

Application of the CARB Model in Developing Teamwork Skills among Pre-Service Teachers

Doan Thi My Linh

Thu Dau Mot University, Ho Chi Minh City, Viet Nam

ABSTRACT: This study aims to apply the CARB model (Commitment, Alignment, Relationships, and Behaviors) in designing and organizing classroom meeting activities to develop teamwork skills for Pre-service Teachers. Grounded in experiential learning and collaborative learning theories, the study proposes a structured instructional framework that integrates the four dimensions of the CARB model into classroom practices. A design-based approach is proposed to construct and implement a series of classroom activities aligned with the CARB components, including group discussion, and collaborative problem-solving tasks. The study suggests that the CARB model can enhance through students' participation, interaction quality, and observed teamwork behaviors. The study indicates that the CARB-based activities students' engagement, improved communication and coordination skills, and fostered positive interpersonal relationships within groups. In particular, the structured integration of commitment and alignment contributed to clearer role distribution and shared goals among students. This study provides both theoretical and practical contributions by offering a systematic and feasible framework for integrating teamwork skill development into teacher education, supporting competency-based educational reforms.

KEYWORDS: CARB model, teamwork skills development, Pre-service Teachers, Experiential learning, Team-based learning

I. INTRODUCTION

In the context of globalization and the rapid development of the knowledge-based economy, education institutions are increasingly required to equip students not only with disciplinary knowledge but also with essential soft skills. Among these, teamwork is widely recognized as a critical competence that significantly contributes to academic success, employability, and workplace effectiveness. Recent studies indicate that teamwork skills play a central role in enhancing collaboration, problem-solving, and innovation, particularly in complex and interdisciplinary environments (Hughes, 2011; Chen et al., 2024). A study by De Prada and partners further reveals that students' proficiency in teamwork skills varies considerably depending on both learning and individual factors, suggesting that higher education has not yet fully succeeded in fostering these competencies (De Prada et al., 2022).

In practice, although teamwork is frequently incorporated into higher education, it does not necessarily lead to the effective development of teamwork skills. Many students report challenges such as unequal participation, lack of communication, poor coordination, and interpersonal conflict within groups (McKay et al., 2024). Moreover, research emphasizes that teamwork does not develop automatically but requires careful instructional design. These findings highlight that the development of teamwork skills is closely associated with the principles of collaborative learning and experiential learning. Collaborative learning underscores social interaction, shared responsibility, and mutual support as key drivers of knowledge construction, while experiential learning emphasizes active engagement, reflection, and continuous improvement. Empirical evidence suggests that well-designed collaborative learning environments can enhance student engagement, teamwork attitudes, and academic achievement (Lau, 2013; Esteves, 2018). Additionally, structured teamwork training programs have been shown to improve communication, coordination, and interpersonal interaction among team members. However, recent studies indicate that higher education institutions still lack systematic and sustainable frameworks for developing teamwork competencies, despite their recognized importance (Campbell et al., 2025).

In the context of Vietnamese higher education, this gap is even more pronounced. Although educational reforms increasingly emphasize competency-based approaches, the implementation of structured models for developing soft skills, including teamwork, remains limited. Teaching practices are still largely dominated by traditional lecture-based methods, which do not provide sufficient opportunities for students to engage in meaningful and sustained collaborative learning experiences. Therefore,

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there is a pressing need for research that explores the application of comprehensive and theory-driven models, such as the CARB model, in designing educational activities aimed at developing teamwork skills. By integrating the four dimensions—Commitment, Alignment, Relationships, and Behaviors—into instructional design, educators can create learning environments that foster active participation, collaboration, and reflective learning (Eikenberry, 2007).

Based on these considerations, this study aims to apply the CARB model in organizing educational activities to develop teamwork skills for pre-service Teachers. The study seeks to provide a systematic and theory-based framework for instructional design while addressing the need for sustainable approaches to teamwork skill development. The findings are expected to contribute to both theoretical and practical perspectives, supporting educational innovation and improving the quality of teacher education in contemporary contexts.

II. THE CARB MODEL

The CARB model is conceptualized as a multidimensional framework for understanding and enhancing team effectiveness. As an acronym, CARB represents four core dimensions: Commitment, Alignment, Relationships, and Behaviors. These dimensions collectively capture the essential components that determine the quality and effectiveness of teamwork processes. Rather than viewing teamwork as a set of isolated skills, the CARB model emphasizes the dynamic interaction among these dimensions, highlighting how psychological engagement, shared goals, interpersonal relationships, and observable behaviors jointly contribute to effective team performance (Eikenberry, 2007).

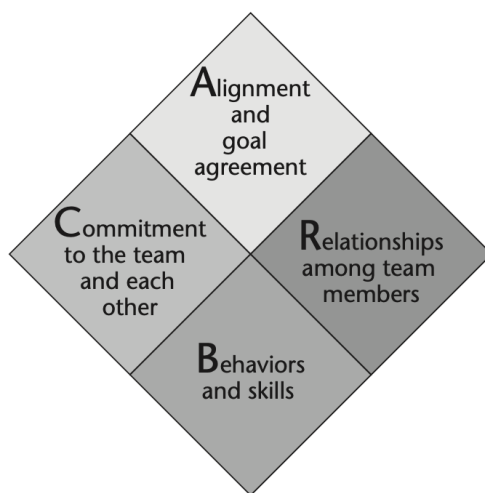


Figure 1. The CARB Model (Eikenberry, 2007).

Commitment to the Team and Each Other

Commitment is widely acknowledged as a fundamental determinant of team effectiveness, as it directly influences the extent to which individuals invest effort, time, and cognitive resources in collaborative activities. In contemporary academic and professional contexts, individuals are often required to manage multiple responsibilities and competing priorities. Consequently, team-related tasks may be deprioritized unless members develop a strong and sustained commitment to both the team and its shared objectives. Without such commitment, participation tends to remain superficial, leading to reduced engagement, limited contribution, and ultimately diminished team performance (McEwan et al., 2017).

Commitment within teams can be conceptualized as comprising two interrelated dimensions. First, members must demonstrate commitment to the team as a collective entity, including its goals, purpose, and expected outcomes. This dimension promotes goal-oriented behavior and strengthens accountability among team members. Second, commitment also involves interpersonal trust and confidence in the capabilities of fellow team members. Trust has been identified as a critical factor in facilitating cooperation and enabling teams to function effectively under conditions of uncertainty.

Moreover, commitment plays a crucial role in sustaining teamwork over time. In long-term collaborative settings, maintaining motivation and engagement is essential for achieving desired outcomes. Research indicates that teams characterized by high levels of commitment exhibit greater resilience, adaptability, and persistence when facing challenges (McEwan et al., 2017). In addition, commitment contributes to the development of collective efficacy, which enhances team confidence and performance (Bandura, 1997).

Recent studies in higher education contexts also highlight that structured learning environments can significantly strengthen students' commitment to teamwork. For instance, collaborative learning interventions that incorporate clear goals, role

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assignment, and reflective practices have been shown to increase student engagement and responsibility within teams (Le et al., 2018). These findings suggest that commitment is not merely an individual attribute but can be actively developed through appropriate instructional design.

In summary, commitment to the team and to fellow members constitutes a foundational dimension of effective teamwork. By fostering shared responsibility, strengthening interpersonal trust, and enhancing motivation, commitment creates the conditions necessary for sustained engagement and high-quality collaboration. Within the CARB framework, commitment interacts dynamically with alignment, relationships, and behaviors, forming a critical basis for team effectiveness and long-term development.

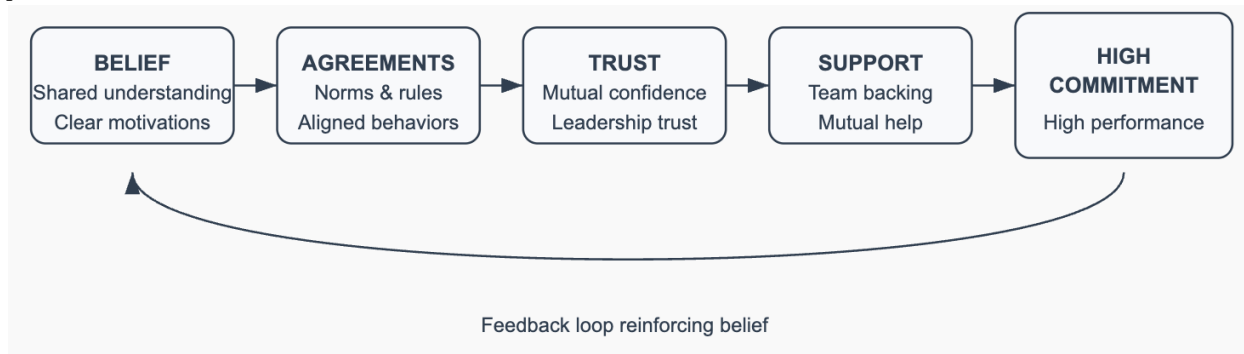


Figure 2. Commitment Among Team Members (Eikenberry, 2007).

Alignment and Goal Agreement

Alignment and goal agreement constitute a critical dimension of team effectiveness, as teams cannot function optimally without a clear and shared understanding of organizational objectives. In many cases, teams are expected to operate without sufficient strategic direction, often due to limited leadership engagement, assumptions about team members' capabilities, or the absence of clearly articulated goals and strategies. Such conditions can result in confusion, reduced motivation, and inefficiencies, ultimately hindering team performance.

From a theoretical perspective, alignment is closely associated with the concept of shared mental models, which refer to the common understanding among team members regarding tasks, roles, and goals (Marks et al., 2001). When alignment is achieved, team members are better able to coordinate their actions, anticipate one another's contributions, and respond effectively to changing demands. Conversely, a lack of alignment often leads to miscommunication, duplication of effort, and suboptimal decision-making.

Effective alignment requires more than the mere communication of goals; it necessitates continuous interaction and dialogue among team members. Through collaborative discussion, individuals develop a deeper understanding of objectives, negotiate meanings, and establish a shared sense of purpose. Research in collaborative learning suggests that such interaction is essential for fostering mutual understanding and enhancing group performance. Furthermore, involving team members in goal-setting processes has been shown to increase their sense of ownership and commitment, thereby strengthening agreement and cohesion within the team (Locke & Latham, 2002).

Leadership also plays a pivotal role in facilitating alignment. Leaders are responsible for establishing clear strategies and ensuring that team members understand how their work contributes to broader organizational goals. In addition, leadership support provides teams with necessary resources, guidance, and feedback, which are essential for maintaining alignment over time. Studies on team effectiveness highlight that leadership involvement significantly influences goal clarity and team coordination (McEwan et al., 2017).

In summary, alignment and goal agreement represent a foundational element of effective teamwork. By promoting shared understanding, facilitating coordination, and enhancing motivation, alignment enables teams to function as cohesive and purpose-driven units. Within the CARB framework, alignment interacts dynamically with commitment, relationships, and behaviors, contributing to the overall effectiveness and sustainability of teamwork processes.

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Relationships Among Team Members

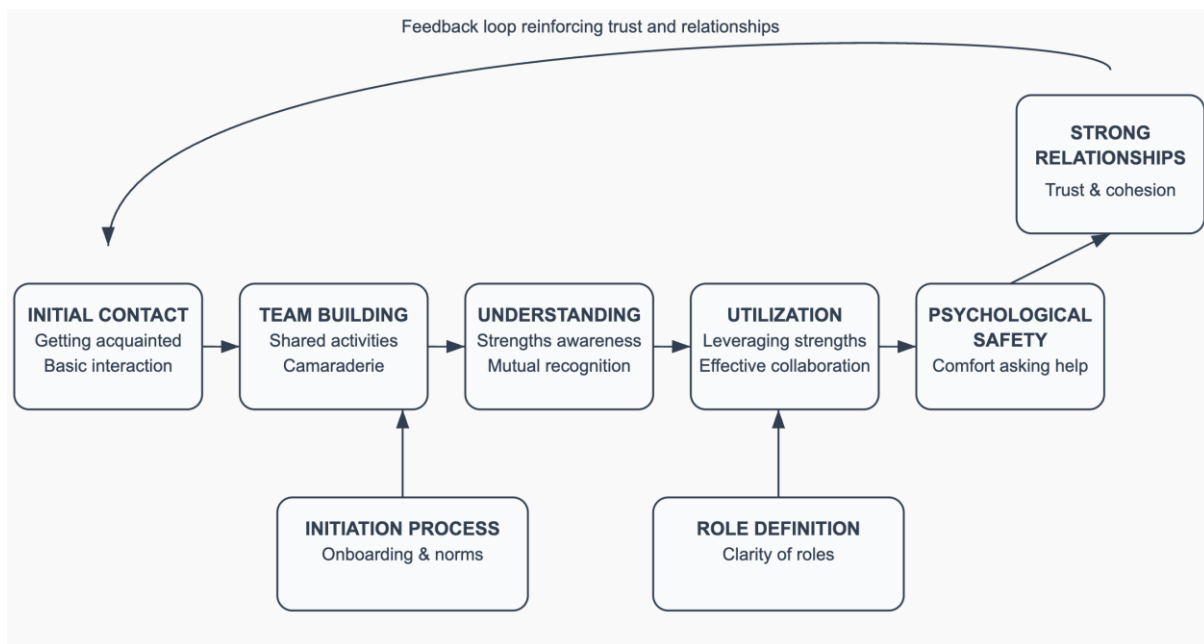


Figure 3. Alignment and Agreement on Goals (Eikenberry, 2007).

The figure illustrates a systematic and developmental process of team relationship formation, highlighting how interpersonal connections evolve from initial interactions to strong, trust-based relationships. Rather than viewing relationships as a byproduct of simple familiarity, the model conceptualizes them as the result of progressive cognitive, behavioral, and structural processes.

The process begins with initial contact, where team members engage in basic interactions and become acquainted. This stage establishes the minimal social foundation necessary for further relational development. It is followed by team building, which involves shared activities and the creation of camaraderie. However, as the model suggests, this stage serves primarily as a contextual catalyst, rather than a sufficient condition for strong relationships.

Subsequently, the process advances to understanding, where team members develop awareness of each other's strengths and achieve mutual recognition. This stage is critical, as it shifts relationships from superficial interaction to meaningful appreciation of individual capabilities. Building on this, the utilization stage reflects the team's ability to leverage these strengths in collaborative work, thereby enhancing both relational quality and task effectiveness.

A key outcome of these processes is the emergence of psychological safety, defined as a shared sense of comfort in seeking help, expressing ideas, and taking interpersonal risks. This stage represents a qualitative shift in team dynamics, where trust and openness become embedded in everyday interactions. Ultimately, these elements culminate in strong relationships, characterized by high levels of trust and cohesion.

Importantly, the model incorporates structural support mechanisms that underpin relational development. The initiation process (e.g., onboarding and norm-setting) facilitates early-stage integration and accelerates team building, while role definition ensures clarity of responsibilities, thereby supporting effective collaboration during the utilization phase. These structural elements function as enabling conditions, reinforcing both relational and performance outcomes.

Finally, the inclusion of a feedback loop indicates that strong relationships, once established, recursively enhance earlier stages—particularly trust and interaction quality—thereby sustaining and deepening team cohesion over time.

In sum, the figure demonstrates that effective team relationships are not merely the result of interpersonal affinity, but emerge from a dynamic interplay between relational processes, capability utilization, and structural supports, ultimately contributing to long-term team effectiveness.

Behaviors and Skills

The development of these behaviors and skills does not occur automatically but requires intentional instructional design and structured learning experiences. Experiential learning approaches are particularly effective in this regard, as they provide opportunities for practice, feedback, and reflection. By identifying specific behavioral and skill gaps within teams, educators and trainers can design targeted interventions that enhance teamwork competencies in a systematic and sustainable manner.

In summary, behaviors and skills constitute the practical foundation of teamwork effectiveness. Within the CARB model, they represent the visible manifestation of deeper cognitive and social processes, translating commitment, alignment, and relationships

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into effective action. The development of these competencies is essential for enabling teams to function efficiently, adapt to challenges, and achieve high levels of performance.

III. TEAMWORK SKILLS

Teamwork skills are increasingly regarded as a fundamental component of professional competence within contemporary education and workforce development. From an educational perspective, the acquisition of these skills contributes not only to changes in learners' attitudes and behaviors but also to the enhancement of their learning performance, adaptability, and overall well-being (Sitthisomjin et al., 2014). In particular, skills serve as a critical foundation for effective collaboration, enabling individuals to engage in shared problem-solving, coordination, and mutual support. As teamwork constitutes a core requirement in many professional contexts, its development has become an essential objective in educational programs (Vaughan et al., 2019). Therefore, fostering teamwork skills through structured and experiential learning approaches is necessary to prepare learners for the collaborative demands of modern educational and professional environments.

The development of teamwork skills is grounded in several foundational dimensions. First, it is built upon core interpersonal skills, such as active listening, emotional regulation, and persuasive communication, which are essential across various professional and social contexts. Second, teamwork skills involve the ability to coordinate and collaborate with other group members, including sharing responsibilities, negotiating roles, and supporting collective decision-making. Third, they encompass the capacity to participate effectively in group-based activities, which requires engagement, adaptability, and a commitment to shared goals. These foundational elements form the basis for the development of effective teamwork, enabling individuals to interact constructively, manage group dynamics, and contribute to successful collaborative outcomes (Heller, 2006).



Figure 4. The Development Process of Teamwork Skills (Eikenberry, 2007).

IV. TEAMWORK SKILLS FOR PRE-SERVICE TEACHERS USING THE CARB MODEL

The CARB model is applied to design educational activities aimed at developing teamwork skills for Pre-service Teachers, structured according to the sequential phases of the model: Commitment, Alignment, Relationships, and Behaviors & Skills. In this framework, students are guided to build commitment to group tasks, align shared goals, develop effective interpersonal relationships, and engage in collaborative behaviors through structured practice. These phases collectively foster essential teamwork competencies, including coordination, communication, mutual support, and shared responsibility. Through this systematic progression, CARB-based instructional design promotes a holistic and sustainable development of teamwork skills, thereby enhancing both collaborative learning outcomes and professional readiness in pre-service teachers.

Topic: Developing Teamwork Skills

Target learners: Pre-service Teachers

Duration: 90–135 minutes

Learning Objectives:

- **Knowledge:** Understand the role of teamwork and the components of the CARB model.
- **Skills:** Practice collaboration, coordination, teamwork, conflict resolution, and mutual accountability.
- **Attitude:** Develop responsibility, respect, and a cooperative mindset in group work.

Table 1. Teamwork Skills Development Process Using the CARB Model

Phase & Procedure	Instructor Activities	Student Activities	Expected Outcomes
1. Commitment Warm-up	Step 1: Facilitate an ice-breaking activity to build trust and group cohesion. Step 2: Organize students into teams and assign the task of establishing team norms. Step 3: Guide students in developing a “Team Charter” outlining roles,	- Participate in ice-breaking activities. - Collaborate in groups to propose rules. - Develop and present a team charter.	Establish initial team cohesion. - Build commitment to group tasks. - Create a psychologically safe and collaborative environment.

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Phase & Procedure	Instructor Activities	Student Activities	Expected Outcomes
	responsibilities, and commitments.		
2. Alignment Knowledge Construction	Step 1: Present a collaborative task or problem-solving scenario relevant to teaching practice. Step 2: Guide students to identify group objectives and expected outcomes. Step 3: Facilitate role assignment and task distribution.	Analyze the given task. - Discuss and agree on shared goals. - Assign roles and responsibilities.	Achieve goal alignment within the team. - Clarify individual roles. - Enhance shared responsibility.
3. Relationships Practice	Step 1: Organize activities for sharing individual communication strengths and weaknesses. Step 2: Instruct students on active listening techniques. Step 3: Facilitate constructive peer feedback activities.	- Share strengths and working styles. - Engage in collaborative exercises. - Provide and receive peer feedback.	Develop strengths awareness. - Improve interpersonal relationships. - Foster trust and psychological safety.
4. Behaviors & Skills Application	Step 1: Assign a group-based project or task (e.g., lesson planning, problem-solving). Step 2: Observe teamwork processes and assess using a teamwork rubric. Step 3: Provide feedback on collaboration, coordination, and participation..	- Work collaboratively to complete the task. - Engage in peer evaluation. - Adjust teamwork behaviors based on feedback.	- Apply teamwork skills in practice. - Improve coordination and collaboration. - Strengthen group collaboration
5. Reflection Evaluation	Step 1: Pose reflective questions on teamwork experience. Step 2: Facilitate group discussion and summarize key insights.	- Write reflective journals. - Share learning experiences.	- Develop reflective awareness of teamwork. - Consolidate teamwork knowledge, skills, and attitudes.

V. CONCLUSION

This study confirms that the application of the CARB model provides a systematic and theory-informed framework for developing teamwork skills among Pre-service Teachers. By integrating commitment, alignment, relationships, and behaviors into instructional design, the model supports the development of key competencies such as coordination, shared responsibility, and collaborative problem-solving. These findings are consistent with prior research emphasizing that teamwork skills require structured and intentional pedagogical interventions rather than emerging spontaneously from group activities (Saysin & Dhammapissamai, 2023; Marasi, 2019).

Furthermore, Hughes and Jones (2011) argue that effective teamwork is determined not merely by outcomes but by the quality of interaction and contribution among team members (Hughes & Jones, 2011). The importance of psychological factors, such as trust and engagement, observed in this study also corroborates the findings of Marasi highlighting the role of experiential learning in enhancing group cohesion (Marasi, 2019). Additionally, variations in teamwork skill development across individuals reflect the influence of contextual and personal factors identified by De Prada suggesting the need for adaptive and differentiated instructional strategies (De Prada et al., 2022).

Overall, the CARB model offers a comprehensive approach that bridges theoretical foundations with practical application, contributing to both individual competence and collective team effectiveness. Future research should further validate this model across diverse educational contexts and integrate it with innovative assessment frameworks to ensure sustainable skill development.

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