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active learning



SUPPORTIVE ENVIRONMENT





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The David P. Weikart Center for Youth Program Quality,

a division of the Forum for Youth Investment, is dedicated to empowering education and human service leaders to adapt, implement, and scale best-in-class, research-validated quality improvement systems to advance child and youth development. The Weikart Center encourages managers to prioritize program quality. We offer training, technical assistance, and research services that all come together in the Youth Program Quality Intervention, a comprehensive system for improving the quality of youth programs.

Bringing together over fifty years of experience and the latest research,

the Youth Work Methods are proven strategies for working with youth. Whether you believe that the purpose of an out-of-school time program is to improve academics, to build life skills, or just to provide a place where kids can hang out and be kids, the approach presented in the Youth Work Methods series provides a foundation for building safe and productive places for youth.

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active learning

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Acknowledgments

The youth development approach described in these pages was originally developed and tested at the HighScope Summer Workshop for Teens (founded in 1963), later called the Institute for IDEAS. In the late 1990s, HighScope's Youth Development Group took the learning approach developed at the Institute for IDEAS and delivered training for youth workers. These workshops, grounded in HighScope's direct experience, were extended by the David P. Weikart Center for Youth Program Quality through research in positive youth development and evolved into what is currently our Youth Work Methods series.

The current training framework rests on a foundation developed by many, including David P. Weikart, Nicole Yohalem, John Weiss, Becky Prior, Kiku Johnson, Aaron Wilson-Ahlstrom, Laenne Thompson, Tom Akiva, Alicia Wilson-Ahlstrom, David Martineau, Linda Horne, Mary Hohmann, Charles Hohmann, Charles Smith, Monica Jones, and many others.

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overview

What is Active Learning?

Active learning occurs when young people actively process, rather than passively receive information. Adults can promote active learning by providing content that is challenging, meaningful, and focused on skill-building, and by providing strong support for youth as they learn.

Why is Active Learning important?

It's common sense that active learning works but research supports this as well. Studies on how the brain works have demonstrated that when all five senses are engaged, people are better able to learn. Learning comes with engagement and engagement comes when youth can conduct, participate, and create (see *The Research* on page 36).

Hands-on activities can be a great way to both motivate participation and to stimulate learning. That said, it's important to remember that active learning is not the same as hands-on learning. The key to active learning is getting the mental juices flowing. That is, it's about engaging the mind.

Plus, hands-on activities alone are not enough; strong adult support is also critical. This means adults work alongside youth, asking questions, assessing challenge levels, and encouraging youth to go beyond the surface and take their learning further.

The Method

The Active Learning Method is divided into two categories with the following six strategies. The pages that follow provide details on each of these strategies.

Great Content

- Provide stimulating activities
- Provide appropriate challenge

Strong Adult Support

- Engineer success and allow for mistakes
- Ask lots of questions
- Participate alongside youth
- Promote learning connections



active learning:
the method





Thinking through Age and Content

The previous page provides lots of guidance about how to think about active learning for children, youth, and across the various content areas you may provide in your youth program. Use this sheet to work out how you might offer particular active learning experiences to youth of different ages. Don't forget the strategies!

Below, write the age group you frequently work with and choose a content area to focus on.

Age Group:

Content Area:

Create a short lesson idea based on the age group and content area chosen above. How might this activity look different for a different age group?

If working with a partner, share your response and ask for feedback. Record new ideas below.

Using the Guidebook

These short activities could fit into a staff meeting or planning time. Alternatively, combine several of these activities to create a mini-workshop on Active Learning.

The Method (pages 2-8) 10-15 minutes

Discuss with staff the big ideas youth are exposed to in and outside of school. Then brainstorm ways to provide concrete experiences to support those big ideas. For example, someone might mention climate change as a big idea. A concrete experience could be to chart the weather patterns and speak with a meteorologist to analyze the results.

Alternatively, guide staff to think about some concrete experiences youth have every day. Then discuss how staff can help youth connect the concrete experiences to the big ideas that explain them. For example, youth listen to the radio every day and sing along to their favorite songs. Maybe staff suggest a music class where youth can learn to read and write musical notes.

Guided Discovery (pages 10-11) 30-45 minutes

Demonstrate each of the three types of instructional styles by having groups of staff rotate through three stations. Some suggested activities:

1. Direct Instruction: give staff an article on a highly scientific subject and ask them to quietly read it to themselves.
2. Pure Discovery: give staff some square sheets of paper and an already-folded origami figure. Have them mimic the folds without assistance.
3. Guided Discovery: work side-by-side to help staff learn to tie a friendship bracelet from embroidery thread.

After staff experience these stations, have a discussion: How did each experience feel? Where did learning occur? How might different kids experience these different teaching styles?

Scaffolding (pages 12-13) 20-30 minutes

Have staff help each other think about how to scaffold activities for the youth they work with. Working in groups of three, have each staff member divide a sheet of paper into four quadrants. In the first quadrant, they can describe an activity they plan to lead. Then the papers are passed clockwise around the circle. The next person reads the description on the page, and then fills in the second quadrant with information about the youth in reference to that activity (e.g., youth interests, abilities, etc.). Then the papers are passed again clockwise around the circle. In the third quadrant, staff record their ideas for how to scaffold the activity for those youth. Once everyone has contributed ideas, the papers are passed back to the original author. Each staff member reads the input from their peers, and asks any questions they have. They can record notes in the fourth quadrant.

Across Age Groups and Across Content Areas (pages 16-17, 24-25) 10-15 minutes

Write a different content area (e.g., art, math, literature, sports, etc.) at the top of large sheets of paper. Have staff rotate to each of the sheets and brainstorm active learning activities that could work for different age groups. After all the ideas are posted, have staff do a gallery walk to gather ideas from the posted sheets.

You might also partner with school-day staff to present to afterschool staff what major content topics are a focus for them, or what typical developmental patterns they see among youth in a particular age band.



Looking for Active Learning (page 23) 1-2 hours

Staff could arrange to observe each other in action, and use the handout on page 23 to record elements of active learning that they observe. After the observation, staff could meet to review the observation notes and to reflect on instruction. Staff may wish to first participate the Quality Coaching workshop to develop skills in this area.

Lesson Plan (page 26) 15-20 minutes

Encourage staff to consider the strategies for active learning as they're planning their activities. If they plan for and prepare to use the strategies before the session, they may be more likely to employ them!

The Research (pages 36-41) 20-30 minutes

Have staff read the Research Review before coming to the meeting. Begin the session by having staff underline two sentences in the text that stand out as important or intriguing. Have staff form group of no larger than 4. Have one person in each group begin by reading the statement that they underlined, without going into why they underlined it. The person to the left then shares their thoughts on the quote the leader read aloud. The next person shares their thoughts on that same quote, and so on until it gets back to the leader. Then the leader has the "last word" to share their thoughts. Then the leadership shifts to the next person. Debrief with the large group once all of the small groups have completed the exercise.

Active Learning: The Research

This section presents a review of research related to the active learning method.

The idea of active learning has been around at least since Socrates and arguably was the way first humans learned (Lorenzen, 2001). An educational buzzword in the 1980s, the phrase has been championed by some (Bonwell & Eison, 1991), dismissed by others (Kirschner, Sweller, & Clark, 2006), and used as an umbrella term for a variety of educational practices (Prince, 2004). This document discusses various definitions of active learning by practitioners and researchers, reviews theoretical and empirical research related to active learning, and presents the definition of support for active learning used for the Youth PQA and Youth Work Methods training series.

Note that while most of the research reviewed is from studies of classrooms, some important differences distinguish out-of-school time (OST) contexts. Most studies presented here use educational achievement as their primary outcome and this is often not the primary goal of OST activities. In addition, OST programs often have more voluntary attendance than school classrooms, so youth enjoyment and motivation may take on a heightened salience. Nevertheless, the majority of research done on active learning has occurred in education and we believe this research has much to offer the OST field.

Multiple Definitions

Most definitions of active learning (see figure above) involve some variation of “doing” rather than “just listening”; for example, the National Research Council (2004) describes this idea as follows: Over the long term [students] are more likely to engage when they are asked to conduct rather than read about experiments; to participate in debate and role playing rather than listen to a lecture; or to create a model and complete projects rather than answer questions about how a process works.

Figure 1. Definitions of Active Learning



One researcher, subscribing to the “doing” definition, argues that learning contexts should be set up for the “having of wonderful ideas” (Duckworth, 2007). A common simple version of the doing definition is “Children’s active involvement with materials, experiences, and social relationships” (Falk, 2009, p. 3).

But some definitions of active learning also include choice: “help[ing] people take control of their own learning” (Bransford, Brown, & Cocking, 1999, p. 12). Some definitions include metacognition: “students must engage in such higher-order thinking tasks as analysis, synthesis, and evaluation... strategies promoting active learning [should] be defined as instructional activities involving students in doing things and thinking about what they are doing” (Bonwell & Eison, 1991). Still others argue that cooperative strategies are part of active learning (Falk, 2009), or that active learning is a term to describe how some learners prefer active experimentation over other learning experiences (Kolb, Boyatzis, & Mainemelis, 2001). Finally, yet another different definition is as follows: “experiencing the world in new ways, forming new affiliations, and preparation for future learning” (Gee, 2007).

Active learning as a pedagogical style goes hand in hand with content. Several argue that active learning content should be interesting or relevant for students (Davidson, 1999; Falk, 2009), and should be at a high but achievable challenge level (National Research Council and the Institute of Medicine, 2004). In addition, implicit in many definitions of active learning is the element of intentionally designed learning environments. That is, active learning does not primarily refer just to exploration, but to leaders intentionally creating an environment in which learners can explore purposefully and with guidance.

How People Learn

A comprehensive review of learning theories from developmental science is beyond the scope of this review. However, before addressing the research on active learning, we will discuss several notable theoretical frameworks about how learning occurs.

Piaget argued that learning occurs through a process he called equilibration. Piaget described the conflict that occurs when new information is encountered and must be assimilated into existing ways of thinking, or ways of thinking must be accommodated to include the new information (Piaget, 1954). This conflict produces disequilibrium, and a person is motivated by a desire to return to equilibrium. So, a Piagetian child is an active learner, motivated by the desire to have an accurate internal representation of the world. In addition, Piaget's well-known stage model presents development as a progression through stages, toward increasing abstraction.

Vygotsky's concept of learning was similar to Piaget's except that his theory more broadly included interaction, culture, and language. A child in Vygotsky's framework is interacting with adults and peers, motivated to become an adult member of the culture. This child may experience conflict between ways of thinking (like Piaget), between child and environment, between nature and nurture, etc. (Miller, 2001). The child would then seek synthesis of conflicting elements, through interaction. Vygotsky coined the term 'zone of proximal development' zone

of proximal development as "the distance between what a child can do independently, and what the child can do in interaction with an adult or a more advanced peer" (Siegler & Alibali, 2005). Learning and developmental change occur in the zone of proximal development. Adults can provide scaffolding to help children perform at a higher level than they could alone (Rogoff, 1993). Vygotsky's perspective is useful for active learning, particularly for the lens it provides for group learning experiences and the challenge level of content that is appropriate.

Fischer (1980) presented a model that integrates the constructivism of Piaget, the culturally embedded reality described by Vygotsky, and a dynamic mechanism for learning. Fischer described the development of skills as a hierarchical process in which simpler skills build into more complex systems through connections. He separated the progression of skills into tiers, beginning with a sensory-motor tier in which the child acts on and perceives things or events in the world. In the second tier, the child creates representational sets, designating concrete characteristics of specific objects, events, or people. In the third tier, the child creates abstract sets, which are general, intangible attributes of broad categories of objects, events, or people. Fischer theorized that beyond the abstract tier, another tier will develop from combinations of abstractions, and so forth into adulthood. Movement from one tier to the next occurs when the child makes connections between the objects and ideas with which they interact, through what Fischer calls transformations. Adults can encourage transformations by providing opportunities for youth to actively put together or take apart the actions and ideas that make up skills, and through scaffolding – social support that goes beyond prompting or modeling to actual co-participation in a task (Fischer & Bidell, 2006).

The classic developmental learning theories of Piaget, Vygotsky, and Fisher all promote the idea that learners are actively engaged in the learning process. These are compatible theories that emphasize different aspects of learning. In addition, all three present learning as a process of developing

increasingly complex or abstract understandings of the world—though with different motivations and through different mechanisms. The idea of scaffolding as a key support for learning derives directly from Vygotsky’s theory and is explicitly described in Fisher’s model. The importance of experiences that challenge and push a child to refine their current understanding of the world is present in all three models.

Research on Active Learning

In 1999, the National Research Council (NRC) produced *How people learn* (Bransford et al., 1999), an easy-to-read synthesis of what is known about brain science, cognitive development and learning design. The NRC had three recommendations for teaching: (1) teachers must work with student’s preexisting understandings; (2) teach in depth with facts, concepts, organized knowledge; (3) integrate metacognitive skills. The authors mention active learning several times throughout this document, in the context of these three recommendations.

Several studies have been conducted in which an active learning approach to teaching goes head-to-head with other approaches. The simplicity of these studies is compelling because all one has to do is compare some measure of learning at the end and see if the students in the active learning treatment learned more. But the definitional ambiguity described above affects the interpretation of these findings. In a seminal article, Mayer (2004) provides the useful image replicated in figure 2. He argues that learning is not confined to cell <d>, where learners are both physically and mentally engaged; but can also occur in cell . In other words, active learning happens in the learners’ head and it may or may not include hands-on involvement.

Mayer (2004) argues that there is ample evidence that discovery teaching methods—i.e., presenting learners with tasks or challenges with little or no guidance—are not effective. He presents several empirical examples from the 1950s through the 1980s in which students are given learning tasks, typically in three conditions: pure discovery, guided discovery, and expository techniques. In every case, students learn

the most in the guided discovery condition and the least in the pure discovery contexts. So the guided discovery techniques Mayer supports should be part of a useful active learning approach.

		Cognitive activity	
		Low	High
Behavioral activity	Low	<a>	
	High	<c>	<d>

Figure 2. Dimensions of active learning from Mayer (2004)

In agreement about the problems of pure discovery methods, Schwartz and Bransford (1998) suggest that there is “a time for telling”, in which directly transmitting information to students is the most appropriate action. They present three studies in which students who analyze contrasting cases before hearing lectures do better on prediction tasks than students in other conditions (e.g., summary + lecture, contrasting cases only, summarizing a chapter). They argue that “telling” is effective and appropriate when students have developed adequate prior knowledge—and that we cannot expect students to discover every concept.

In a meta-analysis of 395 experimental studies of instructional practices and their associations with student achievement, Marzano (1998, 2003) lists ‘active student engagement’ as one of two macrostrategies or key guiding principles for instruction (For summary, see Edvantia, 2005). Marzano presents the following specific microstrategies related to active learning: identifying similarities and differences; summarizing and note taking; cooperative learning; generating and testing hypotheses; and activating prior knowledge via questions, cues, advance organizers. Note that these practices are not necessarily in line with simple ‘doing’ definitions of active learning, but are in line with definitions that emphasize cognitive active learning that student can engage in.

Active Learning and the Active-Participatory Approach

Youth and adults learn best through hands-on experiences with people, materials, events, and ideas. The experiential learning model — validated by decades of research and rooted in our early work as part of the HighScope Educational Research Foundation — is the basis of our approach to teaching and learning.

Active Learning and Other Youth Work Methods

Active Learning is complemented by other strategies. Following are examples of how other Youth Work Methods reinforce Active Learning.

The **Ask-Listen-Encourage (A-L-E)** Method includes strategies for promoting positive adult-youth interaction—strategies that promote the active learning ingredient of adult support. While explored more fully in the A-L-E course, asking questions is also listed as a component of active learning. Questioning can be a powerful strategy for getting youth to actively think about the things they are learning. The A-L-E method also includes strategies for actively listening to youth, and providing encouragement to further support their motivation and learning.

Engaging youth in **Cooperative Learning** groups can contribute to young people’s comfort in participating in the new and challenging experiences promoted in Active Learning and can support their motivation and ability to cognitively process what is happening.

Planning and Reflection can be thought of as advanced active learning. Adding the elements of youth planning and reflection can take an active learning project to new heights of engagement and learning. As described in the Planning and Reflection course, active learning experiences become one component in a powerful learning cycle.

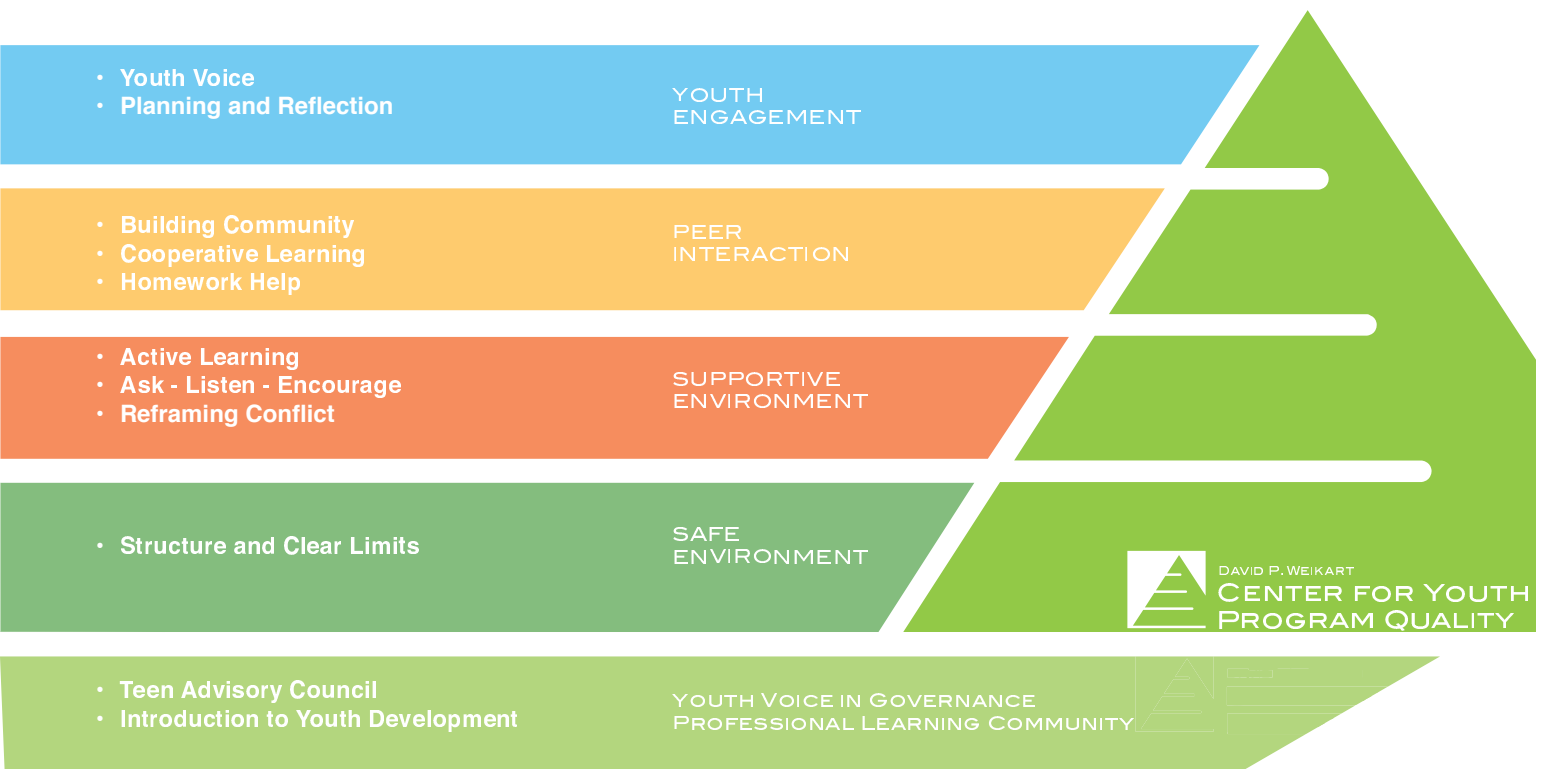
The **Voice and Choice** method promotes youth autonomy and responsibility. Voice and choice can increase motivation, ownership, and engagement in active learning projects.



To learn more about the history of the Active Participatory Approach, visit www.highscope.org.

The Youth Work Methods Series

The Youth Work Methods are powerful strategies for working with young people, based on positive youth development. The Methods are a key part of the Youth Program Quality Intervention (YPQI), a comprehensive system for integrating assessment and training. Each Method is linked to assessment items and designed to help youth workers improve the areas they choose to focus on.



To learn more about these and other Weikart Center workshops, please visit www.cypq.org.