

ASSESSING SECONDARY SCHOOL TEACHERS' PERFORMANCE IN DEVELOPING HABITS OF MIND FOR THE STUDENTS

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Abstract – the purpose of this study was to investigate the performance of secondary school teachers' in K.S.A in developing the habits of mind for the students. To achieve the pervious aim, a checklist and a questioner of teaching the habits of mind indicators was prepared. The sample of the study was selected from the Teachers in Secondary School in K.S.A. It was ($n = 60$) in (10 schools, 6 teachers for each one) in all core subjects : Islamic studies, Arabic language, English language, Mathematics, Science, and Social studies. The checklist was used to assess the teaching performance through the first class in 2010/2011. The main results of this study showed that most of the teachers did not master the indicators of teaching performance that related to develop the habits of mind including: (teaching plan, building the knowledge, group management, assessment , extra activities); they also did not have deep perspective relative to habits of mind indicators. Also There were statistically significant differences at ($\alpha \leq 0.01$) among core subjects teachers groups (Islamic studies, Arabic language, English language, Mathematics, Science, and Social studies) in developing habits of mind in general and in each habit individually in favor of the mathematical teachers .

Keywords: *productive habits of mind, developing and, assessing habits of mind, teachers' performance.*

I. INTRODUCTION

Kingdom of Saudi Arabia developed the curriculum in the light of both national and international standards. The main aims were: developing how the students build the knowledge, developing thinking process, and improving the smart behavior of the students. The educational system tried to solve a lot of problems that relate to the vision, mission, and the aims of learning. It is very necessary to highlight the development of thinking, communication skills, connection skills, reasoning, application of technological tools, and problem solving strategies.

On the other hand, in the last 20 years, a lot of researches presented the concept of habits of mind as a quality of thinking people. Thus, It is considered to be very essential for the students in the 21st century. The productive habits of mind are educational frameworks that cultivate mindful habits by teaching thinking processes directly to the students. They will become more skillful at thinking, solving problem, applying the knowledge, and communicating using alternative ways. The productive habits of mind are relative to how the teacher plan and deal with the content of core subjects. Also the habits of mind allow students to develop a

repertoire of general heuristics and approaches that can be applied in many different situations [1, 2].

A good starting point when developing Habits of Mind into a school is introducing the productive habits of mind to teachers of the core subjects. The experience will be more effective for students if teachers develop a deep understanding and appreciation of the habits themselves before they present them to the students in class. They may have numerous initial questions, for examples: What do these productive habits of mind mean? , How will the teachers work with the students to develop habits of mind? How can the teachers put the model into practice? And what is the role of the teachers in developing productive habits of mind?

In addition, classroom environment plays the main role in achieving the objectives. It provides many opportunities to influence behavior, cognitive behavior, learning, and growth. Habits of mind depend on the classroom environment. Also the teacher is responsible for providing the students with a good learning environment and developing the productive habits of mind. [3, 4].

Generally, there are five components linked to the development and evaluation of habits of mind that can be classified, as follows [5]: (1) Discovering and Exploring the Habits. It is related to the awareness of the Habits of Mind and their introduction to a class, (2) Lesson Design& lesson study. It is related to the design of the lessons and the teaching perspectives to develop them. , (3) Developing Habits of Mind. It is relative to the implementation of teaching strategies in the class, (4) Assessing the habits of mind. It is relative to achieving the aims, and (5) Determining the requirements of developing habits of mind in general as well as individual terms.

Habits of mind are of great importance to the students. They direct students towards thinking and practice in different situations such as problem-solving, communication, continuity of learning, and the assessment of the strategies of thinking. And to develop habits of mind the product must ensure the awareness of teachers and the knowledge of development strategies and students' evaluation.

Finally, developing and assessing the productive habits of mind are the main tasks of the teachers of the core subjects at

the secondary schools. For that reason, a lot of researchers have been investigating the teaching procedures in order to develop them. It is very important to be able to observe the teachers and encourage them to be reflective and help them improve their performance in developing and assessing the habits of mind.

Research questions: This research investigates the following question:

- To what extent teachers master activities associated with the development of teaching habits of mind in general and in certain fields of the teaching and learning process; i.e. (teaching plan, building the knowledge, group management, assessment, and extra activities)?

- To what extent teachers master the requirements of the development of 16 Habits of Mind each of them alone?

- Are there any significant differences in the means of teachers' responses fields of (teaching plan, building the knowledge, group management, assessment, and extra activities) that can be attributed to the core subjects (Islamic studies, Arabic language, English language, Mathematics, Science, and Social studies)?

- Are there any significant differences in the means of teachers' responses in the Requirements of the Development of 16 habits of Mind each of them alone that can be attributed to the core subjects (Islamic studies, Arabic language, English language, Mathematics, Science, and Social studies)?

Research objective: First, determining the teaching procedures that teachers follow to introduce and teach habits of mind to a class; second, assessing the teaching performance of teachers of core subjects in teaching the habits of mind; finally, determining the differences between the teachers of core subjects in developing habits of mind for the students.

2. LITERATURE REVIEW

In the recent years, a lot of researchers presented the effectiveness of habits of mind as a concept in educational studies. Most of those researchers referred to the importance of developing and assessing habits of mind. It is a framework for changing the teaching approaches in the 21st century. Also most of those researchers determined the advantages of presenting habits of mind to the teachers; in return will present them to the students [6,7,8,9,10]. What are Habits of mind?

The model of learning includes five dimensions: Toward Positive Attitudes learning, Acquisition and Integration of Knowledge, Extending and Refining Knowledge, Meaningfully Using Knowledge, and Productive habits of Mind. In Dimension 5, titled Productive Habits of Mind, students are encouraged to develop those mental habits

which will enable them to become life-long learners. These mental habits include those of creative thinking, critical thinking and self-regulation. The program suggests a number of characteristics of creative and critical thinkers as well as developing problem solvers. The habits of mind are relative to developing the characters of the students, for examples: accuracy, seeking clarity, restraining impulsivity, taking position when necessary and being sensitive to the needs of others. Self-regulation involves individuals being aware of their own thinking processes, planning and being aware of the resources necessary to complete a task. [11], [12], [13].

The habits of mind frameworks have been developed through the work of Marzano with his creation of the Dimensions of Learning. Costa and Kellick's ideas began with professional discussions in 1982, before being developed into classroom experiments that have shaped the current habits of mind concepts. Initially, Art Costa (1985) created a hierarchy of thinking in his article; (i.e. The Behaviors of Intelligence). [14].

As habits of mind were defined by and Kallick, the presence of "Habit of Mind" means having a disposition toward behaving intelligently when confronted with a problem. Here, the focus of interest is on knowing how students behave when the solution to a problem is not immediately known. It is believed that when students are faced with uncertainties, they will draw upon certain patterns of intellectual behaviors, thus producing greater results. [15].

The list of habits of mind: The productive Habits of mind are behaviors that people use to deal intelligently with problems for which they don't know the answers [16, 17], determined this habits as following: persisting, thinking and communicating with clarity and precision, managing impulsivity, gathering data through all senses, listening with understanding and empathy, creating-imagining& innovating, thinking flexibly, responding with wonderment and awe, thinking about thinking (metacognition), taking responsible risks, striving for accuracy, finding humor, questioning& posing problems, thinking interdependently, applying past knowledge to new situations, and remaining open to continuous learning.

Having the thinking skills, tools and strategies to act on the content is not always enough for the students. We must also have the disposition towards using them in the life situations. It is possible to imagine a student who is well equipped with a variety of thinking strategies, but never chooses to apply them in situations or solving problems. The Habits of Mind can be thought of as the dispositions towards using the thinking skills, building and Applying tools and strategies to act on the content [18].

Knowing the thinking skills is not enough for children to enact the skills. Developing the skills is relative to the acquisition of the habits of mind. It is the properties of thinking, practices of the skill, and the application of scientific content for all subjects in general and core subjects in specific [19]. Students must be building the productive habits of mind. They will be: sensitive to opportunities to apply the skills of thinking, able to perform the skills in the real world through designing instruction situations, inclined to apply the skills, and apply the pervious experiences.

Developing productive of habits of mind helps the students to be problem solvers, good thinkers, open minded, apply the knowledge, and increase the motivation of learning. It also helps them interweave intuitive, practical, and logical modes of thought that characterize arts learning. [20].

Also there are a lot of activities that relate to teachers. The teachers should help the students in developing thinking and productive habits of mind. (See, [21, 22, 16]). Teachers must:

- Build an enjoyable classroom that fosters work and learning.
- Design the activities supporting developing habits of mind.
- Encourage the students to think, communicate, search, explore, solve problem, question, and use the senses,
- Use multi- level of class organization, for example individual work, cooperative learning, and whole class.
- Assess the students in the light of developing productive habits of mind.

Also the teachers must help the students to develop the productive habits of mind. Teachers need to work with their students to: 1) explore the ideas. 2) formulate questions. 3) construct examples. 4) identify problem solving approaches that are useful in large classes . 5) ask themselves whether there is “something more”(a generalization) in the content on which they are working; and 6) reflect on their answers to see whether they have made an error. [23].

Beliefs about the habits of mind encourage the teachers to deal with them as main aims. It is the first point to improve the teacher's perspective before introducing the habits of mind to class. A lot of teachers write the aims that relate to developing habits of mind, but they use alternative traditional strategies. Some others, however, may highlight

the habits of mind in general and fail to consider important specific factors [24].

Through visiting the field, the researchers observed a lot of teachers in secondary schools. Most of the teachers did not consider developing habits of mind through the lesson plan, and the selection of the teaching activities. Most of teaching procedures are related to dealing with the content, specific presentation of the concepts, acquisition of the skills, deducing the generalizations. This approach may be very important but it is not enough. The teachers should establish a link between the content, developing thinking, and developing habits of mind through teaching plan, managing the class, designing the learning environment, applying teaching strategies, and developing the students.

3. METHODS

The current research focuses on two perspectives in evaluating the performance of the teacher as regard to developing and assessing habits of mind, and can be stated as follows:

- The first perspective: Evaluation of teaching performance for the development of habits of mind in general.
- The Second perspective: Assessing the requirements of the development of the 16 habits of mind each separately.

Instrumentation: To achieve the aims of this research two Instruments were used. To assess the teaching performance for the development of habits of mind in general, a checklist was prepared. It is related to the assessment of the teaching performance of learning habits of mind. It included 5 dimensions of teaching: (teaching plan, building the knowledge, group's management, assessment, extra activities) in the following core subjects (Arabic language, English language, social studies, Mathematics, science, and Islamic studies).

On the other hand, to assess the requirements of the development of habits of mind each of them separately, a questionnaire was prepared. It includes 16 habits of mind and some indicators for each of them in order to describe the roles of teachers in secondary school.

Research Sample

The sample of this search was selected from the original community. It was (n = 210). Their frequency is stated in detail in the following table:

Table 1
Description of the sample

Qualification			experience	gender		Age				
MA-	D	BC	More than 10	5-10	Less than 5	F	m	40-	35-40	25-35
6	11	43	27	21	14	14	46	13	19	28
10 teachers for each core subject										

Instrumentation

A checklist was applied by the researchers in 10 secondary schools in Tabuk city. Six teachers were selected from each school. Each researcher visited the teachers two times to apply the checklist, so each teacher was observed four times. The observation focused mainly on measuring the performance of the teachers in the Teaching Plan, Building the Knowledge, Groups Management, Assessment and Extra Activities. In addition the researchers met the teachers to apply the questionnaire that related to measuring the awareness of the teachers of habits of mind. The meeting with the teachers was meant to discuss and interpret a lot of question about the terms and concepts that were included in

the questionnaire. Through that open discussion, we noticed that there were a lot of generalizations, and that most of the teachers did not have enough experience regarding the habits of mind.

4. RESULTS AND DISCUSSIONS

To answer the first question: To what extent teachers master activities associated with the development of teaching habits of mind in general and in certain fields of the teaching and learning process; (i.e. teaching plan, building the knowledge, group management, assessment, and extra activities)? Through using SPSS, the frequency, percentage and the mean were calculated. The results are clearly stated in the following Table2:

Table 2
The frequency, percentage and the mean of teaching habits of mind indicators

creartias Teaching	Teaching Performance for Developing Habits of Mind in General	Distribution								means
		Exemplary (4)		Accomplished		Developing		Beginning (1)		
				-3		-2				
		Frequency	Percent %	frequency	Percent %	frequency	Percent %	frequency	Percent %	
Teaching Plan	Using habits of mind as a framework of teaching	5	8.3	12	20	19	31.7	24	40	1.97
	Write the aims of the lesson in relation to habits of mind	3	5	10	16.7	18	30	29	48.3	1.73
	Design the questions that make students think in an open- minded way.	4	6.7	6	10	20	33.3	30	50	1.73
	Problem posing related to building knowledge	3	5	12	20	24	40	21	35	1.95
	Design the cooperative learning activities	8	13.3	15	25	17	28.3	20	33.3	2.52
	Design the assessment activities	13	21.7	31	51.7	14	23.3	2	3.3	2.92
	The mean of total of this dimension									
Building the Knowledge	Organize the content gradually	10	16.7	18	30	17	28.3	15	25	2.38
	Connect between conceptual and procedural knowledge	16	26.6	33	55	10	16.7	1	1.7	3.07
	Use the problem solving strategies	8	13.3	12	20	20	33.3	20	33.3	2.13
	Use (think- pair – share) strategies	2	3.4	18	30	25	41.6	15	25	2.12
	Encourage the discussion among the students	5	8.3	15	25	24	40	16	26.7	2.15
	Develop the multi- intelligences in the class	6	10	10	16.6	20	33.3	24	40	1.97
	Encourage students to rethink about the problem.	11	18.3	19	31.7	19	31.7	11	18.3	2.33
	Use a lot of writing strategies and activities.	12	20	17	28.3	24	40	7	11.7	2.57
	Provide the opportunity to practice newly acquired skills in independent situations	7	11.7	23	38.3	21	35	9	15	2.47
	Use of appropriate equipment in class	4	6.7	26	43.3	18	30	12	20	2.37
Use the technological tools to enhance the students in developing habits of mind	5	8.3	13	21.7	18	30	24	40	1.98	

Table 2 (Continued)

	Help students to apply the pervious experiences.	15	25	32	53.3	12	20	1	1.7	3.02
	Encourage the students to think flexibly	2	3.3	17	28.3	8	13.3	33	55	2.08
	Support students in posing problems	3	5	16	26.6	31	51.7	10	16.7	2.47
	Give students the opportunity to think on their own.	2	3.3	8	13.3	39	65	11	18.3	2.02
	Ask the students to gather all senses	13	21.6	19	31.7	11	18.3	17	28.3	2.47
	The mean of total of this dimension									2.42
Groups Management	Give students the opportunity to think individually	16	26.7	32	53.3	10	16.7	2	3.3	3.03
	create a class environment that habituates thinking as a primary value	1	1.7	17	28.3	32	53.3	10	16.7	2.15
	Design the group discussion tasks	12	20	16	26.7	20	33.3	12	20	2.47
	Determine the rules of working in groups , for example: listen, think, write, share, proof and responsibility	5	8.3	21	35	18	30	16	26.6	2.25
	Encourage students to use the environmental tools	4	6.7	20	33.3	24	40	12	20	2.27
	Encourage students to Examine presented ideas.	7	11.7	22	36.6	17	28.3	14	23.3	2.37
	ask the students to share new experiences and knowledge learned from individual investigations	6	10	23	38.3	19	31.7	12	20	2.38
	Support the creative thinking	5	8.3	18	30	30	50	7	11.7	2.35
	The mean of total of this dimension									2.41
Assessment	Assess the habits of mind in class	1	1.7	6	10	11	18.3	42	70	1.43
	Use different tools in assessment, for examples, quizzes , achievement, observation, presentation, homework	9	15	34	56.7	16	26.7	1	1.7	2.85
	Design activities that help the students to self-assessment	7	11.7	23	38.3	19	31.7	11	18.3	2.43
	Present feedback about the problem in habits of mind	6	10	22	36.6	22	36.7	10	16.7	2.4
		The mean of total of this dimension								
Extra Activities	Support the students to prepare the portfolio	2	3.3	9	15	36	60	13	21.6	2
	Connect between family and school to enhance students	2	3.3	7	11.7	41	68.3	10	16.7	2.02
	Use the homework activities for continuity	12	20	32	53.3	18	30	0	0	3.03
	Use of reflection in developing thinking	8	13.3	14	23.3	30	50	8	13.3	2.37
	Design the different activities, for examples: search, use library, teamwork,	4	6.7	13	21.6	25	41.6	18	30	2.05
	The mean of total of this dimension				Total 2.31					2.3

Through the table (2) we can observe that the mean total of the checklist is (2.31). It is less than the mastering value (≥ 3.2). Also the mean totals of the dimensions are less than the mastering value (teaching plan = 2.14, building knowledge = 2.42, groups management = 2.41, assessment = 2.28, and extra activities = 2.30). Through the observation, the researchers no through the table (2) we can observe that the mean total of the checklist is (2.31). It is less than the mastering value (≥ 3.2).

Also the mean totals of the dimensions are less than the mastering value (teaching plan = 2.14, building knowledge = 2.42, groups management = 2.41, assessment = 2.28, and extra activities = 2.30). Through the observation, the researchers noticed that most of the teachers of the sample do not have clear perspective of teaching to develop habits of mind.

In addition, the range of means of the teaching indicators is (1.73 and 3.07). Most of the indicators are not close to the

mastering value (3.2). There are, however, some indicators which are close to the mastering value, for example: Connect between conceptual and procedural knowledge (3.07), Give the students the opportunity to think individually (3.03), Use the homework activities for continuity (3.03). Help the students to apply the pervious experiences (3.02), Design the assessment activities (2.92). Most of the pervious indicators refer to general teaching procedures, and did not relate directly to developing habits of mind.

On the other hand, there are a lot of indicators that refer to a weakness in teaching performance for most of the sample. Most of those indicators are mainly related to the procedures for teaching habits of mind, for example: Write the aims of lesson related to habits of mind (1.73), Design the question that make students think in an open- minded way (1.73), Problem posing related to building knowledge (1.95), Using these habits of mind as a framework of teaching (1.97),

Develop the multi- intelligences in the class (1.97), Use the technological tools to enhance the students in developing habits of mind (1.98), Support the students to prepare the portfolio (2.0).

Moreover, most of indicators are more than (≥ 2.00), and less than (≥ 2.85).

Finally, the researchers deduce that Most of the teachers did not master the indicators of teaching performance that relate to developing the habits of mind, including: (teaching plan, building the knowledge, groups management, assessment , extra activities).

To answer the second question: To what extent teachers master the Requirements of the Development of 16 Habits of Mind each of them alone?

Through using SPSS, the frequency, percentage and the mean were calculated .The results are detailed in the following table3:

Table 3
the frequency , percentage and the mean of the indicators of 16 habits of mind

Requires of Development of 16 Habits of Mind each one separately	Distribution Exemplary	Accomplished		Developing		Beginning			Mean	
		Frequency	Percent %	Frequency	Percent %	Frequency	Percent %	frequency		
	Design the authentic task in building the cognitive.	3	5	28	46.7	19	31.7	10	16.7	2.4
	Encourage the students to work continuously.	4	6.7	12	20	26	43.3	18	30	2.03
	Help the students persevere in a task through to completion.	5	8.3	14	23.3	35	58.3	6	10	2.3
	The mean of total of this dimension									2.24
Managing impulsivity	Help the students to think clearly and deeply about the situation.	6	10	19	31.6	21	35	14	23.3	2.18
	Encourage the students to deliberate the ideas in deep.	5	8.3	11	18.3	19	31.7	25	41.7	1.93
	Help the students to listen before speaking.	6	10	15	25	29	48.3	10	16.7	2.28
	The mean of total of this dimension									2.13
Listening with understanding and empathy	Determine the rules of listening to the others.	3	5	11	18.3	17	28.3	29	48.3	1.8
	Help the students to show their perspective in thinking.	5	8.3	9	15	15	25	31	51.7	1.8
	Help the students to understand what the others say.	7	11.7	19	31.7	19	31.7	15	25	2.3
	Ask the students to explain they thoughts.	6	10	28	46.3	19	31.7	7	11.7	2.55
	The mean of total of this dimension									2.11
Thinking flexibly	Encourage the students to consider the thoughts of others.	4	6.7	17	28.3	28	46.7	11	18.3	2.23
	Help the students to examine all the options of the situation.	8	13.3	27	45	20	33.3	5	8.3	2.63
	Encourage the students to consider the changes in the perspective.	4	6.7	9	15	16	26.7	31	51.7	1.93
	The mean of total of this dimension									2.26

Table 3 (Continued)

Metacognition	Describe the thoughts the uses when faced with a task, a problem, or a question.	4	6.7	16	26.7	35	58.3	5	8.3	2.32
	Describe how the awareness of one's own thinking helps to improve the task.	3	5	19	31.6	21	35	17	28.3	2.13
	Encourage the students to rethink again about their thoughts.	9	15	26	43.3	15	25	10	16.7	2.13
	The mean of total of this dimension									2.19
Striving for accuracy	Pay attention to detail when appropriate.	7	11.7	22	36.7	21	35	10	16.7	2.43
	Check against relevant sources.	10	16.7	21	35	21	35	8	13.3	2.55
	Recognize inaccuracies quickly.	6	10	20	33.3	29	48.3	5	8.3	2.45
	Correct inaccuracies that not only clear up the identified errors, but add greater clarity to the whole.	8	13.3	23	38.3	23	83.3	6	10	2.55
	The mean of total of this dimension									2.5
Questioning and problem posing	Ask the students to pose questions about the related data.	9	15	27	45	23	38.3	1	1.7	2.73
	Ask the students to determine the main questions.	12	11.7	30	50	16	26.6	2	3.3	2.87
	Encourage the students to think of the problems that may relate to the situation.	3	5	28	46.7	22	36.7	7	11.7	2.45
	The mean of total of this dimension									2.68
Applying past knowledge to new situations	Design the situation that makes the students enthusiastic.	12	20	21	35	23	38.3	4	6.7	2.35
	Ask the students to recall the pervious knowledge related to the problem.	10	16.7	17	28.3	26	43.3	7	11.7	2.5
	Help the students to apply the pervious knowledge in solving the problems related to the situation.	18	30	28	46.3	14	23.3	0	0	3.07
	Encourage the students to innovate the knowledge using the pervious experiences.	6	10	26	43.3	19	31.6	9	15	2.48
	The mean of total of this dimension									2.6
Thinking and communicating with clarity and precision	Design the task related to cooperative learning	14	23.3	27	45	16	26.7	3	5	2.87
	Ask the students to use (think-pair- share) strategy.	4	6.7	12	20	22	36.7	22	36.7	1.97
	Determine the rule of working cooperatively	6	10	16	26.7	31	51.7	7	11.7	2.35
	Help the students assess their thought in groups.	7	11.7	25	41.7	18	30	10	16.7	2.48
	Encourage the students to use the experiments to examine the ideas.	6	10	11	18.3	18	30	25	41.7	1.97
	The mean of total of this dimension									2.33
Gathering data through all senses	Design the tasks related to using the senses.	5	8.3	26	43.3	17	28.3	12	20	2.4
	Ask the students to use their senses in listening , observing, ...	9	15	18	30	19	31.7	14	23.3	2.37
	Encourage the students to use their senses in gathering data.	8	13.3	12	20	20	33.3	20	33.3	2.13
	The mean of total of this dimension									2.3
Creating, imagining and innovating	Posing problems that make the students creative in the classroom.	5	8.3	23	38.3	21	35	11	18.3	2.37
	Ask the students to think again	7	11.7	13	21.7	19	31.7	21	35	2.1
	Give the students extra activities.	13	21.7	21	35	19	31.7	7	11.7	2.67
	Assess the ideas and the results in the light of the innovation.	4	6.7	12	20	18	30	26	43.3	1.87
	The mean of total of this dimension									2.25

Table 3 (Continued)

Responding with wonderment and awe	Design the free climate in the classroom.	8	13.3	29	48.3	21	35	2	3.3	2.62
	Design the activities that make students' learning funny and enjoyable.	10	16.7	15	25	21	35	14	23.3	2.35
	Design a lot of instruction games.	4	6.7	9	15	11	18.3	36	60	1.68
	Using the technology in the classroom.	15	25	20	33.3	18	30	7	11.7	2.72
	Encourage the students to examine, explore and depend on the experiment.	7	11.7	21	30	20	33.3	12	20	2.53
	The mean of total of this dimension									
Taking responsible risks	Design the task that encourages the students to take risk.	4	6.7	9	15	15	25	32	53.3	1.75
	Ask the students to consider the dimensions of learning situations.	5	8.3	16	26.7	19	31.7	20	33.3	2.1
	The mean of total of this dimension									
Finding humor	Design free entertaining activities in the classroom.	7	11.7	19	31.7	22	36.7	12	20	2.35
	Encourage the students to laugh at themselves.	3	5	21	21	27	45	9	15	2.3
	The mean of total of this dimension									
Thinking interdependently	Design cooperative tasks.	6	10	19	31.7	25	41.6	12	20	2.38
	Ask the students to work in a team.	8	13.3	12	20	20	33.3	20	33.3	2.18
	Assess the skills of students in a team work.	6	10	12	20	32	53.3	10	16.7	2.23
	The mean of total of this dimension									
Remaining open to continuous learning	Design enhancement activities for continuous learning.	11	18.3	32	53.3	15	25	2	3.3	2.87
	Consider the learning interests of the students.	6	10	25	41.7	20	33.3	9	15	2.47
	Make a connection between family and school to help the students.	6	10	14	23.3	18	30	22	36.7	2.07
	Design the homework activities for the students.	17	28.3	19	31.7	15	25	9	15	2.82
	The mean of total of this dimension									
Total=2.32										

Through Table (3) we can deduce that the mean total of the questionnaire is (2.32). It is less than the mastering value (≥ 3.2). Also the mean total of the dimensions are less than the mastering value (3.2). All the means' total of dimensions are less than (≤ 2.68) and more than (≥ 1.93). Through the observation, the researchers observed that most of the teachers of the sample do not have clear perspective about the productive habits of mind; they also do not have general perspective in developing habits of mind.

In addition, the range of means of all indicators of habits of mind are (≥ 1.68 and (3.07). most of the indicators are not close to the mastering value (3.2). there are, however, some indicators which are close to mastery, for example: Help the students to apply the pervious knowledge in solving the problems related to the situation (3.07), Design enhancement activities for continuous learning (2.87), Design the task related to cooperative learning (2.87), Design the homework activities for the students (2.82).

On the other hand, there were a lot of indicators that refer to a weakness of the indicators of habits of mind for most of the sample. Most of those indicators are mainly related to

the procedures for developing habits of mind: each of them alone, for examples: Design a lot of instruction games (1.68), Design the task that encourages the students to take risk (1.75), Determine the rules of listening to the others (1.8), help the students to show their perspective in thinking (1.8), Assess the ideas and the results in the light of the innovation (1.87), Encourage the students to deliberate the ideas in deep (1.93), Encourage the students to consider the changing of the perspective (1.93), Ask the students to use (think-pair- share) strategy (1.97), Encourage the students to use the experiments to examine the ideas (1.97).

Finally, the researchers concluded that most of the teachers did not master the indicators of 16 habits of mind in general and each one alone.

Through the checklist and the questionnaire we can be deduced that most of the teachers in the sample followed inadequate procedures in the development of habits of mind both at the product level of the dimensions of teaching and the level of development of 16 habits of mind in general and each one alone.

1- To answer the third question: Are there any significant differences in the means of teachers' responses that can be attributed to the core subjects

(Islamic studies, Arabic language, English language, Mathematics, Science, and Social studies)?

Table 4
ONE WAY ANOVA results by dimensions of teaching habits of mind

Sig. ($\alpha \leq 0.01$)	F	Mean square	Df	Type Sum of square	dimensions
		80.697	5	403.48	
it with P value	4.55	17.724	54	957.1	Teaching Plan
			59	1360.58	
		680.79	5	3403.95	
it with P value	5.01	135.757	54	7330.9	Building the Knowledge
			59	10734.8	
		243.627	5	1218.13	
it with P value	7.42	32.793	54	1770.8	Groups Management
			59	2988.93	
		102.267	5	511.33	
it with P value	7.28	14.048	54	758.6	Assessment
			59	1269.93	
		98.537	5	492.68	
it with P value	8.78	11.213	54	605.5	Extra Activities
			59	1098.18	
		4909.65	5	24548.2	
it with P value	6.86	715.457	54	38634.7	Total
			59	63182.9	

Through Table (4) we may notice the significant differences between the core subject teachers using (ONE WAY ANOVA) in general and for each dimension of teaching habits of mind individually. To determine the type

of significant differences, we used the Scheffe way. It depends on calculating the means for each group. The next table shows the means of the core subject teachers in teaching habits of mind in general and each one alone:

Table 5
The means of teachers' responses in the core subjects

Dimensions	Math	Science	English	Social	Arabic	Islamic
Teaching Plan	17.4	14	11	9.5	11.3	11.3
Building Knowledge	46.4	40.6	30.5	24.2	29.2	30.4
Groups Management	23.9	21.2	13.1	11.4	14.3	14.9
Assessment	15.4	13.1	7.5	7.6	9	9.6
Extra Activities	15.3	13	7.4	7.7	9	9.9
Total	118.4	101.9	69.5	60.4	72.8	76.1

Through Table (5), it is clear that there are differences between the averages of core subjects teachers in teaching the productive habits of mind and the dimensions of teaching each of them alone. Also there are significant differences in favor of the teachers of Mathematics in teaching the habits of mind in general, and its dimensions, each of which alone. One important reason for this result is to develop

mathematics curriculum at all levels of education in the light of international standards and documents, taking into account some considerations related to the development of the product of habits of mind.

Finally, we can deduce that There are statistically significant differences at ($p \leq 0.01$) between core subjects teachers groups (Islamic studies, Arabic language, English

language, Mathematics, , and Social studies) in developing habits of mind in general and in each habit individually in favor of the mathematics teachers.

To answer the first question: Are there any significant differences in the means of teachers ‘responses in the

Requirements of the Development of 16 habits of Mind each of them alone that can be attributed to the core subjects (Islamic studies, Arabic language, English language, Mathematics, Science, and Social studies)?

Table 6
ONE WAY ANOVA results in the Requirements of the Development of 16 Habits of Mind each of them alone

16 habits of mind	Mean square	df	Sum of square	F	Sig. ($\alpha \leq 0.01$)
Persisting	17.417	5	87.083	4.06	it with P value
	4.294	54	231.9		
		59	318.98		
Managing impulsivity	43.097	5	215.48	4.74	it with P value
	9.094	54	491.1		
		59	706.58		
Listening with understanding & empathy	41.87	5	209.35	4.78	it with P value
	8.769	54	473.5		
		59	682.85		
Thinking flexibly	28.267	5	141.33	1.43	Non- it with P value
	19.785	54	1068.4		
		59	1209.73		
Metacognition	24.377	5	121.88	5.16	it with P value t
	4.724	54	255.1		
		59	376.98		
Striving for accuracy	34.467	5	172.33	6.38	it with P value
	5.4	54	291.6		
		59	463.93		
Questioning & problem posing	33.11	5	165.55	6.07	it with P value
	5.446	54	294.1		
		59	459.65		
Applying past knowledge to new situations	54.51	5	272.55	6.67	it with P value
	8.169	54	441.1		
		59	713.65		
Thinking and communicating with clarity and precision	111.95	5	559.75	7.71	it with P value

Table 6 (Continued)

	14.517	54	783.9		
		59	1343.6		
Gathering data through all senses	36.617	5	183.08	7.4	it with P value
	4.946	54	267.1		
		59	450.18		
Creating, imagining and innovating	61.507	5	307.53	8.19	it with P value
	7.504	54	405.2		
		59	712.73		
Respond with wonderment& awe	115.857	5	579.28	8.96	it with P value
	12.92	54	697.7		
		59	1276.98		
Taking responsible risks	16.95	5	84.75	6.59	it with P value
	2.572	54	138.9		
		59	223.65		
Finding humor	18.787	5	93.933	8.46	it with P value
	2.219	54	119.8		
		59	213.73		
Thinking interdependently	30.8	5	154	5.44	it with P value
	5.27	54	284.6		
		59	438.6		
Remaining open to continuous learning	68.68	5	343.4	9.2	it with P value
	7.463	54	403		
		59	746.4		
The total	10120.34	5	50601.7	7.47	it with P value
	1354.61	54	73149.2		
		59	123750.9		

Through Table (6) we can deduce the significant differences between the core subject teachers using (ONE WAY ANOVA) in general and for each dimension of teaching habits of mind individually. To determine the type

of significant differences, we used the Scheffe way. It depends on calculating the means for each group. The next table shows the means of core subject teachers in teaching habits of mind in general and each one alone:

Table 7
The means of teachers' response in the core subjects

dimensions	Math	Science	English	Social	Arabic	Islamic
Habit 1	8.7	6.9	5.8	5	5.9	5.6
Habit 2	11.6	9.5	6.9	6	7.1	7.4
Habit 3	11.8	9.8	7.9	6.2	6.9	8.1
Habit 4	Non-significant					
Habit 5	8.5	8	5.3	4.7	6	5.4
Habit 6	8.7	7.9	4.2	4.5	5.1	5.8
Habit 7	8.7	8.1	4.7	4.3	5.5	5.6
Habit 8	11.8	10.2	6.7	5.7	7.3	7.2
Habit 9	15.4	13.5	7.8	7.1	8.6	9.7
Habit 10	9.2	7.9	4.3	4.8	5.5	5.6
Habit 11	12	10.3	5.7	6	7.3	8.1
Habit 12	15.8	13.7	7.9	7.7	8.5	9.5
Habit 13	6.3	5.2	3.2	2.8	3.5	4
Habit 14	6.2	5.2	2.5	3.2	3.6	3.7
Habit 15	9	7.9	4.8	4.7	5.6	5.8
Habit 16	12.6	10.5	6	6.3	7	8
Total habits	164.9	141.7	92.2	83.4	99.3	105.3

Through table (7) we can deduce that there are statistically significant differences at ($\alpha \leq 0.01$) between teachers' performance in each one of the habits of mind in favor of the mathematics teachers.

5. CONCLUSION

Developing the productive habits of mind depends on the teachers and their awareness and knowledge. It, also, depends on considering the dimensions of teaching and the teaching indicators for developing the habits of mind. Through the results of this research, most of the teachers of the core subjects did not have clear and deep perspective of teaching in general and its dimensions (teaching plan, building the knowledge, group's management, assessment, and extra activities). Most of them did not write lessons aims that are relative to developing habits of mind, did not pose questions and problems, did not organize classes, and did not design strategies that encourage the students to think, discuss and rethink. They, also, did not assess developing habits of mind for the students.

On the other hand, most of the teachers did not have clear and deep perspective of habits of mind in general as well as in detail. They did not have enough experiences that relate to the terms of habits of mind and how to develop them.

In addition, there are big differences between the core subjects teachers in favor of mathematics teachers. There are

a lot of reasons behind that. The most important one is mainly related to the fact that the mathematics curriculum is generally developed in the light of the international standards. It includes a lot of terms and concepts that are relative to mathematical thinking, mathematical reasoning, mathematical sense, mathematical connections, mathematical communication, mathematical problem solving, and solving word problem. All of them are relative to developing the habits of mind directly. There, also, are useful teaching guides that include a lot of mathematical activities and lessons plans that may help the teachers in the process of teaching.

To supports the general framework for the development of habits of mind, a set of considerations must be taken into account. The most important ones may be summed up as follows:

- The awareness of the teacher of habits of mind is very essential, especially in the areas of terminology and concepts and their relevance to high school students.
- The need to plan teaching to suit the habits of mind product development in general.
- The development of each of the habits of mind requires a set of teaching activities and procedures that must be implemented in the classroom.
- Good learning environment conducive to the development of many of the habits of mind.
- The need to develop the skills of teachers in the design of the activities that would develop habits of mind products.

- Take into account the weaknesses of the general framework of teaching that have emerged through the results of the current research.
- Assessing Habits of Mind is an essential part of the teaching framework.
- The program depends on the multi approaches in professional development, for example, training, lesson study, and teaching reflective.

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