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PREDICTING COGNITIVE REFLECTIONS AMONG MIDDLE SCHOOL TEACHERS

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ABSTRACT
The study aimed to explore the cognitive reflections among high school teachers and investigate whether there are statistically significant differences in the cognitive reflections scale based on gender and academic specialization. The sample consisted of 470 teachers and female students. The researcher developed a scale specific to this sample to measure cognitive reflections, which achieved acceptable levels of validity and reliability. To analyze the data, the researcher used several statistical methods including Chi-square, Pearson correlation coefficient, one-sample t-test, two-sample t-test, and others.
The results revealed that male teaching gender is superior to the female teaching gender incognitive reflectivity due to the environmental and educational attitudes of male teachers were more interactive than female teachers. Additionally, there were statistically significant differences in favor of the scientific specialization upon humanities, which outperformed the humanities in terms of cognitive reflections.

Keyword: cognitive reflections, high school, teachers, students.

INTRODUCTION

The importance of cognitive reflectiveness in today's educational systems—in all their forms—has become a central focus of research. This importance revolves around how teachers perceive their own participation, and that of their students, in the educational process. Such reflection requires increased attention toward engaging teachers in diagnosis and training, to deepen their understanding and use of pedagogical knowledge (Koehler 2007; Buehl & Fives 2016; Ferguson, Lunn, Brownlee 2016; Yadav).
Given the vital role of cognitive reflection in teaching and learning, and the research focused on conceptual development and knowledge use (Kienhues 2002; Bendixen 2016), the role of knowledge and reflectiveness becomes essential in supporting the cognitive transformation of both practicing and prospective teachers. This supports the improvement of their cognitive and educational responsibilities, their interaction with those responsibilities, and their ability to engage in solving complex problems and reliable knowledge production processes (Feucht et al., 2015: 353).
It also contributes to integrating curriculum approaches in addressing cognitive biases across various domains. Thus, cognitive reflection holds importance that transcends methodological concerns—it extends toward more accurate research design, deeper engagement, and a curious, positive approach (Campitelli & Gerrans 2014: 169). Educational thinking, therefore, is not a "school fallacy" intended to expose weak arguments in educational debates. Rather, it is a productive approach to knowledge generation grounded in reality, aiming to meet student needs through specific methods and conceptual growth (Bourdieu 1990: 242).
Although work on cognitive reflectivity and reflectivity has been relatively limited, especially in Arab and local countries, the importance of reflective trends and their problem and development in various other disciplines has been observed for more than half a century in international research, for example, field studies in social psychology (1991 Gergen & Gergen); and in sociology (1988 Durkheim 1912; Latour); and in International Relations (2011) and Social Anthropology (1973 Geertz); and (Malinovsky, 1944). Moreover, it is key to the

intellectual position of Bourdieu (1977) who employed his work in the humanities, philosophy and sociology of the latter half of the twentieth century (189:2002 Jenkins).

Reflectivity remains a concept of paramount importance in descriptive and qualitative research as a means of better understanding the dynamics of the internal validity of learning in reality (326: 2002 Easterby et. Al), as shown in the idiomatic concept, reflexivity is imperative for research in the humanities (Alvesson & Skoldberg 183: 2005).

At the same time, knowledge generation is based on what is done in Attract attraction, by attracting learners towards the scientific concepts of "creating[1]", by creating an appropriate and compatible learning environment. Acquire, by understanding and assimilating apparent knowledge. Creating knowledge. Which refers to the generation of new, undiscovered knowledge. (Al-Kubaisi 2005: 69).

This has been confirmed by Kenneth C. Landon & John P. Landon (2007) that educational institutions acquire knowledge in a number of ways depending on the type of knowledge that is learned. It may occur through special and accurate applications or through the development of online experience networks, so that workers find experience in the institution that possesses knowledge, and sometimes institutions create knowledge by discovering data models or using knowledge workstations, as teachers can discover New knowledge, as well as obtaining knowledge from external sources, such as field exercises, scientific research, and relevant statistics in this field (Kenneth C. Landon & John P. Landon (2007:436).

Royal (2013) has shown that it represents the development or formation of skills (Royal Carol 2013:23). Bun Therewith et.al 2014 argues that knowledge acquisition includes external interactions of an educational institution, internal practices that represent interactions with students, systems and rules of scientific concepts, training and development. Thus, we can define the process of knowledge acquisition as involving the generation of knowledge using its sources of formation, such as knowledge workstations that are based on the outcome of the field practices of experts on the ground. Reality with the help of information support systems, especially expert systems, in addition to internal interactions. (Bun Therewith et.al 2014: 289).

The importance of knowledge acquisition results from the positive relationship between cognitive potential and both the ability to solve problems, create new knowledge and interact with it in the educational institution and professional performance. (3) so C. Midgley. & D and Devinney M. T 2002).

Knowledge is now believed to be the world's main source of wealth. There is a growing recognition that a successful technological flow in supporting technology transfer ensures the continuity of competitive advantage depending on the capacity with which knowledge is generated (Rifai 2016: 6).

The reflexive motives in the acquisition of knowledge as shown (AlkabLacey, 2005) lie in the process of continuous training. Employing information, skills and attitudes related to the educational environment after participating in the training. (Al-Kubaisi 2005:69). Sitali Wamundila (2011) notes that training and development are two processes that provide employees with useful operational knowledge relevant to organizational processes. (Al-Taani 2002: 15).

First: the research problem

Today's contemporary science is concerned with educational tasks commensurate with advanced scientific developments and educational technology related to the development and consolidation of cultures. . As in the methods of obtaining educational knowledge and skills for teachers that are new, which are based on cognitive reflections from the environment and the educational environment.

But what is observed in the educational methods reflected on learners. It is based on teaching written knowledge or that of methodological books only. Neglecting the reflective dimensions of knowledge. Contemporary educational psychology has proven its importance and effectiveness. Scientific knowledge based on educational reactions has had a great impact on the development of educational skills and enrichment of experiences in addressing educational failures, whether inside or outside the classroom. Today's teachers are more or less seeking the importance of scientific information in The textbook is more than environmental learning or reflected from the impact of educational situations. This in itself is a neglect of the scientific development taking place in the development of skills and their creative development. The institutions concerned with Iraqi education have been

[1] Learning creation is the creation of concepts related to the learning process of learners.

interested in developing knowledge without any concrete efforts to know its repercussions on the individual and society. However, the reality of teachers has not been proven to demonstrate reflexive cognitive progress in junior high schools today. From this, the problem of the current research can be identified in the following question:

From the above, the importance of the current research is clear in two aspects. Are:

- **Theoretical importance: including:**

1- The necessary need for studies that shed light on the positive bright aspects of the teacher's personality in predicting cognitive reflections . As well as his skills in it, whichhe should perform with high skill in the classroom and outside for the purpose of education.

2- The novelty of the two topics of the current research Predicting cognitive reflections with an educational vision in the Arab psychological heritage. And the lack of rooting them in scientific research.

- **Applied importance: including:**

1- The current research acquires additional importance because it is conducted on middle school teachers, and this age stage is of great importance in the life of society, as teachers have unlimited potential, energies, and abilities in building and giving that can determine their hobbies and desires.

2- Arrive at a model that illustrates the relationships, overlapping influences, and causal trends in this variable, which can be relied upon to create appropriate learning environments that allow students to feel a high level of cognitive reflection, resulting in self-determination.

3- Preparing a scale in the local Arabic format that can be useful in the educational environment in Iraq.

4- Benefit from the results of the current research to develop educational tasks in line with contemporary scientific development.

Third: Research Objective: The current research aims to:

- Predicting the cognitive repercussions of middle school teachers.
- Statistically significant differences to predict cognitive reflections among middle school teachers according to gender variables (males, females) and (scientific, humanitarian)

Fourth: Research Limits: The current research is determined by the following limits:

Objective limit: The current research variable includes predicting cognitive implications.

- Human limit: The research is limited to a sample of middle school teachers with their specialization (humanitarian and scientific).
- Spatial limit: The research was limited to teachers in their schools to which they belong within the boundaries of the city center of Najaf.
- Time limit: for the academic year (2024-2025).

Fifth: Search Terms:

Cognitive reflexivity

- **Bourdieu (1993) defined it** as the scientific embodiment of the sub-subject of epistemological objectivity. (Bourdieu 1993:63)
- **Margaret Archers (2013) defined it as the flowing and continuous internal dialogue in which an individual engages to understand the world around him and to understand himself. This internal conversation forms interpretations that influence decisions and mediate interactions with social structures and cultural contexts (**Margaret Archers 2013: 427).

The researcher adopted the definition (Margaret Archers 2013). For the following reasons:

A- Being the clearest and most recent definitions of cognitive reflexivity until writing the current research - to the best of the researcher's knowledge and knowledge -.

B- The author of the theory referred to the concept and its components in detail.

C- A number of international studies have been conducted that have adopted the definition in their research on various segments of society except teachers and teachers.

From this, **the procedural definition** was: the cumulative degree of measurement, which gives an indication of the level of understanding, interpretations and cognitive reflection interactions of the examinee on the current scale.

Chapter Two: Theoretical Framework and Previous Studies

First: Theoretical Framework:

1- The concept of cognitive reflectivity: By tracing the scientific development of the concept, there is no clear Arabic term in the educational field for this concept other than backwash. In the literal translation of it as wave indiah[2, the] concept was first employed and initially in the humanities within the framework of the social sciences. which is meant to refer simply to that aspect of the sociology of science Share's social image is reflective this time. Because the sociologist of science is a social scientist, he falls into the position of employing behavior socially. Obviously, (Gruenberg 1978) argues that the development of the concept of reflexivity is the result of the problem in all social sciences. It eventually became applied to the sociology of knowledge, which aims to present a theory that identifies the social conditions that generate certain cognitive beliefs. Because for any such theory it must be explainable in terms of circumstances and its specific social implications (Bloor 1991: 3)

And then the description of the concept of reflexivity. In the psychological concept and then in the educational concept, it means, as Joe (2004) sees it, that reflexivity is the extent of influence on teachers and their learners. Lucia (2007GO) points out that it is the relationship between testing and learning (Muñoz & Alvarez 2010: 64). Today, in contemporary times, the concept of reflectivity has been employed. and cognitive reflectivity specifically in outcomes inspired by the reflexive effect (positively or negatively). Reflected on directing a learning method Learners and their teaching methods, as well as to identify educational materials that receive attention in the teaching and learning process. This suggests that the phenomenon of reflectivity is not linked to a particular educational system but is a global phenomenon (Alderson 17: 2004).

It has been shown that the concept of cognitive reflectivity is well related to communicative learning in the quality of the educational process, which made specialists in the field of the educational process pay great attention to them in the last decade. The important question in this is whether education, whether in its method or in its content, guides the reflective model of national scientific education. (11: 2010)Munoz &Alvarez). It includes special importance for the educational system and the activation of critical and creative thinking in educational programs instead of relying on the pattern of memorization and repetition usually followed in most educational programs, and there are those who call for the need to intensify educational efforts on the methodology of obtaining cognitive reflexivity. The methods of this are more than mobilizing a lot of knowledge, especially in the era of the explosion of information that we are currently living in (6: 2008 Cheng). And what it produces from personal reflections on learners.

Hence, it was necessary for the researcher to detail the consequences of cognitive reflection when teachers in the framework of the educational process. As follows:

- Consequences of cognitive reflexivity: Cognitive reflectivity is a concept that emphasizes the importance of reflection and self-examination within the context of teaching practice. Teachers are encouraged to critically examine their knowledge, beliefs and assumptions to enhance teaching effectiveness and support student learning, enabling teachers to develop a more accurate understanding of their subject matter and teaching practices, and ultimately enhancing their ability to facilitate student learning (Campitelli & Gerrans 2014: 179. Cognitive reflectivity also enables teachers to be learners, critical thinkers, and teachers who are amenable to evolution (see Maton 2000:69), with Ashmore (1994) suggesting that the benefit of reflectivity is that it can enable a radical critique of representation. But it goes a step further, showing here that the problem of reflectivity is the relative conservatism of relativity and not itself (Ashmore 1989: (111), and from this Ashmore (1989) intends to emphasize the interdependence between representative activity and the formation of the educational concept, from which cognitive reflectivity has many forms.

Perhaps one of the most common forms of reflection that already exist (with a worldview), and certainly the least theoretical, is sensory arousal reflexion, but the flexible replay of the concept of critical thinking about one's own practices is usually illustrated as a clear display of self-awareness. One can make general aspects of an individual's social identity or offer a journey or reflections into fieldwork where one identifies potential sources of impact

-[2] It is the wave effect issued by the fall or movement of a solid body in water (such as the movement of a boat in the river or the fall of a stone in a pond), the return of circular wave rings that affect the stagnation of water from the place of fall of the thing, and this return effect interacts steadily in its strength with the strength and size of the falling thing, that is, the force of the effect of the return wave is proportional in its effect with the force of the effector. (Campitelli & Gerrans 2014:179).

anxiety, and two other examples, with a more radical, can be described as how Reflectivity in revisiting hermeneutic narcissism, in the argument that facts are inseparable from the observer and the culture that provides the description of categories. Both are also characterized by an unstable awareness of the social differences between the observer, the observer, and the symbolic (Maton 2000:67).

It is clear from this that there are several forms of cognitive reflexivity:

•**Social Reflexivity: Social reflexivity** usually deals with the reflectivity implied by the social relationship of knowledge rather than its cognitive relationship. That is, the relation of the subject to knowledge (who does the object) rather than the relationship of the object to knowledge (what is being objected to and how). It actually offers a social (or anthropology) account rather than a cognitive computation of knowledge (Popper 1972:189).

• **Individual reflexivity:** Reflective research often tends to construct reflectivity as an individual effort to overcome one's biases, with a romantic and human focus on self-discipline to transcend effects from knowledge of one's social and cultural status rather than the supra-subjective consequences of practices (Berlin 1999: 17).

• **Narcissistic reflexivity:** In doing so, he often focuses on the individual aspect while excluding everything else. The behavior can thus usurp the subject of the alleged object (Maton (2002: 78).

2- **Educational cognitive reflexivity: a** formula of scientific employment in the learning process Since education is very important for the learner, it will inevitably lead to the style of the learning process from the parties to the learning process, but this effect goes beyond the learner to the type of educational material provided and the method of teaching it, as well as learning itself, as teachers are affected by it, especially in a case imposed by a party other than the teacher (Feucht 2015: 355).

The reflexive effect occurs in most educational situations, as teachers usually have an unconscious tendency, and most students just want to focus on topics. Therefore, the educational decision-maker must pay attention to changing the patterns of education that have spread and affected the teaching and learning process negatively. This means that whenever the way in which education is delivered conflicts with the desired purpose of educational content, it will have a negative impact on the way that content is learned, and perhaps on the way it is taught.

From this the educational reflective effect assumptions of teachers. Where learning is very important to the student, and student success is important to the teacher, the educational reflections will be strong, and the assumptions of the reflective effect can be directed in the following directions that affect the learning process:

- Reflexivity Learn what assumption will learn Assumption will learn
- Reflexivity Learn what Assume what he learns Assume what he learns
- Reflection of learning method Assumption of the learning method
- Reflexivity Learn what Assume what he learns Assume what he learns
- Reflexivity Learn what to assume the appropriate method Assume the appropriate method
- Assumption of achieving learning trends
- Assumption of achieving education trends (Munoz Alvarez: 322: 2010).

3- Factors contributing to the strength of the effect of reflexivity: Educational cognitive reflectivity can be in a neutral sense. That is, it has two sides. Either it is negative, it can also be positive, and in order to work to make reflectivity with its positive contents, a number of factors must be achieved, including:

A- The focus should be on the abilities he wants to encourage.

B-Learning must have a clear non-predictive model, in terms of method and content, the method and its direction give an incentive for students to learn in clear and specific directions.

C-Direct style is better than indirect in skills development.

D-Improvement of the benchmarking criteria, if the specifications are clear and explicit in what students are able to do and with the level of success, students have a clear picture of what they achieve and achieve. When it is outside the benchmarking, it is easy for teachers and students to consider that a percentage of them succeed without fully considering the level they have reached.

E-Direct goals vs. content It provides and gives the true picture of what is accomplished, and teaching and learning tend to achieve the same goals.

F- Information and concepts of students and teachers, and no matter how good the power of reflectivity, its impact is not fully aware on students and those responsible for education, which makes them do not know and do not understand what is intended. Therefore, the educational content must be understandable to both the teacher and the learner to show the quality of cognitive reflection. (Watanabe 2004: 211; Cheng 2008: 176).

4- The theoretical dimension explaining the educational cognitive reflexivity : The researcher did not find a clear, explicit and systematic theory towards cognitive reflectivity in its educational framework - towards the identification of school teachers - other than the orientations of (Margaret Archer 's theory), which was highly European popular, so the researcher will detail it specifically and in the following:

Margaret Archer's theoretical orientations:

Margaret Archer's theory is the most explicit in discerning the concept of cognitive reflectivity in its didactic detail. It delves into an individual's way of thinking and shaping one's actions, world, and functions. It is based on the basic principle that continuous internal dialogue in which the individual engages to understand the world around him and to understand himself. This internal conversation shapes the internal conversation in his interpretations, influences his decisions, and mediates his interactions with social structures and cultural contexts. Its sub-indicators are:

- Learners are individuals with the ability to think complex and socialize.
- Internal conversations: These are cognitive processes in which an individual reflects on their experiences, takes into account different perspectives and evaluates potential courses of action.
- External factors: determined by the results of social structures and cultural contexts in the factors that influence and restrict an individual's thinking and actions. (Archer 2003: 157-160).

Margaret Archer's also identified ideal methods according to their levels of cognitive reflections by which an individual can manage their internal conversation. Which are:

A- High level: Metacognitive Reflexivity: It is the ability of the individual to internal conversation flowing with objective critical analysis, of everything that is raised in reality and the surrounding environment and to reach questioning the mental map posed by others.

B- Good level: Cognitive Self-reflexivity: It shows the individual internal and flowing dialogue about situations, decisions and social interactions on his personal judgments and subjective experiences in the statement of his opinions and judgments taken towards them.

C- Acceptable level: Heterogeneous cognitive reflexivity, which leads the individual in his internal and flowing dialogue to accept and keep pace with the source of power and external decision and recognition of information and scientific organizations of information.

D- Poor level: Negative reflexivity in knowledge is the lack of the individual's ability to engage in internal dialogue to achieve conscious and perceptive participation in achieving external reflection, which is mainly dependent on the stereotype, routine and habits prevailing in understanding decisions and interactions with others (Feucht, et.al 2015: 357-359).

Teachers' cognitive reflexivity theory has been rooted in the idea that effective teaching requires a deep understanding of an individual's knowledge and beliefs, as well as an awareness of how these factors affect students' learning experiences. This theory assumes that teachers who engage in cognitive reflectivity are better equipped to adapt their teaching methods, respond to the diverse needs of students, and create a supportive learning environment. By critically examining their cognitive attitude, teachers develop a more nuanced understanding of their subject matter and teaching practices, ultimately enhancing their ability to facilitate student learning. Also, this is why many guidelines highlight the importance of cognitive reflectivity for teachers and in the following:

- Personal Epistemology Theory: explores individual beliefs about knowledge and knowledge. Cognitively meditative teachers develop a flexible and contextual understanding of knowledge, avoiding dogmatic methods.
- Critical pedagogy theory: calls for questioning the power structures and narratives prevailing in education. Cognitive reflectivity enables teachers to critically analyze approaches, methods, and assessments.
- Positional perception theory: emphasizes the context-dependent nature of knowledge and learning. Cognitively reflective teachers adapt their practices based on students' specific needs and classroom situations.

Second: Previous Studies

1- **study (Jo et.al,2022)**The study aimed to find out How cognitive reflectivity enables teachers to teach diversity in Queensland University of Technology University Griffith University Macquarie, University Stavanger in Australia, and reached The size of the research sample is (11) parameters. The study relied on methodology Case study. While the study was taken Teaching strategies such as critical discussions, problem solving, and the use of theories explored how teachers perceive, plan and implement teaching strategies to teach diversity and included analysis of observation notes and interview transcripts As a search tool . The Results Teachers sought to promote transformative and subjective critical thinking, focusing on deep understanding and knowledge acquisition as a basis for critical thinking, good knowledge was considered academic or a combination of theory and practice, with an emphasis on its flexibility in diverse contexts. It included analysis, evaluation, interaction with multiple perspectives, and reflective thinking to link theory to practice. The teachers used pedagogies Critique, educational scaffolding, modeling, and encouraging independent learning and emotional engagement. It provided a vision to integrate cognitive reflection and evaluative attitudes to promote social justice in diversity education.

2- **study David 2022) and Where are you?) :** The study aimed to find out the use of cognitive reflection of Bourdieu to reduce bias in international business research, a theoretical study in the knowledge of thinking in our thinking, the study was conducted in University of Southeastern Norway and Royal Holloway, University of LLondon, but the study Not done in it Identifying a specific human sample, the study focused on the theoretical analysis of research methods in international business, using examples from previous literature. , and the study relied on Theoretical-analytical approach, with a focus on developing a methodological framework for cognitive reflectivity (Epistemic Reflexivity) based on the work of sociologist Pierre Bourdieu. The researcher used a tool for his research in Review the literature and analyze theoretical concepts, with six "thinking tasks" (Thinking Tasks) as a systematic procedure for applying cognitive reflectivity in research. The The results analyze the social background and intellectual position of the researcher.and Examine intellectual biases and unconscious assumptions. and re-analyze the data from a new perspective.

Chapter Three Research Methodology and Procedures

First: Research Methodology: In order to achieve the objectives of the research, the researcher used the descriptive field approach, which is defined as a method in the research that deals with the interpretation of the existing situation of the phenomenon or problem by identifying its conditions and dimensions and describing the relationships between them in order to conclude an accurate and integrated practical description of the phenomenon or problem based on the facts associated with it.

Second: Study Population: The research community is defined in the literature and methods of psychology, as the total group with elements that the researcher seeks to generalize the results related to the problem (Odeh and Malkawi 1992: 159). Since the current research community is (middle school teachers). Therefore, a [3]community included middle school teachers according to gender and specialization. The original community consists of (470) teachers and schools, and table (1) illustrates this.

Table (1) Research population and core sample distributed by school, specialization and gender

No.	School Name	Gender		Scientific	Literary	Total
		Male Teachers	Female Teachers			
1	Al-Khurnaq Secondary	21	–	10	11	21
2	Dr. Ali Al-Wardi Secondary	25	–	14	11	25
3	Hal Ata Secondary	23	–	14	9	23

[3] The researcher obtained these data from the Directorate of Najaf - Department of Educational Planning - No. 34 on 28/10/2014, in which he determined the distribution of the sex of male and female teachers according to their schools. Also, their specialization will be found to the researcher during the field measurement as proven in the measurement tool.

4	Sidrat Al-Muntaha Central Secondary	32	–	19	13	32
5	Al-Lawh Al-Mahfoudh Secondary	26	–	26	–	26
6	Muslim bin Aqeel Central Secondary	35	–	24	11	35
7	Sa'sa'ah bin Sawhan Secondary	18	–	18	–	18
8	Martyr Abbas Kadhim Murad Secondary	18	–	5	13	18
9	Al-Kufa Central for Boys	28	–	28	–	28
10	Amina Al-Sadr Secondary	–	32	25	7	32
11	Khawla bint Al-Azwar Secondary	–	36	30	6	36
12	Zainab Al-Kubra Secondary	–	40	28	12	40
13	Shams Al-Hurriya Secondary	–	36	26	10	36
14	Al-Sabah Secondary	–	33	25	8	33
15	Al-Zakiyat Secondary	–	30	19	11	30
16	Al-Hadba Central Secondary	–	30	18	12	30
17	Al-Mishkat Secondary	–	7	–	7	7
	Total	**226**	**244**	**329**	**141**	**470**

Third: Research Sample: The research sample reached (470) teachers and schools according to the percentage determined by the researcher. (329) for the scientific branch, and (141) for the literary branch. It is distributed according to sex (226) teachers and (244) schools, and table (1) illustrates this.

Fourth: Search Tool:

- **Defining the concept of cognitive reflectivity:** The researcher reviewed the previous literature related to the concept of cognitive reflexivity, and the researcher adopted a definition that is based on the flowing and continuous internal dialogue in which the individual engages to understand the world around him and understand himself. This internal conversation forms interpretations that influence decisions and mediate interactions with social structures and cultural contexts (Margaret Archers 2013: 427).

On this basis, Margaret Archers (2013) identified four standard levels of cognitive reflectivity by which individuals manage their internal flowing conversation as a system of separate sub-scales. Distributed in the initial (48) items according to the weighted mean of measurement. and the expertise of specialists. Where the researcher presented a separate questionnaire to show the relative importance of the components of the scale to a number of specialists numbering (30) specialists in educational and psychological sciences from Iraqis and Arabs. In order to ensure the distribution of the number of paragraphs and their distribution in the specified components, the arbitrators have proposed the validity of the components as well as determining the relative importance of each of them. And extract the distribution of paragraphs for each component. According to the percentage determined by the specialists. and using the weighted medium. Which was represented in:

- Metacognitive reflectivity in its paragraphs (14). with an adult weighted mean (11.8). Sequenced (1-14).
- Self-cognitive reflectivity4 paragraphs (15). with an adult weighted mean (13.0). Sequenced (15-29).
- Heterogeneous cognitive reflectivity5 its vertebrae (7). With an adult weighted mean (10). Sequenced (30-36).
- Negative reflectivity in knowledge6 is vertebrae (12) with an extremely weighted mean (9.2). Sequenced (37-48).

This distribution of paragraphs on the specific components according to the theoretical dimension of the definition came through the scientific experience of specialists in the comprehensiveness of the partial

4 Cognitive Self-reflexivity
5 Heterogeneous Cognitive Reflexivity
6 Negative Reflexivity in knowledge

dimensions - components - of the scale. Thus, the researcher combined the theoretical and scientific orientation in describing the number of paragraphs of the scale. Table (2) illustrates this.

Table (2) Relative importance and weighted mean of cognitive reflectivity components and number of specific paragraphs

No.	Components of Cognitive Reflectiveness	Relative Importance (According to Experts)	Weighted Mean of Component	Number of Items (by Weighted Mean)	Item Distribution
1	Metacognitive Reflectiveness	29%	13.8	14	1–2–3–4–5–6–7–8–9–10–11–12–13–14
2	Self Cognitive Reflectiveness	31%	15.0	15	15–16–17–18–19–20–21–22–23–24–25–26–27–28–29
3	Heterogeneous Cognitive Reflectiveness	15%	7.0	7	30–31–32–33–34–35–36
4	Negative Cognitive Reflectiveness	25%	12.2	12	37–38–39–40–41–42–43–44–45–46–47–48
	Total Distribution by Experts' Weighted Mean	100%	48	48	48

- **Formulation of scale paragraphs** after cognitive reflectivity has been theoretically defined, the components that make it up have been determined, and the number of paragraphs weighed. The researcher relied on collecting and preparing the paragraphs of each of these components so that they are consistent with the definition of the component. Taking into account the nature and characteristics of the sample to which the scale will apply. After reviewing the relevant literature and previous studies, the researcher drafted a number of paragraphs. The following considerations have been taken into account:

- The content of the paragraph is clear, explicit and direct (Al-Zobaie et al. 1984:69).
- The paragraph should express one idea and be subject to one interpretation.
- The paragraphs are appropriate to the nature of the respondents and their educational work.
- Avoid statements that make the respondent feel threatened or ambiguous (Abu Allam 2004: 372-375)
- The paragraph should not be suggestive.
- Avoid denying negation in order to prevent proof (Samara et al. 1989: 81).

Accordingly, (48) paragraphs were formulated according to their four components.

- **The validity of the scale and its validity** In order to identify the validity of the paragraphs apparent honesty. The researcher presented the scale to a group of arbitrators and specialists in the field of psychology, psychological counseling, measurement and evaluation. The researcher adopted both the percentage as a logical view, which is to obtain (80%) or more of the opinions of the arbitrators, and the chi-square as a statistical vision to judge the validity of the paragraph and accept it. It is to obtain a higher degree than the chi-square tabular value of (3.84) at the level of significance (0.05) and with one degree of freedom, and the exclusion of the paragraph Which received less than (80%) of the opinions of the arbitrators and a score less than the value of the chi-square table. Accordingly, (7) paragraphs have been deleted, to limit this procedure, and Table (3) shows this.

Table (3) Opinions of arbitrators and specialists on the validity of the paragraphs of the cognitive reflectivity scale according to the statistic (Chi-square) and the percentage

Component		Agree	Disagree		

	Item Numbers	(Freq.)	(%)	(Freq.)	(%)	Calculated Chi-Square Value	Significance at 0.05
Metacognitive Reflectiveness	2–3–4–5–6–7–8–9–10–11–13	30	100%	0	100%	30	Significant
	1	29	96.7%	1	3.3%	26.12	Significant (with adjustment)
	12–14	20	66.7%	10	33.3%	3.33	Not significant
Self Cognitive Reflectiveness	15–17–18–19–20–22–23–24–26–27–28	30	100%	0	100%	30	Significant (with adjustment)
	16	28	93.3%	2	6.7%	22.53	Significant
	21–25–29	20	66.7%	10	33.3%	3.33	Not significant
Heterogeneous Cognitive Reflectiveness	30–31–32–33–34–35	30	100%	0	100%	30	Significant
	36	29	96.7%	1	3.3%	26.12	Significant (with adjustment)
Negative Reflectiveness in Knowledge	37–38–39–40–41–43–45–46–47–48	30	100%	0	100%	30	Significant
	42–44	20	66.7%	10	33.3%	3.33	Not significant

- Let me know if you'd like this visualized in a chart, added to a report, or analyzed further. It's already looking quite comprehensive.

- **Statistical analysis of scale paragraphs**

The process of statistical analysis of scale paragraphs is one of the basic processes in the construction of scales (Anastasi (1988: 192). It aims to detect psychometric properties, which depend to a large extent on the properties of its vertebrae, as well as that. This procedure is necessary to distinguish between individuals in the measured trait (forward et al. 1990:114). The verification procedures are as follows:

- Discriminating Power of items

The goal of item analysis is to keep good paragraphs. This is after confirming its strength in achieving discrimination between individuals subject to measurement, because one of the important conditions for paragraphs Psychological scales is that these paragraphs are characterized by a discriminatory power between individuals with high scores and individuals with low scores in the measured trait or trait Gronlund (1981:253), as Geisel et al. (1981 Ghisell etal) point out.) on the need to choose paragraphs with high discriminatory strength and include them in the final image of the scale, and exclude unmarked paragraphs. Because there is a strong relationship between the accuracy of the scale and the discriminatory power (Ghisell etal 1981:434) (Nunnally 1976: 262) of its paragraphs, the discriminatory power of the paragraphs was verified using the method of contracting groupsby applying the paragraphs of the scale to the statistical analysis sample of (400) teachers and schools, then determining the total score for each of the respondents' forms and then arranging the forms in descending order according to the total score, from the highest degree to the lowest score. 27% of Forms with higher grades, and (27%) of the forms with lower grades, and the number of members of each of the upper and lower peripheral groups reached (216) teachers and schools. After applying the T-test for two independent samples to find out the significance of the differences between the upper and lower groups of scores of each paragraph of the scale (154-1957:152 Edward), all the paragraphs were distinctive. The calculated T value was greater than the tabular T value of (1.96) at the level of significance (0.05) and with a degree of freedom (214),

except for paragraphs (3-17-37) which were supposed to be excluded. Thus, the number of paragraphs became (38) up to this procedure. and Table (4)) explains that.

Table (4) The discriminatory power of the paragraphs of the cognitive reflectivity scale using the method of the two groups of parties

Significance Level (0.05)	Calculated T-value	Minimum group 27%		Top Group 27%		t
		Standard deviation	Arithmetic mean	Standard deviation	Arithmetic mean	
Function paragraph	8.113	0.25424	3.1574	0.85925	3.5006	1.
Function paragraph	8.164	0.30342	3.0556	0.04531	3.8611	2.
Non-function paragraph	**1.011**	**0.24677**	**4.4426**	**0.79518**	**4.0059**	3.
Function paragraph	9.337	0.15874	3.3889	0.67029	4.4074	4.
Function paragraph	9.340	0.17873	3.1111	0.75453	4.3056	5.
Function paragraph	7.589	0.23298	2.8889	0.01814	3.6389	6.
Function paragraph	7.560	0.31461	3.1944	0.00582	3.7532	7.
Function paragraph	9.376	0.19824	2.8519	0.77985	3.9074	8.
Function paragraph	9.890	0.1541	2.7037	0.04419	3.2222	9.
Function paragraph	9.376	0.22379	2.9167	0.01699	4.1111	10.
Function paragraph	9.303	0.26294	3.2222	0.82173	4.2508	11.
Function paragraph	7.930	0.22099	3.2037	0.82009	4.0185	12.
Function paragraph	7.900	0.35659	2.9722	0.69632	4.1019	13.
Function paragraph	8.845	0.13973	3.0093	0.65223	4.2037	14.
Function paragraph	8.869	0.26157	3.1852	0.71016	4.0185	15.
Function paragraph	7.654	0.57568	3.1759	0.79779	4.2132	16.
Non-function paragraph	**1.673**	**0.05424**	**3.1574**	**0.72821**	**2.2593**	17.
Function paragraph	7.801	0.32435	3.2778	0.66745	4.0556	18.
Function paragraph	7.898	0.21128	3.5093	0.60172	4.2593	19.
Function paragraph	7.081	0.08563	3.2870	0.65163	4.3796	20.

Function paragraph	7.020	0.29968	3.2593	0.85784	4.2593	21.
Function paragraph	7.763	0.96937	2.9352	0.80862	4.0185	22.
Function paragraph	7.728	0.22156	2.7222	0.86523	3.7872	23.
Function paragraph	9.077	0.21374	2.1481	0.74204	3.9722	24.
Function paragraph	9.059	0.18499	2.5833	0.02963	3.8796	25.
Function paragraph	7.654	0.38712	3.1019	0.17825	3.5648	26.
Function paragraph	7.699	0.13119	2.8056	0.15301	3.5833	27.
Function paragraph	9.465	0.25397	2.7500	0.28117	3.1481	28.
Function paragraph	9.453	0.15185	2.9815	0.03466	3.9352	29.
Function paragraph	6.209	0.19227	3.087	0.16228	3.5648	30.
Function paragraph	6.219	0.01392	3.0010	0.07940	3.4444	31.
Function paragraph	6.983	0.24082	2.7407	0.17708	3.5833	32.
Function paragraph	6.982	0.22407	3.3426	0.33681	3.7315	33.
Function paragraph	6.750	0.33213	3.1019	0.18269	3.6111	34.
Function paragraph	6.739	0.20181	3.0648	0.99844	3.8889	35.
Function paragraph	6.102	0.30422	3.0291	0.20325	3.6389	36.
Non-function paragraph	**1.102**	**0.22820**	**3.3859**	**1.20343**	**2.4115**	37.
Function paragraph	7.895	0.08368	3.0759	0.89516	3.7593	38.
Function paragraph	7.809	0.24751	2.7037	0.08368	3.8241	39.
Function paragraph	8.145	0.98109	2.5093	0.24148	3.5278	40.
Function paragraph	8.155	0.24666	2.8148	0.01426	3.5926	41.

- **Psychometric properties of cognitive reflectivity scale**

The psychometric properties of a scale indicate its ability to measure what it is intended to measure, and that it measures the property with acceptable accuracy and with minimal error (Odeh 1998:335). In order for the psychological or educational measurement tool to be effective in measuring the psychological or educational phenomenon to give us a quantitative description of that phenomenon, it should be characterized by some

standard characteristics, the most important of which are the factors of honesty and stability (Al-Imam et al. 1990: 241). These two characteristics of the cognitive reflexivity scale have been verified as follows:

- Indicators of the Validity Scale

Honesty is one of the most important characteristics of psychometric that should be available in the psychological and even educational scale, as it indicates the ability of the scale to measure what must actually be measured (11: 1983, Harrison), and the validity of the current scale was confirmed through the following types of honesty:

1. Face Validity: The preferred means of virtual honesty of the scale is that a number of arbitrators specialized in estimating the validity of the components and paragraphs to measure the characteristic for which they were developed (555: 1972 Ebel), and this has been achieved through the procedures referred to in the paragraph on verifying the validity of the paragraphs of the scale placed in Table (3).
2. Construct validity: It means the analysis of the scale's scores based on the psychological construction of the property to be measured, that is, it shows the extent to which the scale included a specific theoretical structure or a certain trait or that it is the extent to which we can decide that the scale measures a specific theoretical structure or a specific property (151: 1988 (Anastasi), which means the ability of the scale to verify the validity of a hypothesis derived from the theoretical framework of the scale and previous studies (Abu Al-Hatab 2008: 196). And that the sincerity of the construction examines the factors or components that make up the phenomenon, and we may find him several names such as the sincerity of the construction or concept (129: 1997 (Anastasi & Urbina or the sincerity of the hypothesis composition, has been verified the validity of the construction of the current scale through the following indicators that have been mentioned above in the statistical analysis of the paragraphs of the scale. Which are:

A- The relationship of the degree of paragraphs to the total score of the scale: This method is one of the most accurate methods used to calculate the internal consistency of the scale (Al-Kubaisi 2010: 46). Guilford (1954) points out that a paragraph that is very poorly associated with the test is often a paragraph that measures a characteristic that differs from that measured by other scale paragraphs in that it must be excluded (Guilford 1954:415). The magnitude of the correlation between the score of each paragraph and the total score of the scale was extracted by Pearson's correlation coefficient. Pearson Correlation Coefficient on the answers of the statistical analysis sample referred to above. All paragraphs have been shown to be statistically significant. Because the value of the correlation coefficient calculated is greater than the critical value of the correlation coefficient of (0.098) at the level of significance (0.05) and with a degree of freedom (398).

B- The relationship of the degree of the paragraph with the total degree of the component to which it belongs: The researcher extracted the amount of correlation between the degree of each paragraph and the total degree of the component to which it belongs by Pearson Correlation Coefficient, and it was found that all paragraphs are statistically significant because the value of the calculated correlation coefficient is greater than the critical value of the correlation coefficient of (0.098) at the level of significance (0.05) and the degree of freedom (398).

C- The relationship of the degree of the component to the total degree of the scale Matrix of internal correlations: The researcher extracted the matrix of internal correlations between the components of the cognitive reflectivity scale using the Pearson Correlation coefficient, and it was found that all correlations, whether between the components or the correlation of the component with the total degree of the scale, are a statistical function when compared with the tabular value (0.098) at the level of significance (0.05) and the degree of freedom (398). This suggests that all components measure the general concept of reflectivity cognitive, and therefore match the theoretical and statistical assumption. This is an indicator of the sincerity of construction (Faraj 1980:315).

-Reliability Scale indicators

Stability in measurements of the phenomenon itself and high measurements of stability involve a magnitude less than the measurement error (Goodwin 1995:455). In order to extract the stability coefficient of the current scale, the following was used:

A- Retest Method: To calculate the stability coefficient by the method of re-testing the cognitive reflexivity scale, the scale was applied to a sample of (40) teachers and schools, randomly selected, and then re-applied the scale to the same sample after two weeks of the first application, and Adams (Adams 1964) determines that

this period should not be less than a few days and not more than two or three weeks (8: 1964 Adams) Then the relationship between the first application and the second application was calculated using Pearson Correlation coefficient, and the correlation coefficient was (0.87).

B- Cranbach Alpha equation: The Cronbach alpha equation measures the consistency of an individual's performance from one paragraph to another, and refers to the degree to which all paragraphs of the scale share the measurement of a particular characteristic in the individual (Thorndike and Hagen 1980 79), and this method leads to internal consistency of the scale structure. It is also called the homogeneity coefficient (Alam 2000:165). To extract stability in this way for the components and for the scale as a whole, the researcher used the Alpha Cronbach FormulaThe equation was applied to the scores of the members of the statistical analysis sample for (400), where the scale stability coefficient was (0.89), and that Cronbach confirmed that the scale whose stability coefficient is high is an accurate measure (1964: 639 Cronbach).

C - Standard error of measurement: The standard error of measurement is an indicator of indicators D for the accuracy of the scale, because it shows the extent to which the individual's scores in the scale are close to the real degree (429: 1972 Ebel) and explains the standard error of the scale in the light of the coefficient of stability, the greater the coefficient of stability of the scale, the less standard error and vice versa (: 34 Mehrens & Lehmann 1969) After applying the standard error equation for measurement, the value of the standard error was (1.022) when the stability coefficient that was extracted by retest method was (0.87) and its value was (5.584) when the stability coefficient that was extracted by the Cronbach alpha method was (0.89) and Table (5) illustrates this.

Table (5) Standard Inhibition and Error Values of Cognitive Reflectivity Scale

Alfacronbach N 400 equation method			**Test method Retest N 40**			**Scale**
Standard error	**Standard deviation**	**Coefficient of stability Scale**	**Standard error**	**Standard deviation**	**Coefficient of stability scale**	
5.584	16.872	**0.89**	**1.022**	**2.840**	**0.87**	Cognitive reflexivity

Fifth: Final application of the scale

In order to achieve the objectives of the current research, the final image of the cognitive reflections prediction scale was applied , the individuals submitted a sample of the results of the study, during the period of (7-14) days, and the researcher took into account in general that the application is collective, and within the classes and during the vacant quotas of the working hours, after official permission from the administrative and responsible authorities. The researcher herself performed the application on all members of the sample. The application began each time by introducing itself to the respondents while explaining to them the general importance of this research without mentioning its variables Or its objectives or address and asked them to read the instructions and then answer accurately and frankly to make this research successful.

Sixth: Statistical Means

Statistical methods were used by the Statistical Portfolio for the Social Sciences SPSS, and the order of their use in the research is calculated. They are as follows:

- Chi-Square test for one sample Chi-Square test .
- T-test for two independent samples .
- Pearson's correlation coefficient .
- Cronbach Alpha Cronbach Formula .
- Standard error formula .
- Mean, median, mode, standard deviation, variance, skewness, kutosis, range.
- The second test for one sample t-test for one sample .
- Analysis of binary variance Two way Anova .
- Scheffe Test .
- Multiple Regression analysis .

Chapter Four: Presentation and Interpretation of Research Results

First: Presentation of results: The results were presented according to the objectives of the research as follows:

1- Predicting cognitive repercussions among middle school teachers

In order to achieve this goal, the cognitive reflexivity scale was applied to the members of the basic research sample numbering (470) teachers and schools, where the calculated T value was (33.175), which is greater than the tabular T value of (1.96) at the level of significance (0.05) and with a degree of freedom (469), meaning that middle school teachers have cognitive reflexivity. As shown in Table 6.

Table (6) T Value of the Results of the Cognitive Reflectivity Scale among the Research Sample Members

Significance 0.05	**T-value**		Degree of freedom	Hypothetical average Test value	Standard deviation Std.	Arithmetic mean Mean	Applied Research Sample	Variable
	Tabular	**Calculated**						
function	**1.96**	**33.175**	**469**	**114**	**16.1981**	**138.7872**	470	**Cognitive reflexivity**

Table (6) shows the results of the statistical analysis of the level of cognitive reflectivity among the research sample consisting of (470) teachers and schools from the preparatory stage. It is clear that the arithmetic mean calculated for the scores of the sample on the cognitive reflectivity scale was (138.7872) while the hypothetical mean of the scale was (114) and the standard deviation was (16.1981), which indicates that the dispersion of the scores around the average was medium to low, which is an indicator of the homogeneity of the answers of the sample members relatively and the T test was used for one sample (One Sample t-test) for the purpose of verifying the existence of statistically significant differences between the arithmetic mean of the sample and the hypothetical average. The calculated T value was (33.175), which is a very high T value and exceeds the tabular T value at the level of significance (0.05) with a degree of freedom (469), which is equal to (1.96). Therefore, the differences are statistically significant. This reflects their clear ability to reflective, re-evaluate their knowledge and teaching experiences, and control the subjective cognitive processes thatare essential features of cognitive reflexivity.

The researcher sees this result as high cognitive reflexivity. It may be due to a combination of educational, environmental and occupational factors surrounding the sample members. The teacher in the preparatory stage deals with a critical age group that requires high cognitive awareness and flexible teaching strategies , which reinforces the need for a constant review of his performance and systematic thinking in his teaching methods. The teaching profession by its nature develops analytical and reflective thinking through daily interaction with classroom problems and evaluation of the effectiveness of the pedagogical methods used. Teachers' educational attitudes and exposure to continuing professional development programs may play a role in raising the level of self-awareness and cognitive perception, which reflects positively on their performance inside and outside the classroom. The researcher draws the results of the first goal. In the following: Educational, environmental and professional factors surrounding effective teaching. The use of teaching strategies is flexible according to the classroom environment. Strengthening Structured thinking in their lessons. And the task of analytical and reflective thinking that is appropriate for solving educational problems. Andthe effectiveness of the educational methods used, which increased their self-awareness and cognitive perception.

2- Statistically significant differences of cognitive reflections among middle school teachers according to gender variables (males - females). Teaching specialization (scientific - humanitarian): For the purpose of identifying the significance of differences in cognitive reflexivity according to variables (gender, specialization), the statistical method of binary variance analysis was used by tow-way analysis of variance. As shown in Table 7. This table shows the results of the analysis of the binary variance of the differences in cognitive reflectivity of middle school teachers according to: the teaching gender (males - females), specialization (scientific - humanities), and the interaction between gender and specialization. The statistical analysis was conducted at the level of significance (0.05) and two degrees of freedom (1-466), and the approved

tabular value was (3.84), of which the calculated value of the sex variable (4.972), which is higher than the tabular value, indicating statistically significant differences in cognitive reflectivity between males and females. As well as the calculated value of the specialization variable (25.572), which is also higher than the tabular value, which indicates that there are statistically significant differences in cognitivereflexivity between the scientific and humanitarian disciplines.

The results also did not appear in the values of the interaction between (gender, specialization). Statistically significant values. If the calculated value is (1.171), which is less than the tabular value, which indicates a weak statistically significant difference in the cognitive reflectivity of the interaction between (gender, specialization). shown in Table (7).

Table (7) Significance of differences in cognitive reflexivity according to variables of gender and specialization and the interaction between them

Source of Variation	Sum of Squares	Degrees of Freedom	Mean Square	Calculated F-Value	Significance at 0.05
Teaching Gender	1242.489	1	1242.489	4.972	Significant
Teaching Specialization	6390.410	1	6390.410	25.572	Significant
Gender * Specialization	292.694	1	292.694	1.171	Not Significant
Error	116452.054	466	249.897		
Total	124377.600	470			

Tabular value (3.84) at significance level (0.05) and two degrees of freedom (466-1)

And to verify its cognitive reflexive return in relation to the gender of the teachers (for male teachers or for female teachers). As well as the specialization of teachers (teachers with scientific specialization or teaching with humanitarian specialization). The researcher to:

A - According to the variable of the gender of the teacher (male teacher - female teachers): Since the calculated values reached (4.972), which is greater than the tabular T value (1.96) at the level of significance (0.05). Which showed that there is a difference among teachers in the preparatory stage in cognitive reflexivity. To find out its significance for either of the two studies (male teachers - female teachers), the researcher used the Scheffe equation (Scheffe).). to calculate the differences between them. Through this, the researcher found when referring to the arithmetic averages themselves. It was found statistically. The mean male teaching score was (124.465) with a standard deviation of (1.483), which is greater than the arithmetic mean for female teachers which amounted to (117.608) and a standard deviation of (1.665). in cognitive reflexivity. Table (7) illustrates this.

Table (7) Statistical differences according to the Scheffe equation for dimensional comparisons in the gender variable of the teacher (male teachers - female teachers)

#	gender	Sample	Statistical limits		Standard deviation	Arithmetic mean
			Upper limit	Lowe limit		
1	**Male**	226	126,315	121.105	1.483	124.465
2	**Female**	244	120.244	116.220	1.665	117.608

The researcher explains this result. that environmental and educational attitudes earned male teachers more interactive than female teachers. They have the ability to think complex and socialize. They also enjoy cognitive processes in which the individual reflects on their experiences, takes into account different perspectives and evaluates potential courses of action. Environmental and educational externalities have also given them social structuresand cultural contexts factors that influence their thinking and actions. As he pointed out (Archer 2003: 157-160).

B - According to the variable of specialization (humanitarian - scientific): Since the calculated values reached (25.572), which is greater than the tabular T-value (1.96) at the level of significance (0.05). Which showed that

there is a difference among teachers in the preparatory stage in cognitive reflectivity. To find out its significance for either of the two studies (scientific teaching - humanitarian teaching), the researcher used the Scheffe equation (Scheffe). to calculate the differences between them. Through this, the researcher found when referring to the arithmetic averages themselves. It was found statistically. The mean scientific teaching score was (146.778) with a standard deviation of (1.109), which is greater than the arithmetic mean of human teaching which amounted to (113.094) and a standard deviation of (1.455). In cognitive reflexivity. Table (8) illustrates this.

Table (8) Statistical differences according to the Scheffe equation for dimensional comparisons in the variable of teaching specialization (scientific teaching - humanitarian teaching)

#	gender	Sample	Statistical limits		Standard deviation	Arithmetic mean
			Upper limit	Lowe limit		
1	**Male**	329	159,657	123.111	1.109	146.778
2	**Female**	141	112.004	109.328	1.455	113.094

The researcher explains this result. that those with scientific disciplines of teachers are the ones who are exposed to cognitive reflections. What the teachers correspond to humanity. They will be vulnerable to social repercussions. Therefore, the result appeared in favor of teachers with scientific specialization. Their use of scientific logic and scrutinizing concepts of knowledge. It emits a more reflective scientific vision. Therefore, we find that all scientific discoveries are receding in the scientific field.

In summary, the researcher reached the second goal. You find that there is a variation in cognitivereflexivity in relation to gender and discipline. This is due to differences in cognitive and emotionalresponses to educational experiences and accurate scientific orientations, as well as the extent to which individuals are willing to engage. In reflective thinking processes, especially that males in some educational contexts are given wider spaces for self-expression andindependence in decision-making, which reflects positively on the development of cognitive reflexivity.

Hence, it remains for the researcher to know the level of cognitive reflectivity achieved by teachers as determined by Archer (2003). So the researcher also baptized the Scheffe equation. to check what level they are at. The researcher found after referring to the same arithmetic averages. It was found statistically. The cognitive reflectivity of the teaching gender was at an acceptable level. Specifically from Heterogeneous Cognitive Reflexivity This confirms the findings of the researcher above. In that they are drawn into his internal dialogue with them And flowing to accept and keep pace with the source of power and external decision. Represented in the educational and administrative environment. Recognition of information and scientific organizations of information. This is what we see only in scientific disciplines. shown in Table (9).

Table (9) Statistical differences according to the Scheffe equation for dimensional comparisons in the variable of teaching specialization (scientific teaching - human teaching)

No.	Cognitive Reflexivity Scale (According to Archer, 2003)	Level	Sample Size	Mean	Standard Deviation	Statistical limits	
						Lower Limit	Upper Limit
1	**Metacognitive Reflexivity**	High	226	30.860	0.128	18.197	29.635
2	**Cognitive Self-reflexivity**	Good	226	25.674	0.007	12.328	30.013
3	**Heterogeneous Cognitive Reflexivity**	Acceptable	226	34.129	0.075	22.661	35.348
4	**Negative Reflexivity in Knowledge**	Weak	226	30.005	0.036	10.320	25.044

Second: Conclusions, Proposals and Recommendations

First: Conclusions: Through the results of the current research, the following conclusions were reached:

1- Middle school teachers have cognitive reflexivity. This reflects positively on their performance inside and outside the classroom: the educational, environmental and professional factors surrounding effective teaching. The use of teaching strategies is flexible according to the classroom environment. Promote structured thinking in their lessons. And the task of analytical and reflective thinking that is commensurate with solving educational problems. And the effectiveness of the pedagogical methods used that increased self-awareness and cognitive perception Have.

2-The male teaching gender is superior to the female teaching gender incognitive reflectivity due to the environmental and educational attitudes of male teachers were more interactive than female teachers.

3-Scientific specialization surpassed the human specialization incognitive reflectivity because those with scientific disciplines of teachers are the ones who are exposed to cognitive reflections. What the teaching staff meets humanity. They will be vulnerable to social repercussions.

Second: Recommendations: Based on the findings of the current research, the researcher recommends the following:

1- The need to integrate training programs within university curricula aimed at developing teachers' cognitive reflectivity skills.

2- Encourage critical thinking and self-reflection through university projects based on problem-solving and decision-making.

3- Provide an educational environment that motivates students to practice cognitive reflection through dialogue, discussion and self-evaluation.

Third: Proposals

Based on the recommendations reached by the current research, the researcher proposes the following:

1- Conducting a study that examines the relationship between cognitive reflexivity and the level of academic achievement in scientific disciplines and humanities.

2- A comparative study between students of public and private universities in the level of cognitive reflexivity.

3- Preparing training programs to raise cognitive reflexivity and measure its impact on higher thinking skills.

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