

The Level of Practice of Excellence Habits by Second-Cycle Students in Dhofar Governorate from Teachers' Point of View Considering some Variables

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Abstract

The current research aims to assess the level of excellence habits practiced by second-cycle students in Dhofar Governorate from the teachers' perspective, considering various variables. To achieve the research objectives, the researcher employed the descriptive approach. The research sample included 54 science teachers from second-cycle schools. Data was collected using a questionnaire with a 5-point Likert scale. The findings indicated that the level of excellence habits practiced by second-cycle students in Dhofar Governorate, as perceived by teachers, scored an average of 3.2 out of 5 overall. The results revealed that there are statistically significant differences in responses in terms of gender in the total score and specific subcategories—mental flexibility, perseverance, determination, and decision-making—in favor of male teachers. Regarding the qualification variable, significant differences were found only in the mental flexibility category. Additionally, there are no statistically significant differences regarding years of experience in either the total score or any of the categories. The research recommended enhancing the science curriculum for the second cycle with activities and exercises that foster excellence habits among students, providing training for second-cycle science teachers on integrating these habits into their teaching, and redesigning the natural science teacher's guide to include practical activities and events related to the lessons that assist in the integration of excellence habits.

Keywords: practice, habits of excellence, second cycle, science curriculum

مستوى ممارسة عادات التميز لدى طلاب الحلقة الثانية في محافظة ظفار من وجهة نظر المعلمين مع مراعاة بعض المتغيرات

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الملخص

هدفت الدراسة الحالية إلى تقييم مستوى ممارسات عادات التميز لدى طلاب الحلقة الثانية في محافظة ظفار من وجهة نظر المعلمين، مع الأخذ في الاعتبار متغيرات مختلفة. ولتحقيق أهدافها، استخدمت الدراسة المنهج الوصفي. شملت عينة البحث ٥٤ معلماً للعلوم من مدارس الحلقة الثانية. تم جمع البيانات باستخدام استبانة تعتمد على مقياس ليكرت الخماسي. أشارت النتائج إلى أن مستوى ممارسات عادات التميز لدى طلاب الحلقة الثانية في محافظة ظفار، كما يراها المعلمون، حصل على متوسط عام قدره ٣,٢ من أصل ٥. كشفت النتائج عن وجود فروق ذات دلالة إحصائية في الاستجابات بناءً على الجنس في الدرجة الكلية وفي فئات فرعية محددة: المرونة العقلية، والمثابرة والعزيمة، واتخاذ القرار، لصالح المعلمين الذكور. فيما يتعلق بمتغير المؤهل العلمي، وجدت فروق ذات دلالة إحصائية فقط في فئة المرونة العقلية. بالإضافة إلى ذلك، لم تكن هناك فروق ذات دلالة إحصائية مرتبطة بعدد سنوات الخبرة سواء في الدرجة الكلية أو في أي من الفئات. أوصت الدراسة بتحسين منهج العلوم للحلقة الثانية من خلال أنشطة وتمارين تعزز عادات التميز لدى الطلاب، وتوفير تدريب لمعلمي العلوم في الحلقة الثانية حول كيفية دمج هذه العادات في تدريسهم، وإعادة تصميم دليل معلم العلوم الطبيعية ليشمل أنشطة وفعاليات عملية مرتبطة بالدروس تساعد في دمج عادات التميز.

الكلمات المفتاحية: عادات التميز، ممارسة، الحلقة الثانية، منهاج العلوم

Introduction:

Recently, societies have experienced significant and rapid advancements in communication and information sciences, accompanied by technological innovations that have dramatically increased the production of knowledge resources and their transmission methods. This has led to a cognitive and technological explosion across various aspects of life.

Education has been particularly affected by these developments, which have reshaped educational systems. Education serves as the foundation for preparing individuals with the skills, abilities, and habits necessary to navigate these cognitive and technological transformations, enabling them to tackle challenges, solve problems, and cultivate a generation equipped to address contemporary challenges

(Al-Shadifat and Al-Zubon, 2020).

As a result, decision-makers, researchers, and curriculum developers have been motivated to explore ways to create, manage, and utilize knowledge to enhance human thought and facilitate overcoming obstacles. The Sultanate's Vision 2040 emphasizes leveraging educational resources and outcomes to advance and align with the ranks of developed countries. This initiative focuses on equipping students with essential mental, scientific, and practical skills to help them navigate real-life situations. Consequently, there has been a growing emphasis on re-evaluating educational goals to prepare a generation capable of efficiently adapting to new developments by fostering practical and scientific skills while enhancing behavioral values

(Al-Mutrafi, 2020).

Habits of excellence are contemporary concepts that significantly enhance a student's ability to meet the demands of the digital age. By engaging in innovative educational activities and challenging situations, students can develop their thinking skills, decision-making abilities, and problem-solving capabilities, while also diversifying their use of educational resources (Ibrahim et al., 2019).

These habits are linked to the emotional, mental, and cognitive aspects of thinking. Practicing these habits is essential for developing and enhancing various thinking skills. Consequently, numerous studies highlight the importance of teaching and nurturing these habits among students, providing the necessary reinforcement to encourage their integration into students' lives and mental frameworks

(Al-Surur, 2017).

The concept of distinction in technical knowledge is rooted in its linguistic meaning, which conveys notions of exclusivity, uniqueness, and differentiation (Dictionary of Contemporary Arabic Language, 2008). It signifies a state of superiority, where an individual possesses the fundamental components of a specific quality and achieves rare levels of competence (Ta'ima and Al-Bandari, 2004). This comprehensive definition reflects a higher level of performance (Kazem and Radhi, 2010). According to Al-Laqrani, distinction represents a specific level of performance in which an individual demonstrates the capability to execute a particular task (Al-Hadi, 2013).

In education, excellence refers to a learner's ability to achieve high academic performance while possessing superior skills during educational activities, along with maximum intellectual capabilities that serve society and humanity (Bansal, 2012).

Habits of excellence encompass a range of positive behavioral traits that emerge from the interaction of several fundamental aspects of the student, including their tendencies, inclinations, acquired skills, and knowledge. Recognizing a student's tendencies and considering their abilities during the educational process greatly contributes to enhancing their thinking levels and fostering positive behaviors when facing life situations, ultimately developing numerous habits of excellence (Ebele & Olofu, 2017).

Bentil, Esia, and Ghaney (2018) noted that while all students exhibit distinctive habits, these habits vary in degree among individuals and tend to improve as students advance through their academic years. This aligns with Thorndike's law of practice, which suggests that repeated actions become more ingrained, while responses may diminish if not consistently practiced over time.

Cultivating habits of excellence is essential for developing a generation capable of effectively meeting the demands of today's world. This can be achieved by designing science curricula that are integrated with thinking skills aimed at enhancing decision-making, creative and productive thinking, self-learning, and collaborative learning. Such skills can be fostered through educational activities that encourage innovative thinking (Ramdan et al., 2021).

Consequently, there is a pressing need to focus on developing science curricula that equip students with the skills and capabilities essential for driving societal progress and growth. Educators emphasize that these curricula prepare students in a way that aligns with scientific disciplines, qualifying them for the future job market, addressing societal needs, activating youth initiatives, and channeling their energy into educational activities that enhance their ability to think critically and generate new ideas to tackle everyday challenges (Simmons, 2017).

From this perspective, several European countries have begun to develop new curricula known as "Curricula of Excellence." These initiatives play a crucial role in addressing key questions essential for producing individuals equipped with the awareness and mental skills needed to elevate their community institutions to higher standards of excellence. The questions include: What new information should students acquire? How can they be motivated to excel? What support can help them achieve the highest levels of excellence? How can they be encouraged to contribute to their community? (Abbas, 2015).

Ghanem (2014) highlighted the importance of excellence curricula in enhancing educational quality by raising standards, developing skills, and improving performance at all educational levels. Such curricula aim to prepare learners for the future, enabling

them to solve various problems in innovative ways and participate effectively in society.

Numerous studies have examined the principles of excellence curricula, including Muhammad's study (2021) and Davis & Kyritsi's (2021) research, which describes "Curricula for Excellence" as the most ambitious reform initiative. This approach seeks to improve early education, ensuring that all learners can learn, succeed, and prepare as responsible citizens through active engagement in the educational process. Consequently, there is an urgent need to develop curricula based on distinguished, directed learning that equips students with the skills necessary to keep pace with current developments. These students represent the nation's future and are essential building blocks for its progress, necessitating investment in their potential to adapt to rapid changes

(Ibrahim and Ismail, 2019).

Science serves as a fertile ground for achieving excellence, as it relies on imagination, mental imagery, logic, and sound evidence. It emphasizes scientific process skills, which include basic skills such as observation, inference, classification, measurement, communication, and prediction, as well as integrative skills like variable control, procedural definitions, hypothesis formulation, data interpretation, experimentation, and model-building. These skills enhance students' abilities to self-learn, conduct scientific investigations, and apply their learning to new situations, as well as solve everyday problems. They also foster positive attitudes towards science and environmental awareness (Al-Barsan, 2013).

In this context, Dascalu (2012) asserts that excellence in science enables students to succeed in their careers and confront practical life challenges by comprehensively acquiring knowledge and developing essential skills such as investigation, research, experimentation, and personal competencies.

Additionally, many national conferences and projects have been launched to focus on developing excellence and creativity skills, emphasizing the need for activities that train students to practice these skills. Notable examples include the Excellence Conferences held by the Center for Excellence in Research in the Development of Mathematics and Science Education at King Saud University in 2017 and 2018, the Mathematics Teaching and Learning and Creativity Development Conference (2003) organized by the Egyptian Society for Mathematics Education, and the Education Curricula and Thinking Development Conference (2000) hosted by the Egyptian Society for Curricula and Teaching Methods.

In light of this context, the study aims to evaluate the level of excellence habits practiced by second-cycle students in Dhofar Governorate from the perspectives of teachers and supervisors, considering various influencing factors.

The problem of the study and its questions:

The current study identifies the problem of low practice of excellence habits in science among second-cycle students in Dhofar Governorate. This issue is evident through several sources:

- ♦ Practical Experience of Researchers: The researchers' extensive experience supervising practical education in basic education schools in Dhofar Governorate revealed:
- ♦ A lack of diverse enrichment activities in the current science curricula that foster the development of excellence skills among students.
- ♦ A tendency among most science teachers to rely on traditional teaching methods, which do not promote the cultivation of excellence habits. Additionally, their evaluation of students often prioritizes knowledge acquisition over understanding, creativity, and critical thinking.
- ♦ Performance Indicators: The performance indicators for eighth-grade students in Dhofar Governorate, as measured by the international TIMSS 2019 tests in mathematics and science, showed that their scores were below the local average. Dhofar ranked ninth out of 11 governorates, with an average science score of 422 points, compared to the overall Sultanate average of 457 points, which is also below the global average. This indicates a low level of excellence skills in science among these students (Ministry of Education, 2022).
- ♦ Ministry of Education Initiatives: The Ministry of Education in the Sultanate of Oman has emphasized the importance of developing excellence habits among students at various educational stages. This includes revising mathematics and science curricula through a series of progressive stages based on the Cambridge University system, which aims to enhance excellence skills and creativity among students.

Study questions:

1. What is the level of practice of excellence habits among second-cycle students in the science curriculum in Dhofar Governorate from the teachers' point of view?
2. Are there statistically significant differences at the significance level of $\alpha \leq (0.05)$ between the average responses of the research sample regarding excellence habits among second-cycle students in the science curriculum in Dhofar Governorate attributed to the variables of gender (male - female), educational qualification (bachelor's - higher than bachelor's) and experience (less than or equal to 10 years, more than 10 years).

Study hypotheses:

From the second question, three null hypotheses emerged:

1. There are no statistically significant differences at the significance level ($\alpha=0.05$) in the degree of practice of excellence habits by second-cycle students in Dhofar Governorate attributed to the gender variable (male - female).
2. There are no statistically significant differences at the significance level ($\alpha=0.05$) in the degree of practice of excellence habits by second -cycle students in Dhofar Governorate attributed to the educational qualification variable (bachelor's degree - higher than bachelor's degree).
3. There are no statistically significant differences at the significance level ($\alpha=0.05$) in the degree of practice of excellence habits by second -cycle students in Dhofar

Governorate attributed to the experience variable (less than or equal to 10 years, more than 10 years).

Study objectives

- 1.Measuring the degree of practice of excellence habits in the science curriculum by second cycle students in Dhofar Governorate from the teachers' point of view.
- 2.Discovering the differences in the degree of practice of excellence habits in the science curriculum by first cycle students attributed to the variables of gender (male - female), educational qualification (bachelor's - higher than bachelor's) and experience (less than or equal to 10 years, more than 10 years).

Study Determinants:

The current study is determined by the following determinants:

- 1.Habits of excellence in the science curriculum (mental flexibility, self-learning, perseverance and determination, decision-making, positive participation, and creating new relationships).
- 2.Second cycle students (from fifth to tenth grade)
- 3.The study was implemented in the first semester of the academic year 2024-2025.

Study terms:

Habits of excellence: Abu Al-Ala (2019) defines them as: "A set of habits that we seek to develop in students and that include a number of scientific and practical skills such as the skill of collecting information, decision-making, perseverance in performance, producing new relationships, mental flexibility, self-learning, and positive participation" (p. 95).

The research team defines them procedurally as a set of behaviors and abilities that the learner demonstrates to himself related to mental flexibility, self-learning, perseverance and determination, decision-making, positive participation, and producing new relationships and is measured by the study sample's score on the Habits of Excellence scale used in the study.

Theoretical Literature and Previous Studies

Habits of Excellence

At the close of the twentieth century and the onset of the twenty-first century, psychologists and educators began to take a keen interest in teaching gifted and distinguished individuals. This interest led to the development of early theories focused on distinction and the skills associated with it, notably the theory proposed by American scientist Joseph Renzulli in 1978. Renzulli's theory, one of the most widely recognized in the field, posits that a distinguished individual possesses abilities above the average, along with creative and innovative skills, as well as the capacity for work and achievement. Importantly, a distinguished individual does not need to exhibit all these abilities; they may possess one or more of them in varying degrees (Renzulli, 1984).

The American Bureau of Education (1972) defines excellence as "the student's ability to achieve unprecedented high levels of performance through specialized educational programs designed for them or through services that exceed those offered to typical

students in regular school settings, aiming for personal achievements as well as contributions to their communities.” Those considered distinguished are characterized by high abilities for genuine achievement or the potential for success in one or more areas, including mental, academic, creative, productive, leadership, and visual performance (Gary, Davis, and Rimm, 2011).

The term "habits of excellence" refers to consistent, repeated behaviors that individuals rely on. These habits are grounded in educational constants that should be emphasized, developed, and integrated into a student's daily life

(Al-Surur, 2017). In Arabic, the term “habit” signifies something an individual is accustomed to, indicating a behavior that is repeated with persistence. A habit is something that becomes second nature and is performed effortlessly, with its plural form being "habits" (Academy of the Arabic Language, 2001).

Ramdan et al. (2021, p. 358) define habits of excellence as “engaging in intelligent contemplation when faced with contradictory situations or when no clear answer is readily available.” Ibrahim et al. (2019, p. 59) describe these habits as “a series of positive behavioral traits that emerge from the interaction of a learner's tendencies, the skills to be developed, the various forms and levels of knowledge, and the methods of learning it. Accurately identifying a learner's tendencies and tailoring approaches based on their abilities helps cultivate habits of excellence in their thinking and positive behaviors in daily situations.”

In summary, excellence encompasses a learner's ability to employ a range of behaviors and skills that reflect their capacity for high achievement, thereby enhancing their motivation to learn. This involves engaging in mental activities in emotional, cognitive, and technological contexts, enabling the learner to acquire knowledge comprehensively and logically. This approach equips them to solve problems and make informed decisions while fostering a deep understanding that allows them to perform tasks efficiently and achieve academic excellence.

Previous studies:

Al-Harthi and Al-Dahman (2024) conducted a study focusing on the development of a teaching program based on the SWOM model within the science curriculum, assessing its effectiveness in enhancing excellence habits among second-grade middle school students. Utilizing an experimental method with a quasi-experimental design, the study involved a control group and an experimental group, incorporating both pre-tests and post-tests. The findings indicated a statistically significant improvement in the post-application results of the excellence habits test and scale for students in the experimental group.

Al-Turki (2023) carried out a study to evaluate the level of excellence habits practiced by secondary school students, as perceived by natural science teachers in the Kingdom of Saudi Arabia, considering various variables. The research employed a descriptive (survey) method, with a sample of 228 male and female science teachers from secondary schools. Results revealed that the overall assessment of secondary school

students' practice of excellence habits was at an average level. Additionally, no statistically significant differences were found based on gender.

Atouta and Mazouz (2021) aimed to identify the critical requirements for academic excellence that should be emphasized within the educational process to assist university students in achieving their academic goals. Their research highlighted both subjective and objective factors that contribute to this success, emphasizing the importance of psychological and educational guidance. This guidance is seen as a crucial condition that enhances the educational environment, preparing students and developing their abilities to achieve excellence and mastery. The study underlines that education is an evolving process, and students possess the capability to overcome challenges, with the overarching goal being the pursuit of self-transcendence as explained by needs theory.

Al-Qahtani (2015) investigated the development of a teaching strategy grounded in communication theory aimed at enhancing excellence components and examining its impact on academic achievement and attitudes towards mathematics among secondary school students. This study also utilized an experimental method with a quasi-experimental design, including a control and experimental group, along with pre-tests and post-tests. The results demonstrated statistically significant differences in the overall scale of excellence components and its separate axes, as well as in academic achievement and attitudes towards mathematics, favoring the experimental group.

Study methodology and procedures:

The study relied on the descriptive approach to identify the level of excellence habits in science among these students in the Sultanate, where the questionnaire tool was used.

Population and sample:

The study population consisted of all science teachers of the second cycle in Dhofar Governorate, while the study sample consisted of 54 teachers, distributed as shown in Table 1:

Table 1
Study sample distributed over study variables

Variable	Level	Count	Percentage %
Gender	Male	21	38.9
	Female	33	61.1
Qualification	Bachelor's	32	59.3
	Above Bachelor's	22	40.7
Experience	Less than or equal to 10 years	27	50
	More than 10 years	27	50

Research tool:

The research team used the Excellence Habits Scale developed by Al-Turki (2023) after adapting its paragraphs to suit second -cycle students. The scale contained (30) excellence habits distributed over six axes: mental flexibility, self-learning, perseverance and insistence, decision-making, positive participation, and creating new relationships. The scale was presented in its initial form to distinguished arbitrators from professors specializing in science and its teaching methods in particular, curricula and teaching methods in general, and professors of measurement and evaluation, Appendix No. (1) in order to express their opinion on its content, the correctness of dividing the axes, the affiliation of the specific habits to the axes, the correctness of their formulation, and modifying what they see as appropriate. The arbitrators suggested a set of amendments that the team adopted, the most important of which was rephrasing some paragraphs and using more appropriate words for the second -cycle category of students, and this was considered the apparent validity of the list.

The scale items were distributed over the six axes as shown in Table 2

Table 2

The scale items were distributed over the six axes

Dimension	Paragraph Numbers Representing This Dimension	Number of Paragraphs Representing This Dimension
Mental Flexibility	1-5	5
Self-Learning	6-10	5
Perseverance and Determination	11-15	5
Decision-Making	16-20	5
Positive Participation	21-25	5
Creating New Relationships	26-30	5

A five-point scale was used to determine the level (very high, high, medium, low, very low) where the arithmetic averages are between (1-5) and the range is 0.8. Thus, the responses can be judged according to the following criterion:

- The level is very high if the arithmetic average is between 4.2-5
- The level is high if the arithmetic average is between 3.4 and less than 4.2
- The level is medium if the arithmetic average is between 2.6 and less than 3.4
- The level is low if the arithmetic average is between 1.8 and less than 2.6
- The level is very low if the arithmetic average is less than 1.8

Internal consistency:

The internal consistency of the questionnaire was confirmed after applying it to a pilot sample consisting of (21) teachers from the research population and outside the research sample, then calculating the Pearson correlation coefficient between the scale axes and the total score of the questionnaire. Table (3) shows the values of the correlation coefficients:

Table 3

Pearson correlation coefficient between the scale axes and the total score of the questionnaire.

Axis	Pearson Correlation Coefficient with Total Questionnaire Score
Mental Flexibility	.848**
Self-Learning	.931**
Perseverance and Determination	.921**
Decision-Making	.771**
Positive Participation	.708**
Creating New Relationships	.629**

** Significant at the level of (0.001)

Table (3) shows that all correlation coefficients between the axes and the total score of the questionnaire were statistically significant at the significance level (0.001), which indicates the internal consistency of the questionnaire.

Questionnaire Reliability:

The questionnaire reliability was calculated using the Cronbach Alpha and split-half methods with correction by the Spearman-Brown and Gettman equations. Table (4) shows Cronbach Alpha Reliability Coefficients:

Table 4

Cronbach Alpha Reliability Coefficients

Axis	Number of Statements	Cronbach's Alpha
Mental Flexibility	5	.746
Self-Learning	5	.844
Perseverance and Determination	5	.837
Decision-Making	5	.828
Positive Participation	5	.875
Creating New Relationships	5	.867
Overall Stability of the Questionnaire	30	.963

The reliability was also calculated by the split-half method, where the scale paragraphs were divided into two parts, the first part includes paragraphs 1-15 and the second part includes paragraphs 16-30. It was found that the correlation coefficient in this way equals (.881). When using the Spearman-Brown correction equation, the correlation coefficient was found to be (.936). When using the Wittmann correction equation, the correlation coefficient was found to be (.936). It is clear from Table 4 that all correlation values are high and reassure the stability of the questionnaire when reapplied to other samples of the research community.

Statistical processing methods:

The data were analysed using the Statistical Package for Social Sciences (SPSS) by taking advantage of the arithmetic mean and standard deviation to determine the level of excellence habits. The t-test was also used to detect differences between responses according to gender, academic qualification and experience.

Discussion of results

To answer the first question, which states: What is the level of practice of excellence habits by second-cycle students while learning the science course from the point of view of teachers? The arithmetic means and standard deviations of the main questionnaire axes were extracted, and their total score was determined as shown in Table 5

Table 5

Arithmetic means and standard deviations of the main questionnaire axes.

	Axis	Mean	Standard Deviation	Rank	Level
1	Mental Flexibility	3.16	0.67	2	Average
2	Self-Learning	3.14	0.72	3	Average
3	Perseverance and Determination	3.03	0.77	6	Average
4	Decision-Making	3.13	0.8	4	Average
5	Positive Participation	3.74	0.76	1	high
6	Creating New Relationships	3.04	0.75	5	Average
	Total Score	3.21	0.65		Average

Table (5) indicates that second-cycle students exhibited an average level of practicing excellence habits while studying the science course, as perceived by teachers, with an arithmetic mean of (3.21) and a standard deviation of (0.65). Among the sub-axes, the positive participation axis scored notably higher, with a mean of (3.74), while the remaining five axes reflected average levels, with means ranging from (3.03 to 3.16). These axes, listed from lowest to highest rank, are perseverance and determination, creating new relationships, decision-making, self-learning, and mental flexibility.

The research team attributes the average level of students' engagement in excellence habits during science learning to several factors. These include a lack of activities designed within the science curriculum that focus on cultivating these habits, as well as insufficient implementation of active learning techniques and modern strategies that could enhance student participation, motivate self-learning, and encourage the generation of innovative and unconventional ideas and solutions. Additionally, the average scores may be influenced by challenges related to class timing and the student-to-teacher ratio.

These findings align with the studies by Al-Qahtani (2015) and Al-Turki (2023), which revealed that the pre-measurement results of excellence habits among secondary school students ranged from low to medium. Similarly, Din Hu's (2018) research indicated that excellence habits in science and mathematics were at a medium level among primary school students. However, these results contrast with those of Bentil et al. (2018), who found that excellence habits among secondary school students were good and significantly influenced their academic achievements. They also differ from the study by Ebele & Olofu (2017), which reported a high level of student engagement in excellence habits.

Referring to Table 5, we observe that the habit of positive participation ranked highest. This outcome can be interpreted through Erikson's theory of psychosocial development, particularly as second-cycle students are in the fourth stage, known as the crisis of achievement versus inferiority. This latency stage, which occurs between the ages of six and twelve, emphasizes the development of perseverance and the avoidance of feelings of inferiority. Consequently, students are motivated to engage actively in classroom activities to gain praise and encouragement from their teachers, striving to excel and achieve high grades as a demonstration of success.

Conversely, the decision-making axis ranked lowest, likely because decision-making skills require advanced cognitive abilities and the application of scientific deductive reasoning. At this stage, students are in Piaget's third stage of cognitive development, known as the stage of concrete operations. During this phase, students struggle with abstract thinking and are unable to engage effectively with intangible concepts or utilize deductive reasoning in their thought processes.

Discussion of the results of the second question:

Three hypotheses emerged from the second question.

The first hypothesis: There are no statistically significant differences at the significance level ($\alpha=0.05$) in the degree of practicing excellence habits by first-cycle students in Dhofar Governorate due to the job variable (teacher – supervisor). To test this hypothesis, (t-test) was used and Table No. 6 shows the results:

Table 6
Testing the first hypothesis

Axis	Gender	N	Mean	Standard Deviation	t	Significance Level
Mental Flexibility	Male	21	3.3810	0.60632	2.001	0.050
	Female	33	3.0182	0.67521		
Self-Learning	Male	21	3.3333	0.70522	1.561	0.125
	Female	33	3.0242	0.71196		
Perseverance & Determination	Male	21	3.3619	0.63125	2.725	0.009
	Female	33	2.8121	0.77450		
Decision	Male	21	3.5143	0.67103	3.065	0.003

Making	Female	33	2.8788	0.78412		
Positive Participation	Male	21	3.8381	0.76058	0.718	0.476
	Female	33	3.6848	0.76653		
Creating New Relationships	Male	21	3.2286	0.66419	1.452	0.152
	Female	33	2.9273	0.78870		
Total Score	Male	21	3.4429	0.57122	2.201	0.032
	Female	33	3.0576	0.65974		

The results presented in Table (6) reveal statistically significant differences in the average responses regarding the total score of excellence habits and the sub-axes (mental flexibility, perseverance and determination, decision-making) based on the variable of teacher gender (male vs. female). The significance levels for these differences were below 0.05, indicating that the differences are statistically significant in favor of male teachers. However, the study did not identify any statistically significant differences in the axes of self-learning, positive participation, and creating new relationships.

The second hypothesis: There are no statistically significant differences at the significance level ($\alpha=0.05$) in the degree of practicing excellence habits by first-cycle students in Dhofar Governorate due to the variable of educational qualification (bachelor's degree - higher than bachelor's degree). To test this theory, t- test was used, and Table 7 shows the results:

Table 7
Testing the second hypothesis

Axis	Qualification	N	Mean	Standard Deviation	t	Significance Level
Mental Flexibility	Bachelor's Degree	32	3.0125	0.66805	-2.002	0.050
	Above Bachelor's	22	3.3727	0.62120		
Self-Learning	Bachelor's Degree	32	3.1250	0.70345	-0.238	0.813
	Above Bachelor's	22	3.1727	0.75667		
Perseverance & Determination	Bachelor's Degree	32	2.9313	0.76303	-1.098	0.277
	Above Bachelor's	22	3.1636	0.76504		
Decision Making	Bachelor's Degree	32	2.9875	0.78525	-1.555	0.126
	Above Bachelor's	22	3.3273	0.79413		
Positive Participation	Bachelor's Degree	32	3.6625	0.80392	-0.954	0.345
	Above Bachelor's	22	3.8636	0.69388		
Creating New Relationships	Bachelor's Degree	32	2.9375	0.77282	-1.269	0.210
	Above Bachelor's	22	3.2000	0.70643		
Total Score	Bachelor's Degree	32	3.1094	0.65419	-1.348	0.184
	Above Bachelor's	22	3.3500	0.63009		

The results of Table (7) indicate that there are statistically significant differences between the averages of the responses in the mental flexibility axis only, while there are no statistically significant differences between the averages of the

responses on the total score of the habits of excellence and the sub-axes (self-learning, perseverance and insistence, decision-making, positive participation, and the production of new relationships) attributed to the qualification variable (bachelor's degree - higher than bachelor's degree), as their significance levels were greater than 0.05, which means that the differences are not statistically significant.

Hypothesis 3: There are no statistically significant differences at the significance level ($\alpha=0.05$) in the degree of practice of excellence habits by first-cycle students in Dhofar Governorate due to the experience variable (less than or equal to 10 years, more than 10 years). To test this hypothesis, the (t-test) was used to estimate the magnitude of the significance of the differences between the responses of the research sample according to the difference in the number of years of teaching experience, and Table 8 shows the results.

Table 8
Testing the third hypothesis

Axis	Experience	N	Mean	Standard Deviation	t	Significance Level
Mental Flexibility	Less than or equal to 10 years	27	3.1259	0.72991	-0.364	0.717
	More than 10 years	27	3.1926	0.61138		
Self-Learning	Less than or equal to 10 years	27	3.1333	0.72748	-0.113	0.911
	More than 10 years	27	3.1556	0.72395		
Perseverance & Determination	Less than or equal to 10 years	27	2.9037	0.78126	-1.178	0.244
	More than 10 years	27	3.1481	0.74337		
Decision Making	Less than or equal to 10 years	27	3.0667	0.85034	-0.541	0.591
	More than 10 years	27	3.1852	0.75636		
Positive Participation	Less than or equal to 10 years	27	3.7259	0.83417	0.177	0.860
	More than 10 years	27	3.7630	0.69512		
Creating New Relationships	Less than or equal to 10 years	27	3.0593	0.82986	0.144	0.886
	More than 10 years	27	3.0296	0.67869		
Total Score	Less than or equal to 10 years	27	3.1693	0.70372	-0.428	0.670
	More than 10 years	27	3.2456	0.60144		

The results presented in Table (8) show that there are no statistically significant differences in the average responses concerning the total score of excellence habits and all sub-axes (mental flexibility, self-learning, perseverance and determination, decision-making, positive participation, and creating new relationships) based on the experience variable (less than or equal to 10 years vs. more than 10 years). The significance levels for these comparisons were greater than 0.05, indicating that the differences are not statistically significant. This may be attributed to the fact that teachers began implementing the new curriculum (Cambridge curriculum) just a few years ago, specifically in 2017. Consequently, their experience in teaching this particular curriculum is similar, which likely resulted in minimal variation in their responses. As a result, teaching experience did not emerge as a distinguishing factor in the responses.

Recommendations:

- 1.Enrich the content of second-cycle science courses by incorporating activities and exercises that foster excellence habits among students. These should be connected to various real-life situations relevant to the courses, enabling students to apply them in similar contexts.
- 2.Provide training for second-cycle science teachers on how to integrate excellence habits into their teaching. This includes designing educational activities and strategies that effectively promote these habits among students.
- 3.Revise the natural science teacher's guide to include practical activities and events pertinent to the lessons. This will assist teachers in integrating excellence habits and encourage students to actively practice them during instruction.

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