European Journal of Language and Culture Studies
Vol 4 | Issue 5 | September 2025
ISSN 2796-0064

RESEARCH ARTICLE

Cooperative Ability X Foreign Language Skill: Study of Achievement in French Grammar Learning

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ABSTRACT

This study investigates the impact of cooperative learning on students' achievement in French grammar, aiming to address the issues of low learning motivation and significant disparities in language proficiency commonly observed in French language classrooms. By implementing heterogeneous grouping within a cooperative learning framework, the research seeks to enhance student motivation, improve academic performance, and cultivate competencies essential for future workplace competitiveness. The participants of this study were students enrolled in the French Grammar III course offered by the Department of Applied Languages and Linguistics Studies. A quasi-experimental design was employed, dividing the class into a control group (n = 12) and an experimental group (n = 14). Based on their French Grammar II pre-test scores, students in the experimental group were categorized into four proficiency levels: high (top 25%), upper-middle (25%–50%), lower-middle (50%–75%), and low (bottom 25%). The control group received traditional instruction through teacher-centered lectures and pre-recorded video materials, while the experimental group engaged in the Student Teams Achievement Divisions (STAD) model, wherein higher-proficiency students led collaborative learning sessions during and after class. The primary objectives of this study are twofold: (1) to move beyond conventional instructional methods by incorporating peer-assisted learning strategies, and (2) to stimulate learners' intrinsic motivation and develop their cooperative and humanistic literacy. It is anticipated that the intervention will result in improved learning outcomes and greater student engagement. The findings will be disseminated through academic conferences and peer-reviewed publications, and will contribute to the development of instructional materials aimed at promoting effective pedagogical practices in foreign language education.

Keywords: French grammar, group learning, second language teaching, Student Team Achievement Divisions (STAD).

Submitted: June 20, 2025

Published: September 02, 2025

10.24018/ejlang.2025.4.5.152

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1. Introduction

1.1. Background

In recent years, it has become increasingly evident in instructional settings that university students in Taiwan exhibit substantial disparities in language proficiency, particularly with respect to their second foreign language. This widening proficiency gap poses significant challenges for language educators. The Student Teams-Achievement Divisions (STAD) model, a cooperative learning strategy, has been employed to address these differences. This approach involves organizing students into heterogeneous groups based on their respective learning abilities and educational needs. The primary objective of STAD is to promote peer-supported learning, collaboration, and mutual academic growth within teams. By leveraging the benefits of cooperative learning, the project seeks to enhance students' collaborative competencies especially those from humanities disciplines, while simultaneously

nurturing innovative thinking and improving their future employability and competitiveness in the global workforce.

Owing to the inherent complexity of French grammar, students with lower proficiency levels frequently encounter substantial difficulties and display diminished learning attitudes, with some considering discontinuation as early as their first year. Such negative dispositions can have lasting effects, adversely influencing students' academic performance in subsequent second- and third-year grammar courses. Recognizing that one of the primary pedagogical challenges lies in addressing students' attitudes toward learning, this study proposes fostering peer collaboration and interaction as a strategic means of enhancing motivation and engagement among lower-proficiency learners. Utilizing an experimental design comprising an experimental group and a control group, this research investigates whether interactive learning through heterogeneous groupings can improve learning outcomes. This study aims to gain a comprehensive understanding of the challenges and needs faced by students with varying proficiency levels, particularly in the context of second foreign language instruction. Ultimately, the objective is to demonstrate the efficacy of a collaborative, team-oriented pedagogical approach over traditional paper-based assessments, thereby enriching the depth and breadth of instruction and offering meaningful feedback for refinement of the educational environment.

Accordingly, this study, entitled "Cooperative Ability X Foreign Language Skill: Study of Achievement in French Grammar Learning," adopts the Student Teams-Achievement Divisions (STAD) method as a core instructional strategy. This pedagogical approach seeks to mitigate the decline in student motivation often resulting from disparities in French language proficiency. By integrating heterogeneous collaborative groupings into the curriculum, this study aims to enhance students' motivation and learning effectiveness. Ultimately, the goal is to cultivate transferable collaborative competencies and elevate students' overall competitiveness in their professional environments.

1.2. Literature Review

1.2.1. STAD Teaching Method Definition of STAD Teaching Method

The Student Teams-Achievement Divisions (STAD) teaching method is one of the most extensively applied cooperative learning strategies in educational practice. Originally developed by Slavin (1986), STAD emphasizes structured teamwork and individual accountability, in which students are grouped heterogeneously typically in teams of four to five, based on their diverse academic abilities. After receiving whole-class instruction, students work collaboratively under the guidance of a team leader to review the content, discuss learning materials, and support one another's academic progress. Research consistently affirms the adaptability of STAD across multiple disciplines and educational levels (Gillies, 2007; Slavin, 1995), making it particularly suitable for fostering cognitive and social-emotional learning outcomes.

In the context of global educational reforms and the demands of the 21st century, educational systems worldwide are increasingly prioritizing the cultivation of transferable competencies such as communication, collaboration, and critical thinking (Partnership for 21st Century Skills, 2009). STAD aligns with these goals by creating interactive learning environments that encourage student autonomy, peer accountability, and meaningful social interactions. From an interpersonal perspective, Chang (2003) observed that students engaged in STAD-based cooperative learning are more inclined to offer praise, demonstrate empathy, and show respect for peers. These findings are echoed by Johnson and Johnson (2009), who found that cooperative learning consistently improves interpersonal relationships, fosters a sense of belonging, and enhances students' self-esteem. Similarly, Slavin (1996) emphasized that cooperative strategies such as STAD improve students' social competence by requiring them to negotiate meaning, resolve conflicts, and practice perspective-taking.

Regarding classroom dynamics, Chao (2007) found that the application of STAD significantly improved the classroom atmosphere, leading to heightened student interest and a reduction in counterproductive behaviors, such as inattentiveness, absenteeism, and disengagement. These findings align with those of Gillies and Boyle (2010), who demonstrated that cooperative learning settings tend to produce more positive student-teacher interactions, greater levels of on-task behavior, and stronger classroom cohesion. Moreover, studies in foreign language education confirm that cooperative strategies, such as STAD improve motivation and facilitate authentic language use through peer interaction (Jacobs *et al*., 2002; Ning & Hornby, 2014).

In sum, the literature underscores the educational value of the STAD model not only in enhancing academic achievement but also in promoting essential social, emotional, and communicative skills. Through the integration of heterogeneous grouping, peer support, and individual accountability, STAD contributes to the development of holistic learners equipped with competencies necessary for both academic success and real-world collaboration.

1.2.2. The Application of STAD

The Student Teams Achievement Divisions (STAD) model, developed by Robert Slavin in the 1980s, remains one of the most widely implemented cooperative learning strategies in educational settings. STAD integrates team collaboration with individual accountability, offering a structured, research-supported framework to enhance student engagement and academic performance (Slavin, 1995). Numerous studies have confirmed the efficacy of STAD in promoting student achievement across a range of disciplines, including mathematics, science, and language arts (Kagan, 1994; Sharan, 1994). Its adaptation to foreign language education (FLE) presents a particular promise, especially given the communicative and interactive nature of language learning.

In FLE contexts, where meaningful communication, repeated practice, and social interaction are key to language acquisition (Krashen, 1982; Swain, 1985), STAD fosters an active learning environment that aligns well with pedagogical goals. Research has shown that cooperative learning can significantly improve students' motivation, linguistic competence, and intercultural communication skills Jacobs *et al*. (2002). Specifically, STAD enhances opportunities for peer interaction in the target language, which is essential for the development of fluency and grammatical accuracy (Long & Porter, 1985). The STAD model is structured around five core components: class presentations, team studies, quizzes, individual improvement scores, and team recognition. In the context of foreign language instruction, these elements can be tailored to focus on language-specific objectives, such as vocabulary acquisition, grammar, and oral proficiency. Following teacher-led instruction, students engage in heterogeneous groups to consolidate learning through collaborative activities such as role-plays, dialogues, and task-based games. These activities align with Vygotsky's (1978) sociocultural theory, which emphasizes the importance of social interaction and scaffolding in the development of higher-order thinking and language skills.

A distinctive feature of STAD is its emphasis on individual accountability, operationalized through regular assessments that measure personal progress. Research underscores that when cooperative learning includes individual assessments and clear structures for accountability, student achievement significantly (Slavin, 1996). This model supports the assessment of listening, speaking, reading, and writing skills in language classrooms. The use of improvement scores not only motivates learners by rewarding growth but also accommodates diverse proficiency levels within the same classroom, which is an essential consideration in heterogeneous FLE contexts (Ning & Hornby, 2014). Team recognition, which acknowledges collective progress, fosters a classroom climate of mutual support and shared responsibilities. Studies have demonstrated that such recognition enhances group cohesion and student engagement, particularly in culturally diverse classrooms (Johnson & Johnson, 2009). By blending individual responsibility with collaborative learning, the STAD promotes a balanced pedagogical approach that nurtures both academic and social competencies. In sum, the STAD model meaningfully contributes to the language learning process by cultivating communicative competence, fostering motivation, and supporting inclusive teaching practices, which are central to effective second language instruction.

2. Method

2.1. Research Design

This research design enabled the integration of both quantitative and qualitative data to provide a more comprehensive understanding of pedagogical intervention. Quantitative data were collected through pre- and post-tests and a motivation questionnaire, whereas qualitative data were obtained via open-ended feedback questionnaires. The study framework follows the mixed-methods research model proposed by Chen Hung-Ling, wherein qualitative findings corroborate, enrich, or explain quantitative results. This triangulated strategy aims to assess the measurable impact of heterogeneous group-based instruction and capture students' subjective learning experiences within the STAD framework.

In terms of learning effectiveness, the study utilized a pre- and post-test structure. The pre-test is derived from the students' final performance in the prerequisite course, "French Grammar II," while the post-test corresponds to the midterm examination of the current "French Grammar III" course. The experimental group's post-test performance was calculated using the mean scores of each STAD team, thereby emphasizing collective achievement, whereas the control group maintained their individual scores. Notably, the student who demonstrated the most significant improvement received recognition of both individual effort and team contribution.

2.2. Research Participants

The participants were students enrolled in the course "French Grammar III" during the first semester of academic year 113 at a university in Taiwan. This course is part of the required sequence in second

foreign language learning. A total of 26 students were included in this study. The students were divided into two groups: a control group of 12 students and an experimental group of 14 students. In the experimental group, students were further categorized into four proficiency levels based on pre-test scores:

- High proficiency (top 25%)
- Upper-medium proficiency (25%–50%)
- Lower-medium proficiency (50%–75%)
- Low proficiency (bottom 25%)

Each STAD team was composed of one student from each proficiency tier, resulting in three heterogeneous groups. The control group was randomly assigned according to proficiency.

The allocation of the control and experimental groups is illustrated in the figure below:

Table I displays the pre-test scores of the participants in the control group, identified by their unique ID numbers. Each row corresponds to an individual participant, showing their ID under the "Control Group" and their corresponding "Pre-test score." The scores range from a low of 56 to a perfect score of 100. The data suggests generally high performance among participants before any intervention or treatment, with many scores in the 90s. Specifically, three individuals scored 96, and one scored 100, indicating strong prior knowledge or skills. Only one participant scored significantly lower (56), which may represent an outlier or participant with different prior experiences or backgrounds. This pre-test data is likely to be used to assess the baseline performance of the control group before implementing a study or experiment. It provides a reference point against which post-test results can be compared, allowing researchers to evaluate changes or improvements over time. The relatively high average suggests that the group already had a good command of the material being tested, which could affect the interpretation of any observed improvements in a follow-up test.

Table II presents the pre-test scores of the participants in the experimental group, categorized into four proficiency levels: high, upper-medium, lower-medium, and low. The classification was based on percentile rankings. The "High proficiency" group (top 25%) includes participants who scored between 96 and 100, indicating excellent prior knowledge. The "Upper-medium proficiency" group (25%–50%) scored between 89 and 95, reflecting strong performance, though slightly below the top tier. The "Lower-medium proficiency" group (50%–75%) includes scores from 79 to 88, suggesting moderate familiarity with the material. Lastly, the "Low proficiency" group (bottom 25%) contained scores ranging from 30 to 76, with one notably low score of 30, which is significantly lower than the rest. This tiered distribution allows researchers to compare participants' performance based on their initial knowledge levels. It also enables the analysis of whether the intervention had different effects depending on the learner's starting proficiency. By organizing the data in this way, this study can better assess the effectiveness of instructional strategies across varying ability levels within the experimental group.

2.3. Instructional Content and Structure

2.3.1. Reading Topics

- Lesson 12: Travel information
- Lessons 13 & 14: Booking tickets and making social inquiries
- Lessons 15 & 16: Describing daily life activities
- Lesson 17: Food preparation

TABLE I: Pre-test Score in the Control Group

Control Group	Pre-test score
11050000	56
11050002	72
11250009	76
11250008	78
11250000	78
11250004	87
11250004	91
11250000	93
11250009	94
10950005	96
11250008	96
11150006	100

TABLE II: Pre-test Score in the Experimental Group

Experimental group	Pre-test score
High proficiency (top 25%)	
11250004	96
11250001	97
11250007	100
Upper-medium proficiency (25%–50%)	
11150001	89
11250004	94
11250005	95
Lower-medium proficiency (50%–75%)	
11250009	79
11250003	83
11150005	85
11250002	88
Low proficiency (bottom 25%)	
11250003	30
11150008	73
10930002	73
11250002	76

2.3.2. Grammar Topics

- Interrogative pronouns: *Comment*, *Combien*, *Qui*, *Que*, *Quand*
- Sentence structure registers: *Langue courante*, *Langue familière*, *Langue soutenue*
- Negation: *La négation*
- Imperative mood: *L'impératif*
- Prepositions and verb combinations: *Les prépositions et les verbes*

2.3.3. Assessment Components

- Class participation and regular assessments: 20%
- Assignments: 20%
- Midterm exam: 25%
- Final exam: 25%
- Report: 10%

Midterm scores for the experimental group were calculated as the group average, reflecting the collaborative nature of the STAD method.

2.3.4. Teaching Environment

All classes are conducted in a traditional classroom setting.

2.3.5. Course Duration and Schedule

The course meets for two hours per week, totaling 36 hours over the semester. Each textbook unit is covered for two weeks; alongside the related grammar instruction. One or two grammar rules were analyzed weekly. All materials were uploaded to an online platform to facilitate review and discussion. In the experimental group, high-proficiency students lead the discussions; and the control group students were randomly grouped. Both groups completed a post-test during the midterm week to measure their progress.

2.4. Data Collection Instruments

To evaluate the learning impact, this study uses:

- Pre-test and post-test: To measure improvement in grammar proficiency.
- Motivation scale: A Likert-scale questionnaire to evaluate student motivation levels.
- Open-ended feedback questionnaire: To gather qualitative insights into students' perceptions.
- Classroom observation checklist: Used weekly to monitor student engagement and group interaction.

To comprehensively investigate student motivation in the context of foreign language learning, this study employed a mixed-methods approach that integrated both quantitative and qualitative data collection tools. This approach is designed to capture a multi-dimensional understanding of how cooperative grouping influences students' motivational attitudes and perceptions of the learning

experience. Midway through the semester, a researcher-developed questionnaire was administered to all participants in both the experimental and control groups. This instrument consists of ten carefully constructed items intended to evaluate key motivational constructs. These constructs include "learner autonomy," which reflects the degree to which students feel they are in control of their own learning process; "willingness to learn," which measures students' openness and enthusiasm toward acquiring a new language; "perceptions of course design," which examine how students evaluate the structure and delivery of the course; and "goal achievement," which assesses students' perceived progress toward their academic and language learning objectives.

Each item on the questionnaire was rated using a "five-point Likert scale", with options ranging from "strongly agree" to "strongly disagree." This scaling system allows for nuanced distinctions in student responses and facilitates the statistical analysis of trends and patterns across different groups. The quantitative data derived from the Likert-scale responses provided measurable insights into how cooperative learning structures impact various motivational dimensions. For instance, higher ratings of autonomy and willingness to learn among students in the experimental group suggest that collaborative tasks foster a more self-directed and engaged learning mindset. However, while quantitative instruments can efficiently gauge overall tendencies and correlations, they may fall short in capturing the "complex, subjective dimensions" of learner experience. To address this limitation, we incorporated a "qualitative component" into the study design. At the end of the semester, all students were invited to complete an open-ended feedback questionnaire, which encouraged them to reflect on their learning journey in depth. This second instrument was designed to contextualize the numerical data by providing rich, descriptive accounts of individual student experiences.

The open-ended questionnaire included prompts such as: "No matter whether the course content is simple or difficult, I am confident that I can learn it"; "I am highly motivated to learn in this class"; "When learning new knowledge in the course, I make an effort to understand it"; and "I participate in course activities mainly to get good grades" which questions are intentionally broad to allow students to express their perceptions freely, and to reveal emotional, cognitive, and social responses that might not be captured through closed-ended survey items. Through their responses, students may, for example, share specific examples of how group work contributed to their confidence, or how the instructional design either supported or hindered their language development. The combination of these two data sources—a structured Likert-scale questionnaire and an open-ended reflective feedback form—allowed for a "more holistic assessment" of the instructional intervention. The "quantitative data" offer generalizable results and enable group comparisons, while the "qualitative data" add depth and context, shedding light on the "reasons behind" the observed patterns. For example, if students in the experimental group reported higher motivation scores, their written feedback may explain how peer collaboration or a supportive classroom culture played a role in this outcome.

3. Results and Discussion

3.1. Research Implementation

The research study was systematically organized over the duration of a single academic semester, as illustrated in Fig. 1. This longitudinal approach allows for a comprehensive evaluation of both instructional impact and learner development over an extended period. The procedure was carefully designed to ensure methodological rigor and consistency in instructional delivery and data collection across both the experimental and control groups. During the initial week of the semester, all participants received an introductory session outlining course objectives, instructional methods, and evaluation criteria. Subsequently, a pre-test was administered to students in both groups to assess their existing knowledge of French grammar, specifically their proficiency acquired in the prerequisite course, French Grammar II. This pre-test served a dual purpose: it not only established a baseline for measuring academic progress but also informed the composition of student teams within the experimental condition. Following the pre-test, the experimental group was systematically divided into three heterogeneous teams, each consisting of four students. These groupings were deliberately structured to reflect a range of proficiency levels, thereby facilitating peer-supported learning in each team. This grouping strategy aligns with the principles of the Student Teams Achievement Divisions (STAD) cooperative learning model, which emphasizes team diversity, individual accountability, and collaborative achievement. By contrast, the control group proceeded with conventional teacher-centered instruction, characterized by randomly formed peer interactions and a predominantly lecture-based pedagogical approach.

Midway through the semester, specifically during the eighth week, all participants were asked to complete a motivation questionnaire designed to measure their affective engagement with the course content and the instructional format. This instrument provides valuable insight into students' attitudes toward the learning process, their level of interest, and perceived self-efficacy. Concurrently,

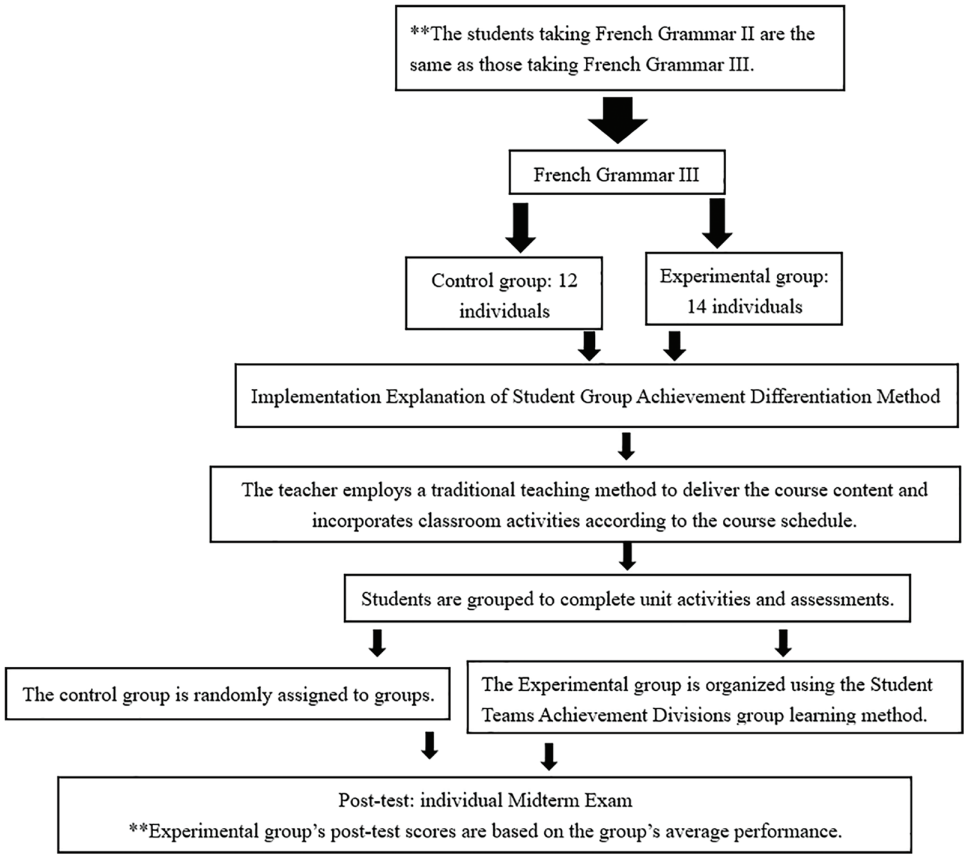

Fig. 1. Implementation procedure.

qualitative data were collected through an open-ended survey, that allowed students to articulate their personal experiences, perspectives on group dynamics, and reflections on instructional practices. The incorporation of both quantitative and qualitative measures strengthened the capacity of the study for triangulated analysis and enriched the interpretive depth of the findings. Throughout the semester, a single instructor maintained instructional responsibilities to ensure pedagogical consistency. The instructor employed a blended teaching strategy that incorporated the elements of the flipped classroom model. Students were expected to engage with preparatory materials, such as video lectures and digital content, outside of class hours, thereby reserving in-class time for interactive tasks, discussions, and collaborative grammar exercises. In addition, the instructional framework was enhanced through the inclusion of guest lectures delivered by subject-matter experts. These interactive grammar sessions offered learners the opportunity to explore complex language structures in greater depth, receive expert feedback, and engage with authentic linguistic inputs in a dynamic and participatory environment.

To elaborate further, the study commenced with a pre-test, using grades from a prior course, French Grammar II. This ensured baseline comparability among participants and controlled for prior knowledge and proficiency in French grammar. Notably, the students in French Grammar III are the same as those who took French Grammar II, suggesting a longitudinal design that builds on earlier academic data. This pre-test serveda critical role in experimental validity, providing a means to assess learning gains and ensuring equivalence between the control and experimental groups before the intervention. Students enrolled in French Grammar III were divided into two groups: a control group consisting of 12 individuals and an experimental group with 14 individuals. This division marked the initiation of the experimental phase of the study. The use of two distinct groups allowed for the comparison of outcomes under different instructional strategies. The control group was exposed to traditional group work, while the experimental group engaged in the STAD model. The discrepancy in group size (12 vs. 14) should be noted, as it could introduce slight variations in interaction dynamics and group performance metrics. The next phase involved implementation of the group achievement differentiation method. Both groups received instruction in French Grammar III using conventional classroom teaching methods. The teacher is responsible for delivering the course content and integrating classroom activities as per the planned schedule. This ensurs a uniform instructional context for both groups, isolating the variable of group learning strategy as the primary experimental factor. Key differentiation occurs during group activities. All students participated in group-based

tasks designed to reinforce the instructional content. However, the structure and organization of these groups differed significantly between the control and experimental cohorts.

In the control group, students were randomly assigned to groups. This method reflects a traditional approach to group learning in which team composition is typically arbitrary and does not account for individual performance levels or collaborative learning strategies. Such an approach may not effectively leverage peer learning potential or foster accountability among the group members. In contrast, the experimental group was organized using the STAD method, a cooperative learning strategy developed by Slavin (1986). This method involved grouping students with varying levels of academic ability to promote peer tutoring and mutual support. Each member of the group is individually responsible for learning the material; however, group success is measured by the improvement in each member's performance. This method encourages interdependence and accountability, thus aligning individual motivation with collective achievement. Following the instructional and group activity phases, all students completed an individual midterm examination, which served as a post-test. This assessment provides the data necessary to evaluate the effectiveness of group-learning strategies. A key methodological point is that while all students take the exam individually, the experimental group's results are reported as a group average, aligning with the STAD emphasis on collective success. This experimental design offers a robust framework for exploring how different group structuring methods affect student learning outcomes in higher education language courses. The use of pre- and post-tests enables the measurement of academic gains, while the clear differentiation in group structuring allows for causal inferences regarding the impact of the STAD method.

One of the strengths of this design was its ecological validity. Since the experiment took place within the context of a real university course, the results are more likely to be generalizable to actual classroom settings. Additionally, the emphasis of the STAD method on heterogeneous grouping and shared responsibility aligns with current pedagogical theories advocating active, student-centered learning. However, there are some limitations to consider. The unequal group sizes may introduce bias or affect the group dynamics. Furthermore, using the group averages for the experimental group may obscure individual improvements, potentially limiting the granularity of the analysis. Future research could improve this by reporting both group and individual scores to provide a more comprehensive understanding of the effects of cooperative learning. A comparison between the individual scores of the control group and the group average of the experimental group allows researchers to assess whether collaborative learning based on the STAD framework leads to improved academic outcomes. However, this averaging of scores in the experimental group might mask individual variations in learning gains and should be interpreted with caution.

This study contributes to the growing body of literature on cooperative learning by empirically examining the effectiveness of the student teams achievement divisions method in a foreign language grammar course. The flowchart illustrates a thoughtful and systematic experimental design that controls prior knowledge, standardizes instructional delivery, and manipulates group structuring as an independent variable. The results, derived from midterm exam performances, offer insights into how structured group achievement differentiation can foster improved learning outcomes. As educational institutions continue to seek innovative methods to enhance student engagement and achievement, strategies such as STAD warrant further investigation and implementation.

3.2. Research Results

As for the outcome of the average post-test score, Table III presents the pre-test and post-test scores for three subgroups within an experimental group: Group A, Group B, and Group C. Each group consisted of five participants, and their learning progress was evaluated by comparing individual pre-test scores with corresponding post-test scores. The average post-test score for each group is also provided, offering a clear basis for comparison. Group A included participants with a wide range of initial proficiencies, from a very low pre-test score of 30 to a perfect score of 100. Post-test results showed a significant improvement for the lowest-scoring participant (from 30 to 47), although the gain was modest compared to others in the group. The participant with a pre-test score of 94 improved to 99, and that with 100 slightly decreased to 98. The average post-test score for Group A was 78, suggesting moderate overall improvement, although variability among participants was high. Group B demonstrated strong outcomes, with pre-test scores ranging from 73 to 97, and post-test scores ranging from 79 to 97. This group showed consistent performance improvements across all participants, particularly mid-range performers. The number of participants who scored 73 improved to 79, while others made moderate but meaningful gains. The group's average post-test score was 90.2, the highest among all three groups, indicating that this set of learners benefited the most from the intervention. Group C had mixed results. Although the initial scores ranged from 73 to 96, post-test performance fluctuated. One participant's score decreased from 85 to 72, while others, such as those who scored 96, improved slightly to 92. This suggests that, while some learners maintained or improved their

TABLE III: The Grouping and the Post-test Score in the Experimental Group

Experimental group	Pre-test score	Post-test score
Group A		
11250003	30	47
11250002	88	68
11250004	94	99
11250007	100	98
Average post-test score		78
Group B		
11150008	73	79
11250009	79	97
11250003	83	86
11250005	95	97
11250001	97	92
Average post-test score		90.2
Group C		
10930002	73	62
11250002	76	80
11150005	85	72
11150001	89	86
11250004	96	92
Average post-test score		78.4

performance, others regressed. The average post-test score for Group C was 78.4, which was slightly higher than that of Group A but well below that of Group B.

In summary, Group B demonstrated the most consistent and substantial improvement, suggesting a positive response to the instructional approach used. Groups A and C showed more varied outcomes, possibly because of differences in initial proficiency levels, learning needs, or instructional fit. These results could inform further analysis of how learner characteristics and group dynamics influence learning gains.

This study examined the pedagogical efficacy of the Student Teams-Achievement Divisions (STAD) cooperative learning strategy in a university-level French grammar course. Specifically, the research focused on the extent to which this instructional approach influenced students' academic performance and motivational levels, with particular attention paid to variations across proficiency levels. The findings revealed a differentiated impact of the STAD method, highlighting its particular benefits for students positioned at the lower and lower-intermediate ends of the proficiency spectrum. The STAD model, as implemented in this study, is characterized by structured team collaboration, peer accountability, and cooperative goal-setting. While students in the higher proficiency range exhibited relatively stable academic performance regardless of the instructional model, the same was not true for their lower-proficiency peers. Data collected from post-tests and motivation questionnaires suggest that learners with lower grammatical proficiency experienced substantial gains in both academic outcomes and affective engagement with course content.

These findings may be attributed to the several core features of STAD. First, the use of heterogeneous grouping, in which teams were composed of students with diverse skill levels—provided struggling learners with consistent access to peer modeling and scaffolding. High-achieving team members contributed explanations and clarified content, thereby reinforcing their understanding while supporting their peers. This collaborative dynamic fostered a low-stress, high-support learning environment in contrast to the competitive and isolating nature of conventional classroom settings. Second, peer-led discussions and cooperative task completion encouraged active participation from all students, particularly those who might otherwise be hesitant to engage in teacher-centered instructional formats. The group-based structure of the STAD appeared to reduce the cognitive and emotional barriers often faced by lower-performing students. As they contributed to shared goals and experienced incremental success, they developed greater academic confidence and a heightened sense of responsibility for their own learning. Moreover, the inclusive pedagogical climate cultivated through STAD not only enhanced academic performance but also positively influenced student motivation. Participants in the experimental group reported increased interest in the subject matter and greater willingness to invest effort in grammar-related tasks. These attitudinal shifts were supported by qualitative feedback, in which students frequently cited the value of peer interaction, motivational boost of group accountability, and encouragement received from teammates.

Although the benefits of the STAD approach were more pronounced among lower-proficiency learners, the findings also suggest that even higher-achieving students derived value from the model,

particularly in terms of reinforcing their mastery by teaching others. However, the marginal academic gains observed for these students imply that cooperative learning may be more critical for scaffolding lower-level learners than for enhancing the performance of those who are already proficient. In conclusion, the STAD method offers a compelling pedagogical strategy to improve educational equity in language instruction. Emphasizing collaboration, peer support, and differentiated interaction creates a learning environment where students of varying abilities can thrive, particularly those who face challenges in more traditional instructional settings.

The motivation scale shown in Fig. 2 includes ten survey items addressing various dimensions of student engagement, motivation, and learning behavior. Each response was recorded on using a Likert scale (1 = strongly disagree to 5 = strongly agree). The data offered insights into students' cognitive and motivational orientations. A high frequency of ratings between 4 and 5 across most items suggests a generally positive engagement with the course material. For example, several respondents rated Items 1, 2, and 3 with 5, indicating a strong sense of self-efficacy, intrinsic motivation, and cognitive engagement factors positively correlated with academic achievement in the literature. Interestingly, Item 10 (grade-oriented motivation) also received high scores from many respondents, with multiple entries of 5. This suggests that, while students are intrinsically motivated to learn and comprehend material, extrinsic motivation (i.e., performance goals) is also a significant factor. This duality is supported by goal orientation theory, which posits that students often balance mastery (deep learning) and performance goals (grades) simultaneously. For items related to metacognitive strategies (such as item 5: planning during learning), scores tended to vary more, with some respondents selecting mid-range values (3 or 4). This may reflect a less consistent implementation of metacognitive strategies among students, indicating a potential area for instructional intervention. Another noteworthy pattern is the consistent score of 5 for item 7 ("When I answer incorrectly, I still put in effort") among many participants. This suggests a resilient mindset and aligns with the concept of academic grit—perseverance in the face of failure, which is predictive of long-term success. Overall, this dataset reflected a generally high level of student motivation and engagement. Students reported strong confidence in their learning capabilities, actively strived to understand course content, and remained persistent in the face of challenges. However, variability in planning behaviors and the strong role of grade-oriented motivation indicate areas where pedagogical strategies can be refined to support deeper learning approaches.

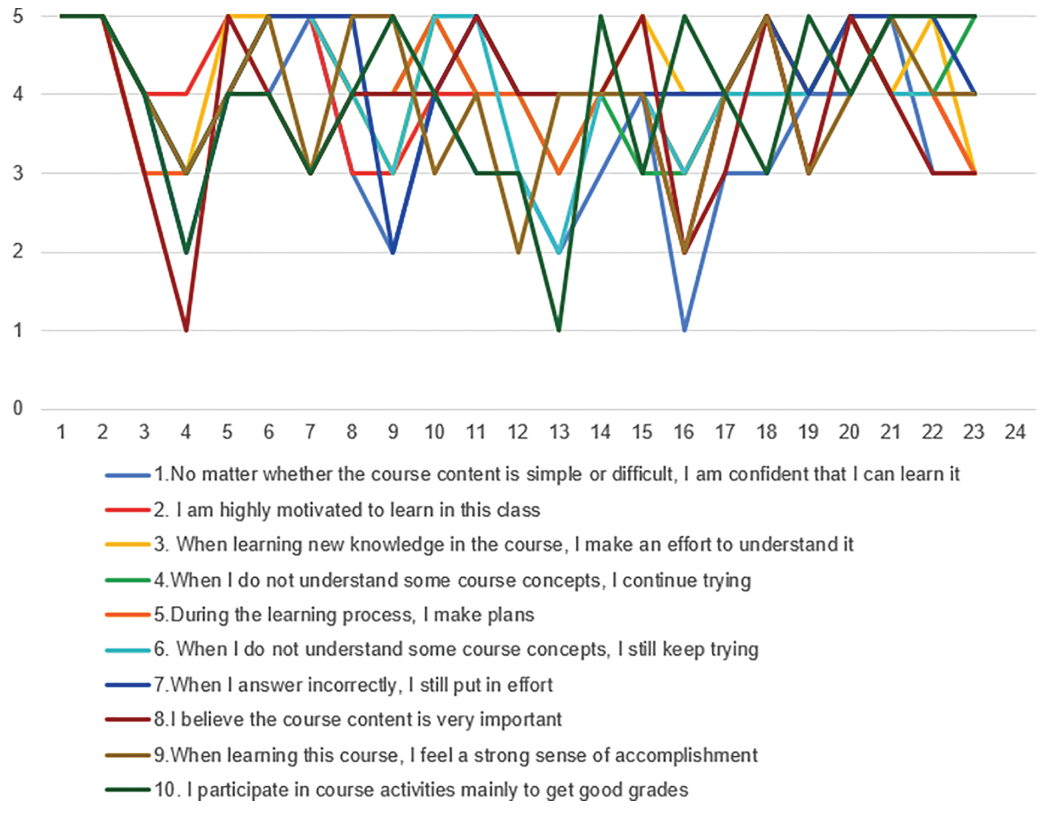

Fig. 2. The motivation scale.

4. Conclusion

While the current study demonstrates promising outcomes regarding the application of the Student Teams-Achievement Divisions (STAD) cooperative learning strategy, particularly in enhancing the motivation and academic performance of lower- and lower-intermediate proficiency learners, some limitations warrant further exploration. Notably, the relatively minimal impact of STAD on high-achieving students suggests the necessity for pedagogical refinement to ensure that all learners optimally benefit from cooperative instructional frameworks. One promising avenue for addressing this issue is the integration of differentiated instructions into the STAD model. Differentiation recognizes that learners possess diverse strengths, interests, and levels of readiness, and seeks to tailor instructional strategies accordingly. Within a cooperative learning context, differentiation can be implemented by assigning high-achieving students to more complex, cognitively demanding tasks that align with their advanced linguistic capabilities. These tasks might include leading group discussions, mentoring peers, designing supplementary grammar activities, or engaging in meta-linguistic analysis of grammatical rules. By embedding such enrichment opportunities, educators can support the continued intellectual development of high-performing students while maintaining the collaborative spirit that underpins STAD.

Moreover, differentiated instruction can encourage greater learner autonomy in advanced students. Instead of being confined to the role of peer supporters, they can take ownership of their learning by exploring advanced content, formulating their own questions, and engaging in self-directed projects. These activities can cultivate higher-order thinking skills and ensure that cooperative learning remains challenging and meaningful for all participants, regardless of their proficiency level. In addition to instructional design considerations, future research should adopt longitudinal methodologies to examine the enduring effects of STAD-based interventions. While the current study demonstrated significant short-term gains in motivation and academic achievement among lower-achieving learners, it remains unclear whether these improvements are sustained over time and whether they contribute meaningfully to long-term language development. A longitudinal design would enable researchers to track students' progress across multiple semesters or language courses, thereby providing insights into the durability and transferability of cooperative learning benefits. This extended perspective is essential for assessing the practical utility of STAD in broader curricular contexts and for informing long-term educational planning.

To further enhance the effectiveness and reach of the STAD model, educators may also consider incorporating digital technologies into a cooperative learning environment. Technological tools such as interactive grammar platforms, online collaborative workspaces (e.g., shared Google Docs, forums, and learning management systems), and mobile language-learning applications can provide students with expanded opportunities for practice, engagement, and feedback outside formal classroom hours. For instance, team members can collaborate asynchronously on grammar exercises, receive real-time feedback through adaptive apps, or co-construct learning artifacts such as digital grammar guides or video tutorials. These digital enhancements not only extend learning beyond the physical classroom, but also support varied learning styles and increased accessibility for diverse student populations. Cross-cultural and cross-linguistic replication is another area that merits further attention. While the present study focused on a French grammar course within a specific academic context, it is crucial to determine whether the observed outcomes are replicable across other second -or foreign-language learning environments. Future research could examine the implementation of STAD in the instruction of other target languages such as German, Spanish, Japanese, or Mandarin, and within varied sociocultural contexts including different educational systems, institutional cultures, or learner demographics. Such comparative studies would help to assess the generalizability of the model and refine its components to suit a broader range of linguistic and cultural settings.

Furthermore, while quantitative data and open-ended surveys provided valuable insights into the current study, a more nuanced understanding of learner experiences could be achieved through qualitative methodologies such as in-depth interviews or focus group discussions. These methods allow the exploration of students' personal narratives, perceptions of group dynamics, and emotional responses to cooperative learning environments. For example, interviews might reveal the specific strategies students use to navigate team roles, the challenges they face when collaborating with peers of varying proficiencies, or their evolving attitudes toward grammar learning. Such qualitative data would complement statistical findings and offer a richer, more comprehensive portrait of how cooperative learning is internalized and experienced. It is also important to acknowledge that the successful implementation of the STAD model relies heavily on the instructor's role as facilitator. Unlike traditional instructional formats, in which the teacher is the primary source of knowledge, cooperative learning requires instructors to manage complex social and academic interactions, monitor team progress, resolve conflicts, and ensure equitable participation. As such, the pedagogical skill

set required for STAD differs substantially from that required for conventional teaching. To support educators in effectively adopting this model, professional development initiatives should be designed that focus on collaborative learning theory, classroom management techniques, and practical strategies for forming and maintaining heterogeneous teams. These training programs might include workshops, teaching simulations, and access to instructional resources such as team activity templates, assessment rubrics, and digital toolkits. In addition, peer observation and reflective teaching practices should be encouraged to foster continuous professional growth. By equipping instructors with the knowledge and tools necessary to implement cooperative learning successfully, educational institutions can create more inclusive and effective language learning environments.

In conclusion, while the current study affirms the value of the STAD cooperative learning model in fostering improved motivation and academic performance, particularly among lower-proficiency students, considerable scope remains for further innovation and exploration. By incorporating differentiated instruction, adopting longitudinal research designs, leveraging digital tools, expanding to new linguistic and cultural contexts, and investing in teacher training, future research and practice can continue to refine cooperative learning strategies that promote equity, engagement, and excellence in language education.

Conflict of Interest

The author declares that there is no conflict of interest.

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