Technical Education Division, Richland College, Dallas, Texas

IMPLEMENTING SCANS BY USING COOPERATIVE LEARNING

By

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TEAL COMPENDIUM

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TEAL LEARNING MODULES

The Techniques to Enhance Adult Learning (TEAL Compendium) modules were developed primarily for community and technical college faculty by Richland College in Dallas, Texas. The TEAL learning modules were written as a response to the concern that many college instructors have their masters' degrees and/or substantial experience in their teaching fields, but few institutions of higher learning require these faculty to also have preparation in teaching strategies/techniques. So it is not unusual to find instructors who are subject-matter experts simply lecturing to their students instead of using a variety of activities. Thus these modules were created to provide an easy-to-use, self-paced format for faculty to learn strategies that enhance the learning process resulting in significant outcomes.

While the TEAL modules can be used to test what faculty knows after they complete the readings (cognitive domain), the modules can also affect their values (affective domain) regarding choices of teaching strategies/techniques. To persuade faculty to try new methods, the writers of these modules have included information on the many benefits of using their suggested activities.

The four modules are:

- Utilizing Active Learning Techniques
- Implementing SCANS using Cooperative Learning
- Integrating Internet Technology in the Classroom
- Using Writing to Enhance Adult Learning

Authors of the modules addressed the materials to the community college faculty. However, these materials have not been tested for appropriate audience or validity. The modules are not subject-matter specific, so they could be adapted to any curriculum.

Included with these materials is an evaluation form. Please duplicate and complete this form for each module you use or review. Your valuable feedback is greatly appreciated. Please send your evaluations to:

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INTRODUCTION

CONTENT GOAL:	Upon successful completion of this module, faculty will be able to **implement SCANS into the curriculum using cooperative learning**. (Cognitive Domain Synthesis Level)
LEARNING RATIONALE:	Business and industry have challenged colleges to assist students in building critical thinking skills and collaborative experiences to enable them to be team players. Research shows that cooperative learning results in greater use of higher level reasoning and increased social and collaborative skills. This learning module presents several techniques that will assist instructors in modifying learning curriculum to a more collaborative mode.
ESTIMATED COMPLETION TIME:	This is a self-paced module designed to be completed in an average amount of time. The specific time required for completion will vary from instructor to instructor due to individual reading skills and learning environment. ***As an average this module takes 2-3 hours to complete, not including enrichment activities.***
INSTRUCTIONS:	A. This is a self-contained module that includes all materials needed to complete all related exercises. No additional materials are required. B. Feel free to complete the enrichment activities if they would help you further understand the concepts covered in this module. C. Please read all associated materials prior to completing each exercise. D. After completing each self-check exercise, compare your answers with those provided on the page that follows each exercise. E. If you miss any of the questions, please review the related material to ensure you fully understand the concept.
ENRICHMENT ACTIVITIES:	The enrichment activities are supplemental and provide for further study if so desired. ***Please note these activities are not required to complete this module.***

LEARNING EXPERIENCE # 1

Performance Objective # 1: After reading Selection #1, you are to check for recall of important information by listing the advantages of using cooperative learning and explain two essential components of cooperative learning. Complete Self-Check Activity #1 without referring to any materials. Aim for 100% accuracy in your answers. If you don't reach 100%, reread the entire Selection #1.

LEARNING ACTIVITY #1	ENRICHMENT ACTIVITY
READ: Reading Selection #1: Implementing SCANS through Cooperative Learning. **SELF-CHECK ACTIVITIES:** ➢ **Checking for Recall Questions** ➢ **Short Answer Questions**	

Reading Selection #1

Implementing SCANS through Cooperative Learning

In 1991, the U.S. Department of Labor published its first report called "What Work Requires of Schools," revealing what students and workers needed to know and be able to do in order to succeed in the workplace. The Commission's report identified five competencies along with a three-part foundation of skills and personal qualities needed to enjoy a productive life. While there is a wealth of SCANS-related material such as the SCANS/TEJAS® Compendium* for instructors to utilize in the classroom, there are no instructional guidelines for presenting the material in a collaborative mode. One of the emphases of the SCANS classroom is that the andragogical impact is one of interaction with instructor and student rather than a lecture format.

From Sage on the Stage to Guide on the Side

The control and focus of attention shifts from the teacher to the learning team in a SCANS classroom. Some of the key objectives are:

- √ **Students learn to participate as effective team members as well as responsible individuals.**
- √ **Students become active seekers of knowledge.**
- √ **Teachers become less and less necessary to the team's learning process**
- √ **Teachers become coaches, guides, sources of information, experience and encouragement.**
- √ **Teachers give up the stage, attention, control and sometimes inclusion.**

Teaching methods are student-centered and should include group projects, role playing, simulations, case studies, field trips, research, portfolios, team tests and experiments rather than lectures, videos, individual reading assignments and isolated preparation work. A student in a SCANS classroom is an active learner, a problem solver, a critical thinker and a team member.

In finding a solution to presenting learning modules in a more interactive format, the approach that comes to mind is cooperative learning. Business and industry have clearly advocated that in today's education system, there must be a place for teaching students to become team members, to share resources and talents, and to acquire social skills that will enable them to cooperate in the workplace. Slavin stated that students not only must learn to work together, but also must be held responsible for their teammates' learning as well as their own (53). Cooperative learning is structured so that students become actively involved in their own learning process. The National Training Laboratories in Bethel, Maine produced research that demonstrated the retention rate of material learned through lecture, reading, practice and teaching others. The retention rate of material presented through a lecture format was only 5%; however, the retention rate jumped to 90% when students taught other students the same material. McKeachie (from the University of Michigan) answers the question, "What is the most effective method of teaching?" Students teaching other students (McKeachie, Pintrich, Lin, & Smight, 64). When students were asked to discuss with a partner what a teacher presented at frequent intervals during the class, they received up to two letter grades higher than students in the control group did (Ruhl, Hughes, and Schloss 10:14:18).

*Contact Richland College Technical Education Division to receive a copy of the Compendium.

Research shows that Cooperative Learning results in:

√ ***higher achievement***
√ ***increased retention***
√ ***higher-level reasoning, problem solving, reasoning and decision making skills***
√ ***higher self-esteem***
√ ***increased social and collaborative skills capitalizing on the diversity of socio-cultural experiences***

The value to the student in cooperative learning can be summarized with 4 C's:

- **Community**
- **Career Preparation**
- **Critical Thinking**
- **Cultural Diversity**

Cooperative learning creates a learning community where students are nurtured and encouraged. One of the primary factors in student retention is associated with students feeling a sense of belonging in the classroom. Business and industry have given education a clear mandate to produce students who can work in group or team situations. Social skills that are developed in cooperative learning help students to become team players. Students who problem solve, analyze data, present material to fellow classmates, explain concepts and discuss case studies are learning critical thinking skills necessary to survive in today's workplace. Cultural diversity is not only accommodated through cooperative learning, but it is celebrated. A student who has worked in culturally diverse learning groups through cooperative learning will be prepared to work side by side in the workplace with others who differ racially, ethnically and culturally.

The value to the instructor is the 3R's:

Respect - Students have greater respect for instructors who relinquish dictatorial powers and become a guide or resource person rather than an authority figure.

Retention - Attendance in the classroom improves remarkably when students interact with peers. More students finish the course than in a traditional classroom. Retention of material presented in class also improves remarkably.

Resource - Instructors can modify their material and teaching style by monitoring students in cooperative learning groups. It becomes quickly apparent what material is not understood, needs more clarification or explanation.

Structuring Cooperative Learning

To be successful, cooperative learning must be structured with certain guidelines. It is not simply group work where weak students "piggy back" on the work of the gifted and conscientious student. It is not social time where students dismiss the task and talk about sports, current events and every other topic except the one on hand. It is also not a group where student's form cliques and exclude others who differ from them culturally and racially. To ensure that cooperative learning does not result in these pitfalls, it must be structured in a way that includes each student contributing to the group effort, and that each student is held individually accountable.

Next, four cooperative learning techniques will be presented with guidelines for utilizing them in presenting the SCANS learning modules. Any reading selection, discussion questions, or activities could be presented through a cooperative learning format. The application of these techniques can also be used in the classroom for any subject material.

Self-Check Activity #1

Checking for Recall

1. Describe the difference between a SCANS classroom and a traditional classroom.

2. Name the four C's that summarize the benefit to a student in using cooperative learning in the classroom.

3. How does an instructor benefit by using cooperative learning?

4. What are some essential components in structuring a cooperative learning classroom?

Answers to Self-Check #1

1. Students become active seekers of knowledge and teachers become guides and sources of information--"From Sage on the Stage to Guide on the Side."

2. The student benefits by developing a sense of community, a preparation for being a team member that will serve him/her in a career, critical thinking skills for decision making and conflict resolution, and an appreciation for cultural diversity. (The 4 C's)

3. Instructors benefit from cooperative learning by gaining student respect, increasing student retention and by pedagogical improvement utilizing the student as a resource. (The 3 R's)

4. Positive interdependence and individual accountability are two of the essential elements in a cooperative learning classroom.

LEARNING EXPERIENCE # 2

Performance Objective #1: After reading Selection #2, you are to check for recall of important information on what Pair Reading is. Complete Self-Check Activity #2 without referring to any materials. Aim for 100% accuracy in your answers. If you don't reach 100%, reread the entire Selection #2.

LEARNING ACTIVITY #2	ENRICHMENT ACTIVITY
Read Reading Selection #2: *Pair Reading – a Cooperative Learning Activity.* **SELF-CHECK ACTIVITIES:** • **Checking for Recall** • **True/False**	Use the section titled "Self Awareness Components" in the Displaying Self-Management Skills Learning Module of the SCANS/TEJAS® Compendium to conduct the Pair Reading activity with your students.

Reading Selection #2

Pair Reading

Pair Reading is indicated when there is a large amount of material to cover, the instructor would like the students to have an overview of material before starting a lecture, some students in the class have weak reading skills, the material is difficult or comprehension is lacking.

Any reading selection can be done through Pair Reading. These are the steps necessary to ensure that Pair Reading is set up correctly. Assign each student a partner. Random selection may be done by counting off, or the instructor can designate student pairs. The latter may be beneficial in a class that has a wide range in achievement. Strong readers can assist weaker ones in identifying the main idea and clarifying sentence meaning. This activity uses two students who read new material to gain in comprehension and clarify meaning by alternating roles as an Explainer or Accuracy Checker. Students are much more confident about understanding material that they have read using this method. The instructor's role is to circulate among reading pairs to clarify terms, vocabulary or ideas that students may find confusing.

Steps in Utilizing Pair Reading:

- ✓ **Read headings to gain an overview of the reading selection**
- ✓ **Both students silently read the first paragraph or page**
- ✓ **Explainer summarizes what he has read in his own words**
- ✓ **Accuracy Checker listens, corrects anything that is wrong, adds anything left out, relates information to previous knowledge**
- ✓ **Pairs reverse roles and proceed to the next paragraph or page**

An example of this would be to take any reading selection from your classroom textbook and have both students read the first two paragraphs of the selection. Student #1 would then summarize or explain what the main idea or ideas were in those two paragraphs. Student #2 would agree, disagree or add other pertinent ideas. They would then read the next three paragraphs and Student #2 would serve as the Explainer while Student #1 would be the Accuracy Checker. Doing this reading assignment in class ensures that all have read the material, that it is done in a timely manner, and that each student is prepared to discuss the material that was read.

Self-Check Activity #2

Checking for Recall

True/False

1 . _____ Students should read the entire selection aloud.

2. _____ Students alternate in the role of Checker and Explainer.

3. _____ Difficult material should not be used in Pair Reading.

4. _____ Pair Reading gives a global view before the lecture.

5. _____ Pair Reading can be of benefit to at-risk students.

6. _____ Instructors have no role in Pair Reading.

7. _____ Students have more confidence in their comprehension of materials.

8. _____ The Accuracy Checker can offer differing opinions.

9. _____ The Explainer uses his own words to summarize.

10. _____ The pair may not recheck their answers with the text.

Answers to Self-Check Activity #2

1. False - students should read each section silently before discussion
2. True
3. False - Pair Reading is recommended for difficult reading
4. True
5. True
6. False - instructors should monitor and assist students with terminology, vocabulary and comprehension
7. True
8. True
9. True
10. False - The text is always referenced when checking the summary of the Explainer

LEARNING EXPERIENCE # 3

Performance Objective #1: After reading Selection #3, you are to check for recall of important information regarding small group discussions. Complete Self-Check Activity #3 without referring to any materials. Aim for 100% accuracy in your answers. If you don't reach 100%, reread the entire Selection #3.

LEARNING ACTIVITY #3	ENRICHMENT ACTIVITIES
Read Reading Selection #3: *Small Group Discussion* **SELF-CHECK ACTIVITIES**: • **Checking for Recall** • **Discussion Questions**	

Reading Selection #3
Small Group Discussion

Providing small group discussion rather than involving the entire class in a discussion insures more student participation. In a study in 1976, Karp and Yoels found that in a class of 40 students only four or five students did 75% of the interaction with instructors or participation in discussions (10).

For the following activity, students need to be arranged in groups of three. One of the tenets of cooperative learning is that groups should be heterogeneous and as diverse as possible. A richer, more varied interpretation and added information is supplied when there are different voices. The quickest way to create heterogeneity in a group is through random assignment. Simply counting off - divide the number in the class by three and have them count off by that number - will insure that cliques are not together in the same group. Assignment to groups can also be done through teacher assignment. This is especially useful when you need students with superior comprehension in the class to assist weaker class members. For the purpose of the SCANS modules, however, random assignment to groups works very well.

The physical arrangement of the group should resemble an inverted T. In a small group of three, two students should arrange their desks or chairs to face each other parallel to the blackboard with the third student making the bottom of the T - perpendicular to the other students and the blackboard. Students should be "eye to eye" and "knee to knee" in order to discuss questions without disturbing other groups and to easily see and share materials.

To ensure that each member of the group participates, specific roles should be assigned to each member. One possibility is to make one member of the group the Reader or Explainer, another the Recorder, and the third member the Checker.

Group Roles

Reader/Explainer reads question #1 to the group and explains what he believes is the answer to the question.

Checker uses the reading selection to check for accuracy and adds any additions or corrections he/she might have.

Recorder writes down answers and comments and helps the group consolidate or refine their answer. If there are several questions, the group can rotate rolls to give each individual an opportunity to serve as the Reader/Explainer, Checker and Recorder.

All members of the group agree on the final answer and are expected to be able to represent their group by giving the answer if called on by the instructor. In this way, positive interdependence and individual accountability are structured into the activity. Both of these components are essential for a true cooperative learning activity.

An example of utilizing this activity is to take any discussion-type questions and use them in the small group discussion activity.

Self-Check Activity #3

1. Why is small group discussion preferable to involving the entire class?
2. What is the ideal number of students for small group work?
3. Why should the group be heterogeneous?
4. How do you divide the class into groups?
5. Why are roles assigned in small groups?
6. Name the roles of each person in the discussion group.
7. How do you achieve eye to eye and knee to knee?
8. How do you structure teamwork in small groups?
9. How do you achieve individual accountability?

Answers to Self-Check Activity #3

1. More students can participate more often in small groups.
2. 3
3. A group will have more information and insights with a mixture that is heterogeneous.
4. Group member selection can be done randomly by counting off or by teacher selection.
5. Students are assigned roles to guarantee that they will participate in the group.
6. Explainer, Recorder, Checker
7. Upside-down T formation - two students facing each other parallel to the blackboard - one student facing the blackboard perpendicular to the other students
8. All students agree on the answer.
9. One student is called upon to give the answer for the group.

LEARNING EXPERIENCE # 4

Performance Objective #1: After reading Selection #4, you are to check for recall of important information regarding Jig Sawing. Complete Self-Check Activity #4 without referring to any materials. Aim for 100% accuracy in your answers. If you don't reach 100%, reread the entire Selection #4.

LEARNING ACTIVITY #4	ENRICHMENT ACTIVITY
Read Reading Selection #4: *Jig Saw Activity* **SELF-CHECK ACTIVITIES:** • **Application** • **Illustration Activity**	

Reading Selection #4

Jig Saw Activity

Another activity is called Jig Sawing - so called because each person of a three-member group has one piece of the puzzle. The group can not complete their work or have the whole picture until each member contributes his/her piece. This is particularly effective when there is a large amount of material to be covered, and each student's load will be reduced since he will be doing a third of the preparation that he would be asked to do on his own. When instructors say that they have no time for cooperative learning, the example of Jig Sawing is brought forward to demonstrate that more material can be covered than in a conventional manner.

Groups of three are assigned specific material different from other members of the group. To facilitate this, an instructor can designate students as A, B, or C. All of the A's would prepare a certain part of the material, B's another section and C's the final section. Each group would have an A, B, and C. Thus there would be several A's in the classroom preparing the same material as well as B's and C's. After the material is individually prepared, students have an opportunity to work with a practice or preparation partner. If you were an A, you would find another A from a different group to discuss what you have prepared prior to returning to your group and presenting or teaching your material. This helps to dispel misunderstandings and gives each person an opportunity to formulate how he/she will present his/her material in a clear and concise way. Each member of the class then returns to his/her groups and presents. Students are responsible for all material, not just the part that they presented. Once again the concepts of individual accountability and positive interdependence are satisfied.

Apply Jig Sawing in your classroom with the following steps:

I. Set up small groups through random selection or teacher assignment.
II. Choose a reading selection from any source.
III. Divide the reading selection into three equal parts.
IV. Designate members of the group as A, B, or C.
V. Assign the parts of the reading selection to A, B, and C. Make sure all A's, B's, and C's have the same material.
VI. Each member of the group masters his individual material.
VII. Members of the group choose a partner from another group who has prepared the same material.
VIII. The practice pair rehearse together. Each one contributes his/her best ideas.
IX. Pairs return to their own groups and each member of the group teaches his/her assignment.

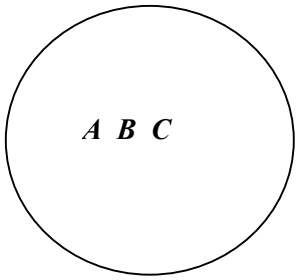
Self-Check Activity #4

Illustration

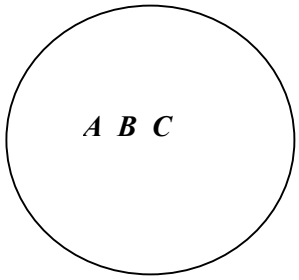
Draw an illustration that demonstrates cooperative learning's Jig Saw activity

Answers to Self-Check Activity #4

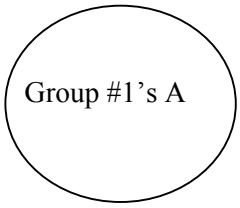
Group #1

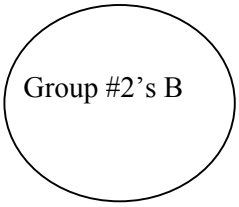


Group #2

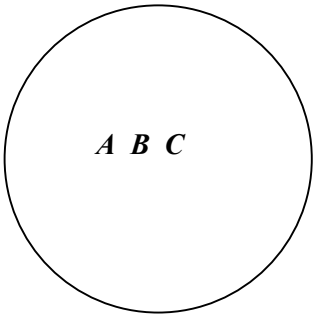


Practice Pair

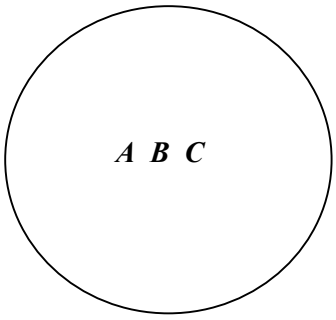




Group #1



Group #2



LEARNING EXPERIENCE #5

Performance Objective #1: After reading Selection #5, you are to check for recall of important information on Base Groups. Complete Self-Check Activity #5 without referring to any materials. Aim for 100% accuracy in your answers. If you don't reach 100%, reread the entire Selection #5.

LEARNING ACTIVITY #5	ENRICHMENT ACTIVITY
Read Reading Selection #5: *Base Groups* **SELF-CHECK ACTIVITY:** • **Checking for Recall** • **True/False** • **Do/Don't List**	

Reading Selection #5

Base Groups

Base groups are long-term groups that are formed in the classroom for discussing homework, test review, problem solving, etc. These groups offer a support system for all students, helping them to feel a sense of community. Student retention in the classroom is boosted by base groups. Small groups where "everyone knows my name: encourage students to participate, take responsibility for their own learning, and clarify misconceptions in an environment that is safe. Base groups assist instructors by enabling them to utilize peer instruction, especially for students that have missed classes. Most instructors keep folders for each student by placing handouts, assignments and class notes in student folders. Someone then distributes them in the base group to each of their members, when they return – without consulting the instructor. Many classroom activities such as homework review are better suited to base group work. Students who would be intimidated by asking questions of an instructor are comfortable among peers. It has been noted that students often can understand a concept coming from peer instruction more easily than from an instructor who may not be able to reduce the explanation to its simplest terms.

Students can be placed in base groups through random selection or teacher assignment as previously explained.

One activity that could be done by the base group is a Do/Don't list similar to the one shown on page 24 of this module. Students could prepare the Do/Don't list individually as a homework assignment and then discuss it within their base groups.

Self-Check Activity #5

Checking for Recall

Upon reading the following statements, if true, mark with a T. If false, mark with an F.

TRUE/FALSE

1. _____Base groups are for short-term informal projects.

2. _____Base groups are an excellent way to involve students in discussing study questions, homework problems, etc.

3. _____Base groups can offer support to group members in both their academic and personal life.

4. _____Base groups are a big boost for instructors in distributing missed assignments.

5. _____Assignments to base groups must be done by instructors, not through random selections.

Answers to Self-Check Activity #5

1. False-base groups are long-term groups
2. True
3. True
4. True
5. False-Selection for base groups can be done randomly

DO/DON'T LIST

In order to check your understanding of cooperative learning, indicate if the following traits adhere or do not adhere to cooperative learning characteristics:

	DO	DON'T
1. Face-to-face promotive interaction	_____	_____
2. Homogeneous grouping	_____	_____
3. Positive interdependence	_____	_____
4. Free riding	_____	_____
5. Individual accountability	_____	_____
6. Group size of 5 or 6	_____	_____
7. Assigned roles	_____	_____

ANSWERS TO DO/DON'T LIST

1. Do
2. Don't
3. Do
4. Don't
5. Do
6. Don't
7. Do

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