Cooperative Learning for 4-H[1]

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Inexperienced instructors tend to lecture to youth rather than let them figure things out first-hand. A simple way to facilitate discovery is to encourage youth to work together through cooperative learning (CL). In the framework of CL, learners work together to meet a shared goal with a leader guiding them to encourage group interactions. Learning a new instruction model may be daunting initially, but the effort to learn CL is usually worth it. Cooperative learning can lead to greater youth achievement, engagement, and satisfaction. This method is often the most effective way to teach about topics the leader is unfamiliar with because youth do the bulk of the work. Once time is invested to teach basic interpersonal skills, educators will likely find instruction easier as youth begin to look first to peers for help to overcome challenges, and as group conflict decreases due to improved attitudes toward team members. The EDIS document, *Using Cooperative Learning in Formal and Nonformal Education* (https://edis.ifas.ufl.edu/wc062), provides an excellent overview of CL. This current document provides additional teaching techniques and applies CL to natural resources and environmental literacy in the context of 4-H.

4-H aims to help youth develop the life skills that will prepare them to become productive and successful adults in today's increasingly complex and interconnected world. Youth development leaders are encouraged to focus on skills within the four categories:

1. Head (thinking/managing)

2. Heart (relating/caring)

3. Hands (giving/working)

4. Health (living/being).

Cooperative learning aligns well with many of these life skills; see Box 1. It occurs when individuals are dependent on one another to achieve individual or group education goals. This could be as simple as sharing a computer to research local fishing regulations or as complex as a yearlong group project to create a community garden.

Overview of Learning Structures

Leaders can set up youth education programs with three types of interactions between learners: Neutral, Negative, or Positive. These interactions are also called learner interdependence. Which type of learner interdependence is used for education determines how the ability of any one youth is changed by another youth. For example, a common form of negative learner interdependence is competition for one first place ribbon. Only one youth can achieve this goal and his/her chance of receiving a first place ribbon is increased by the poor performance of peers. In contrast,

with positive learner interdependence, the successful performance of one youth must depend on the successful performance of his/her peers. For example, a 4-H group establishing a successful community garden would take the hard work of all members, and all would share in the benefits. The following describes the basic ideas of the three types of learner interdependence:

- Neutral—Individualism. *How well can I do?* (Ex: crossword puzzle)

- Negative—Competition. *The more you gain the less there is for me.* (Ex: chess)

- Positive—Cooperation. *We all sink or swim together.* (Ex: tug-of-war team)

These three types of learner interdependence each have their own advantages and disadvantages and are appropriate in different scenarios (Johnson and Johnson 1987). While learners should be exposed to each type, here we focus on positive interdependence, also called cooperative learning (CL) as it provides many benefits for youth and instructors.

Key Point: In cooperative learning, individuals depend on each other to accomplish a shared goal

Personal Example in Environmental Education

Cooperative learning can be a valuable tool when discussing controversial topics because the learning is inherently student-focused instead of instructor-focused, avoiding many issues of instructor-imposed biases (Johnson and Johnson 1979). Jessica learned this from experience when she was running an informal environmental education program in the Caribbean and wanted to discuss a controversial proposal to build a cruise ship dock with a group of high-school students. Environmental groups had organized public campaigns against the proposed dock based on claims that construction would destroy valuable coral reef habitat and coastal mangroves. On the other hand, many prominent politicians and business owners supported the proposed dock because it was expected to bring more tourists to the island and create jobs for local people. Jessica wanted students to discuss the topic because it was an important local issue, but she did not want to influence their opinion.

Jessica created a CL activity where the students were given several newspaper articles to read and then divided into groups of four students. Half the groups were assigned

to argue in support of the proposed dock and the other half to argue against it. The first group task was to assign individual roles based on the descriptions Jessica provided (Box 2). Each member was then responsible for a specific task to work toward supporting their assigned view. The group goal was to defend their arguments during a class debate facilitated by Jessica.

> ## Box 2. Group role descriptions.
> Each group member must choose a different role. Read each description and make sure you understand your responsibilities before beginning the activity.
>
> **Leader:** Ensures all tasks are completed, all members of the group participate, and group members cooperate. Asks instructor any questions the group has.
>
> **Recorder:** Collects materials, creates a poster board with main points to display during presentation.
>
> **Researcher:** Looks up information in the newspaper articles and checks any uncertain topics using the classroom computer.
>
> **Reporter:** Shares information with the entire class at the end of the activity.

Jessica was surprised at the level of student engagement and the amount of previous knowledge the students possessed about the issue. This particular group of students had been difficult to engage in the classroom, but providing a CL experience about a controversial topic that may have been difficult to cover in another format was a great success for both the students and the instructor!

Essential Components of Cooperative Learning

To effectively use CL, we recommend instructors follow these four steps:

1. Design Activities to Promote Positive Interdependence

In positive interdependence, the success of the group is dependent on each member performing competently. To be successful, group members must learn the material themselves and must also ensure the other group members learn it. Each group member must perceive that their performance is linked with the group in a way that makes it impossible to succeed without the others. Many 4-H activities are already designed to build group skills,

but if not, there are several ways to structure positive interdependence:

1. *Outcome interdependence*—The group members have shared goals and rewards such as one score for the entire group. For example, a team score in a 4-H contest enables each person to share the collective prize.

2. *Means interdependence*—The group members share resources such as a textbook or each one is assigned a specific role or task. For example, leader, recorder, researcher, materials manager, timekeeper, and presenter are typical roles individuals can fill (i.e., Box 2).

3. *Identity interdependence*—A shared motto or team name to create a mutual identity; 4-H clubs have names, mottos, and some have shirts and logos.

2. Create Individual Accountability/ Personal Responsibility

One major issue with group work can be that freeloaders, individuals who do not perform their share of work, still receive the benefits of being in the group. To avoid this issue, leaders should utilize these strategies to create individual accountability or personal responsibility for group members:

1. Create feelings of responsibility to perform for the group. These tend to be greater if the individual feels respected by the group or recognizes how other individuals depend on him or her for their success.

2. Provide assessment at both the group and individual level. This can be done by giving a score for an overall goal as well as an individual assessment on the material covered. Alternatively, one group member can be picked at random to perform a task skill or explain content knowledge.

Keep group size small. Smaller groups lead to greater feelings of individual accountability. The larger a group is, the greater the tendency for individuals to think their contribution is not important and other group members will not notice if they do not complete their responsibilities. (Tip: Keep groups small—3 to 5 students—to reduce "freeloading".) The strategy of "six bits" can be used to engage every participant in working toward a group goal. Simply divide the task into different "bits" of information and distribute each bit to one youth in each group so that each group has all the bits. Because everyone has a piece of the answer, everyone has to work together to solve the

puzzle. An example of this strategy can be found in the activity "The Changing Forest," which is part of What Is a Healthy Forest, a Florida supplement to the Project Learning Tree Guide, at What Is a Healthy Forest? A Supplement to Florida Project Learning Tree — ProForest (https://proforesthealth.org/extension/programs/forest-health-education/what-is-a-healthy-forest-a-supplement-to-florida-project-learning-tree/?searchterm =what%20 is%20a%20healthy%20forest).

3. Build Interpersonal and Small-Group Skills

Cooperative Learning is inherently more complex than competitive or individualistic learning because it requires learners to master content knowledge or task skills as well as teamwork and communication skills. These skills should be practiced before or separate from task skills to help youth focus on the separate goals. Specifically, leaders should ensure that youth:

- build familiarity with and trust for each other,

- accept and support each other,

- communicate accurately and unambiguously, and

- resolve conflicts constructively.

These skills can be built by maintaining long-term groups and receiving peer and/or leader feedback on teamwork performance separate from task work performance. For an example of an environmental education program that encompasses group work development, leaders can refer to the youth community service learning program, *Give Forests a Hand*, at CIR 1269/FR117: Give Forests a Hand Youth Action (https://edis.ifas.ufl.edu/publication/FR117).

Key Point: Invest time to build strong interpersonal skills through practice

4. Hone Skills through Group Processing and Reflection

While group work is occurring or once it is completed, provide opportunities for 4-H'ers to reflect on their groups' actions. Key elements of group reflection are:

1. Identify which actions were helpful and which were unhelpful.

2. Make decisions for future group work about what to continue or change.

3. Rate the group's goals: were they appropriate and achievable and was the group successful in meeting the goals?

4. Rate individual involvement.

A great way to conduct group processing while building interpersonal skills is to have youth discuss their experience in terms of their own and each other's performance in both task work and teamwork skills. Youth could then assess their own and team members' performances with a checklist provided by the leader (Box 3). Research indicates that giving feedback to the individual on how well they performed in targeted group skills is more effective at increasing achievement than group feedback (Archer-Kath et al. 1994), so it is important to evaluate at both the individual and group level. This would also provide for individual accountability if the leader incorporated these scores into the overall assessment. After this assessment, the leader should guide a discussion about how to improve future group work and take suggestions for items to add for future cooperative learning skills checklists.

Box 3. Cooperative learning skills.
The following are some suggested skills for youth to practice during cooperative learning. Leaders can ask youth to checkmark skills practiced during a group activity for themselves or another group member. The group member:

- Encourages teammates through positive feedback (smiling, looking at the speaker, telling someone when an idea is good)

- Listens without interrupting when others speak

- Does not lose focus on the task (stays with the group, looks at materials being studied)

- Does not use put-downs or personal insults

- Directs the team's work (examples: calling attention to time limits, reminding members of the purpose of the assignment, offering suggestions of how to reach goals)

- Seeks ideas from other group members

- Asks other group members to clarify an idea or provide justification for a conclusion

- Criticizes an idea without criticizing the person

- Extends another group member's idea by adding further information or conclusions

- Asks questions of other group members

Role of the Instructor in Cooperative Learning

An important difference between CL and other types of learning is that it is inherently learner-centered instead of instructor-directed. Therefore, the leader should be a "guide on the side," instead of a "sage on the stage." These six steps provide a guideline for the role a leader should play in formal CL:

- Specify objectives for the lesson.
- Make pre-instructional decisions about structure of learning groups.
- Explain the task and goal structure to learners.
- Set cooperative lessons in motion.
- Monitor the effectiveness of learning groups and intervene as necessary.
- Evaluate youth's learning and help group processing occur.

Try to follow these steps when first using CL to ensure that activities are successfully accomplished.
Advantages of Using Cooperative Learning

A large body of research has revealed several desirable outcomes for student performance, skills, and attitudes from cooperative learning. Johnson and Johnson (1989) performed a meta-analysis with 875 research studies that indicated that cooperative outperformed competitive and individualistic instruction methods in the following areas of student assessment: achievement, interpersonal attraction (positive feelings toward group members), social support, self-esteem, time on task, attitudes toward the task, quality of reasoning, and perspective taking. Many of these areas are also important for obtaining the goals of 4-H youth development. For example, quality of reasoning is an important trait for youth to possess so that they are able to contribute to new solutions for complex environmental issues. Climate change, for example, is one of the most challenging issues that face us. The educational unit Southeastern Forests and Climate Change offers 14 engaging activities to help learners gain cooperative and critical thinking skills about this topic. Resources can be downloaded at https://www.plt.org/?s=southeastern+forests+climate+change.

Furthermore, CL has been shown to increase positive feelings between diverse individuals more effectively than individualistic or competitive learning. A meta-analysis of 98 studies revealed that in comparison with individualistic and competitive learning, CL promoted greater positive feelings between ethnically diverse individuals as well as between disabled and non-disabled individuals (Johnson et al. 1983). This indicates that by incorporating CL activities, we can promote positive attitudes between youth from diverse backgrounds, achieving the 4-H life skill of accepting differences. Additionally, youth experienced with group work will be more likely to engage in collective action and succeed in the 4-H life skills area "hands" to give and work as part of a team.

4-H clubs and projects represent an ideal opportunity for leaders to use cooperative learning strategies to help youth gain skills. Whether teams of 4-H youth are working toward a contest, tackling a project book challenge, or completing a service learning activity, careful leader guidance can help them learn about the content and build interpersonal skills that will last a lifetime.

For further information, please reference Johnson and Johnson's book The New Circles of Learning: Cooperation in the Classroom and at School (1994), on which the framework in the document is modeled.

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