# Exploring the differences between males and females in academic inclinations towards scientific subjects: A Field Study at Abd El Hamid Ben Badis Middle School, El Hadika, Skikda.

**Ouerzgui wafa[1]*, metatla moussa[2]**

[1] university of 20 august 1955 skikda laboratory of psychological and educational applications (Algeria)
**w.ouerzgui@univ-skikda.dz**

[2] university of 20 august 1955 skikda laboratory of psychological and educational applications (Algeria)
**m.metatla@univ-skikda.dz**

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**Abstract**:

This study aims to reveal differences in academic inclination towards scientific subjects among fourth-year middle school students at Abd El Hamid Ben Badis Middle School in El Hadika, Skikda, between males and females. To address the research question, we employed a descriptive method incorporating both theoretical and practical elements to verify the hypotheses. A questionnaire was used as a tool for data collection and was distributed to 100 students. A total of 91 valid questionnaires were successfully retrieved for statistical analysis. We used the arithmetic mean, the t-test and ANOVA for our analysis. Our study yielded several results, the most significant of which was that there was a moderate level of academic inclination towards scientific subjects among fourth-year middle school students. The study also confirmed that there are differences in academic inclination towards scientific subjects between males and females, favouring females. Furthermore, the study found that differences in academic inclination towards scientific subjects among students are attributed to the desired educational track.

**Keywords**: inclinations, academic inclinations, students, fourth-year middle school.

الملخص:

هدفنا من خلال الدراسة الحالية إلى الكشف عن الفروق بين الذكور والاناث في مستوى الميول الدراسية نحو المواد العلمية لدى تلاميذ الرابعة متوسط، بمتوسطة عبد الحميد بن باديس – الحدائق – بسكيكدة، وللإجابة عن إشكالية الدراسة استخدمنا المنهج الوصفي، حيث تضمنت دراستنا جانبين جانب نظري وجانب ميداني تم من خلاله التحقق من صحة الفرضيات، كما اعتمدنا على الاستمارة كأداة من أدوات جمع المعلومات، حيث تم توزيعها على 100 تلميذ وتمكنا من استرجاع 91 استمارة صالحة للتحليل الاحصائي، مستخدمين في ذلك المتوسط الحسابي، اختبار t. Test، واختبارAnova، و قد توصلنا في دراستنا إلى عدة نتائج أهمها، وجود مستوى متوسط للميول الدراسية نحو المواد العلمية لدى تلاميذ الرابعة متوسط،

كما اثبتت الدراسة وجود فروق بين الذكور والاناث في الميول الدراسية نحو المواد العلمية لدى تلاميذ الرابعة متوسط لصالح الإناث، كما توصلت الدراسة الى انه توجد فروق لدى التلاميذ في الميول الدراسية نحو المواد العلمية تعزى لمتغير الشعبة المرغوب فيها .

**الكلمات المفتاحية:** الميول، الميول الدراسية، التلاميذ، الرابعة متوسط.

## 1. **Introduction**:

Academic inclinations refer to a student's predisposition and interest in specific fields of study and knowledge. These inclinations can significantly influence educational and career choices. Understanding these inclinations is considered one of the key factors in guiding learners towards academic paths that align with their abilities and interests. This can contribute to an individual's success or failure in their studies, as inclinations are one of the most important factors affecting the learning and teaching process. Effective learning requires a solid foundation, including stimulating intrinsic motivations and drivers in learners to make them recognise and engage with subjects and activities they are inclined towards and prefer.

Moreover, academic inclinations reflect psychological and intellectual tendencies related to the formation of the learner's personality, which is shaped by factors such as family environment, life experiences, cultural and societal influences, and cognitive abilities.

During the fourth year of middle school, students face a critical transitional phase in which they must decide on their future direction and identify the specialties they wish to continue studying. Therefore, it is crucial to understand their academic inclinations towards scientific and literary subjects at this stage, before they are guided towards different educational tracks. Previous studies have indicated clear disparities in students' interests in science.

## **Problem statement**:

In light of the ongoing transformation of educational systems worldwide, the study of academic inclinations among students is a significant concern for educators and educational psychologists. Hansen (1995) and Cherry (1981) argue that inclinations play an active role in students' choice of academic specialism. Bakr (2004) observed that many students decide on their field of study after completing the general education phase (Dhamini, 2020). Academic inclinations reflect the psychological and social attitudes that direct students' interests towards various subjects, forming an essential part of the educational process's success. Understanding students' inclinations can help to create a learning environment that meets their needs and personal preferences, potentially enhancing their ability to engage with academic subjects effectively.

The middle school stage, particularly the fourth year, is a pivotal time in personality formation, when academic inclinations begin to crystallise more clearly. Super identified the inclination

formation phase as occurring between the ages of 14 and 17. During this period, students become self-aware of their inclinations and abilities, enabling them to determine their academic and career paths (Aarar, 2019).

At this stage, students' preferences and inclinations may diverge, influencing their future choices, such as whether to specialise in science or literature, and the types of academic activities they will engage in during subsequent stages. Some students may be drawn to scientific subjects such as mathematics and the natural sciences, while others may prefer literary or social subjects. Recognising scientific inclinations is important as it represents a general behavioural tendency that draws an individual towards a specific area of activity, increasing their interest in it relative to other fields. This awareness can emphasise the importance of specialisation at an early age (Badaoud, 2020). Therefore, the inclinations and preferences displayed during middle school serve as a gateway to the formation of a student's professional and academic identity later on, making it essential to support these inclinations through awareness and guidance.

The current study aims to explore the level of academic inclination towards scientific subjects among fourth-year middle school students, and to determine whether there are gender differences in this inclination by posing the following questions:

- What is the level of academic inclination towards scientific subjects among Year 4 students at Abd El Hamid Ben Badis Middle School?

- Are there statistically significant differences in academic inclination towards scientific subjects among fourth-year middle school students that can be attributed to gender?

- Are there statistically significant differences in academic inclination towards scientific subjects among fourth-year middle school students attributed to educational track?

**Study hypotheses**:

**General hypothesis**:

The level of inclination towards scientific subjects among fourth-year middle school students is moderate.

**Partial hypotheses**:

There are no statistically significant differences in academic inclination towards scientific subjects among fourth-year middle school students attributed to gender.

There are no statistically significant differences in academic inclination towards scientific subjects among fourth-year middle school students attributed to educational track.

**Objectives of the study**:

- To determine the level of academic inclination towards scientific subjects among learners.

- To explore differences in academic inclination towards scientific subjects between genders.

- To investigate differences in academic inclination towards scientific subjects based on educational track choice.

**Significance of the study**:

The current study aids understanding of students' academic inclinations.

It enables teachers and counsellors to guide students towards specialisms that align with their inclinations.

It enhances motivation for learning by recognising students' inclinations and supporting them in achieving their goals.

**Operational definitions of the study concepts**:

**Inclinations**:

Refers to the personal preferences that a student develops towards specific subjects.

**Academic inclinations**:

The academic subjects a learner wishes to study, as determined by their responses to the questionnaire regarding inclinations towards scientific subjects and their scores.

**Students**:

The plural of 'student', referring to individuals receiving an education at an educational institution, such as a school or college.

**Fourth-year middle school**:

The final year of secondary education, designed to enhance students' knowledge and prepare them for the transition to further education.

**Previous studies and commentary**:

**Zaitoun's study**, **titled 'Scientific Inclinations Among Students in the Third Preparatory and Third Secondary Grades in Some Government Schools in Jordan'** (**1987**).

This study aimed to assess the level of scientific inclination among students in these grades in a sample of government schools in Jordan, and to examine variations in this inclination. The researcher employed a descriptive method, applying the study to a sample of 276 students in the Zarqa Governorate during the 1985/86 academic year. To test the study hypotheses, the researcher utilised the t-test, two-way analysis of variance and the Pearson correlation coefficient. The study employed a scientific inclination scale comprising 48 items. The findings revealed statistically significant differences at the 0.01 level in the level of scientific inclination among third-secondary-level science students, favouring female students. However, no such differences were found among third preparatory students (Al-Abadlah, 2007).

**Al-Sabbagh's study**, **titled 'The Level of Scientific Inclinations Among Students in the Preparatory and Secondary Stages**: **An Analytical Study'**, **was conducted in 1996**.

This study aimed to determine the level of scientific inclination among female and male students in Years 3 and 4 of preparatory and secondary school in some schools in the Monufia Governorate. A scientific inclination scale was used to collect data for this study, which was administered in March and April 1995. One of the key findings was that the level of scientific inclination among preparatory and secondary school students requires more attention. The study also found statistically significant differences in scientific inclinations between female and male third preparatory grade students, favouring male students. However, no significant differences were found between female and male third secondary science grade students (Al-Abadlah, 2007).

**Al-Moujbir's Study** (**2000**) **titled "The Level of Scientific Thinking Skills Among Eighth Grade Students and Their Relationship with Their Scientific Inquiry and Inclinations**."

This study aimed to determine the average scientific thinking skills, scientific inquiry, and scientific inclinations among eighth-grade students, as well as to reveal gender differences and define the nature of the relationship among these variables. The researcher employed both experimental and descriptive methods, with a sample consisting of 325 students (161 male and 164 female) from various preparatory schools in Gaza Governorate affiliated with the UNRWA. The tools used in the study included a scientific thinking skills test, a scientific inclinations questionnaire, and a scientific inquiry scale. The key findings indicated no statistically significant differences between male and female eighth-grade students on the scientific thinking skills test.

However, there were statistically significant differences favoring male students in scientific inquiry, while female students showed statistically significant higher scores in the scientific inclinations scale (Al-Abadlah, 2007).

**Zaitoun and Ayash Mahmoud's study (2014), titled 'Scientific Inclinations and Their Relationship with Educational Level, Gender, and Science Achievement Among Basic Education Students in Jordan'.**

This study aimed to determine the level of scientific inclination among basic education students in years six and ten and its relationship with educational level, gender and science achievement, including their interactions. The study was conducted on a sample of 730 students. Participants were asked to complete a scientific inclination scale, and the results indicated that their level of scientific inclination was 70.25% of the maximum possible score, with sixth-grade students achieving an average score of 73.25% and tenth-grade students achieving an average score of 67%. Male students scored 67%, while female students scored 71.75%. The study found statistically significant differences in the level of scientific inclination attributed to the variables of educational level, gender and science achievement (Zaitoun & Mahmoud, 2014).

**Ahmed Lakhal and Nour Buaicha's study (2020), titled 'The level of scientific inclinations towards natural sciences among second-year secondary students in experimental sciences at March 19, 1962 High School in Blel, Laghouat Province'.**

The study aimed to assess the level of scientific inclination among second-year secondary school students on the experimental sciences track. The researchers used Zaitoun's (1987) scale with a sample of 47 students. The results showed that 68.07% of second-year students (both male and female) had higher-than-average and elevated levels of scientific inclination, while 31.93% had below-average and low levels. The study also revealed statistically significant differences in the level of scientific inclination based on gender, favouring female students (Lakhal & Buaicha, 2020).

A review of previous studies on academic inclinations, ranging from older studies to more recent ones, shows that our current study builds on these studies as it overlaps with several of their findings. For example, both studies reveal the level of academic inclination towards scientific subjects among students and identify differences in these inclinations based on gender and educational track. Our study aligns with that of Zaitoun and Ayash Mahmoud (2014) in that both studies found gender-based differences in scientific academic inclination. This finding is also consistent with the results of Ahmed Lakhal and Nour Buaicha's study (2020).

However, Al-Sabbagh's (1996) study differed in that it found statistically significant differences in scientific inclinations favouring male students in the third preparatory grade, whereas our study found significant differences in academic inclinations towards scientific subjects favouring female students. Furthermore, Al-Sabbagh's study reported no statistically significant differences between males and females in the third secondary grade regarding scientific inclinations.

**Theoretical background of the study**:

**The concept of academic inclinations**:

Guilford defines inclination as 'a general behavioural tendency in an individual that draws them towards a specific category of activity'. In other words, an inclination is a general trait that indicates something of significant value attracts a person (Noyoua & Mahkour, 2017, p. 78).

Therefore, academic inclination can be considered a general behavioural trait that distinguishes an individual and manifests as a tendency towards specific activities and fields of study that the individual perceives as valuable and significant. Interest in a particular area indicates a connection between an individual's inclinations and their field of study.

Academic inclinations refer to the various behavioural and psychological patterns that influence academic performance and motivation among students. They can be influenced by personality traits, types of motivation and other social and demographic factors (Bipp et al., 2009).

It can be concluded that academic inclinations are patterns of behaviour and psychological characteristics that determine a student's preference for certain subjects or activities over others. These inclinations are fundamental factors that may affect academic performance and students' motivation to learn. Academic inclinations are formed through personality traits, motivations and social factors.

They are defined as "any activity that a student enjoys engaging in, whether inside or outside school". They involve attachment to a particular subject and a tendency to pay attention to it and maintain interest in it to some degree. This inclination may relate to what the individual loves or admires, or to activities that occupy their thoughts (Al-Moubdil, 2016, pp. 535–536).

According to this definition, inclination can be described as an internal orientation or psychological drive that motivates learners to engage with a particular activity, whether inside or outside the school environment, and experience enjoyment and interest. This activity could be related to learning, hobbies, or even matters that pique the individual's interest, leading them to want to engage with them continuously. Inclination is linked to a person's attraction to something, enhancing their attention and focus on that matter. This inclination may arise from

associating the activity with something the individual loves, enjoys, or finds challenging, and it may influence their motivation to maintain ongoing interest in the topic.

**The importance of studying academic inclinations: why measure inclinations?**

Mehrens and Lehmann (1991) argue that understanding a learner's academic inclinations is crucial for teachers, as it helps them to interpret their struggles in certain subjects. Moreover, inclinations can be utilised in remedial education. For example, a student who struggles with reading could improve their skills by being given written materials on subjects they are interested in (Al-Faqi, 2005, p. 374).

Knowing a student's academic inclinations is not only a tool for understanding the causes of academic failure, but also a fundamental way of improving teaching methods and tailoring educational materials to enhance the student's desire to learn and address their weaknesses.

**Classification of Inclinations According to Super**:

- Verbally expressed inclinations: These are inclinations that the individual expresses verbally, indicating their preference or lack of preference for something by simply stating whether they like or dislike it. These inclinations are measured through questionnaires, and their stability depends on the individual's level of maturity.

Observable inclinations: These inclinations are evident through the types of activities or work an individual engages in during their daily life.

Observable inclinations: These are evident through the types of activities or work an individual engages in during their daily life. For instance, a student who leaves school to rehearse for or perform in a play demonstrates an inclination towards that hobby.

- Inclinations measured by objective tests: Here, a person's inclination is measured by their level of knowledge in an area that interests them.

- Inclinations measured by self-assessment scales: These are similar to questionnaires in that they express inclinations verbally. However, they differ in that they involve testing multiple alternatives, each with a determined score (Al-Mutairi, p. 20).

Thus, inclinations are defined as psychological predispositions expressing an individual's desire, acceptance, or rejection of specific patterns of activity, situations, or subjects. A verbal declaration by an individual that they like or dislike something is insufficient for judgement, as measuring inclinations relies on various investigative methods through which the degree of an individual's inclination is determined. Inclinations manifest in observable behaviour, which can be inferred

from an individual's daily activities or work. From a scientific perspective, inclinations can be measured using objective tests, whereby a person's inclination is assessed based on their knowledge and experience in a given field, as well as their level of interest in it.

**Nature of Inclinations**:

Inclination as an emotional tendency: an inclination is characterised by its emotional nature and differs from ability. An individual may be inclined to engage in or learn a particular activity, but this does not imply that they are capable of performing it. Conversely, an individual may have the ability to engage in a specific activity, but not be inclined to practise or learn it.

- Support for achievement: inclination provides strong support for individuals to accomplish what they are capable of. The combination of inclination and ability leads to achievements that exceed those reliant on either factor alone.

- Acquired through learning: Inclinations are acquired and shaped by learning, practice and interaction with environmental influences.

- Stability over time: inclinations are unstable in children, but tend to stabilise by the end of adolescence, with significant changes becoming less frequent after the age of twenty-five.

Diversity of inclinations: Inclinations among individuals vary in terms of their subjects. People in certain fields may share some inclinations while differing in others.

- Variability in intensity: Inclinations can vary in intensity. They may be stronger for an individual at a specific age than at another stage of life, and one person's inclination may be more intense than another's.

- Role of inclination as motivation: inclination motivates the individual to engage in activities, directing their efforts towards them and providing reassurance upon completion (Omar et al., 2009, pp. 309–310).

Therefore, academic inclination can be described as an internal tendency that reflects an individual's desire or intrinsic motivation towards a specific activity, which is distinct from ability and competence. Academic inclination is also a strength that supports students in achieving success, especially when combined with ability. Inclination is influenced by learning, practice and environmental factors, and may change over time or due to new experiences. Academic inclinations vary in terms of both subject matter and intensity.

## 2. Methodological framework of the study:

### 2.1 Method:

This study utilised a descriptive method, as it is suitable for the nature, characteristics and objectives of the study. The current study aims to identify the level of academic inclination towards scientific subjects among fourth-year secondary school students, and to determine whether there are gender differences in this inclination.

### 2.2 Study population and sample:

The study population consisted of all fourth-year middle school students at Abd El Hamid Ben Badis Middle School for the 2023/24 academic year, totalling 100 students. We employed a comprehensive survey method targeting all fourth-year students. One hundred questionnaires were distributed, but only 94 were returned due to student absences and questionnaires being lost during distribution by the intermediary acting between the researcher and the students. Three questionnaires were excluded due to their unsuitability for statistical analysis, leaving 91 valid questionnaires for the study.

**Table 1: shows the distribution of the study sample according to gender.**

| Gender | Frequency | Percentage |
|---|---|---|
| Male | 43 | 47.3 |
| Female | 48 | 52.7 |
| Total | 91 | 100 |

**Source**: Prepared by the researchers based on SPSS outputs.

**Table 2: shows the distribution of the sample according to educational track.**

| Branch | Frequency | Percentage |
|---|---|---|
| Literature and Philosophy | 30 | 30 |
| Languages | 19 | 20.9 |
| Sciences | 34 | 37.4 |

| | | |
|---|---|---|
| Technical Sports | 8 | 8.8 |
| Total | 91 | 100 |

**Source**: Prepared by the researchers based on SPSS outputs.

### 2.3 Data collection tool:

In this study, we used a questionnaire adapted from the book Educational Assessment by Rafida Al-Hariri (2008) to measure scientific inclinations. Responses were given on a five-point Likert scale, with the following options: Weak (1), Acceptable (2), Good (3), Very Good (4), Excellent (5).

**First**: **Validity**

Validity refers to the ability of a test to accurately measure what it is designed to measure. In this study, we calculated self-validity, determined through quartile stability using Cronbach's alpha coefficient. The value found was 0.96, which is high and meets the requirements for proceeding with the analytical procedures of the scale and for reliably using the scale to collect various study data.

**Secondly**: **Reliability**

Reliability indicates that the tool used in the study remains stable when used again. We calculated reliability using Cronbach's alpha based on the study sample, finding the coefficient value to be 0.94.

**Table 3**: **shows the Cronbach's alpha reliability calculation**.

| Number of Items | Cronbach's Alpha |
|---|---|
| 31 | 0.94 |

**Source**: Prepared by the researchers based on SPSS outputs.

### 2.4 Statistical methods:

We used the Statistical Package for the Social Sciences (SPSS) to analyse and process the data obtained through the study scale. The following methods and tests were used in this study:

- Cronbach's alpha coefficient: to calculate reliability.

Arithmetic mean: to calculate the level of academic inclination.

The independent samples t-test was used to determine differences in academic inclination based on the gender variable.

One-way ANOVA was used to determine differences in academic inclinations based on the educational track variable.

## 3. Presentation and discussion of study results:

### 3.1 Presentation, discussion and analysis of study results in light of the general hypothesis:

The general hypothesis states that 'academic inclinations among fourth-year middle school students at Abd El Hamid Ben Badis Middle School are moderate'. To determine this level, the range was calculated by subtracting the lowest response from the highest response. The interval length was then calculated by dividing this result by the responses on the measurement scale. This produced five levels, as follows:

- Very low: 1.00–1.80
- Low: 1.81–2.60
- Moderate: 2.61–3.41
- High: 3.42–4.22
- Very high: 4.23–5.00.

Based on the weighted average, we determined that the level of academic inclination in the research sample was moderate, estimated at 2.79.

### 3.2 Presentation and discussion of results in light of the partial hypotheses:

#### 3.2.1 Presentation and discussion of results in light of the first partial hypothesis:

To test the first partial hypothesis, which states that there are no statistically significant differences in inclination towards scientific subjects among fourth-year middle school students according to gender, we conducted an independent samples t-test. The results are shown in Table 4.

**Table 4: shows the results of the difference test based on the gender variable.**

| Variable | Sig Value | Significance Level |
|---|---|---|
| Gender | 0.008 | 0.05 |

**Source**: Prepared by the researchers based on SPSS outputs.

By comparing the Sig value with the significance level, we can see that the Sig value (0.008) is less than the significance level ($\alpha$ = 0.05). Therefore, we reject the null hypothesis that 'there are no statistically significant differences in academic inclinations among fourth-year middle school students due to the gender variable', and accept the alternative hypothesis that 'there are statistically significant differences in academic inclinations among fourth-year middle school students due to the gender variable' (https://en.wikipedia.org/wiki/Statistical_significance; https://www.statsig.com/blog/understanding-significance-levels-a-key-to-accurate-data-analysis).

### 3.2.2 Presentation and discussion of results in light of the second partial hypothesis:

To test the second partial hypothesis, which states that there are no statistically significant differences in inclinations towards scientific subjects among fourth-year middle school students due to the educational track variable, we conducted a one-way ANOVA test. The results were as follows: (https://www.scirp.org/pdf/ce_2022063015002473.pdf) [4] (https://nachi-keta.medium.com/a-comprehensive-guide-to-anova-analysis-and-its-applications-e2b55b487643):

**Table 5: shows the results of the difference test based on the educational track variable.**

| Variable | Sig Value | Significance Level |
|---|---|---|
| Branch | 0.000 | 0.05 |

**Source**: Prepared by the researchers based on SPSS outputs.

From the table, we can see that the Sig. value (0.000) is less than the significance level (0.05). Therefore, we reject the null hypothesis that there are no statistically significant differences in academic inclination among fourth-year middle school students due to the educational track variable and accept the alternative hypothesis that such differences do exist.

### 3.3 Discussion of the study's general results:

After analysing the data and results obtained through calculating the level of academic inclination towards scientific subjects using the arithmetic mean, and using statistical methods such as the independent samples t-test to determine differences in academic inclination based on gender and the one-way ANOVA to determine differences in academic inclination based on educational track, the results of our study are as follows:

Regarding the detection of academic inclination towards scientific subjects among students at Abd El Hamid Ben Badis Middle School in Skikda, we found that the students' responses indicated a moderate level of inclination, estimated at a weighted average value of 2.79, ranging between 2.61 and 3.41.

From a psychological and cognitive perspective, this result can be interpreted as indicating that academic inclinations may be influenced by psychological factors experienced by students and affected by cognitive skills such as critical thinking, logical analysis and understanding complex equations and abstract concepts. Students may struggle to understand these subjects, particularly if teaching methods are traditional, which may explain the moderate level of academic inclination towards scientific subjects.

The results can also be interpreted in light of social and cultural factors experienced by students, where family, social media, communication tools and peer groups can play a significant role in shaping inclination towards scientific subjects academically. Students may develop misconceptions about scientific subjects, viewing them as difficult and uninteresting, which could explain the moderate level of inclination towards them.

The results of our current study are consistent with those of Al-Sabbagh (1996), whose study found that the level of scientific inclination among preparatory and general secondary school students was moderate and required more attention.

Regarding the tests of the null hypothesis relating to the detection of statistically significant differences in academic inclination towards scientific subjects attributed to gender, the results confirmed the existence of statistically significant differences at the 0.05 significance level after applying the independent samples t-test.

These results can be interpreted in light of certain characteristics and mental predispositions in the learning process. Girls often display greater organisational skills and focus in their studies, which may help them excel in subjects that require systematic thinking, such as science. Additionally, girls may tend to learn details and engage with tasks more methodically.

Community expectations may also play a role in the elevated level of academic inclination towards scientific subjects among girls by indirectly encouraging them to pursue academic paths related to care or assistance, such as medicine, nursing or education. This can enhance their interest in scientific subjects closely associated with these fields. Thus, girls may develop stronger inclinations towards the sciences when they feel that these specialisations represent social value.

These results align with those of Zaytun's (1987) study, which found statistically significant differences at the 0.01 level of significance attributed to the gender variable in scientific inclination among third-year secondary science students, in favour of female students. These results are also consistent with those of Al-Mujbir (2000), who recorded statistically significant differences in favour of female students on the scientific inclination scale.

As for the second null hypothesis, which states that there are no statistically significant differences in academic inclination towards scientific subjects among fourth-year secondary school students according to the educational track, the results obtained using the one-way ANOVA test demonstrated that differences do exist.

As the results show 'moderate' academic inclination towards scientific subjects in this study, which was conducted before students were directed to specific tracks, this may be due to factors related to the transitional phase that students are experiencing. At this stage, students are not directed towards specific disciplines, so strong inclinations towards scientific subjects may not yet have formed. Instead, they exhibit moderate interest, reflecting their openness to various fields, not necessarily limited to scientific subjects. This may reflect a phase of exploration and experimentation before making a decisive academic decision, which will occur after students are directed towards specific tracks.

**In summary**, **our study reached the following results**:

- The level of academic inclination towards scientific subjects among fourth-year middle school students at Abd El Hamid Ben Badis Middle School was moderate.

- There are statistically significant differences in academic inclination towards scientific subjects among fourth-year middle school students, which can be attributed to the gender variable.

There are statistically significant differences in academic inclination towards scientific subjects among fourth-year middle school students attributed to the educational track variable.

**4. Conclusion**:

Studying academic inclinations towards scientific subjects among fourth-year middle school students before directing them to different educational tracks is an important step in understanding students' educational inclinations during a critical phase of their academic journey. This study revealed moderate results regarding students' inclinations towards scientific subjects, indicating that this group is still exploring their academic and personal interests before making a final decision.

These results show that, at this stage, students do not exhibit strong or weak inclinations towards scientific subjects, but rather a moderate stance reflecting variability in interests and abilities. This may be due to

various factors, including teaching methods, social or academic pressure, and a lack of clarity regarding future career paths. The absence of specialised guidance at an earlier stage may also contribute to this moderate outcome, as students do not yet fully appreciate the importance of scientific subjects in their future lives.

This study suggests that interest in scientific subjects should be fostered from an early stage in education through innovative, interactive teaching methods that encourage deeper exploration of these subjects. Providing students with opportunities to engage with the practical applications of science can also help them develop strong inclinations towards these fields before the guidance phase.

Based on these results, this study can inform important recommendations for education stakeholders on how to develop curricula that stimulate interest in scientific subjects. This will help guide students towards educational and academic choices that align more closely with their inclinations and future abilities.

**Suggestions and recommendations**:

- Improve teaching methods in scientific subjects by using active learning and problem-solving approaches that focus on the application of scientific experiments.

Provide a learning environment that encourages exploration.

- Enhance early career guidance.

Support students with limited inclination towards scientific subjects.

Encourage innovation and creativity in teaching scientific subjects.

Strengthen the role of families in guiding their children.

- Organise scientific competitions and activities to stimulate interest.

Review curricula for scientific subjects to ensure they are relevant to students' interests and needs. More practical and contemporary topics that encourage critical thinking and keep pace with modern scientific and technological developments could be included.

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