

The Effect of Self-Reading Contracts Strategy on Academic Achievement and Goal Orientation among Primary Stage Pupils in Saudi Arabia

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The present research aims to identify the effect of self-reading contracts strategy on academic achievement in Science and goal orientation among primary stage pupils in Saudi Arabia. The research sample included (44) sixth grade female pupils selected by the simple random method and was divided into two groups: an experimental group of (23) female pupils who studied using self-reading contracts strategy and a control group of (21) female pupils taught by the traditional teaching method. Academic Achievement Test and Goal Orientation Scale; pre and post-tests were applied to both groups of the research. The results showed that there were statistically significant differences favoring the experimental group in both academic achievement and goal orientation.

Key words: *Self-learning, Self-reading Contracts Strategy, Goal Orientation.*

Introduction

Recently, self-learning has become a topic of the most research studies; much attention has been paid to it since the early nineties of the last century. Self-learning strategies are considered of the latest strategies which emphasize the role of effective learner in learning process (Azab & Abdelmoneim, 2018). Self-learning is also regarded as one of the most effective patterns in educational process; it allows learner to use learning skills effectively. Al-Jarf (2016) defines self-learning as a continuous process to acquire information and skills outside classroom, school and university, not for success and a certificate, but for personal purposes such as answering a question, solving a problem, or searching for a job. Nasr (2019) defines it as the

educational activities that a learner does independently and acquires knowledge and experiences that match her/his capabilities, motivated by desire, self-satisfaction, self-confidence and self-dependence. Moreover, studies confirmed that learning is an individual issue, so a student must use his own capabilities in thinking and learning, and make progress according to his individual speed, which provides a cure for individual differences between learners (Al-Harbi, 2018). Educational and psychological thought emphasizes the significance of teaching learners how to choose appropriate learning strategies that help them to learn themselves without the need for a teacher and save their time and efforts (Noureldeen, 2018).

There are many self-learning strategies, including Thomas and Robinson's (1972) strategy (PQ4R). The (PQ4R) strategy stands for six steps: Preview, Question, Read, Reflect, Recite and Review. It helps learners to memorize and recall information, activates their prior knowledge, and establishes the discovery of relationships and connections between new knowledge and prior one. Bibi and Arif (2011) identified the impact of PQ4R strategy on the achievement of fourth grade middle school pupils in Punjab, Pakistan. Its findings show statistical significant differences in the achievement test for the experimental group. Setiawati and Corebima (2017) reveal the effectiveness of PQ4R-TPS, TPS, and PQ4R strategies in the acquisition and retention of biological concepts by biology students in secondary school in Indonesia. It aimed at training learners in the organization of new information and facilitating their transition from short-term to long-term memory (Hamza et al., 2014; Al-Jaburi and Al-Khouzaie, 2015). Al-Mubaied (2017) shows the effect of PQ4R strategy on developing mathematical problem solving skills among ninth grade pupils in Gaza. This is in consistent with Gardenia et al (2018) investigating the impact of PQ4R strategy on mathematical communication in mathematics among sixth grade pupils and revealing a statistically significant difference in testing mathematical communication skills in favor for experimental group.

PQ4R strategy develops critical thinking among students with different achievement levels. Setiawati and Corebima (2017) show that teaching through blending PQ4R strategy and TPS (Think-Pair-Share) strategy leads to the development of secondary school students' critical thinking skills at their various achievement levels (high-slow) in biology. Al-Qawabeh and Aljazi (2018) investigate the effectiveness of PQ4R strategy on teaching Arabic reading comprehension among ninth grade pupils in Jordan, showing statistically significant differences favoring the experimental group. Fatimah (2016) investigates the impact of PQ4R strategy on reading comprehension in English among 11-year-old students at the University of Man Salatiga, revealing statistically significant differences favoring the post-test.

Some studies also show the impact of the PQ4R strategy on improving pupils' slow learning achievement, such as Shoaib et al (2016), which confirm the impact of the strategy on

increasing the attention of pupils with low motivation and improving their achievement in English.

Hamza et al (2014), Al-Sa'egh (2014), Khamis and Abbas (2016), Al-Mubaied (2017), and Setiawati and Corebima (2017) recommend the importance of employing Thomas and Robinson's Strategy of PQ4R in teaching, because of its impact on learners' achievement, making the subject more fun and exciting, developing scientific thinking, and reducing psychological pollution.

Learning Contracts Strategy

One of the teaching strategies that support self-learning is also the strategy of learning contracts based on procedural learning theory as determining a reward for learner after performing the desirable behavior to increase its frequency (Al-Sharaa, 2016). Learning contracts strategy is based on a human philosophy, which regards learning process as learner-centered, not on teacher or content and allows learner to choose, determine, and assume responsibility for her/his learning, thereby becoming self-directed and positively interacting with the educational situations s/he faces (Blabel, 2006).

Through learning contracts, researchers can determine what learners are learning in a given period, following up their progress, and continuously assessing their achievements. The contract includes the purpose of convincingly writing it to learners, outlining the educational resources to which they will rely upon, the nature of the activities they will undertake, and the method and timing of assessment (Kojak et al, 2008).

A contract-based learning strategy can be defined as a strategy based on learning that is appropriate to learners' needs and learning patterns to enhance the learner's role in learning process, increase freedom in selecting learning objectives, content, and strategies, and promote self-evaluation. This includes a written agreement between the teacher and the learner, in which the learner undertakes to achieve the agreed learning outcomes with the teacher, and the teacher undertakes to reward and strengthen the learner if s/he successfully accomplishes the required tasks within the proposed time period (Razuki & Najem, 2016). This strategy also enables learners to develop lifelong learning behaviors, allows them to control and manage their expectations, and intentionally monitors their learning (Blabel, 2006; Dyer et al, 2018; Jones and Rye, 2008).

Jones and Rye (2008) identify the expected benefits of using learning contracts in clinical education among respiratory care students and show that (20) students are generally optimistic about learning contracts agreeing that they can use learning contract with confidence and that there is increase in student independence and motivation towards Learning.

Asha and Ayash (2013) show the impact of the strategy of contracts on academic achievement. There are statistically significant differences in the achievement test and the reflective thinking scale favoring the experimental group. Abi Omran (2014) and Al-Sharaa (2016) reveal the effect of the strategy of contracts on academic achievement in mathematics.

Sabri (2017) reveals the excellence of the experimental group, which relied on learning contracts in the test of online reading skills among first year intermediate school students.

Dyer et al (2008), Asha and Ayash (2013), Al-Tamimi and Al-Khashn (2015), Al-Sharaa (2016), Fatimah (2016) and Al-Qahtani (2017) recommend employing learning contracts strategy in teaching science because of its impact on the development of students' knowledge, acquisition of skills, development of confidence, autonomy in learning, gaining positive attitudes and motivation towards learning, acquisition of scientific concepts and reflective thinking.

Goal Orientation

Goal orientation is one of the objectives that should be considered for development among learners. The theory of goal orientation is one of the most important theories in the field of motivation, and it indicates that individuals have goals that can be invested in achieving the quality of learning outcomes. For individuals have different types of goals to be invested in many influential behavioral and cognitive processes for doing various academic tasks (Abul-Ela, 2011). It is important for learners in their personal lives to practice focusing on the goals set in their plans and not only paying attention to the performance of assignments and tasks without taking into account the goals, whether in the preparation of the task, during their performance, or their follow-up and evaluation. Goal orientation is also important because any task a person undertakes must have a goal to achieve through it (Ammar, 2015). Goal orientation consists of two opposite types: Performance-Oriented and Learning-Oriented (Solimon, 2014).

Ammar (2015) identifies the effectiveness of CORT program in teaching psychology on the development of interdisciplinary thinking skills and goal orientation among secondary school students. Al-Tal and Al-Shihab (2017) investigate the impact of direct teaching of the skills of metacognitive thinking on learning concepts, transfer of learning impact, and attitudes of achievement goal orientation among eighth-grade students. They reveal statistically significant differences favoring the experimental group.

In an attempt to combine the characteristics of both Thomas and Robinson's PQ4R strategy and learning contracts strategy, the idea of a self-reading contracts strategy emerged, which combines the characteristics of both strategies, so that:

- 1- Strategy of self-reading contracts depends on learner's practice of reading scientific texts since reading is one of the most important components of science learning, where reading in teaching science is closely related to what is known as scientific culture or scientific enlightenment. Ambosaidi and Al-Oraimi (2004) confirm that students' ability to scientific reading is one of the factors mainly affecting their learning and comprehension of various scientific concepts. For scientists must have the capability of analytical critical reading and eliciting information well from what s/he reads.
- 2- Strategy of self-reading contracts emphasizes self-learning, as the learner relies on himself in writing the contracts and their requirements and accomplishing the assigned tasks.
- 3- The goals written in self-reading contracts are achieved by relying on reading scientific texts and through implementing the following steps shown in figure 1:

-Preview (P) means an introductory reading for the subject by observing the main titles and ideas, and predicting what the topic will address.

-Question (Q) means expecting questions that can be answered through the written material.

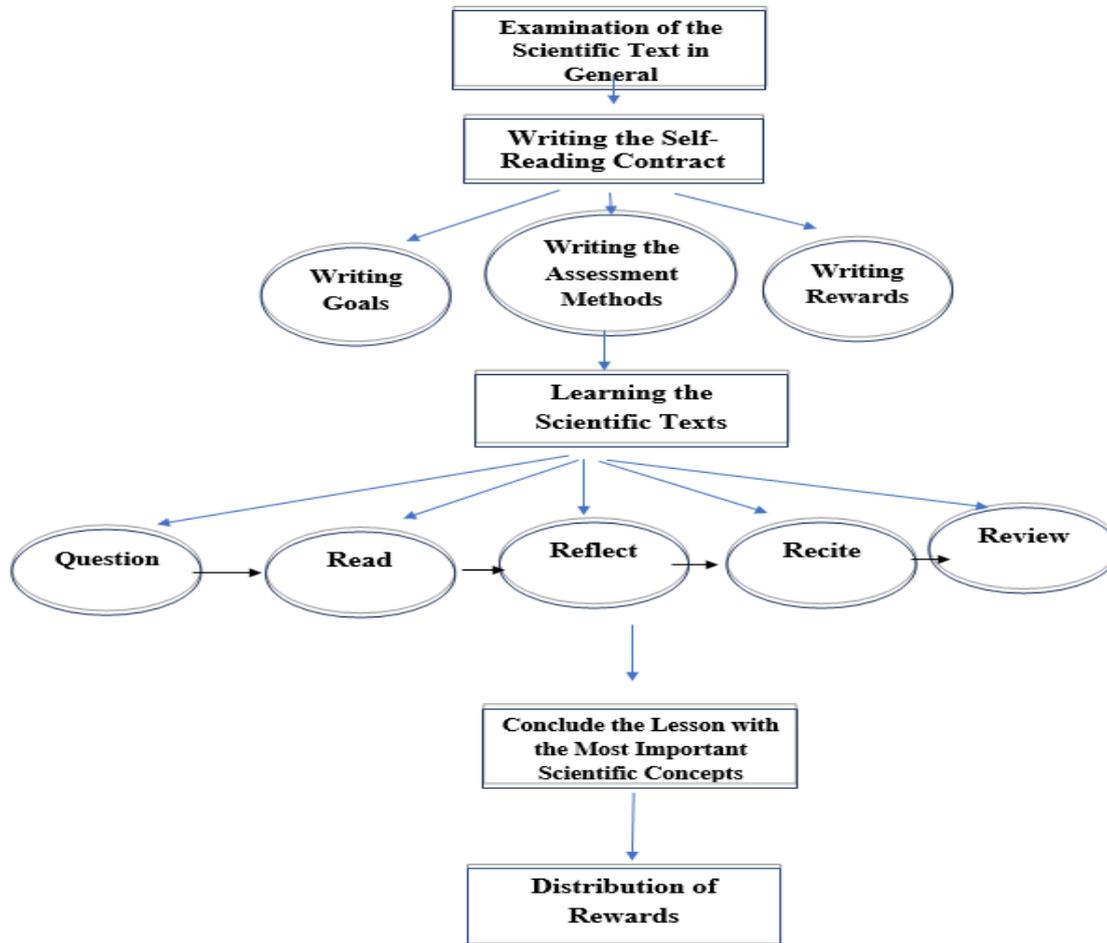
-Read (R) the topic completely, not partially, and write notes in the margin or underline the important information, which are answers to the questions expected in the previous step.

-Reflect (R) on new information and ideas in the text, which requires reflection on how the new and the past information is linked.

-Recite (R): fully summarizing the key points, their supporting points in the text, answering the questions raised without looking at the book and retrieving the lists of the important ideas and facts mentioned in the text, either loudly or silently.

-Review (R): reviewing the subject by re-reading it, answering again the questions that were asked and making sure that the goal of the topic has been fully comprehended by the learners.

Figure 1. Self-reading contract strategy steps



4- Learner's motivation for self-learning is considered an important factor according to self-reading contracts. Psychologists confirm that there is no learning without motivation, but rather they view it as a condition of good learning since achievement of educational goals in different areas of learning, whether in developing knowledge or acquiring different skills, depends on motivation (Shuwaikh, Ahmad & Al-Banna, 2018). Learners' motivation towards learning can be achieved by allowing them to write self-reading contracts according to their goals and self-capabilities and determining methods of their evaluation and the type of rewards he/she deserves through his self-reliance on learning a scientific subject by practicing reading.

Statement of the Problem

According to Hamza et al, (2014) lack of interest of teachers in modern strategies in the teaching of science and the lack of knowledge of what is new led to the emergence of negative effects on education such as learner's inability to use what he learned in solving the problems faced in daily life and low achievement. The reliance of teachers on traditional teaching

methods has led to loss of excitement as they do not take into account the individual differences between learners and the encouragement of learners to memorize the subject without understanding it. This neither develops their thinking nor allows them to learn for themselves how to learn. Therefore, the use of multiple strategies in teaching provides learners, regardless of their abilities, interests, and needs, with equal opportunities to understand scientific concepts, absorb and use them in real life situations. These strategies also encourage learners to take responsibility for their learning and continuously strive to achieve their goals. Goal orientation is an important and contemporary concept related to motivation in accordance with social cognitive framework and is an important component in the individual's pursuit of achievement and self-realization.

Thus, the current research attempts to answer the following question:

What is the impact of self-reading contracts strategy on academic achievement in science and goal orientation among primary school students?

The following sub-questions are derived from this question:

1. What is the impact of self-reading contracts strategy on academic achievement in science among primary school students?
2. What is the impact of self-reading contracts strategy on goal orientation among primary school students?

Hypotheses

1. There are no statistically significant differences (at a significance level <0.05) between the post-average scores of the experimental and control groups in the academic achievement test.
2. There are no statistically significant differences (at a significance level <0.05) between the post-average scores of the experimental and control groups in the goal orientation scale.

Methodology and Procedures

Method: the quasi-experimental approach with the Pre-Posttest Nonequivalent Control Group was utilized.

Sample: It consists of (44) primary school students intentionally selected from a primary school in west Riyadh, Saudi Arabia. Two classrooms of the six grade were chosen in a simple and random manner; one represents the experimental group of (23) students and the other is the control group of (21) students.

Procedures

- The student's guide of the "substance" unit was prepared in accordance with self-reading contracts strategy to develop academic achievement and goal orientation among sixth grade female pupils.
- The teacher's guide of the "substance" unit included an introduction to the guide and its philosophy, the general objectives of teaching the unit, its timetable, references, and a set of the unit lessons.

The two guides were presented in their initial form to a group of experts specialized in curricula and teaching methods to express their opinions on their accuracy, relevance, comprehensiveness, and clarity, and after some proposed amendments, the two guides have become in their final forms.

Tools

Academic Achievement Test: this test aimed at measuring academic achievement in the unit of science in the science textbook for the sixth grade and it consisted in its initial form of (25) multiple choice questions and one score was set for the correct answer; zero for each wrong answer. Instructions for answering the test were formulated and verifying the validity of its content was achieved by presenting them to a group of experts specialized in science curricula and teaching methods. The validity of the internal consistency of the test items was verified by measuring the correlation of each item of the scale with the total score of the scale after applying it to a survey sample of (30) sixth grade female pupils as shown in table (1).

Table 1: The correlation coefficients of the test items with the total score of the test

Sr.	Correlation coefficient	Sr.	Correlation coefficient	Sr.	Correlation coefficient
1	0.32	10	0.54	19	0.47
2	0.21	11	0.19	20	0.45
3	0.24	12	0.33	21	0.43
4	0.23	13	0.30	22	0.33
5	0.55	14	0.41	23	0.20
6	0.10	15	0.54	24	0.63
7	0.49	16	0.45	25	0.61
8	0.34	17	0.62		
9	0.52	18	0.22		

According to Table (1), the items with coefficients ranged between (0.30 and 0.63; it is significant at the level of significance (≤ 0.01 and ≤ 0.05).

The reliability of the test was determined by using Cronbach's Alpha coefficient and it reached (0.78). This indicates that the test is reliable.

The average test time was set (20) minutes by calculating the average time taken by the first and the last female pupils who answered the test according to the following equation:

$$\frac{17 + 23}{2} = 20$$

In the light of the findings of the exploratory study, the necessary modifications were made to the test. Thus, the final test included (18) valid items. Table (2) shows the specifications of the academic achievement test in the substance unit in its final form.

Table 2: Table of specifications for the academic achievement test in the substance unit

Question level	Items Sr.	Items No.	Percentage
Recall	1-4	4	22%
Understanding	5-13	9	50%
Application	14-18	5	28%
Total Test	-	18	100%

Goal Orientation Scale: some different models were reviewed concerning goal orientation scale such as Kaplan & Maehr (2007), Al-Takhaynah (2009), and Hassanein (2010) in order to prepare the scale, as it aimed at measuring goal orientation among sixth grade female pupils, and it consisted in its initial form of (24) items. Instructions for answering the scale were formulated and verifying the validity of the scale was achieved by presenting it to a group of experts. The validity of the internal consistency of the scale items was verified by measuring the correlation of each item of the scale with the total score of the scale after applying it to a survey sample of (30) sixth grade female pupils as shown in Table (3).

Table 3:

Sr.	Correlation coefficient	Sr.	Correlation coefficient	Sr.	Correlation coefficient
1	0.55	9	0.43	17	0.77
2	0.38	10	0.50	18	0.78
3	0.51	11	0.42	19	0.73
4	0.09	12	-0.47	20	0.67
5	0.26	13	0.47	21	0.65
6	0.50	14	0.69	22	0.61
7	0.66	15	0.74	23	0.75
8	0.63	16	0.76	24	0.60

According to Table (3), the items with coefficients ranged between 0.38 and 0.75, as it is significant at the level of significance (≤ 0.01 and ≤ 0.05).

The reliability of the test was determined by using Cronbach's Alpha coefficient and it reached (0.91). This indicates that the scale is reliable. The average time for answering the scale was set (18) minutes by calculating the average time taken by the first and last female pupils who answered the scale according to the following equation:

$$\frac{15 + 21}{2} = 18$$

In the light of the findings of the exploratory study, the necessary modifications were made to the scale. Thus, the final scale included (21) valid items.

Research Implementation

1. A meeting was held with the Science teacher at Primary School 246, where the method of teaching science was explained according to self-reading contracts strategy, and the teacher expressed her desire to teach the two study groups (experimental and control). The teacher stated that she had a number of training courses in modern teaching strategies, including learning contracts strategy and Thomas & Robinson's Strategy (PQ4R).
2. Coordination with the teacher was made to determine sufficient lessons for the pre-application of the research tools (Academic Achievement Test, Goal Orientation Scale).
3. The pre-application of the research tools were applied (Academic Achievement Test, and Goal Orientation Scale) on the study sample (experimental and control) and the findings of the pre-application of the academic achievement test were as shown in Table (4).

Table 4: T-values of the differences between the average scores of the experimental and control groups in the pre-application of the academic achievement test

Variables	Groups	No.	Arithmetic mean	Standard deviation	T-value	Significance level
Recall	Experimental	23	1.13	0.82	0.119	0.906
	Control	21	1.09	1.14		
Understanding	Experimental	23	2.61	1.41	-0.556	0.581
	Control	21	2.86	1.56		
Application	Experimental	23	1.95	1.36	-1.229	0.226
	Control	21	2.52	1.69		
The total academic achievement test	Experimental	23	5.69	2.22	-0.937	0.354
	Control	21	6.48	3.25		

Table (4) shows that the t-value is not significant, which indicates that there are no statistically significant differences between the average scores of the two groups (experimental and control) in the pre-application of the academic achievement test.

The results of the pre-application of Goal Orientation Scale are as shown in Table (5).

Table 5: T-values of the differences between the mean scores of the experimental and control groups in the pre-application of the goal orientation scale

Variables	Groups	No.	Arithmetic mean	Standard deviation	T-value	Significance level
Performance orientation	Experimental	23	34.74	4.67	-0.073	0.942
	Control	21	34.86	6.00		
Learning orientation	Experimental	23	46.87	8.40	1.123	0.268
	Control	21	43.86	9.39		
The total goal orientation	Experimental	23	81.61	11.93	0.764	0.449
	Control	21	78.71	13.20		

It is clear from Table (5) that t-value is not significant, which indicates that there are no statistically significant differences between the average scores of both groups (experimental and control) in the pre-application of the goal orientation scale. Thus, the equivalence of the two study groups had been verified before the study experiment was applied to them.

4. The control group was taught using the traditional method of teaching.
5. The experimental group was taught with a self-reading contract strategy according to the following steps:
 - The female science teacher began explaining the steps of self-reading contracts strategy for students so that they can practice them well, as follows:

She directed her pupils at the beginning of each class to examine the new scientific text to know the content of the lesson in general.

- To write in the learning contract the objectives and the time period necessary to achieve them, the favourite evaluation methods and the rewards to accomplish tasks and achieve the objectives.
- To write some questions about the scientific text they had read.
- To read the scientific text carefully.
- To reflect on the scientific text.
- To recite what they had read in an audible or whispering voice.
- To review the subject and read it again if needed.

- Then, the female science teacher, with the participation of the pupils, assesses the extent to which they had achieved their goals and how well they deserve the reward stipulated in the contract.
 - The teacher with her pupils concludes the lesson with the most important scientific concepts that they learned from reading the scientific text.
 - The teacher distributes rewards to female pupils who achieved their goals, as the researcher provided gifts to the pupils and delivered them to the teacher constantly.
6. After completing teaching the unit topics (the subject) for both study groups (experimental and control), which lasted for five weeks, the academic achievement test and goal orientation scale were re-applied, and data was collected to be statistically analyzed.

Results

Testing the validity of the first hypothesis, which states that “There are no statistically significant differences (at a significance level <0.05) between the post-average scores of the experimental and control groups in the academic achievement test”, Table (6) shows the findings of the T-test of the differences among both groups to identify the significance of the differences between the average scores of both research groups in the academic achievement test.

Table 6: T-values of the differences between the average scores of the experimental group and control group in the post-application of the academic achievement test

Variables	Groups	No.	Arithmetic mean	Standard deviation	T-value	Significance level
Performance Orientation	Experimental	23	35.957	7.370	1.551	0.128
	Control	21	32.857	5.686		
Learning Orientation	Experimental	23	49.217	10.527	2.000	0.05
	Control	21	42.143	12.909		
The total goal orientation	Experimental	23	85.174	14.484	2.109	0.041
	Control	21	75.000	17.481		

It is clear from Table (6) that the t-value is statistically significant (at a level of significance ≤ 0.05), which means that there are statistically significant differences between the experimental and control groups in the total academic achievement and its sub-levels, as the arithmetic mean value of the total scores of the experimental group.

This result can be attributed to the fact that the use of the self-reading contracts strategy in teaching science made pupils participate actively in the learning process and take responsibility for their learning by writing the learning contract, including their own goals, the appropriate

period to achieve these goals, methods of self-assessment of progress on an ongoing basis and determination of the appropriate rewards for them. The pupils' writing of the contract was done according to their needs, abilities, and interests individually. Therefore, the pupils have become self-reliant in accomplishing tasks in consistency with their abilities and speed of learning, and they have also become keen to evaluate themselves continuously to obtain the rewards agreed upon in the self-reading contracts.

This kind of reinforcement has made pupils keen to achieve the learning goals stipulated in the contract, making them doing their best in the learning process; therefore, the level of achievement developed. This result is consistent with the educational literature on the role of learning contracts strategy in developing motivation towards learning, as it encourages pupils to pay attention to the study of content and provide the opportunity to seek knowledge to achieve their goals, which had an impact on the development of their academic achievement.

This strategy also encourages the pupils to divide the subject into parts to make it easier to understand more than reading the whole article at once, and this division makes pupils' learning of the study content deeper and more effective during the stages of the strategy. For the pupils first reviewed the content of the study, then asked questions and read the text carefully. After that, they reflected on the text, and finally recited and reviewed the subject reading it many times if needed. Thus, the achievement of the goals stipulated in the learning contract, concluded between the student and the teacher, has influenced the female pupils to memorize and recall information, activate their previous knowledge, discover the correlations between new knowledge and previous knowledge, and make them more aware and interested in the requirements of learning for the content of the study. This has had a positive impact on their academic achievement.

This result is consistent with the studies revealing the effectiveness of learning contracts on academic achievement such as Asha and Ayash (2013), Abi-Omran (2014) and Al-Sharaa (2016). This finding is also consistent with the studies showing the effectiveness of Thomas and Robinson's Strategy (PQ4R) on academic achievement such as Bibi & Arif (2011), Hamza et al. (2014), and Setiawati & Corebima (2017B).

Testing the validity of the second hypothesis, which states that "There are no statistically significant differences (at a significance level <0.05) between the post-average scores of the experimental and control groups in the goal orientation scale", Table (7) shows the findings of the T-test of the differences among both groups to identify the significance of the differences between the average scores of both research groups in the goal orientation scale.

Table 7: T-values of the differences between the average scores of the experimental group and control group in the post-application of goal orientation scale

Variables	Groups	No.	Arithmetic mean	Standard deviation	T-value	Significance level
Recall	Experimental	23	2.217	1.085	3.080	0.004
	Control	21	1.286	0.902		
Understanding	Experimental	23	6.695	2.098	4.007	0.000
	Control	21	4.381	1.687		
Application	Experimental	23	4.348	1.152	2.934	0.005
	Control	21	3.142	1.559		
The total academic achievement test	Experimental	23	13.261	3.979	4.225	0.000
	Control	21	8.809	2.857		

It is clear from table (8) that the t-value is statistically significant (at a level of significance ≤ 0.05), which means that there are statistically significant differences between the experimental and control groups in responding to learning orientation and the total goal orientation scale for the experimental group, while t-value is not statistically significant (at the level of significance ≤ 0.05) of the goal orientation scale in the performance orientation variable, indicating that there are no statistically significant differences between the average scores of the two groups of pupils (experimental and control).

This result can be attributed to the fact that the self-reading contracts strategy had an important role in stimulating pupils' motivation, enhancing their self-freedom in writing their own goals in the learning contract, specifying the objectives according to their importance, building a self-directed approach to the most important and least important, and taking responsibility for learning making them prioritize their learning according to its importance by examining the content of the study, asking questions about it, then reading the text carefully, reflecting it, and reciting and reviewing the subject and reading it many times. Thus, the pupils have become aware of the reasons for performing learning tasks and felt that learning experiences are an opportunity to acquire knowledge and master information, which had an impact on making them keen to direct their learning towards mastering the learning process and the acquisition of information of interest and then developing their goal orientation in general and learning orientation in particular.

As for the absence of a statistically significant difference between the control and experimental groups in performance orientation, this may be due to the fact that the traditional method of teaching often emphasizes the importance of grades, rewards, evaluation from others and competition, which led to the absence of a difference between the experimental and control groups in performance orientation.



This finding is consistent with some studies showing the effectiveness of teaching strategies in developing goal orientation such as Ammar (2015) and Al-Tal & Al-Shihab (2017).

Conclusion

Learning and teaching Sciences needs to strategies and techniques which make pupils participate and be involved in educational situations. The more role of pupil as teaching-centered, the more s/he will be responsible for her/ his learning and building own knowledge by teacher's guidance. This facilitates teacher's role to guide and help through her/his observation of pupils' performance during their participation in tasks and situations. This research also identifies a strategy that may help to create an effective teaching atmosphere where pupils take responsibility for their learning according to their needs and abilities. In conclusion, it is beneficial to use self-reading contracts strategy in improving learning sciences. This is due to the advantages of this strategy represented in self-learning, self-reliance and autonomy and other ones which have proved to have a main role in developing their goal orientation and academic achievement in sciences. It is hoped that teachers of sciences in the primary stage will benefit from the results of this research.

Recommendations:

1. Employing self-reading contracts strategy in teaching due to its impact on learners' academic achievement and goal orientation.
2. The need to diversify strategies of teaching science to meet learners' individual differences.
3. Paying attention to the use of teaching strategies that support the development of goal orientation with its two aspects: performance orientation and learning orientation because of its impact on the development of learners' external and internal motivation.

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