# From Classroom to Career: Enhancing Vocational Education through Collaborative and Active learning

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## Abstract

*This study examines the potential of combining Collaborative Learning (CL) and Active Learning (AL) to enhance vocational students' academic performance and self-motivation. CL fosters teamwork, social interaction, and shared responsibility, cultivating communication, critical thinking, and problem-solving skills essential for modern workplaces. AL promotes autonomy, critical thinking, and deep understanding, transforming students into self-directed learners. Although CAL offers theoretical advantages, its implementation in vocational education faces challenges, including resource limitations and teacher resistance. Limited funding restricts access to resources, and some educators' adherence to traditional pedagogies delays CAL adoption. This study highlights the importance of increased funding, expanded teacher training, modern technology integration, and assessment reform in overcoming these obstacles. By addressing these barriers, CAL can equip vocational education students with the skills and knowledge for lifelong learning and career success.*

**Keywords:** active learning (al), collaborative learning (cl), instructional approach, student motivation, vocational education

# Introduction

The concept of collaborative learning (CL) has recently gained significant attention as an instructional approach that actively engages students as cooperative participants. It fosters social skills, teamwork, and personal responsibility through positive interdependence and face-to-face interaction. Research indicates that CL enhances problem-solving, critical thinking, and communication skills in vocational education students (Kusmiarti & Yuniati, 2020). This occurs by fostering supportive environments that enhance students' sense of belonging, mutual support, and motivation to learn. CL also helps students apply their knowledge in practical settings, developing essential workplace skills (Qureshi et al., 2023). As a comprehensive approach, it is well-suited for vocational education, where practice and cooperation are emphasized.

Active learning (AL) is an effective approach for enhancing student learning outcomes. According to Armbruster et al. (2009) it relies on discussions, experiments, and project-based activities, emphasizing student initiative and responsibility. This approach inspires students to take responsibility for their learning and apply knowledge independently (Lombardi et al., 2021). It significantly promotes independent thinking and problem-solving skills, enhancing their autonomy and engagement in learning. When students recognize that their effort determines their outcomes, they become more engaged and motivated (Dzaiy & Abdullah, 2024).

International policy frameworks, such as the European Skills Agenda and UNESCO's Framework ESD for 2030, emphasize the importance of CL and AL in vocational education and training (VET) (European Commission, 2020). These policies support a student-centered approach to teaching, focused on improving vocational students' academic performance and motivation through collaborative and practical activities. Accordingly, this study explores how an instructional approach incorporating collaborative and active learning (CAL) can enhance motivation in VET settings by aligning with the skill requirements and adaptability needed for future workplaces.

The study seeks to address the growing demand for effective pedagogical strategies to enhance vocational education students' academic performance, motivation, and workplace readiness. The blended instructional approach CAL provides a framework integrating social interaction, critical thinking, and autonomy

into the educational process. This study explores how CL and AL enhance vocational education students' performance and motivation. This research responds to the need for teaching methods that meet current vocational demands and equip students with lifelong learning skills for success in a rapidly evolving job market.

## Fostering Excellence: A Holistic Strategy for Advancing Vocational Education

### Practical Significance

This study builds on research exploring the potential impact of collaborative and active learning spaces (CALS) (Mei & May, 2018). The proposed instructional strategy, grounded in CAL, offers significant improvements in the academic performance, practical skill development and self-motivation of students pursuing vocational education. Specifically, the strategy enhances knowledge acquisition through meaningful group discussions, projects, and problem-solving activities, which stimulate students' critical thinking (Almulla, 2023). Furthermore, it fosters critical thinking, effective communication, and teamwork within an AL framework. CAL bridges the gap between theory and practice by integrating real-world understanding into the learning process (Lee & Jo, 2023). Activities such as simulations, case studies, and role-playing exercises foster problem-solving, flexibility, and decision-making skills applicable to the workplace. CL enhances students' sense of responsibility and independence, while active participation in group projects fosters self-regulation, goal-setting, and initiative (Uslu & Durak, 2022). Traditional AL methodologies enhance intrinsic motivation and involvement in knowledge discovery and application, resulting in further skill acquisition and sufficient preparation for future careers (Cicuto & Torres, 2016). CAL nurtures independence and self-motivation among vocational students.

### Theoretical Significance

Constructivism allows students to construct meaning from knowledge through interaction with others and meaningful experiences. Mohammed and Kınyo (2020) suggest that this enhances participation in CL, allowing students to actively construct vocational concepts, which facilitates deeper understanding and longer retention. Thus, CAL supports the notion of learning as a process of socialization, treating the team as a micro-society where students learn through interaction with

their peers and environment. According to Houssami and Benattabou (2024) CAL aligns with motivation theories by promoting participation, motivating students through autonomy and personal relevance, and fostering intrinsic motivation. Research also shows that peer interaction and support improve students' motivation and engagement (Jin et al., 2022). Problem-solving tasks, practical exercises, and real-life scenarios motivate students positively and sustain their engagement in learning.

## Blended Instructional Approach: Based on Collaborative and Active Learning

### Collaborative learning

CL actively engages group members in sharing ideas and supporting each other's learning. Additionally, it operates on the premise that students learn most effectively through peer discussions and active participation, benefiting from diverse perspectives (O'Donnell & Hmelo-Silver, 2013). Activities foster positive interdependence, personal responsibility, and accountability for meaningful contributions to group work. CL not only enhances academic achievement but also fosters a positive classroom atmosphere, interpersonal skills, and self-esteem. Critical thinking, problem-solving, and teamwork are essential competencies in the modern workplace (Ramdani & Susilo, 2022). Literature highlights enhanced academic performance as a key benefit of CL. Männistö et al. (2020) suggests that discussion, problem-solving, and peer interaction deepen content understanding. Group work fosters essential social skills like communication, listening, and respect for different perspectives. Moreover, CL promotes critical thinking by requiring students to challenge assumptions and generate original ideas (Brown, 2015). This inclusivity enhances student motivation and accountability in the learning process. CL also promotes clear articulation and active listening—skills vital for interpersonal and professional success (Rajabovna, 2024). It further strengthens classroom climate and participant well-being by cultivating trust, empathy, and a sense of belonging.

CL effectiveness depends on group composition, interdependence, communication, team dynamics, and task design. Diverse groups outperform homogeneous ones as diversity fosters cognitive conflict and rigorous thinking

(Ford, 2015). Thus positive interdependence ensures that group success is tied to individual success. This principle is central to shared knowledge construction, while cohesion, trust, and leadership within teams are crucial for success. Well-designed activities enhance the CL experience by fostering interdependence, critical thinking, and clear goals.

## Active Learning

AL is transformative because it emphasizes activities, deep understanding, critical thinking, collaborative learning, and knowledge application (Doolittle et al., 2023). It encourages learners to actively engage in acquiring knowledge, skills, and reasoning. Rather than passive listening, AL engages students in interactive learning, including discussions, group work, and hands-on experimentation. A key feature of AL is the shift from a teacher-centered to a learner-centered approach, with the teacher acting as a facilitator. AL quickly gained recognition for transforming traditional education into a more engaging experience (Murillo-Zamorano et al., 2021).

The shift from passive absorption to active participation in AL brings numerous benefits. Learners become more engaged, which increases their motivation to learn. Active participation improves content comprehension and long-term retention. AL also facilitates the transfer of learning through hands-on experiments, simulations, and problem-solving activities, enabling learners to apply knowledge directly to real-world contexts (Hernández-de-Menéndez et al., 2019). AL promotes flexibility and lifelong learning by fostering independent thinking, curiosity, and critical evaluation, and it prepares students for real-world challenges. However, classroom dynamics and engagement affect AL in multiple ways. A supportive and inclusive environment promotes greater student engagement, and students' intent to participate is driven by the activity's relevance to their personal lives. AL is further supported by access to digital tools and online platforms (Seo et al., 2021).

## The Relationship between Collaborative and Active Learning

AL emphasizes learner responsibility and initiative, while CL focuses on collaboration and interaction. While AL stimulates intrinsic motivation through autonomy and control, and CL enhances motivation through interaction and teamwork, they complement each other to create more engaging learning

environments (Qureshi et al., 2023). AL starts with learners selecting materials or making decisions, followed by goal-setting and choosing methods aligned with their learning style, fostering a sense of autonomy and motivation (Ruijuan et al., 2023). Conversely, CL involves students working together to solve problems and share ideas, fostering social connectedness and motivation through group contributions. By combining these approaches, students pursue independent learning while benefiting from peer support, creating a dual mechanism that enhances enthusiasm for learning.

Both approaches effectively meet the needs of diverse learners. Some students prefer independent study and control over their learning strategies, while others find fulfillment in collaboration. CAL accommodates diverse preferences and helps students reach their potential in an inclusive learning atmosphere, fostering personal growth and promoting social learning (Ruijuan et al., 2023). It also enables higher intellectual achievement, with AL encouraging deep thinking and independent research, while CL promotes knowledge sharing and problem-solving through collaboration. Combining both creates a comprehensive learning experience that boosts academic performance and builds a foundation for future success.

## CAL Classroom Design and Implementation Steps

### Step 1: Preparation Phase

Teaching and learning activities must be tailored to students' needs by considering their background, learning needs, and abilities, allowing teachers to adjust strategies accordingly. Personalization ensures lessons are relevant, engaging, and aligned with diverse learning styles, enhancing participation and understanding. Effective planning, especially in collaborative environments, involves selecting appropriate groupings (Wu et al., 2024). Popa (2019) suggests that collaboration is most effective in groups of 5-6 students with complementary skills. Under these conditions, students are encouraged to take responsibility by selecting materials and activities aligned with their interests and setting individual learning goals. Teachers must familiarize themselves with CAL's core theories and principles, and explore ways to merge these methodologies for complementary benefits (Lapitan Jr et al., 2023). Incorporating these approaches creates a vibrant learning experience that

caters to diverse student needs while fostering deeper learning and critical thinking. This process requires ongoing adaptation and refinement of strategies to benefit all students.

## Step 2: Introductory Phase

Teachers must actively implement activities that engage students and motivate interest in the subject through effective guidance. Simultaneously, students need support in developing foundational knowledge. Research shows a strong correlation between learner interest and academic achievement (Goni et al., 2021). Teachers can use various instructional strategies, such as presenting real-world problems, providing relevant examples, or posing intellectually challenging questions (Cai & Hwang, 2023). When students relate content to their own experiences, they recognize its relevance, fostering intrinsic motivation. Connecting subject matter to students' experiences or career goals is crucial for deepening engagement in learning.

## Step 3: Pedagogical Implementation Phase

At this phase, the introduction of CAL helps students gain deeper insights into course materials in a more participatory manner. Research shows that interactive learning enhances critical thinking, improves academic performance, and stimulates greater interest in the learning process (Johnson-Smith, 2014). Success in CAL depends on the effective division of labor and roles within the group. When students take responsibility for their tasks and contribute to the group's overall success, it fosters responsibility and ensures full participation. The interactive nature of CAL encourages students to discuss ideas, present them, and find solutions as a group, enhancing communication and teamwork skills (Capone, 2022).

## Step 4: Feedback and Assessment of Learning

Assessment and feedback are essential for improving teaching and learning by providing both students and instructors with a clear understanding of the learning process and outcomes (Ahea et al., 2016). Instructors assess teamwork through observing interactions, cooperation, and the quality of group products in CL. This process also reveals students' involvement in problem-solving and decision-making. Teachers should encourage students to offer peer feedback to reflect on their collaboration and share learning insights (Carless, 2022). Peer feedback

deepens understanding of teamwork and improves group communication.

Teachers must also assess students' self-learning abilities, crucial in AL classrooms (Yang et al., 2024). This involves examining how students self-regulate, from setting goals to mastering material. Independent learning assessments may also evaluate critical thinking and applying knowledge in practical contexts. Feedback should be constructive and help students identify strengths and weaknesses (Rajapakse, 2024). Actionable suggestions motivate students to address weaknesses and strengthen lifelong learning commitment. Balanced assessments of collaborative and independent learning foster a holistic experience, empowering students to achieve academic excellence and develop lifelong learning habits (Zacarian & Silverstone, 2020).

## Step 5: Summary and Outlook

At the end of each lesson, it is important to summarize CAL activities to consolidate students' understanding and retention of the material. Teachers should allocate time to review students' performance in group work and individual activities. This review should assess how effectively students grasped key concepts through team-based work and personal exploration (Stephan et al., 2016). Along with reviewing the lesson, teachers should preview content for the next session. By offering insight into upcoming topics, teachers can generate interest and anticipation for future learning. Summarizing and previewing future topics solidifies prior knowledge and prepares students for upcoming challenges (Larson & Linnell, 2023). This forward-looking approach can increase students' motivation and engagement and fosters learning continuity.

## Challenges from Limited Resources and Educator Resistance

The two main constraints to effectively applying CAL in vocational education are resource limitations and educator resistance (Børte et al., 2023). Funding restrictions directly affect the provision of learning opportunities, practical projects, and technical equipment. Lack of financial support often prevents institutions from acquiring resources and implementing CAL effectively. This also increases the workload and time demands on teachers. Many schools lack qualified teachers due to insufficient training and professional development. Additionally, lack of technology hampers student engagement, especially in disadvantaged

communities.

Teacher resistance often stems from adherence to traditional educational philosophies. Some educators view CAL as incompatible with traditional methods and are skeptical of its effectiveness. Teachers need new skills and knowledge to adopt CAL, but time and resources for training are often barriers. CAL introduces challenges in student assessment, focusing on participation and self-directed learning instead of traditional exams.

Overcoming resource limitations and teacher resistance requires comprehensive measures. Increased education funding is essential to address resource shortages. Teacher training and support, including workshops and peer support programs, should be strengthened to counter resistance. Modern technology should be introduced to create interactive learning environments, particularly in underdeveloped areas. Assessment methods should shift from exams to project-based and process-oriented evaluations. Governments and institutions should implement policies supporting CAL and promote interactive learning, verifying effectiveness through research. These measures will address resource constraints and teacher resistance, maximizing CAL's potential to improve learning outcomes and vocational skills (Børte et al., 2023; Joseph & Uzondu, 2024).

## Conclusion

CAL offers significant potential for advancing vocational education by enhancing students' academic performance and self-motivation. The development of teamwork, problem-solving skills, and social responsibility increases motivation in a CL environment. While AL emphasizes independence, critical thinking, and deep knowledge comprehension, it fosters self-directed learners who gain academic confidence. Together, these approaches lay a strong foundation for lifelong learning competencies, which are essential for academic and career success.

Implementing these methods is challenging due to resource limitations and teacher resistance. Limited funding prevents schools from acquiring resources and technical equipment to support CAL. Even with resources, a shortage of qualified teachers worsens the issue. Teachers' beliefs about teaching prevent them from adopting these methods through training and support. New assessment approaches have also caused anxiety among teachers. Addressing these challenges—through

increased education funding, comprehensive teacher training, reassessing evaluation methods, and further research to validate these methods—will help vocational education fully realize the potential of CAL.

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