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Secondary School Students' Level of use The Cooperative Learning Strategies - A field study of a sample of secondary school students.

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Abstract:
The current study aimed to determine the level of secondary school students' use of cooperative learning strategies, as well as to detect differences in their use according to the following variables: gender, academic specialization, and academic level. The study sample consisted of 200 male and female students. The cooperative learning scale, prepared by Mezhoudi in 2024, was used, in addition to using the descriptive and analytical approach appropriate for the study. The results showed the following:
The level of secondary school students' use of cooperative learning is high.
There are no statistically significant differences in the use of cooperative learning according to the variable (gender and academic specialization).
There are statistically significant differences in the use of cooperative learning according to the variable of academic level.

Keywords: *Learning / Cooperative Learning / Strategy / Secondary School Students***.**

Niveau d'utilisation des stratégies d'apprentissage coopératif par les élèves du secondaire - Étude de terrain menée auprès d'un échantillon d'élèves du secondaire

Résumé :
La présente étude visait à déterminer le niveau d'utilisation des stratégies d'apprentissage coopératif par les élèves du secondaire, ainsi qu'à détecter les différences dans leur utilisation en fonction des variables suivantes : sexe, spécialisation académique et niveau scolaire. L'échantillon de l'étude était composé de 200 élèves, garçons et filles. L'échelle d'apprentissage coopératif, élaborée par Mezhoudi en 2024, a été utilisée, en plus de l'approche descriptive et analytique appropriée à l'étude. Les résultats ont montré ce qui suit :
Le niveau d'utilisation de l'apprentissage coopératif par les élèves du secondaire est élevé.
Il n'y a pas de différences statistiquement significatives dans l'utilisation de l'apprentissage coopératif en fonction de la variable (sexe et spécialisation académique).
Il existe des différences statistiquement significatives dans l'utilisation de l'apprentissage coopératif en fonction de la variable du niveau scolaire.

Mots-clés *: Apprentissage / Apprentissage coopératif / Stratégie / Élèves du secondaire.*

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Introduction:

Recent trends in educational institutions have made necessary to search for modern Methods and strategies and effective teaching Methods That aim to improve the educational process, which affect on students' comprehension of scientific material, and encourage them to interact, participate which integrate the learner as a participating and active member in the educational process, one of the modern strategies that appeared in the modern educational strategy is the cooperative Learning strategy that gives the individuals the Opportunity to interact with colleagues and develop positive attitudes towards them and enhance their cooperation.

Cooperative Learning is a form of organizing the Classroom environment based on dividing students into groups whose members are characterized by varying abilities, and they are required to do a specific job with each other, through interaction, provided that everyone bears responsibility for Learning within the group in order to achieve the goals (Sahtoot & Jaafar, 2014, p. 222) .According to Sharan (2010), cooperative Learning is about Learning together in Small groups, It is also about the teacher's ways of using methods and strategies to help developing Relationships between students and increase participation within the Classroom. (Sulaiman & Thakur, 2022).

According to Slavin (1991) it will benefit the different groups of learners who are learning in one group. This study showed that cooperative learning can improve students' achievement and cognitive skills. If properly implemented, each student has the responsibility to master a subtopic and

be able to share his/her knowledge with other members of the group. For this purpose, pupils need to really understand the subtopics, rather than just memorizing a topic. This result in higher level processing that improves memory and thus allows them to show better achievement (Mahamod & Somasundram,2017, p2442).

Omosehin (2003) investigated the effects of a training programme in cooperative learning of pre-service teachers' classroom practice and pupils' learning outcomes in Social Studies. It was the conclusion of all these studies that cooperative learning strategies seem more useful than other instructional strategies (Adeyemi, 2008, p696).

Johnson and colleagues (1981) published the results of a meta-analysis of 122 studies that examined the effects of cooperative, competitive, and individualistic learning on achievement. The results showed that cooperation promotes higher achievement and greater productivity than do competitive or individualistic modes of learning and these results were consistent across all subject areas, all age groups, and for a variety of cognitively challenging tasks. Interestingly as cooperation increases, the authors found that groups produce a better group product when they compete against other groups, demonstrating that students still enjoyed competing but in an environment that was supportive of their efforts to achieve (Gillies,2014, p128).

In addition (Ronsini, 2000) defines cooperative Learning as a successful educational strategy in which Small teams, with different levels of abilities, use a variety of Learning activities to improve their Understanding of a subject. Each member of the team is responsible for his own Learning and for helping his colleagues learn, in order to achievement (Maluni, 2021, p501)

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Further to Johnson and Johnson (1989), cooperative learning experiences promote more positive attitudes toward the instructional experience than competitive or individualistic methodologies. In addition, cooperative learning should result in positive effects on student achievement and retention of information (Rosini & Flowers,1997; p2). In simillary. (Ajaja & Eravwoke2010) noted that Cooperative Learning is important in helping learners acquire from the curriculum the basic cooperative attitudes and values they need to think independently inside and outside the classroom. (Ajaja & Eravwoke,2010, p2).

(Akinbobola,2004; Elvis, 2013) has shown that the use of cooperative learning improves students'attitude and achievement in science through development of higher-level thinking skills, increase in content retention and fostering of teambuilding. (maluni,2021; p501).

Also (Fall,1995) in their contributions noted that cooperative learning activity engages the student in the learning process and seeks to improve the critical thinking, reasoning, and problem-solving skills of the learner(Ajaja & Eravwoke), According to (Mc Keachie, 1986) ,students are more likely to acquire critical thinking skills and metacognitive learning strategies, such as learning how to learn, in small group cooperative settings as opposed to listening to lectures(Rosini & Flowers,1997)

Also, there studies (Gillies, 2006; Nhu-Le, 1999; Vaughan, 2002; Zain, Subramaniam, Rashid & Ghani, 2009) which have demonstrated the outcomes that cooperative learning promotes advanced learning skills, better interconnectedness among students, higher self-esteem in learning, and better learning attitudes. In summary,

cooperative learning should be employed to effectively enhance better engagement of students' learning attitude for a better learning outcome (Tran,2019, p13). so, Based on the aforementioned, this research paper aims to answer the following questions:

- What is the level of secondary school students' use of cooperative learning?
- Are there differences in secondary school students' use of cooperative learning attributed to gender?
- Are there differences in secondary school students' use of cooperative learning attributed to their major (scientific/literary)?
- Are there differences in secondary school students' use of cooperative learning attributed to academic level (first year, second year, third year)?

Hypotheses:

- The level of secondary school students' use of cooperative learning is average.
- There are differences in secondary school students' use of cooperative learning attributed to gender.
- There are differences in secondary school students' use of cooperative learning attributed to their major (scientific/literary).
- There are differences in secondary school students' use of cooperative learning attributed to academic level (first year, second year, third year).

Study objectives:

- To determine the level of secondary school students' use of cooperative learning is average.

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- To identify differences in secondary school students' use of cooperative learning attributed to gender.
- To identify differences in secondary school students' use of cooperative learning attributed to their major (scientific/literary).
- To identify differences in secondary school students' use of cooperative learning attributed to academic level (first/second/third year).

1. Definition of cooperative learning strategy:

Different researchers have different definitions of cooperative Learning. For Example :

Slavin (2011) refers to cooperative learning as "instructional methods in which teachers organize students into small groups, which then work together to help one another learn Academic content" (Slavin,2011, p.344), Also (Johnson & Johnson, 2009) refer to cooperative learning as a "set of methods in which students work together in small groups and help one another to achieve learning objectives" (lkenna, 2017, p58). In addition, (Al-Fatlawi, 2003) considered cooperative Learning as a teaching model that requires dividing learners into small groups according to a specific organization, which focuses on positive exchange between members of these groups, through dialogue, interaction and work with each other (Al-Fatlawi, 2003, p 315). Further, (Woolfolk, 2001). Refer to cooperative Learning is an arrangement in which students work in groups with heterogeneous ability possessing students and are rewarded on the basis of the success of the group as a whole (Pathak & Mahure,2022, p29). Also (Arendale 2005 ;

Heba & Nouby 2007). Other definitions focused on the interaction between the learners and the role of cooperative Learning to make the process of Learning student-centred rather than teacher-centred. Cooperative Learning is a Learning technique which depends on activities that enhance the student-student interaction (Shoghi,2022, p 9-10).

2. The Fundamental Elements of Cooperative Learning:

Cooperative learning goes beyond the mere physical presence of students working side by side; it entails a structured approach that incorporates several key elements to ensure its effectiveness:

- **Positive interdependence :**

Refers to students working as a unified team to achieve shared learning goals, with each individual being responsible for their own learning as well as supporting their peers (Jensen, Moore & Hatch, 2002). This requires collaboration and mutual assistance among group members to accomplish academic tasks, while ensuring that each member masters the learning material (Yemi & Others, 2018).

- **Individual accountability:**

Determine individual responsibility by assigning each member of the the group performs part of the required task, and its importance in Helping each member of the group to learn as much as possible (Meimoune & Ibrahimi, 2019, p 198), Also (Chen,2022) noted that Group members must do their part to improve the learning effectiveness of the whole group and achieve common goals (Chen,2022; p2436).

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- **Face to Face Interaction:**

face-to-face interaction, where students' close seating and direct communication facilitate the exchange of ideas and answers, as well as the acquisition of social and behavioral patterns that enhance their engagement. Verbal interaction among them further promotes positive interdependence through encouragement and appreciation of each member's efforts (Al-Marai & Al-Hila, 2002).

- **Interpersonal and Small Group Skills:**

The effectiveness of cooperative learning requires students to possess social skills such as leadership, decision-making, trust, and communication, in addition to their ability to work collaboratively, manage conflicts, and negotiate to serve the group's best interest (Johnson & Johnson, 2017; Vargas, 2014).

- **Group Processing:**

Group processing is a collective evaluation process aimed at reviewing the achieved goals and clarifying members' roles, which helps enhance the effectiveness of their contributions to accomplishing the joint task (Al-Yassin & Al-Musailem, 2014; Yemi et al., 2018).

3. Types of Cooperative Learning Strategies:

Within the framework of cooperative Learning, groups can be formed according to :

- **JIGSAW Strategy :** The Jigsaw strategy, where students are divided into groups, and each member is assigned a specific part of the lesson according to the

teacher's division and the number of students. Those assigned the same part meet in expert groups to study it in depth, then each student returns to their original group to present what they have learned. In this way, every member becomes an expert in one section of the subject and is responsible for teaching it to their peers (Zeitoun, 2003).

- **Student Teams Achievement Division (STAD) strategy :** The STAD strategy is based on forming heterogeneous groups of 4–6 students who collaborate in discussing an academic topic. Each student's progress is measured through individual pre- and post-tests, and the scores are then combined to calculate the group's total, with rewards given to the highest-performing groups (Bourahli, 2021).

- **Learning Together (LT) strategy :** (LT) strategy is based on students working in small groups of five members, where each student is assigned a specific role : leader, reader, summarizer, evaluator, or recorder. These roles are not fixed ; rather, they rotate from one class to another so that each student experiences all the roles throughout the study period of the subject (Fadhel, 2010).

- **Think-Pair-Share Strategy :** The Think-Pair-Share strategy consists of three steps the student first thinks individually about the question posed by the teacher, then discusses their ideas with a partner, and finally shares the results of the discussion with the group to represent collective thinking (Ben Nouioua, 2020, p. 137).

- **Group Investigation (GI) strategy** : The Group Investigation (GI) strategy is based on small groups of 2–6

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students who select a topic of interest, plan its study, conduct in-depth research, and then present and discuss their findings with the rest of the class (Yemi & Others, 2018).

4. The Importance of Cooperative Learning

Cooperative learning is considered an educational approach that encourages students to work together in small groups to achieve common academic goals. Several studies have highlighted its importance. According to Johnson & Johnson (2002) and Slavin (1996), it reduces peer competition and isolation while enhancing academic achievement and positive relationships. Similarly, Othman & Others (2012, p.501) found that students benefit both academically and socially when they interact to accomplish shared objectives.

Furthermore, Al-Sulaiti (2006, as cited in Al-Badarin, 2021, p.574) emphasized that cooperative learning contributes to raising achievement levels, improving memory retention, fostering self-motivation, strengthening positive relationships among students, and developing their attitudes toward learning and school.

Altun (2015) also demonstrated its positive effect on student achievement in science and technology, while Takallou & Veisi 2013, as cited in (Yemi & Others, 2018, p.128) revealed that cooperative learning had a significant impact on reading comprehension, with both high- and low-achievers showing positive attitudes toward this method.

Finally, Resnick (1987, as cited in laal & Ghodsi, 2012, p.489) noted that cooperative learning enhances self-management, as students are trained to complete tasks, collaborate effectively, and understand their contributions to group

work, in addition to acquiring behavioral regulation skills within their groups.

5. Previous studies:

- **Study by Shabouh and Salam's (2023):** The Degree of Students' Use of Active Learning Strategies: A Field Study at the Faculty of Humanities and Social Sciences, Kasdi Merbah University, Ouargla . to examine students' use of active learning strategies (cooperative learning, brainstorming, and problem solving). Using a descriptive design, the researchers applied a questionnaire they developed on a random sample of 100 students. The results indicated that the overall use of active learning strategies was low, with no statistically significant differences related to gender or academic specialization.

- **Study by Study (Khemmed, Ben Nouaioa (2022):** Attitudes of secondary education teachers towards the use of cooperative learning strategies in the teaching process. Employed a descriptive exploratory approach to examine secondary school teachers' attitudes toward using cooperative learning strategies in the teaching process. A questionnaire was designed and administered to 97 teachers in the city of Ain El Hadjel, M'Sila Province. The results indicated that cooperative learning strategies enhance student cooperation and interaction, and that teachers hold positive attitudes toward their use. Furthermore, no statistically significant differences were found in teachers' attitudes based on gender or specialization.

- **Study by Khalifeh & Others (2022) :** Students' Attitudes Towards Applying Cooperative Learning Strategy at

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Amman Arab University, The aim of this study was to identify students' attitudes toward implementing cooperative learning strategies in English language courses at the University of Jordan. Data was collected from books and electronic sources, as well as through a questionnaire distributed to 600 students from all colleges. It also included interviews with faculty members in the English Department about their teaching strategies and methods. Results showed that students' attitudes toward cooperative learning were very positive, with greater interest and participation among students over the age of 20, with females being slightly more engaged than males. Faculty interviews also revealed a preference for face-to-face teaching and the use of collaborative strategies.

- **A study (alhamawi, 2020):** the attitudes of teachers towards cooperative learning strategies in teaching This research aims to examine teachers' attitudes toward cooperative learning strategies in teaching, using a questionnaire administered to a randomly selected sample of 24 teachers. The results showed that these strategies enhance student cooperation and interaction, with no statistically significant differences in their use based on gender or specialization, while statistically significant differences were observed related to teachers' prior years of experience.

- **A study (Samara, 2018):** The Reality and Obstacles to the Use of Active Learning Strategies by Secondary School Science Teachers in Jordan. examined the use of active learning strategies by Jordanian secondary school science

teachers and the obstacles limiting their implementation, considering variables such as gender, academic qualification, and teaching experience. Using a descriptive design, the study surveyed 344 randomly selected Earth Sciences teachers with a two-part questionnaire on strategy use and obstacles. Results showed that teachers' use of active learning strategies was moderate, while perceived obstacles were high, except for teacher-related obstacles, which were moderate. No statistically significant differences were found based on the study variables.

- **Study by Bilal (2018):** Teachers'attitudes towards teaching with cooperative learning strategy in university, this study aimed to know teachers' attitudes towards teaching with cooperative learning strategy in university, and detecting if there are differences between them depending on their gender, specialty, and experience. The sample was consisted of 103 university teachers. The results revealed that university teachers have positive attitudes towards cooperative learning strategy, and there are no differences between teachers' attitudes toward cooperative learning depending on their gender, or experience. However, there are differences between them depending on their specialty in favor of teachers in scientific specialty.
- **Study by (Saada, Al-Rashidi, 2017):** entitled The Degree of Teachers and Students in Secondary School Practicing Their Roles in Active Learning from Their Point of View. to examine the roles of teachers and students in practicing active learning from their perspective, considering several variables. The study used a descriptive approach with a sample of 200 teachers and 400 students, employing two questionnaires on the roles of teachers and learners. Results

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indicated that the degree of practicing these roles was average, with a statistically significant positive relationship between teacher and student roles. Significant differences were found in teachers' roles according to gender, favoring females, while no differences were observed based on teachers' qualification or experience. Similarly, no significant differences were found in students' roles according to gender or academic level.

- **Study by Hasan, Wannous (2011)**: Attitudes of Teachers Towards Using Cooperative Learning Strategies in Teaching: A Field Study at Secondary Schools in Lattakia, conducted a field study to investigate secondary school teachers' attitudes toward using cooperative learning strategies in teaching. A questionnaire was administered to a randomly selected sample of 200 teachers in Lattakia. The results showed that cooperative learning strategies enhance student cooperation and interaction. No statistically significant differences were found in teachers' attitudes based on gender or specialization, while significant differences were observed according to teachers' years of prior experience.
- **Study by Ajaja& Eravwoke (2010):** titled the Effects of a cooperative learning strategy on the achievement of secondary preparatory school students in integrated sciences, examining the effects of gender and ability as moderating variables. The study adopted a pre/post control group design and included a random sample of 102 students, divided into cooperative and traditional groups according to gender and ability. Data were collected using the Science Achievement Test in Integrated Science (SATIS),

the Student Attitude Scale (SAS), and the Integrated Science Academic Achievement Test (ISAT), and were statistically analyzed using analysis of variance (ANOVA). The results showed that students in the cooperative learning group achieved significantly higher scores than their counterparts in traditional classes across all ability levels, with no statistically significant differences between males and females or significant interactions between gender, ability, and learning style.

6. Comment on previous studies:

Previous studies have shown that cooperative and active learning strategies play a significant role in enhancing student interaction and collaboration in the classroom. Research on teachers indicates that they hold positive attitudes toward using these strategies, with minimal differences based on gender or experience (Khemmed & Ben Nouaioa, 2022; Alhamawi, 2020; Bilal, 2018; Hasan & Wannous, 2011). Regarding students, the level of using active learning strategies varied, being low or moderate in some studies, while other research reported strongly positive attitudes, particularly among female and older students (Shabouh & Salam, 2023; Khalifeh et al., 2022). Most studies employed a descriptive design and questionnaires to collect data, analyzing demographic differences, whereas one study used a quasi-experimental design to confirm the effect of cooperative learning on academic achievement (Ajaja & Eravwoke, 2010). Collectively, the findings indicate the effectiveness of these strategies in enhancing learning and interaction, with a need to promote their broader implementation among students and teachers.

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7. The practical side

- **Approach: The researchers adopted the descriptive-analytical approach as the most suitable for achieving the study objectives, employing appropriate tools to collect, analyze, and interpret the data.**
- **Tools:** The researchers used the Cooperative Learning Scale to answer their questions. Prepared by Mezhoudi in 2024.
- **Sample :** The study sample consisted of 200 male and female students from the first, second, and third of Siddiq Ben Yahya Secondary School, who were selected using a stratified random sampling method **.**

Table No. (01): **Distribution of the Sample According to the Variables (Gender, Specialization, and Academic Level)**

Variable		Frequency (f)	Percentage (%)
Gender	Male	100	**50%**
	Female	100	**50%**
Specialization	Scientific	97	**48%**
	Literary	103	**52%**
Academic Level	First Year	36	**18%**
	Second Year	68	**34%**
	Third Year	96	**48%**

The distribution of the sample indicates a balanced representation in terms of gender, with males (50%, n = 100) and females (50%, n = 100) equally included. A comparable balance was observed across specialization, as scientific students accounted for (48%, n = 97) and literary students for (52%, n = 103). However, variation was noted in academic level : first-year students comprised (18%, n = 36), second-year students (34%, n = 68), while third-year students represented the largest proportion (48%, n = 96). This composition suggests a greater representation of students in Advanced secondary levels.

- **Psychometric Properties of the Cooperative Learning Scale:** The scale was validated using two methods:

- **Construct validity (internal consistency validity):**

Internal consistency validity between the total score of the cooperative learning scale and its dimensions.

Table No. (02): Results of correlation coefficients between the total score of the cooperative learning scale and its dimensions.

figure	Dimensions	consistency
01	Contact	0.800**
02	Participation	0.806**
03	Discussion	0.842**
04	Leadership	0.856**
	Significant at 0.01**	

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The results presented in the table above reveal that the correlation coefficients between the sub-dimensions and the overall score of the Cooperative Learning Scale ranged from 0.800 to 0.856. All coefficients were statistically significant at the 0.01 level, indicating that each dimension is strongly aligned with the total score of the scale. This provides substantial evidence supporting the construct validity of the instrument.

- **Discriminant Validity (Extreme Group Comparison).**

In order to assess the discriminant validity of the Cooperative Learning Scale and its dimensions, the extreme group comparison method was applied. This approach involved comparing the scores of participants in the upper third and the lower third of the distribution. The obtained results are summarized in the subsequent table :

Table (03): Findings of the Extreme Group Comparison Validity for the Cooperative Learning Scale and Its Dimensions.

Variable	Upper classes N=13		Lower classes N=13		(df)	t-value	Statistical significance
	Mean	deviation	Mean	deviation			
Contact	18,92	1,60528	14,92	0,86232	24	-7,915	0.00
Participation	18,53	1,66410	13,38	1,93815	24	-7,274	0.00
Discussion	16,53	,776250	12,00	1,29099	24	-10,863	0.00

Leadership	16,53	,967420	11,53	1,26592	24	-11,315	0.00
Cooperative Learning	70,53	2,84650	51,84	2,54448	24	-17,652	0.00
Significant at 0.01**							

The analysis of discriminant validity through the extreme group comparison method demonstrated statistically significant differences at the 0.01 level between the upper and lower groups on all dimensions of the Cooperative Learning Scale (Contact, participation, discussion, and leadership), as well as on the overall scale score. The significant *t*-values obtained indicate that each dimension, in addition to the scale as a whole, has the ability to effectively discriminate between individuals. These findings provide strong evidence of the discriminant validity of the instrument, thereby confirming its suitability for use in data collection.

- **Scale Reliability :** Reliability coefficient for the cooperative learning scale and its dimensions
- The reliability of the scale was determined using the Following methods :
- **Using Cronbach's alpha coefficient.**

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Table No. (04) : Results of Cronbach's alpha reliability coefficient for the cooperative learning scale and its dimensions

Dimensions	Number of Items	Alpha Cronbach
Contact	07	0.65
Participation	07	0.61
Discussion	06	0.70
Leadership	06	0.58
Cooperative Learning	26	**0.84**

It is evident from the table above that the Cronbach's alpha reliability coefficients for the four dimensions ranged between 0.58 and 0.70, while the Cronbach's alpha coefficient for the overall scale reached 0.84. These values provide evidence of the reliability of the scale and are considered acceptable coefficients for judging its internal consistency.

- **Using the split-half method.**

Calculating the reliability coefficient using the split-half method :

To examine the reliability of the Cooperative Learning Scale, the second method, namely the split-half reliability method, was employed. Pearson's correlation coefficient was calculated between the first and second halves of the test

using the Pearson (r) formula. The obtained results are summarized in the Following table :

Table No. (05) : Split-half reliability coefficient results for the Cooperative Learning Scale and its dimensions.

Scale	Reliability coefficient	Correction factor
Dimensions	**After correction**	**Pearson's correlation coefficient (r)**
Contact	0.63	
Participation	0.62	
Discussion	0.71	
Leadership	0.58	
Cooperative Learning	0.84	

It is evident from the table above that the reliability coefficients obtained using Pearson's formula (r) were relatively high, ranging from (0.58–0.71) across the dimensions. Moreover, the overall reliability coefficient of the scale, calculated with the same formula, reached (0.84). This indicates that the scale demonstrates a high level of reliability, which justifies its use as a measurement tool in the present study.

8. Presentation of hypotheses:

- **Presentation the results of the first hypothesis:**

Hypothesis text: The level of secondary school students' use of cooperative learning strategies is average.

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To verify the validity of the hypothesis, we calculated the arithmetic mean, standard deviation, hypothetical mean, and a one-sample t-test. The following table illustrates this.

Table (06): Results of the T-test for the difference between the mean scores of the sample members and the

Variable	Sample	Mean	Deviation	Hypothesized Mean	(df)	T-value	Significance Level	Relative Weight
Cooperative Learning	200	60.50	4.1769	52	199	28.796	0.01	78%

hypothetical mean in cooperative learning.

The results related to the cooperative learning scale showed that the arithmetic mean of the scores of the study sample members, numbering (200) male and female students, was: (60.50) with a standard deviation of (4.17) at a degree of freedom of (199). When compared to the hypothetical arithmetic mean estimated at (52) using the (t) test for the single sample, which was estimated at (28.79), it showed the presence of statistically significant differences at a significance level less than (0.01). Accordingly, the results indicate that the value of the arithmetic mean is greater than the value of the hypothetical mean of the scale, and this result indicates that the level of use of cooperative learning is high among secondary school students.

- **Presentation the results of the second and third hypotheses :**

Hypothesis text : There are differences in secondary school students' use of cooperative learning strategies attributable to gender and academic specialization

Table (07) : Results of the significance of the difference in the use of cooperative learning among secondary school students according to the variable of gender and academic specialization (scientific/literary)

Cooperative Learning	Mean		Deviation		(df)	T-value	Signifi-cance Level
Gender	**Male**	**Female**	**Male**	**Female**	**198**	**1.340**	**0.18**
	60.90	**60.11**	**4.0063**	**4.3249**			
Speciali-zation	**Scientific**	**Literary**	**Scientific**	**Literary**	**198**	**0.745**	**0.45**
	60.73	**60.29**	**3.9856**	**4.3580**			

The results indicate that the mean scores of male (M = 60.90, SD = 4.0063) and female students (M = 60.11, SD = 4.3249) in cooperative learning were very close. The independent samples t-test (t = 1.340, Sig = 0.18 > 0.01) confirmed that these differences were not statistically significant. Similarly, students in the scientific specialization (M = 60.73, SD = 3.9856) and those in the literary specialization (M = 60.29, SD = 4.3580) showed nearly identical mean scores, with the t-test results (t = 0.745, Sig = 0.45 > 0.01) again indicating no significant differences. Hence, the findings suggest that the use of cooperative

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learning among secondary school students does not vary significantly by gender or academic specialization.

- **Presentation the results fourth hypotheses :**

Hypothesis text : There are differences in secondary school students' use of cooperative learning strategies attributed to academic level (first year, second year, third year).

To verify the validity of this hypothesis, the One-Way Analysis of Variance (ANOVA) was employed after confirming the assumption of normal distribution of the data.

Table (08) : results of the one-way analysis of variance (ANOVA) test for the study sample members in using cooperative Learning according to the educational level variable.

Cooperative Learning	Sample	Mean	Deviation	F-value	Signifi-cance Level
First year	36	57,38	6,28503	8,773	0.000
Second year	68	61,35	3,91615		
Third year	96	60,14	4,30172		

The ANOVA results revealed statistically significant differences in the use of cooperative learning across educational levels ($F = 8.773$, $p < 0.001$). The second-year students obtained the highest mean score ($M = 61.35$), followed by the third-year ($M = 60.14$) and first-year

students (M = 57.38). Post-hoc Scheffé comparisons confirmed that the differences were in favor of the second-year group.

Table No. (09) Results of the Scheffe test for post-hoc comparisons.

Cooperative Learning	**Difference in averages**	**Significance level**
Second - Third year	3,96	**0.000**
First - Third year	2.75	**0.000**
First - Second year	1,20	**0.007**

The results indicate that the statistically significant differences in the use of cooperative learning among secondary school students are primarily attributed to the differences between second and third grade students (M = 3.96), as well as between first and third grade students (M = 2.75), both at the 0.000 level of statistical significance. Furthermore, the difference between first and second grade students (M = 1.20) was found to be statistically significant at the same 0.000 level.

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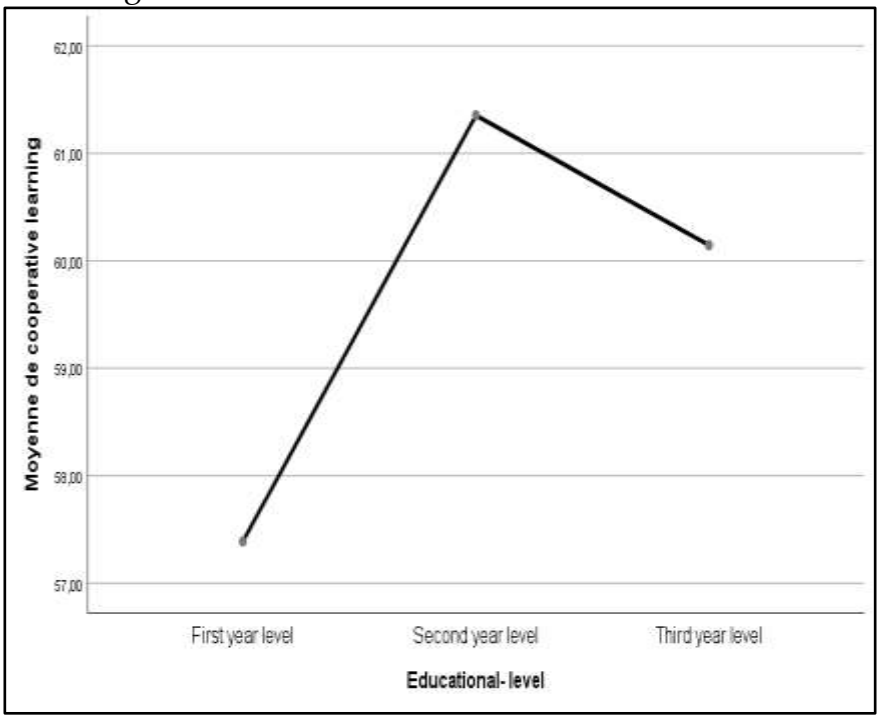
Figure No. (01): shows the differences in the use of cooperative learning among secondary school students according to the educational level variable.



Discussion :

The increased use of cooperative learning among high school students is primarily attributed to teacher's awareness, experience, and ongoing professional development, which enable effective implementation of this strategy. A supportive classroom environment and the integration of modern technology further enhance its effectiveness and improve teaching quality.

Cooperative learning provides students with opportunities for interaction, collaboration, and the exchange of ideas, fostering intrinsic motivation and strengthening group learning skills. It also reduces individual pressures, builds self-confidence, and promotes positive social communication among peers. Additionally, it addresses students' developmental and social needs, offering opportunities for self-expression and a sense of belonging within the learning group.

This approach contributes to deeper understanding of knowledge and the development of higher-order thinking skills such as analysis, evaluation, and critical thinking. The findings align with Khalifeh et al. (2022), who reported positive student attitudes toward cooperative learning, and with Ajaja & Eravwoke (2010), who found that students in cooperative learning groups outperformed peers in traditional classrooms.

Teachers' positive attitudes toward cooperative strategies were supported by Bilal (2018) and Khemmed & Ben Nouaioa (2022), while Hasan & Wannous (2011), Alhamawi (2020), and Khemmed & Ben Nouaioa (2022) emphasized their role in enhancing learner interaction and collaboration. Conversely, Samara (2018), Saada & Al-Rashidi (2017), and Shabouh & Salam (2023) reported moderate to low use of active learning strategies, indicating challenges in broader implementation.

The results indicated no statistically significant differences in the use of cooperative learning based on gender or academic major. This can be attributed to the holistic nature of this strategy, which relies on social interaction and collective responsibility—general characteristics that transcend individual differences among

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students. Other factors may play a greater role in explaining variations, such as teacher competence, school culture, and its orientation toward active learning, as well as class group characteristics including size, diversity, and cohesion. Moreover, developmental characteristics of adolescents (ages 15–18) encourage peer interaction, group belonging, and self-assertion, which are shared traits among both males and females regardless of academic major, thereby enhancing equitable participation in cooperative learning. The standardization of educational programs, assessment criteria, and instructional supervision further reduces the influence of gender or major, as cooperative learning mechanisms are based on social interaction, role exchange, and shared responsibility, fostering balanced development of social and cognitive skills for all students. These findings are consistent with Shabouh & Salam (2023), who found no differences in the use of active learning strategies according to gender or academic major, as well as Ajaja & Eravwoke (2010) and Khalifeh et al. (2022), who reported no gender-based differences in students' attitudes toward cooperative learning. Similarly, studies by Alhamawi (2020), Hasan & Wannous (2011), Khemmed & Ben Nouaioa (2022), and Samara (2018) confirmed the absence of differences related to gender or academic major among teachers. However, Bilal (2018) reported differences based on academic major, favoring teachers in the scientific stream, without gender effects, while Saada & Al-Rashidi (2017) found statistically significant gender differences in teachers' roles favoring females, with no significant differences in students' roles. Overall, cooperative learning promotes equitable

participation among all students and reduces the impact of individual differences in gender or academic major.

The second year of secondary education represents a transitional stage in which students' cognitive and social stability is further consolidated. At this point, learners have acquired foundational experience from the first year, enabling them to adapt effectively to collaborative work structures, while not yet facing the intense academic pressures characteristic of the third year, such as baccalaureate preparation. This phase of relative stability provides greater motivation for students to engage in cooperative learning, which serves as a tool for knowledge exchange and academic enhancement. Additionally, the curriculum at this stage demands a higher level of discussion and interaction, aligning closely with the principles of cooperative learning and enhancing its effectiveness. Therefore, the second year constitutes a more favorable environment for the implementation of cooperative learning practices compared to the first year, which is marked by lower maturity and experience, and the third year, which is dominated by final exam pressures.

These findings, however, contrast with those of Khalifeh et al. (2022) and Saada & Al-Rashidi (2017), who reported no statistically significant differences in students' roles or attitudes toward cooperative learning strategies across different grade levels. This suggests that students' roles in the educational process remain consistent regardless of grade, as secondary school learners tend to perform their classroom roles similarly across grades. The homogeneity of developmental and psychological characteristics at this stage accounts for the observed similarity in students' practices.

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Conclusion:

Cooperative learning is an effective educational approach based on learners' interactions with one another. It aims to develop communication and teamwork skills and to foster positive relationships among students through active participation. Such interaction allows students to benefit from their shared educational experiences and contributes to achieving better academic and social outcomes. Cooperative learning is particularly important in several areas, including:

- Developing social skills.
- Enhancing communication and collaboration among students.
- Improving problem-solving abilities collectively.
- Encouraging critical thinking and active participation, which in turn improves academic performance and achievement levels.

Regarding the findings of the present study, they are as follows:

- The level of secondary school students' use of cooperative learning is high.
- There are no statistically significant differences in the use of cooperative learning according to the variable (gender and academic specialization).
- There are statistically significant differences in the use of cooperative learning according to the variable of academic level.

Recommendations:

- Integrate cooperative learning as a central strategy to enhance students' academic and social skills.

- Prepare and train teachers and trainee educators to implement cooperative learning effectively within the classroom.
- Provide educational resources and reduce class sizes to ensure the systematic and effective application of cooperative learning.
- Develop curricula to include group-based activities that support collaboration and knowledge sharing.
- Encourage students, particularly at the secondary level, to actively participate in cooperative learning to foster positive communication and improve academic performance

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