Workforce Preparation: Problem-Based Learning

Unmet Workplace Performance Outcomes

It is not unusual for workers to encounter problems in the workplace. Some problems are unavoidable; however, being given opportunities to have input into determining solutions can be beneficial and contribute to buy-in for workers. The purpose of this task is to present the students with opportunities to use problem-solving strategies to identify potential solutions to problems that may arise on the job. In this task, the students will use the IDEAL problem-solving strategy to uncover solutions to potential workplace problems.

At the conclusion of this task, the students will be able to:

- Identify and demonstrate communication skills that are useful in problem solving.
- Identify and demonstrate interpersonal skills that are useful in problem solving.
- Identify and demonstrate critical-thinking skills that are useful in problem solving.
- Define *problem solving*.
- Define the IDEAL method of problem solving and engage in problem solving using this strategy.

Time: 90 minutes

Facilitator Preparation

- Prior to class, the teacher should review the definitions of the *skills that matter* (communication, interpersonal, and critical thinking).
- Prior to class, the teacher should define *brainstorming* and *mediator*.
- Prior to the class, the teacher should become familiar with the IDEAL strategy for problem solving by reading *The Ideal Workplace: Strategies for Improving Learning, Problem Solving, and Creativity* (http://eric.ed.gov/?ID=ED424409).
- Prior to the class, the teacher should review the IDEAL YouTube video (https://youtu.be/OE9oGjhqNWA).

Materials

- Flip chart and markers
- IDEAL problem solving worksheet and pencils
- Laptop, LCD projector, and screen

Process for Students	Role of the Teacher	Activity/Task Descriptions and Possible Materials	The Skills That Matter Addressed or Evident
Build understanding of problem-based learning. **Warm up to the topic/issue at hand.**	**Preteach.** Make sure the students understand the goals and benefits of a problem-based approach for language learning. If this is an English language acquisition class, emphasize the areas of English that are developed in problem-solving activities.	• The teacher can begin the task by reviewing the skills that matter (communication, interpersonal, and critical thinking). • The teacher can define *problem solving*. One simple definition is that problem solving is the use information that we already know to discover something that we don't know.	**Communication** **Interpersonal**
Meet the problem.	**Introduce problem and vocabulary.** Introduce the students to the problem, using pictures, video, or texts. Ask the students about previous personal experiences with the problem. Introduce vocabulary related to the problem. Provide prereading or previewing exercises for dealing with the problem. (The problems can be preselected by the teacher on the basis of learner needs; alternatively, the teacher can facilitate a process in which problems are chosen by the learners.)	• The teacher can ask the class for examples of problems that they solve on a routine basis and problems that they encounter that are difficult to solve. The teacher should not ask the students how they solve these problems but rather just ask what the problems are. • The teacher can make a list of these problems on the board or a flip chart to revisit throughout the activity. • The teacher should present problem-solving strategies and techniques to the students. Possible strategies include trial and error**,** brainstorming, and insight.	**Processing and analyzing information** **Communication** **Critical thinking** **Navigating systems**

Process for Students	Role of the Teacher	Activity/Task Descriptions and Possible Materials	The Skills That Matter Addressed or Evident

Meet the problem. (continued)	**Introduce problem and vocabulary. (continued)**	• The teacher can ask the students how they solve problems that they encounter. The teacher can refer to specific examples on the list developed earlier. To continue and enhance this discussion, the teacher can ask thought-provoking questions like the ones below. Prior to asking these questions, the teacher should define any words that may be problematic (*brainstorming, mediator*).
		
		  – What does the statement "Two heads are better than one" mean with regard to problem solving?
		
		  – Have you ever tried to solve a problem using the brainstorming technique?
		
		  – How flexible are you on controversial issues?
		
		  – Have you ever played the role of mediator? Has anyone ever played the role of mediator for you in some situation? How did it work?[b]
		
		• The teacher should introduce the IDEAL strategy for problem solving. Show the video found at https://youtu.be/OE9oGjhqNWA and follow the video with a discussion about each step of IDEAL. Review the bacon grease example in the video and reinforce each step of the IDEAL strategy:
		
		  – INTENTIONALLY attempt to IDENTIFY the problem and treat it as an opportunity.
		
		  – DEVELOP an understanding of the problem and DEFINE your goals.
		
		  – EXPLORE possible strategies and EVALUATE how they fit your goals.
		
		  – ANTICIPATE and then ACT.
		
		  – LOOK back and LEARN.[c]
			Processing and analyzing information
			
			Communication
			
			Critical thinking
			
			Navigating systems

Process for Students	Role of the Teacher	Activity/Task Descriptions and Possible Materials	The Skills That Matter Addressed or Evident

Meet the problem. (continued)	**Introduce problem and vocabulary. (continued)**	• Provide additional examples of problems and use the IDEAL method to work through potential solutions as a large-group activity. For each phase of IDEAL, ask the students thought-provoking questions:
		
		   – I—What is the problem? Create a sentence or two to identify the problem.
		
		   – D—What do we know about this problem? Create a sentence or two to define the problem.
		
		   – E—What are some potential solutions to this problem? Create a sentence or two to explore solutions to the problem.
		
		   – A—How can the chosen solution be enacted to avoid possible barriers? Create a sentence or two to describe how the solution to the problem should be carried out.
		
		   – L—What have we learned from this problem-solving activity? Create a sentence or two to describe the lessons learned.
		
		• Next, tell the students that they will be participating in role-play activities that will provide them with opportunities to practice skills that matter (communication, interpersonal, and critical thinking) using the IDEAL problem-solving strategy. It is important that the introduced skills be called out so that the students better understand these skills, how they may present themselves in the workplace, and how they can be transferred to other workplace and nonworkplace situations.
		
		• Present the class with a workplace situation that requires ideas for a solution. Examples include "unmet workplace performance expectations" and "late return of workers from breaks."
			Processing and analyzing information
			
			Communication
			
			Critical thinking
			
			Navigating systems

Process for Students	Role of the Teacher	Activity/Task Descriptions and Possible Materials	The Skills That Matter Addressed or Evident
Explore knowns and unknowns.	**Group students and provide resources.** Make sure that the students understand the problem and what is expected of them. Emphasize that there is no single answer or solution and that the students need to choose what appears to them to be the most viable solution and be prepared to explain why they chose that solution. Group the students according to their strengths. As with project-based learning, the students can take on different roles according to their strengths. Provide access to resources such as the internet, books, magazines, brochures, newspapers, television, and community experts. Make sure that the students are aware of the range of resources available and know how to use them. Encourage the students to draw on materials that are in their first language and that present various viewpoints.	• Divide the class into groups of three or four students and instruct them to use the IDEAL problem-solving strategy to develop potential solutions to the problems. Using the problems in the previous step or other teacher-made examples, and each group should develop its own description of one problem. Instruct the students to use the IDEAL Problem-Solving Worksheet (Appendix A) to record their actions. • Inform the students that they are required to have a response for each step of the IDEAL process and be prepared to present it to the class. Let the students know that they will need to select a presenter from their small group. In addition, remind the students that they need to explain where the skills that matter (communication, interpersonal, and critical thinking skills) are integrated into their work and their responses.	**Interpersonal skills** **Processing and analyzing information** **Critical thinking**

Process for Students	Role of the Teacher	Activity/Task Descriptions and Possible Materials	The Skills That Matter Addressed or Evident
Explore knowns and unknowns. (continued)	**Provide language supports.** Provide language frames they may need (e.g., stating a problem, proposing a solution). Provide planning tools (e.g., graphic organizers) for working through the problem and coming up with solutions.	**Provide scaffolds for planning and supports for language, considering the register needed when presenting ideas:** Problem: _____ We've identified a problem in the workplace. This is a problem because _____ There is evidence to suggest that _____ We found that _____ Data suggest that _____ Possible solutions: _____ One thing that could be done is_____	**Communication**
Generate possible solutions. **Consider consequences and choose the most viable solution.**	**Observe and support.** Observe the students and provide support as needed, but do not attempt to direct their efforts or control their activity in solving the problem. Observe, take notes, and provide feedback on student participation in the activity and on language used during the activity.	• The students follow the IDEAL process to identify two or three solutions. • The teacher observes while the students are developing plans, reminds them of the language supports provided, and assists with finding resources, as needed.	**Processing and analyzing information** **Critical thinking** **Self-awareness (the impact a student can have on others)**

Process for Students	Role of the Teacher	Activity/Task Descriptions and Possible Materials	The Skills That Matter Addressed or Evident
	Follow up and Assess Progress Provide the students with opportunities to present and share the results of their work. Provide follow-up activities based on your observations, possibly instruction on grammar, academic language, pronunciation, or pragmatic issues. Assess the students' participation and success in the activity, and provide opportunities for peer assessment.	Debrief using reflective questions such as these: 1. What did you learn about yourself during this problem-solving activity? 2. Did you use communication, interpersonal, and critical thinking skills while participating in this activity? 3. Which skills might need improvement? How do you know?	**Self-awareness**

Note. Recommended steps for problem posing adapted from Problem-Based Learning and Adult English Language Learners, by J. Mathews-Aydinli, 2007, Center for Adult English Language Acquisition, Washington, D.C.

[a] *Exploring Work-Based Foundation Skills in the ABLE Classroom: Instructional Activities and Resources for Adult Learners*, by P. S. Carman, K. Hamilton, S. Webster, & M. K. Williams, 2004, Institute for the Study of Adult Literacy, University Park, Pennsylvania.

[b] Ibid.

[c] *The Ideal Workplace: Strategies for Improving Learning, Problem Solving, and Creativity,* by J. Branson, A. Haynes, B. Stein, and X. Lin, 1998. Retrieved from http://eric.ed.gov/?ID=ED424409

Appendix A. IDEAL Problem-Solving Worksheet

State the Problem

Using the IDEAL strategy for problem solving, provide one or two sentences to address each step of IDEAL. Include examples of where and how the skills that matter (communication, interpersonal, and critical thinking) are integrated into your responses.

	IDEAL	Skills that matter
I	Identify—What is the problem?	
D	Develop—What do you know about this problem?	
E	Explore—What are some potential solutions to this problem?	
A	Anticipate—What are potential barriers to enacting the solution?	
L	Learn—What did you learn from this procedure?	