



**NSN NETWORK COMMUNITY OF PRACTICE WEBINAR:**  
***Engaging Technician Faculty in Teaching Employability Skills***





**An ATE Coordination Network dedicated to:**  
*Facilitating collaboration between educators  
and employers to improve the employability skills of  
entry-level technicians in STEM fields*

[www.NecessarySkillsNow.org](http://www.NecessarySkillsNow.org)

# Engaging Technician Faculty in Teaching Employability Skills

Webinar

December 10, 2019



**SRI** Education™

# Introductions



Louise Yarnall, Ph.D.  
Principal Investigator  
louise.yarnall@sri.com



Julie Remold, Ph.D.  
Co-Principal Investigator  
julie.remold@sri.com



Ann Beheler, Ph.D.  
Senior Advisor  
abeheler@gmail.com

# Agenda

01

Introduction &  
Agenda  
5 minutes

02

The why and what  
of employability  
skills 20 minutes

03

How people learn  
employability skills  
10 minutes

04

How to teach and  
learn these skills  
15 minutes

05

Q&A and web  
resources  
10 minutes

# Project context

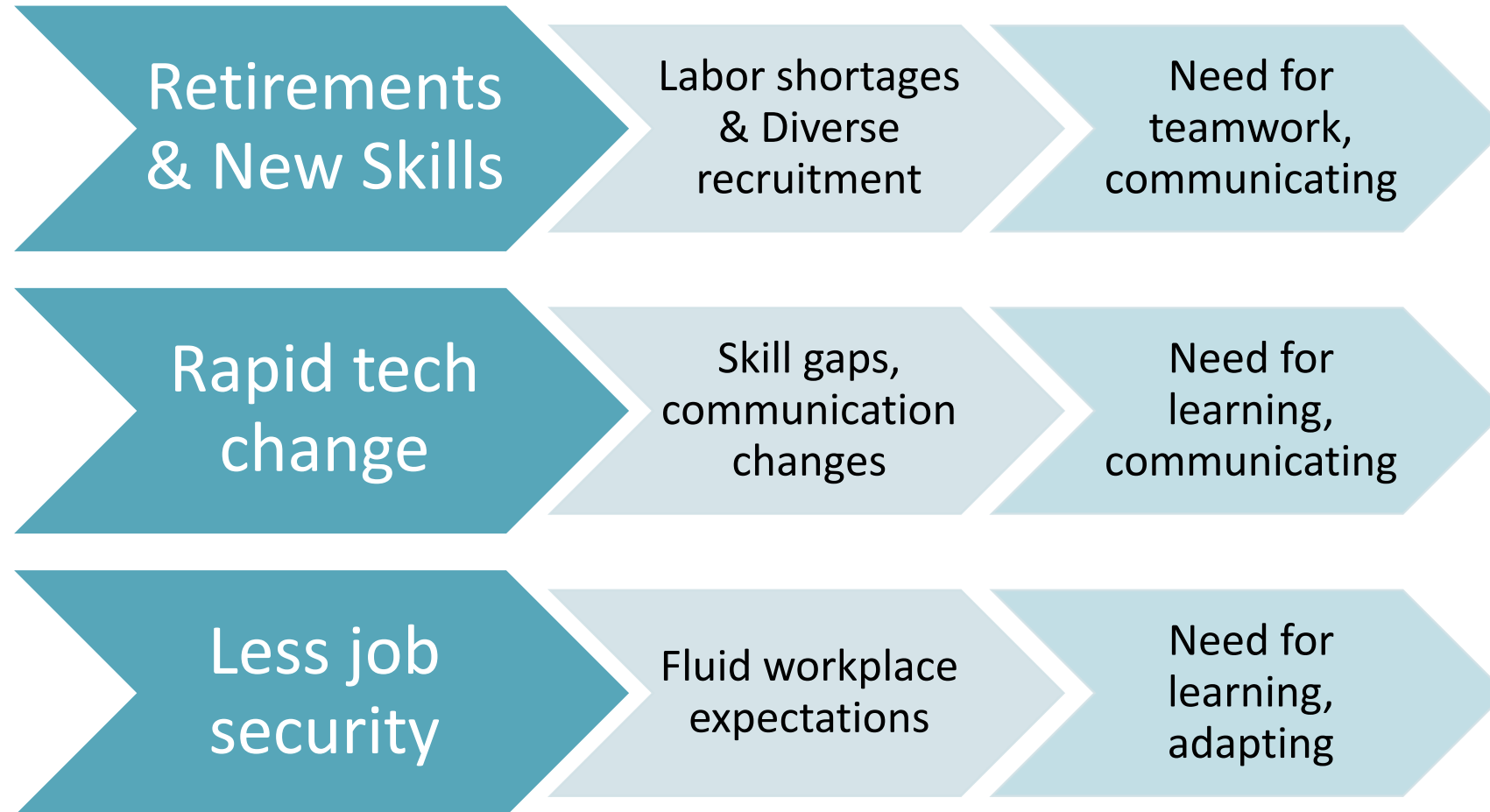
- Funded by National Science Foundation's Advanced Technological Education (ATE) program, which supports technician education, particularly in community colleges
- This project was led by SRI Education, which is a division of SRI International, a nonprofit research institute based in Menlo Park, CA. SRI does work mostly funded by government grants and contracts. We partnered with Ann Beheler of Collin County College in Texas.



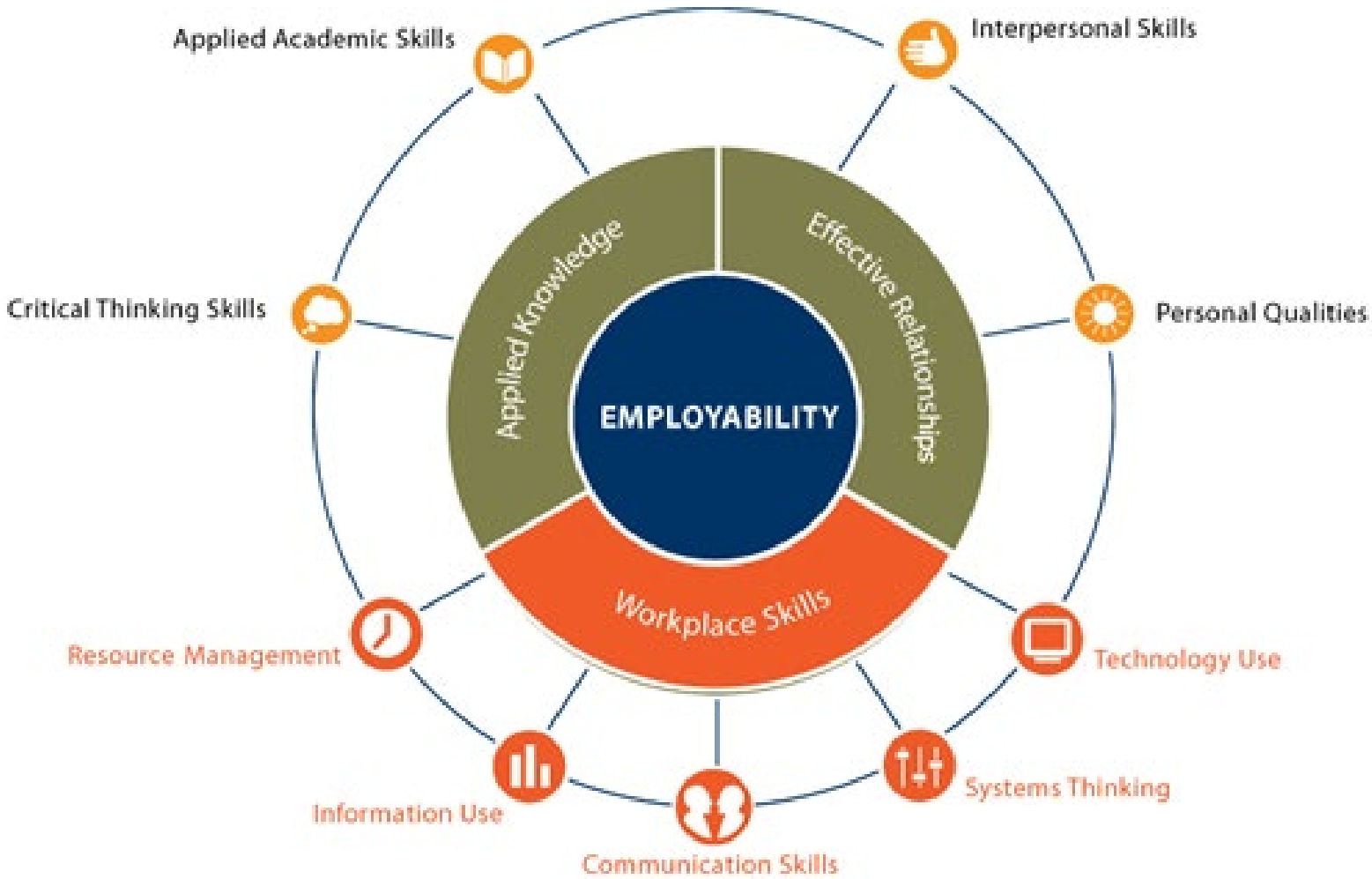
**SRI Education™**

Optimizing outcomes | Reducing barriers

# What's driving the increasing importance of these skills?



# What are employability skills?



- U.S. Department of Education
  - Applied Knowledge
  - Effective Relationships
  - Workplace Skills
- Also, for secondary college and career readiness, one common citation is: National Research Council, 2012
  - Emphasizes cognitive, interpersonal, intrapersonal
- Our report may be found here:
  - [employabilityskills.org](http://employabilityskills.org)



# Five High-Priority Employability Skills for STEM Technicians

## Essentials

Capacity to build relationships	Personal qualities for career success	Business fundamentals and knowing your business value
<ol style="list-style-type: none"><li>1. Interpersonal skills</li><li>2. Communication skills</li></ol>	<ol style="list-style-type: none"><li>3. Orientation to lifelong learning</li><li>4. Meeting workplace expectations</li></ol>	<ol style="list-style-type: none"><li>5. Situational awareness</li></ol>

# What technician educators and employers say about capacity to build relationships

Capacity to build relationships	Personal qualities for career success	Business fundamentals and knowing your business value
1. Interpersonal skills 2. Communication skills	3. Orientation to lifelong learning 4. Meeting workplace expectations	5. Situational awareness

- *“You have to be able to relate to people”*
- *“If they don’t include ‘listening’ as part of their definition of communication, they don’t have a job with me.”*
- *“Even buried in the server room, you need people skills and a huge level of empathy—you have to empathize with the users.”*
- *“By the time you get the interview, it’s about “Am I going to like to work with you?” Technical skills are not the question so much at that point.”*

# What technician educators and employers say about personal qualities for career success

## Essentials

Capacity to build relationships	Personal qualities for career success	Business fundamentals and knowing your business value
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- *“Everyone will be learning on the job.”*
- *“Just because I’m making parts doesn’t mean I shouldn’t learn how to weld, do drawings, etc. I should want to be well rounded.”*
- *“The big foundational skill is not being afraid to make a mistake”*
- *“It’s very difficult to motivate a person into a learning cycle if that’s not something that someone has an interest in doing.”*
- *“Probably the hardest thing to find is a person who is going to show up every day.”*

# What technician educators and employers say about business fundamentals

Capacity to build relationships	Personal qualities for career success	Business fundamentals and knowing your business value
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- *“I think the first thing you look for in an employee is they’re embracing what we do as a business and understanding their part in that.”*
- *“A lot of the curriculum does not have business at its core, and we need more of that. I’ve been pushing that.”*

# Five High-Priority Employability Skills for STEM Technicians

## Essentials

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# Focused essentials for groups underrepresented in STEM fields

Capacity to build relationships	Personal qualities for career success	Business fundamentals and knowing your business value
<ol style="list-style-type: none"><li>1. Interpersonal strategies to manage stereotyping/bias</li><li>2. Communication strategies to support awareness/sensitivity</li></ol>	<ol style="list-style-type: none"><li>3. Orientation to lifelong learning as a way to strengthen technical confidence</li><li>4. Understanding cultural differences in workplace expectations</li></ol>	<ol style="list-style-type: none"><li>5. Situational awareness of the importance of advancing cultural change in technician fields</li></ol>

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- *“For the most part, physically, anyone can do this work, but there is still a perception that this is a man’s job...Women can be just as good...Usually when they come out of the training, they are confident and ready to build a career up in this industry.” -- Advanced Manufacturing Employer 17*
- *“What we have found that those employers that ‘get it’ is what they have started to do is work with the frontline supervisors around implicit bias. It is not the employee’s issue, it is the culture of the organization.” -- Advanced Manufacturing Educator 7*

# Five High-Priority Employability Skills for STEM Technicians

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## Focused Essentials Supportive of Historically Underrepresented Technician Learner Population

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# How do people learn employability skills?



# Key themes on how employability skills develop

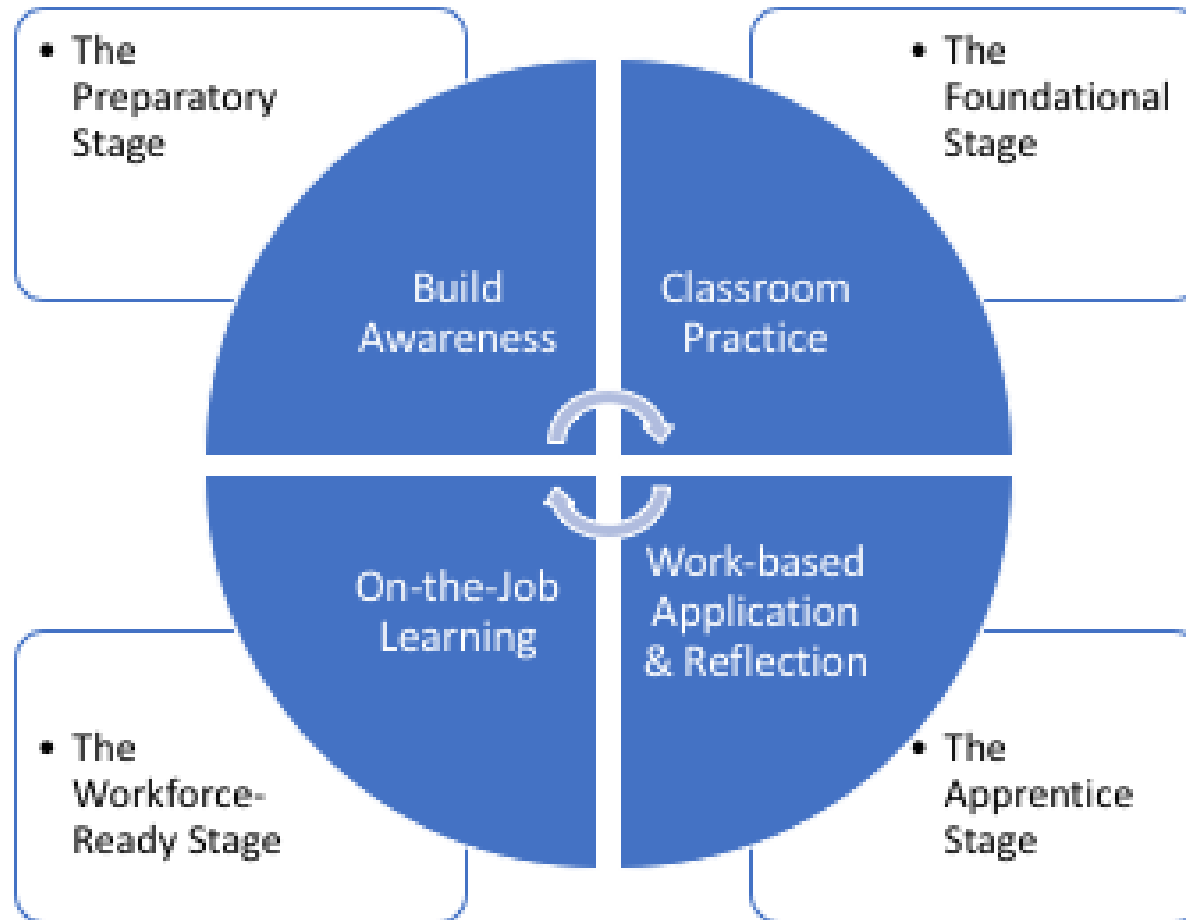
## **Learners:**

- It takes time and practice
- You may encounter those who think if you're not born with them or raised with them, you cannot do them
- This isn't accurate. You can learn them at any time

## **Coaches:**

- Coaching can and should happen at any time
- Coaching around these skills can be intimidating; it's important to support educators and managers who do the coaching
- More should be done to foster a “partnered” approach between education and industry

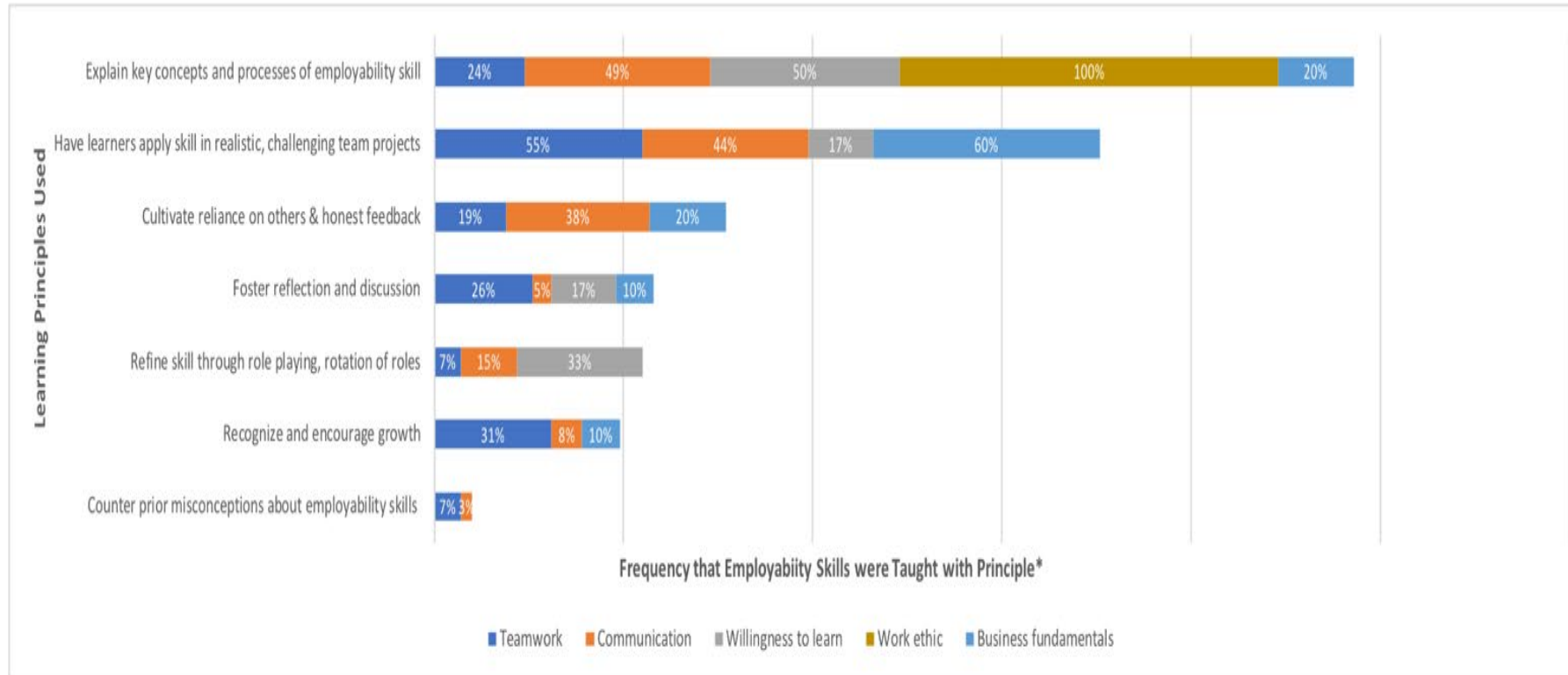
# A Better Way: Collaborate and Coordinate Employability Skills Development



# How to teach and learn these skills?



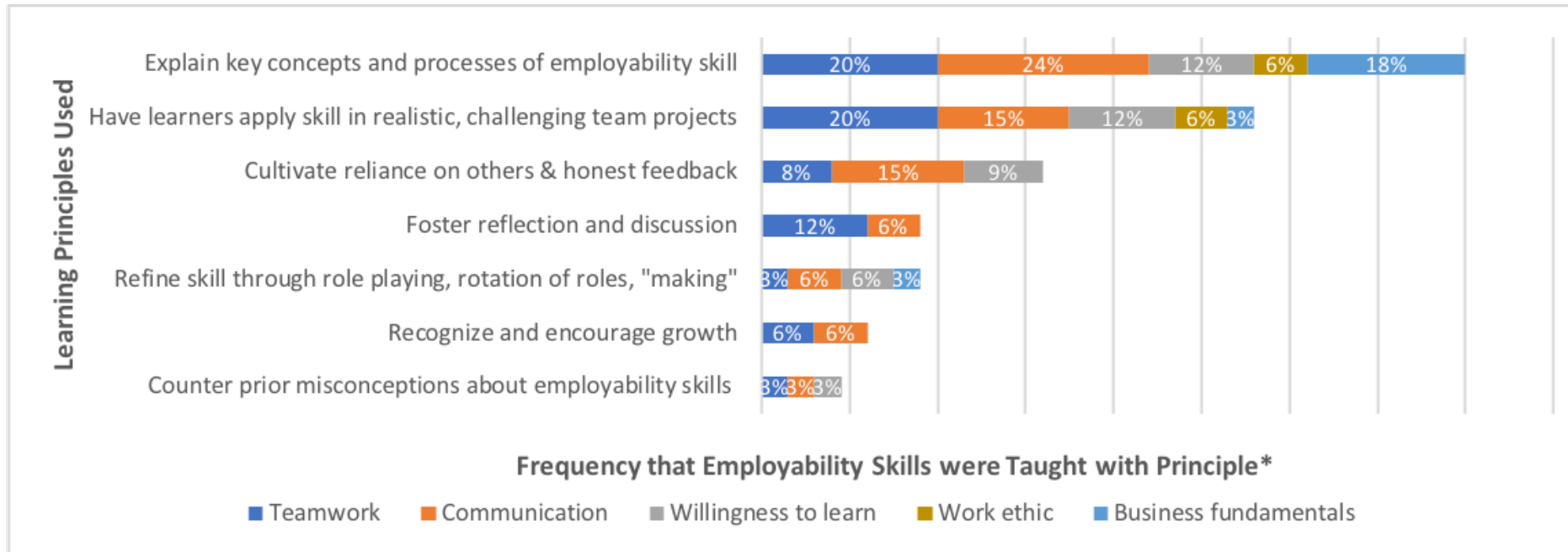
# Findings re: 4-year students







On left: Core learning principles for developing employability skills

On right: Frequency of usage of principles to develop each of five high-priority employability skills for technicians

# Findings re: 2-year students, workers



# Core learning principles

Learning principle	Description
Explain 	Explain key concepts and processes
Practice 	Have learners apply skills in realistic, challenging team projects
Support 	Cultivate reliance on others and respectful feedback
Reflect 	Foster reflection and discussion
Play 	Refine skills through role-playing, rotation of roles
Grow 	Recognize and encourage growth
Confront misconceptions 	Confront prior misconceptions about employability skills

# Revised and final set of learning principles



Confront Misconception  
and Explain



Practice



Support



Reflect and Grow

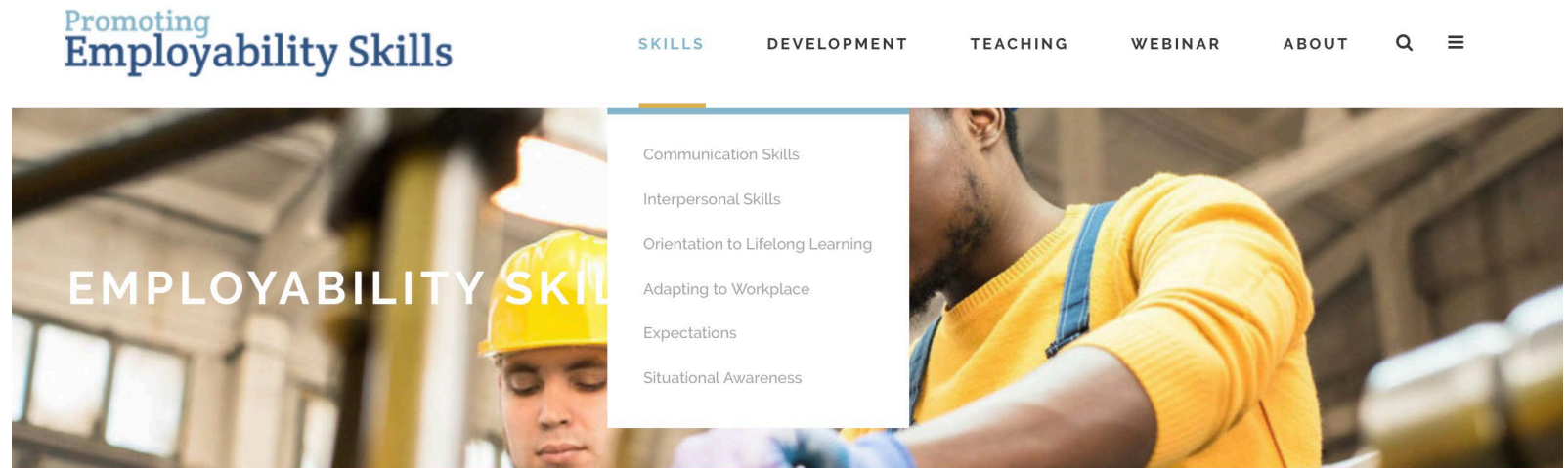


Play



# Our website offers examples

- You can browse by the five skills



Employability skills are the non-technical skills that support career success such as intrapersonal skills that support goal-setting, continual learning, and sustained engagement on tasks; interpersonal skills that support productive interactions with others and flexible adaptation to workplace organizational roles and structures; and applied competence to solve problems and think critically.

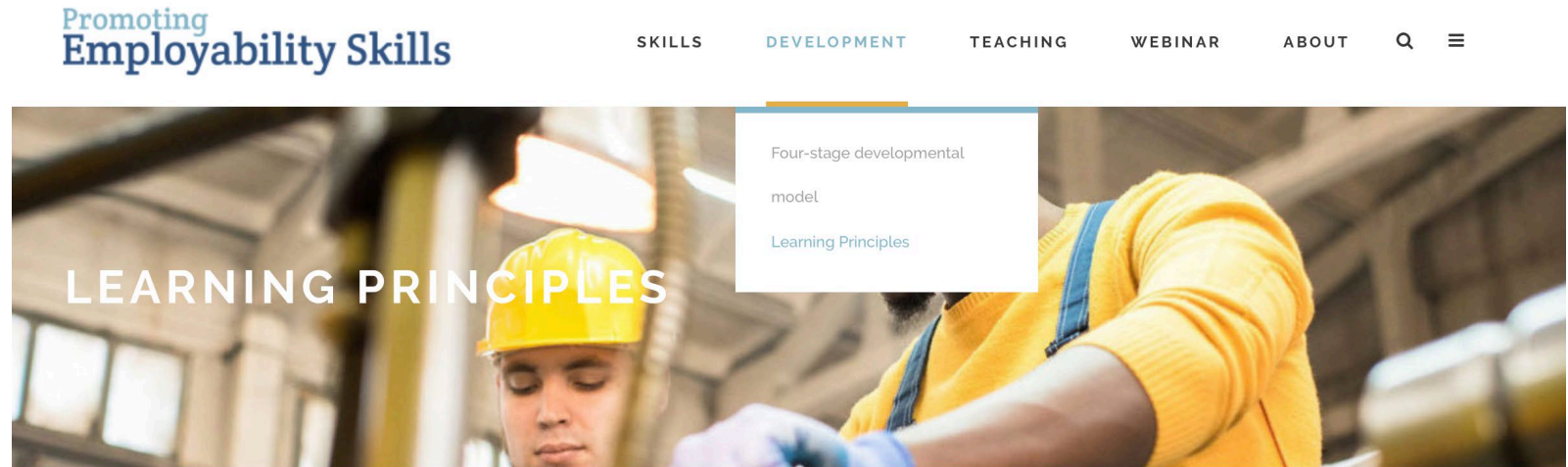
## THE FIVE HIGH-PRIORITY EMPLOYABILITY SKILLS

There were five high-priority employability skills that were emphasized in our interview data and the research literature.

CAPACITY TO BUILD RELATIONSHIPS	PERSONAL QUALITIES FOR CAREER SUCCESS	BUSINESS FUNDAMENTALS
1. Interpersonal Skills	3. Orientation to lifelong learning	5. Situational Awareness
2. Communication Skills	4. Adapting to workplace expectations	

# Our website offers examples

- You may search by:
- Developmental stage
- Learning principle



## *Learning Principles*

We found that many of the approaches to teaching employability skills in use by the educators and employers are well aligned with learning principles developed in the field of learning sciences.

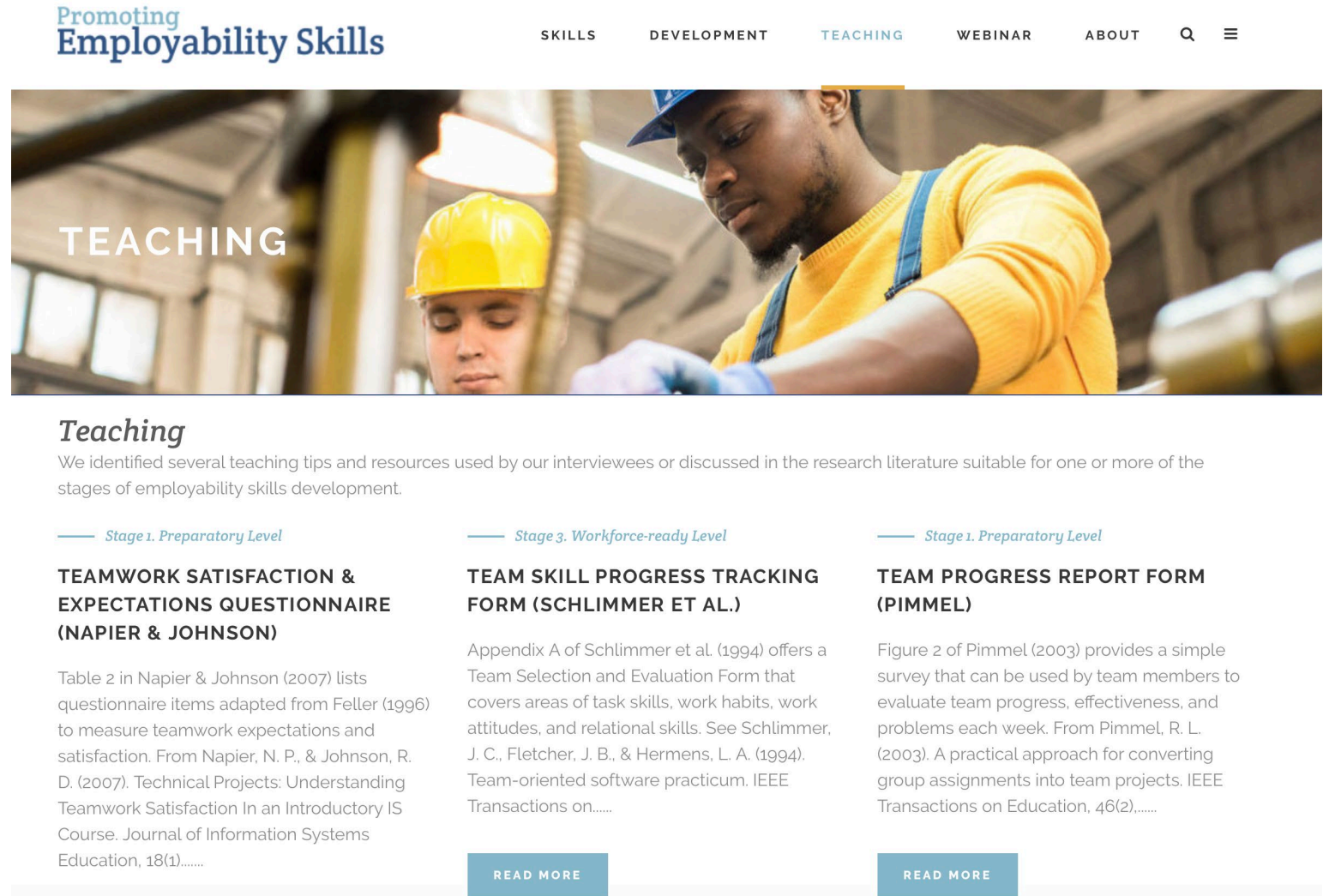


### **CONFRONT MISCONCEPTIONS AND EXPLAIN – CONFRONT PRIOR MISCONCEPTIONS ABOUT EMPLOYABILITY SKILLS, AND EXPLAIN KEY CONCEPTS AND PROCESSES**

- Bring in employers to explain the rewards of good employability skills
- When possible, involve employers as clients who provide project feedback
- Acknowledge that historically underrepresented groups face stereotypes and bias that require cultural, structural change and targeted self-advocacy strategies
- Define or emphasize the employability skills, processes
- Teach course lesson or use special curriculum on these competencies
- Cite results from a survey, focus group, or theoretical framework to identify core desired subskills

# Our website offers examples

- You may browse:
- Teaching tools and approaches



The screenshot shows the website header with the logo 'Promoting Employability Skills' and navigation links: SKILLS, DEVELOPMENT, TEACHING, WEBINAR, ABOUT, a search icon, and a menu icon. Below the header is a large banner image of two workers in a factory, with the word 'TEACHING' overlaid in white. The main content area is titled 'Teaching' and includes a sub-header 'We identified several teaching tips and resources used by our interviewees or discussed in the research literature suitable for one or more of the stages of employability skills development.' Below this are three resource cards, each with a stage indicator and a 'READ MORE' button.

**Promoting Employability Skills** SKILLS DEVELOPMENT **TEACHING** WEBINAR ABOUT Q ☰

## TEACHING

### Teaching

We identified several teaching tips and resources used by our interviewees or discussed in the research literature suitable for one or more of the stages of employability skills development.

- Stage 1. Preparatory Level**  
**TEAMWORK SATISFACTION & EXPECTATIONS QUESTIONNAIRE (NAPIER & JOHNSON)**  
Table 2 in Napier & Johnson (2007) lists questionnaire items adapted from Feller (1996) to measure teamwork expectations and satisfaction. From Napier, N. P., & Johnson, R. D. (2007). Technical Projects: Understanding Teamwork Satisfaction In an Introductory IS Course. *Journal of Information Systems Education*, 18(1),.....
- Stage 3. Workforce-ready Level**  
**TEAM SKILL PROGRESS TRACKING FORM (SCHLIMMER ET AL.)**  
Appendix A of Schlimmer et al. (1994) offers a Team Selection and Evaluation Form that covers areas of task skills, work habits, work attitudes, and relational skills. See Schlimmer, J. C., Fletcher, J. B., & Hermens, L. A. (1994). Team-oriented software practicum. *IEEE Transactions on*.....
- Stage 1. Preparatory Level**  
**TEAM PROGRESS REPORT FORM (PIMMEL)**  
Figure 2 of Pimmel (2003) provides a simple survey that can be used by team members to evaluate team progress, effectiveness, and problems each week. From Pimmel, R. L. (2003). A practical approach for converting group assignments into team projects. *IEEE Transactions on Education*, 46(2),.....

READ MORE READ MORE

# Our website offers examples

- You may seek help and support:
- The webinar recording
- A discussion thread



The screenshot shows the website header with the logo 'Promoting Employability Skills' and navigation links: SKILLS, DEVELOPMENT, TEACHING, WEBINAR (highlighted), and ABOUT. A search icon and a menu icon are also present. Below the header is a large banner image of two technicians in a factory setting. Overlaid on the image is the text 'WEBINAR' and 'Webinar - December 10, 2019'. Below the banner is a 'Register for this Webinar' button. To the right of the button is the date 'Date: December 10, 2019'. Below the date is the time 'Time: 2:00pm Eastern / 11:00 am Pacific'. Below the time is the lead presenter 'Lead Presenter: Louise Yarnall, Ph.D., Sr. Research Social Scientist, SRI International'. Below the lead presenter is the abstract 'Abstract' which describes the webinar's focus on engaging technician faculty in teaching employability skills.

**Promoting Employability Skills**

SKILLS DEVELOPMENT TEACHING **WEBINAR** ABOUT Q ☰

**WEBINAR**  
Webinar - December 10, 2019

[Register for this Webinar](#)

Please join us for a free webinar entitled Engaging Technician Faculty in Teaching Employability Skills. Hosted in partnership with the Center for Occupational Research and Development (CORD), the webinar will be geared toward community college educators, employers who work with early career technicians, and anyone else interested in fostering employability skills.

**Date:** December 10, 2019

**Time:** 2:00pm Eastern / 11:00 am Pacific

**Lead Presenter:** Louise Yarnall, Ph.D., Sr. Research Social Scientist, SRI International

**Abstract**  
Employers of STEM technicians increasingly demand strong employability skills, but technician educators face challenges in including instruction to develop those skills in their programs. Employability skills are the nontechnical, but highly important, skills that play a critical role in both getting and keeping a job. They include interpersonal skills, communication skills, lifelong learning, and the ability to meet workplace expectations and to understand both the mission of a business and the technician's role in meeting that mission. This webinar will share findings from research about the approaches that technician education programs are using to engage faculty in

# Q & A

# Resources

- **Website:** [employabilityskills.org](http://employabilityskills.org)
- [louise.yarnall@sri.com](mailto:louise.yarnall@sri.com)
- [julie.remold@sri.com](mailto:julie.remold@sri.com)
- [abeheler@gmail.com](mailto:abeheler@gmail.com)



# Grant Information

- This work was supported by the National Science Foundation under DUE# 1700703
- Any opinions, findings, and conclusions or recommendations expressed in this material are those of the author(s) and do not necessarily reflect the views of the National Science Foundation.

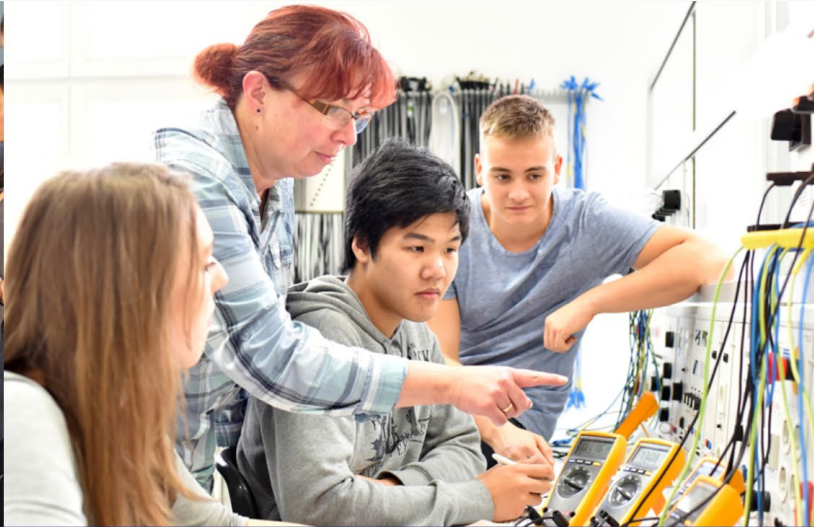


# [www.NecessarySkillsNow.org](http://www.NecessarySkillsNow.org)



## Network Activities

Participate in our community of practice.



## Instructional Resources

Explore a wide range of resources and share your own.



## Professional Development

Take advantage of NSN's workshops and online courses.