High-Impact Practice (HIP): Collaborative Assignments and Projects

Definition of Collaborative Assignments and Projects

The National Institute for Science Education aptly states that "Collaborative learning is an educational approach to teaching and learning that involves groups of students working together to solve a problem, complete a task, or create a product" (NISE, 1997). The AAC&U elaborates this definition slightly, stating "Collaborative learning combines two key goals: learning to work and solve problems in the company of others and sharpening one's own understanding by listening seriously to the insights of others, especially those with different backgrounds and life experiences. Approaches range from study groups within a course, to team-based assignments and writing, to cooperative projects and research." (2026). Together, students engage with course concepts while interacting with peers and being exposed to diverse viewpoints.

The theory supporting collaborative learning combines elements of behaviorism and sociocultural learning to leverage how people learn (St. Clair, 2015). Vygotsky's work suggests learning "cannot be separated from a social context." Therefore, collaborative assignments and projects should involve learning activities that utilize a "distribution of expert knowledge where students collaboratively work together to conduct research, share their results, and perform or produce a final project" (Neff, 2016). A few of the opportunities created for student learning when they participate in collaborative assignments or projects include engaging in subject specific discussions with peers, developing effective teamwork and communication skills, assimilating multiple viewpoints, and mitigating learner isolation (Curtin University, 2015). Approaches range from study groups within a course to team-based assignments and writing, cooperative projects, and formal collaborative research. Barkley, Howell Major, and Cross (2014), and Barkey (2010) outline the process to implement many specific examples of these approaches.

Characteristics of a HIP Collaborative Assignments and Projects

1. Performance expectations set at appropriately high levels
    - Collaborative work requires analysis, evaluation, and creation rather than simple division of tasks. Assignments include open-ended elements that encourage decision-making, shared responsibility, and multiple approaches to demonstrating competence (Hintze-Yates et al., 2011).

- Students may:
  - ❑ contribute to shared problem solving
  - ❑ shape approaches to completing assignments
  - ❑ participate in establishing expectations for team performance
  - ❑ refine work through iterative peer and instructor feedback

2. Significant investment of time and effort over an extended period
   - Collaborative assignments and projects involve sustained engagement spanning preparation, interaction, revision, and presentation phases of learning. Time is needed for teams to develop their shared capability. Different teams will progress at different rates through Tuckman's stages of forming, storming, and norming before they move into performing at a high level (Mellon et al., 2024). At whatever rate a team progresses, the outcomes of extended collaboration include strengthened conceptual understanding and supports development of coordination, planning, and communication skills (Johnson et al., 2014).
3. Interaction with faculty and peers about substantive matters
   - Peer-to-peer interaction is central to collaborative learning. Students negotiate meaning, compare reasoning, evaluate alternative approaches, and make shared decisions about disciplinary problems.
   - Faculty support this interaction by:
     - ❑ designing tasks that require interdependence
     - ❑ monitoring group learning processes
     - ❑ facilitating dialogue around course concepts
     - ❑ intervening constructively when needed
   - These interactions shift responsibility for learning toward students while maintaining instructor guidance (Barkley, 2010).
4. Experiences with diversity
   - Collaborative assignments expose students to diverse perspectives through structured interaction with peers who bring different experiences, preparation levels, disciplinary strengths, and approaches to problem solving.
   - Exposure to diverse viewpoints strengthens reasoning, supports intercultural competence, and improves students' ability to evaluate competing interpretations (Kuh, 2008).
5. Frequent, timely, and constructive feedback
   - Collaborative learning environments operate most effective when they contain multiple sources of feedback from instructors and peers throughout the assignment or project.
   - Structured feedback improves:
     - ❑ individual contributions
     - ❑ team effectiveness
     - ❑ disciplinary understanding
     - ❑ collaborative skill development

- Tools such as peer evaluation systems and behaviorally anchored rating scales (e.g., CATME) support monitoring of team processes and contributions (Ohland et al., 2012).

6. Periodic, structured opportunities to reflect and integrate learning
    - Reflection helps students understand both what they learned and how collaboration influenced their learning process.
    - Reflection activities may include:
        - formative peer feedback and/or peer evaluations
        - reflections on team process
        - structured team debriefs
        - learning journals
        - connections between collaborative work and course outcomes
    - These activities strengthen metacognitive awareness and support development of collaborative dispositions (Johnson et al., 2014).
7. Opportunities to discover relevance of learning through application
    - The most relevant collaborative assignments require students to apply course knowledge to meaningful disciplinary problems in authentic contexts.
    - Students may:
        - analyze complex scenarios
        - evaluate competing interpretations
        - synthesize information across sources
        - produce shared recommendations or solutions
    - Application-oriented collaboration promotes deeper learning and supports transfer of knowledge to new contexts (Kuh & O'Donnell, 2013).
8. Public demonstration of competence
    - Collaborative assignments typically culminate in a shared product that demonstrates learning. These products should be presented to an audience that extends beyond the collaborative team and the instructor.
    - Examples include:
        - reports
        - presentations
        - research papers
        - posters
        - performances
        - design solutions
        - portfolios
    - Sharing collaborative work with classmates or broader audiences reinforces accountability and supports development of professional communication skills (Kuh & O'Donnell, 2013).

Documented Impacts of Collaborative Assignments and Projects

Research on cooperative and collaborative learning consistently demonstrates that structured group learning environments improve academic achievement, persistence, interpersonal development, and higher-order thinking compared to individualistic learning environments (Johnson et al., 2014).

Collaborative assignments and projects have been shown to:

- increase academic achievement and conceptual understanding
- improve critical thinking and problem-solving ability
- strengthen communication and teamwork skills
- increase engagement with course material
- support persistence in challenging courses
- improve students' ability to consider multiple perspectives
- reduce learner isolation
- strengthen preparation for professional practice (Kuh, 2008; Johnson et al., 2014)

Collaborative learning environments support the development of teamwork, communication, leadership, and conflict-management skills (Johnson et al., 2014) while also improving achievement, persistence, and attitudes about learning (Springer et al. 1999).

Design Principles that Support Effective Collaborative Learning

Research on cooperative learning identifies five conditions that strengthen the effectiveness of collaborative assignments and projects. These conditions align closely with the core elements of high-impact educational experiences by strengthening engagement, feedback, interaction, and reflection.

- Positive interdependence - students rely on one another's contributions to succeed. Together, they fail or succeed
- Individual accountability – each student is responsible for meaningful contributions as they participate in the learning process
- Promotive interaction - students actively support each other's reasoning through explanation, questioning, and feedback
- Development of social skills - students practice communication, coordination, and conflict management
- Group processing - teams reflect on how effectively they worked together and how to improve

Checklist to Collaborative Assignments and Projects HIP

Planning

- ❑ Align collaborative activities with course learning objectives, including objectives related to collaborative learning skills
- ❑ Select tasks requiring shared reasoning, interpretation, and decision-making
- ❑ Determine appropriate team size and duration for the assignment or project
- ❑ Design assignments that promote interdependence among students rather than division of tasks
- ❑ Provide opportunities for students to take ownership of aspects of the assignment or collaborative process
- ❑ Clarify expectations for participation, collaboration, and individual accountability
- ❑ Design assignments that engage multiple domains of student learning (cognitive, social, affective, and practical)

Forming Teams

- ❑ Assign teams, rather than having student form the teams, for longer-term projects
- ❑ Balance skills, preparation levels, experiences, and perspectives across teams
- ❑ Consider using tools to optimize team composition such as CATME Team-Maker
- ❑ Introduce team roles where appropriate
- ❑ Provide opportunities for teams to establish norms and expectations (e.g., team charters)

Implementing Collaborative Activities

- ❑ Select meaningful, discipline-relevant problems or tasks
- ❑ Require teams to make decisions rather than divide work into independent parts
- ❑ Provide opportunities for teams to share ideas publicly within and across groups
- ❑ Use simultaneous reporting or course wide discussion when appropriate
- ❑ Provide guidance on effective teamwork strategies
- ❑ Support students in taking increasing responsibility for managing their collaborative learning processes
- ❑ Require teams to produce a shared product demonstrating collaborative learning

Facilitating Collaborative Learning

- ❑ Establish shared expectations for teamwork
- ❑ Shift responsibility for learning to students
- ❑ Monitor team interactions and progress

- ❑ Intervene on learning processes rather than content
- ❑ Support documentation of team learning
- ❑ Provide formative feedback to individuals and teams during the assignment
- ❑ Bring closure to activities through synthesis and structured reflection
- ❑ Use ongoing formative assessment to guide instructional adjustments during the learning process

Assessing Collaborative Work

- ❑ Align assessment of collaborative learning to learning objectives identified in the syllabus and within the assignment or project
- ❑ Evaluate both individual contributions and group outcomes
- ❑ Provide space for peer feedback of team contributions (See CETL guidance on designing peer review processes for collaborative work.)
- ❑ Have students self-assess, both individually and in teams
- ❑ Provide observational feedback to strengthen teamwork processes
- ❑ Include individual accountability measures within team assignments
- ❑ Have students reflect on connections between their collaborative experience and disciplinary learning, personal goals, or professional goals

Resources

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