*<http://ablconnect.harvard.edu/pair-and-share-research>*

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Pair and Share

A typical technique to foster collaborative learning, “pair and share” can take various forms in classrooms. The most commonly practiced and studied is *Think-Pair-Share*, developed by Frank Lyman of the University of Maryland (Lyman, 1981), where students take approximately a minute to think through a response to a question (Think) proposed by the instructor—often one “demanding analysis, evaluation, or synthesis”—before turning to partners for discussion (Pair) and subsequently sharing “with a learning team, with a larger group, or with an entire class during a follow-up discussion” (Share) (Millis, 1990). In the third step, the instructor may ask selected pairs to share their respective positions and how or why they disagree, or request a joint response from a pair based on each other’s ideas (Barkley, Cross & Major, 2014).

 A number of variations have evolved from the original Think-Pair-Share technique. Gerrard, Collette and Elowson (2005) summarized the variations of *Write-Pair-Share* (where students are first asked to reflect individually and jot down ideas), *Think-Pair-Square* (where, instead of a whole-class discussion, two pairs of participants work together to share and compare the responses), *Turn-to-your-neighbor discussions* (where participants brainstorm with a neighbor and are called on for answers, followed by a show of hands by the class to show agreement with the answer), and *Pair-and-Compare* (where students compare notes in pairs, add or correct information). At the end of the exercise, the students’ answers are commented on by the instructor, although the instructor may choose to skip this step if necessary (“Basic Active Learning Strategies”, n.d.).

Pair and share techniques are often combined with peer instruction to foster collaborative learning (Rao & DiCarlo, 2000; Cortright, Collins, and DiCarlo, 2005; Turpen & Finkelstein, 2009). Documented and studied uses of the technique in undergraduate studies have been found in medicine (Rao & DiCarlo, 2000), biology (McClanahan & McClanahan, 2002), genetics (Smith et al., 2009), exercise physiology (Cortright, Collins & DiCarlo, 2005), economics (Maier & Keenan, 1994), physics (Crouch & Mazur, 2001), mathematics (Sampsel, 2013), and anthropology (Barkley, Cross & Major, 2014).

 Pair and share is a simple and quick technique to help warm up the class (Barkley, Cross & Major, 2014). It is an easily acceptable form of discussion as it allows students to “rehearse in a low-risk situation” (Barkley, Cross & Major, 2014), clarifying their answers “through a non-threatening discussion with a fellow classmate before communicating in front of a group” (Millis, 1990). This helps improve the quality of discussion, and increases students’ willingness and readiness to speak up (Barkley, Cross & Major, 2014).

By reflecting and sharing in pairs, students get a chance to hear the knowledge restated from peers, rather than the instructors (Gray & Madson 2007). This enables students to interact more with each other even in a large classroom (Rao & DiCarlo, 2000); 50% of the students can vocalize their ideas simultaneously, which is impossible in lecturer-led classrooms (Gerrard, Collette & Elowson, 2005). Active discussion helps students learn more effectively with more independent thinking (Crouch & Mazur, 2001), thus potentially increasing students’ attention span and appealing to a greater number of learners (Rao & DiCarlo, 2000).

Students’ better involvement in class, induced by this technique, has potentially positive effects on learning outcomes. Research has shown that peer discussion enhances understanding even when none of the students in a discussion group originally knows the correct answer (Smith et al., 2009). The technique has been found to help increase students’ participation, generate more long explanations to questions, while instilling more confidence and comfort in students when contributing to class discussion (Sampsel, 2013).

Research on the long-term effects of pair and share techniques showed that it enhanced students’ ability to solve problems, including new types of problems (Cortright, Collins, and DiCarlo, 2005). By engaging in active and analytical discussions, students can have increased mastery of both conceptual reasoning and quantitative problem solving skills (Crouch & Mazur, 2001).

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**Further Resources:**

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