to spotlighting the successful outcomes of graduates from their particular college, the program also brought awareness to CTE programs in general — promoting awareness is a crucial first step to increasing interest in CTE.³⁷

Outreach events are also great venues for dispelling myths surrounding CTE programs. For example, the Indiana Department of Education found success hosting events for CTE students interested in manufacturing roles on-site at local manufacturing plants.³⁵ This allowed students to speak with employers and gain a deeper understanding of what a career in manufacturing would look like within their community. By emphasizing connections between the CTE program and organizations within the community, the event validated the value of the CTE program and increased students' interest in careers in manufacturing.

V. Review Organizational Policies and Practices to Promote Inclusivity

Organizations need to ensure that their policies and practices are continually updated and designed to support individuals who are non-traditional for their gender. Many organizations currently focus on recruiting individuals; this is the perfect opportunity to review onboarding and recruitment materials (including policies and practices). Simply including a non-traditional student or employee in recruitment materials is not enough. Organizations must demonstrate inclusion through the policies and practices they set in place. Just as important is that organizations enforce their policies and that employees know how to report incidents that violate them.

Two organizational practices may be particularly beneficial to individuals pursuing careers non-traditional for the gender: Employee Assistance Programs (EAPs) and Employee Resource Groups (ERGs). EAPs are workplace programs that address both productivity issues and personal concerns, including but not limited to health, family, drug, emotional and stress issues.³⁶ EAPs vary widely with organizations offering different services (e.g., mediation, counseling) and methods (e.g., in person, online, third party). Providing these services may be particularly beneficial for individuals in careers non-traditional for their gender, as they may often experience feelings of isolation. Sometimes, employees are unaware of the services provided or are worried that utilizing resources through their work will affect how they are viewed within the workplace, so clear information about EAPs and their value must be disseminated.

ERGs are another group that can be beneficial for individuals in non-traditional careers. ERGs are voluntary groups led by a group of employees with a focus on fostering a diverse and inclusive

³⁴ Dalporto, H., & Tessler, B. (2020, April). Voices from the field: how community colleges are advancing equity in career and technical education. *MDRC*.

https://www.mdrc.org/sites/default/files/Equity_in_CTE_brief.pdf³⁷ Fitzgerald, K. (2018, February). *Communicating the value and promise of CTE with parents and students*. Acteonline.org. [https://www.acteonline.org/wp-content/uploads/2018/05/Techniques-February2018-CommunicatingValueOfCTE.pdf](https://www.acteonline.org/wp-content/uploads/2018/05/Techniques-February2018https://www.acteonline.org/wp-content/uploads/2018/05/Techniques-February2018-CommunicatingValueOfCTE.pdf)

³⁵ Ibid.

³⁶ Joseph, B., Walker, A., & Fuller-Tyszkiewicz, M. (2018). Evaluating the effectiveness of employee assistance programmes: A systematic review. *European Journal of Work and Organizational Psychology*, 27(1), 1-15.

<https://doi.org/10.1080/1359432X.2017.1374245>

environment.³⁷ Often, they are based on demographics, life stage or an individual's function within the company. A strong sense of social identification with a group can positively affect individuals' mental health, satisfaction and self-esteem. Therefore, it has been proposed that employees who belong to an ERG will be more satisfied than similar individuals who are not ERG members. ERGs can foster relationships with individuals who are in non-traditional careers and may increase an individual's identification with the organization.

Communication Strategies for Encouraging Career Paths for Non-Traditional Students

It is important for organizations, businesses and other entities that demonstrate success in fostering careers in non-traditional gender roles to effectively communicate their strategies with others. Sharing successful strategies not only signals to employees that an organization is striving to create an inclusive workforce, but also can inspire other organizations to adopt similar practices and thus promulgate change on a wider scale. Several organizations have invested resources in demonstrating their commitment to hiring individuals non-traditional to their gender. Some of those organizations are highlighted in the following case studies.

Case Study I: Fire Service

Firefighting is a career dominated by men: data from the U.S. Bureau Statistics show that only 6.2% of firefighters are women.³⁸ In recent years, the U.S. Fire Administration (USFA) has increasingly focused on understanding the barriers women navigate in becoming firefighters and the issues women face more generally in fire service today. USFA has demonstrated their commitment to increasing the representation of women in fire service through developing a dedicated website focused on supporting women in fire and emergency medical service roles.³⁹ The website spotlights an extensive report sponsored by USFA and FEMA that focuses on the health and safety issues among women working in the fire service, including topics such as: (1) women firefighter occupational health and safety issues, (2) recruitment and retention issues related to women firefighting (including health and wellness, physical challenges, psychological strain, and the culture of the fire service) and (3) discrimination, harassment, bullying and inclusion issues.⁴⁰ Importantly, each issue presented in the report contains a section detailing recommendations to combat the current issues facing women in this industry. This report also emphasizes the work of a nonprofit organization called Women in Fire that promotes networking

³⁷ Welbourne, T. M., Rolf, S., & Schlachter, S. (2017). The case for employee resource groups: A review and social identity theory-based research agenda. *Personnel Review*, 46(8), 1816-1834.

<https://doi.org/10.1108/PR-01-2016-00040004>

³⁸ U.S. Bureau of Labor Statistics. (25, January 2023). *Labor force statistics from the current population survey*.

<https://www.bls.gov/cps/cpsaat11.htm>

³⁹ *Supporting women in fire and EMS: The USFA commitment*. (2023, May 9). U.S. Fire Administration.

<https://www.usfa.fema.gov/blog/ci-030321.html>

⁴⁰ *Emerging health and safety issues among women in the fire service*. (2019, March). U.S. Fire Administration.

https://www.usfa.fema.gov/downloads/pdf/publications/emerging_health_safety_issues_women_fire_service.pdf ⁴⁴ *Women in fire: The network for women in the fire & emergency services*. (n.d.). Women in Fire.

<https://womeninfire.org/>

opportunities for women in the fire and emergency services.⁴⁴ This group fosters connections through conferences and other learning opportunities, networking events and mentorship programs, and advocates for women in fire service leadership positions. As one female firefighter noted, Women in Fire was pivotal in shaping her aspirations within the fire service: “I actually was the first female that was hired full-time with the department that I work for,” she noted. “Early in my career, I didn’t necessarily see myself promoting into leadership roles because I had not seen any other females in those leadership-type roles, truly, until I got involved in the Women in Fire.”⁴¹

Case Study II: Nursing

The nursing field continues to be dominated by women, with recent statistics reporting 87.9% of registered nurses are women.⁴² The American Nurses Association (ANA) is taking strides to attract more men to the profession. The professional association has developed a dedicated webpage that encourages men to consider careers in nursing.⁴³ They highlight reasons that becoming a nurse can be an ideal career for men who are interested in pursuing careers in healthcare.

Not only are nationwide organizations like ANA promoting male nurses, but higher education institutions are encouraging men to enroll in nursing programs. For example, the University of Pittsburgh created a “men in nursing” club to create networking and mentorship opportunities for men enrolled in nursing programs.⁴⁴ The program also aims to form connections with local high schools to encourage young males to pursue an education in nursing.

Summary

Many organizations are struggling to recruit and retain top talent, with current projections expecting millions of jobs left unfilled in CTE fields such as healthcare and manufacturing. Additionally, the influence of gender on an individual’s career aspirations and the education they choose to pursue is still prevalent today. Taken together, a potential way to address this gap is to focus on recruiting and retaining individuals in fields non-traditional for their gender. A review of the academic and practitioner-focused literature revealed five promising practices to encourage students to pursue careers in fields non-traditional for their gender. It is important to note that there is no silver bullet to ameliorating the gender gap across these many occupations — rather it is the combination of strategies that will yield the best results.

The first promising practice focused on maintaining individuals’ interest in non-traditional fields beyond childhood. Focusing on increasing students’ self-efficacy and providing role models and mentors are key

⁴¹ Judson, A. (2021, October 28). *Fighting flames & stereotypes*.

<https://www.abc10.com/article/news/local/women-in-firefighting/103-c1a2eecd-9b73-43ec-9c41-2a810920f6d5>

⁴² U.S. Bureau of Labor Statistics. (25, January 2023). *Labor force statistics from the current population survey*.

<https://www.bls.gov/cps/cpsaat11.htm>

⁴³ *Male nurses: Why men should consider a career in nursing*. (n.d.). American Nurses Association.

<https://www.nursingworld.org/practice-policy/workforce/male-nursing-careers/>

⁴⁴ Schiller, M. (31, March 2023). Pitt creates men in nursing club. *CBS News*.

<https://www.cbsnews.com/amp/pittsburgh/news/pitts-creates-men-in-nursing-club/>

strategies towards retaining students' interest in fields traditionally dominated by a gender different than their own.

Despite teachers', counselors' and organizations' best efforts, it is possible that individuals pursuing careers non-traditional for their gender may face discrimination in the workplace. As such, the second promising practice focused on building an individual's resilience to better prepare students when they are faced with potentially threatening situations. This is essential for retention and to ensure the wellbeing of students and employees. Two potential training courses were discussed: a value-affirmation writing exercise and an action-oriented affirmation exercise.

The third promising practice focused on the classroom's climate and how fostering a sense of belonging can improve students' GPAs. Research has revealed that even a one-hour intervention can greatly impact student outcomes. The fourth promising practice discusses recruitment strategies that may increase students' interest and enrollment in CTE fields. Research has shown that it is important to include student testimonials and information surrounding the advantages of a career in the field. Additionally, hosting events focused on connecting with young students in their community has been successful, as well as outreach events focused on dispelling CTE rumors and demonstrating connections with organizations within their community.

Finally, organizations must review their current policies and practices to promote inclusivity. Two critical practices were identified as potentially beneficial, including EAPs and ERGs.

Collectively, these practices offer teachers, counselors, legislators and organizations an avenue for increasing non-traditional students in CTE programs and careers within New Hampshire.

Methodology

Gallup conducted a literature review of scholarly and practitioner-focused resources to identify five promising practices for promoting the career development of non-traditional students in career and technical education. Key industries included in the literature review were healthcare, education, emergency services and STEM.

Appendix B: Relevant Federal Regulations

34 CFR 76.707 When Obligations Are Made

If the obligation is for...	The obligation is made...
Personal services by an employee of the subgrantee	When the services are performed.
Personal services by a contractor who is not an employee of the subgrantee	On the date on which the subgrantee makes a binding written commitment to obtain the services.
Performance of work other than personal services	On the date on which the subgrantee makes a binding written commitment to obtain the work.
Travel	When the travel is taken.

34 CFR 104 NONDISCRIMINATION ON THE BASIS OF HANDICAP IN PROGRAMS OR ACTIVITIES RECEIVING FEDERAL FINANCIAL ASSISTANCE:

- [Section 504 of the Rehabilitation Act of 1973](#)

2 CFR 200.319 Competition; 2 CFR 200.320 Methods of Procurement; 2 CFR 200.322 Requirements for Pass-Through Entities; 2 CFR 200.430 Compensation-Personal Services; 2 CFR 200.431 Compensation-Fringe Benefits

Title IX Federal Legislation and related documents, including updates as of August 1, 2024, are clickable below.

- [Brief Overview of Key Provisions of the Department of Education’s 2024 Title IX Final Rule](#)
- [2024 Title IX Regulations: Pointers for Implementation](#)
- [Sex Discrimination: Overview of the Law](#)
- [Title IX – Full Text](#)