

## The dialectical Relationship Between the Researcher and Scientific Research: Between Dependency and Interaction

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### Abstract :

The relationship between researchers and scientific research is based on interaction and dependency. Researchers are often influenced by existing ideas, institutions, and culture, leading them to rely on established systems instead of pursuing original thinking. This dependency can stem from professional and financial pressures which limit their freedom of thought. When researchers lean on past results without critically assessing them, it can hinder innovation and fresh ideas.

Dependency occurs when researchers excessively depend on external support, like funding or mainstream knowledge, which restricts their autonomy in choosing research topics and methods. This leads to the researcher becoming more of a knowledge transmitter than a creator. In contrast, interaction promotes a reciprocal relationship where researchers actively engage in knowledge production.

The text proposes to explore how researchers can maintain scientific objectivity while retaining their individuality and adhering to methodologies, particularly in social sciences. It outlines a plan to examine the concepts of researcher and scientific research, objective cognitive systems, and the researcher as a knowledge producer.

**Key words :** researcher, scientific, research, dependency, interaction, objectivity, subjectivity.

### Introduction:

The issue of the relationship between the researcher and scientific research revolves around interaction and dependency, as it is viewed as a natural extension of the challenges faced in the process of producing scientific knowledge. In the context of research, it is often observed that researchers are significantly influenced by prevailing intellectual patterns, institutions, and cultural representations, leading to a tendency towards dependency on existing systems and standards, rather than striving for critical and creative interaction. This dependency may arise from professional pressures or constraints, developmental considerations, or even coercive factors represented by research funding and traditional scientific references, which often restrict the freedom of thought and intellectual independence of the researcher. This situation may be exacerbated when researchers rely on previous results without attempting to evaluate or develop them, thereby reinforcing the stereotypical nature of the research process and diminishing opportunities for innovation and constructive interaction.

Conversely, modern thought posits that the relationship between the researcher and research should be a dynamic and interactive one, characterized by initiative and constructive criticism. Activating the element of interaction is deemed an essential necessity to liberate the researcher from the constraints of dependency and to provide research with a more open dimension towards new

methodologies and ideas. Interaction contributes to enhancing the researcher's understanding of knowledge, encourages a reevaluation of concepts, and leads to the infusion of a critical and innovative spirit into the research process.

The concept of dependency in the relationship between the researcher and scientific research is based on a perception in which the researcher is excessively subjected to external transformations and incentives imposed by institutions and scientific environments. This results in a loss of principles of independence and criticality. Dependency arises when there is an over-reliance on external sources, whether they are funding or dominant knowledge streams, which restricts the researcher's freedom in selecting topics and research methods. This phenomenon is founded on the hypothesis that the researcher becomes a tool for transmitting imported knowledge, rather than being an active agent in knowledge production, which diminishes their ability to engage in critique and innovation.

On the other hand, interaction is a concept that expresses a dynamic and reciprocal relationship between the researcher and the research, characterized by flexibility and integration with surrounding cognitive and social contexts. Interaction seeks to create a balance between influence and independence, respecting the role of the researcher as a contributor who enhances their critical capabilities and redirects knowledge in light of new developments and societal demands. Thus, it highlights that interaction is an active process that allows the researcher to participate actively in shaping knowledge rather than being merely a passive recipient.

Based on the above, we will attempt to answer the following problem: To what extent can the researcher maintain scientific objectivity without negating his own self, and at the same time adhere to the methodology without merely becoming a transmitter of information? To answer the raised problem, we propose the following plan to address the issues of interaction between subjectivity and objectivity, especially in the social sciences, which require the activation of both concepts within an integrative framework aimed at producing solid scientific knowledge that respects methodology and preserves the creative self and the academic capabilities of the researcher, which differ from one person to another. Therefore, in the first section, we will address the conceptual foundation of both the researcher and scientific research. The second section will be devoted to scientific research as an objective cognitive system, while the third section will address the researcher as a entity that produces knowledge.

## **1/ The Conceptual grounding of the relationship between the researcher and the research**

Extensive academic discussions have surfaced regarding the concept of scientific research and the scientific researcher, despite the interest shown by a flood of writings. In it However, many researchers, due to the widespread use of these concepts, employed them without scrutinizing their theoretical and conceptual foundations, treating them as fixed and rigid terms beyond review or investigation. Therefore, the fundamentals of scientific research dictate that researchers must pay attention to the theoretical and conceptual aspects, and it is logical—indeed, essential—to analyze these concepts, especially since The two concepts It is flawed There is a kind of terminological ambiguity in light of the different visions and references of the researchers who have addressed it.

### **1/1/ The concept of scientific research**

The word "science," as it is commonly used, carries at least some different meanings: it refers to a method of thought aimed at a rational understanding of the natural and social world; it refers to

the body of currently accepted knowledge; it refers to the community of scientists, with its conventions and socio-economic structure; and finally, it refers to applied science and technology. Science is also considered a worldview that prioritizes rationality and observation, and a methodology that seeks to acquire reliable and accurate knowledge about the natural and social world. This methodology is characterized, above all, by critical thinking: that is, a commitment to subjecting all our statements to rigorous testing through observation and/or experimentation, and to revising or rejecting all theories that fail these tests.<sup>1</sup>

Science refers to all forms of knowledge that follow the rules and methods of the scientific method in understanding things. Science is a part of knowledge, and it has been defined as classified and organized knowledge obtained by following the rules of the correct scientific method, formulated in general laws of individual, disparate phenomena.<sup>2</sup>

Research can be defined as the human activity undertaken by the researcher in studying his subject in an objective manner, far removed from all emotional criteria, in order to reach reliable scientific results. This is done through systematic examination and investigation to discover, explore, examine, and verify knowledge, and then present it in an intelligent manner in order to discover and fully understand phenomena and their causes, in order to contribute to the advancement of societies at all levels.<sup>3</sup>

Some have defined research as any systematic activity aimed at producing new knowledge related to human understanding of the various phenomena that surround him, and ultimately leading to raising human capabilities to control phenomena. It is the process of exploring, examining, and verifying knowledge with careful investigation and deep criticism, then defining it completely, intelligently, and consciously to contribute to the progress of civilization.<sup>4</sup>

Scientific research consists of a set of pillars that together form its backbone: the topic, the methodology, and the form. The topic is the content of the research and the truth to be reached through the methodology, which is the means and path to accessing the topic's content. This content is embodied in the sound and impartial use of information, supported by appropriate arguments and evidence. Following this comes the form into which the scientific research is presented, representing a set of techniques that the researcher must adhere to when writing the research paper.<sup>5</sup>

Scientific research is a systematic means of discovering and explaining phenomena, trends, and problems scientifically and logically. It starts from hypotheses or conjectures that can be verified by following methods to achieve goals and can be measured by natural or social laws to which people

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<sup>1</sup>-Alan Sokal, « What is this science? How important? », Conferencing on May 23, 2013 at the Ecole Normale Supérieure, Paris, <https://physics.nyu.edu/sokal/paris-May-13.pdf>

<sup>2</sup>- Hassan Ahmed Al-Shafei and others. Principles of Scientific Research in Physical Education, Sports, and the Humanities and Social Sciences. Alexandria: Dar Al-Wafaa for Printing, Publishing and Distribution, 2009, p. 29.

<sup>3</sup>- Zwarghi Jamila, Azzouz Ben Omar, "**In scientific, artistic, and critical research methodologies**" Al-Hikma Journal for Literary and Linguistic Studies, Al-Hikma Center, Volume 8, Issue 1, 2020, p. 88.

<sup>4</sup>- Raed Na'iran Mu'ayth Alawi, "**Scientific research in Palestine: Reality, expectations, and challenges**" The Journal of Man and Society, University of Biskra, Volume 10, Issue 3, 2021, p. 85.

<sup>5</sup>- Souhila Boukhmis, Methodology of Scientific Research Preparation: Techniques for Preparing Scientific Research, First Year Master's Lecture, University of Guelma, 2019, p. 04.

refer. It aims to reach results that fulfill the desires of the researcher or the entity studying the research, whether the research is theoretical, explanatory, or analytical.<sup>6</sup>

It is a means of organized and precise inquiry and investigation, carried out by the researcher, with the aim of discovering new information or relationships, in addition to developing, correcting, or verifying existing information, provided that this precise examination and inquiry follows the steps of the scientific method.<sup>7</sup>

It is an organized and objective process of collecting, recording and analyzing data to extract and develop information through organized strategies that avoid bias, with the aim of providing institutions and decision-makers with information that helps them make decisions.<sup>8</sup>

### **1/2/ The concept of a scientific researcher.**

A researcher, in its general sense, is someone who seeks the truth about a particular subject or issue from its various sources, investigates that truth, and disseminates it to people for their benefit in different aspects of life. A researcher is also someone who studies various phenomena and topics under the supervision and guidance of their supervisor, without exploiting or plagiarizing the studies of others, and adhering to academic integrity. This is done through a specific and precise scientific methodology, and the researcher has many specific details and conditions related to their academic registration.<sup>9</sup>

A researcher is someone who conducts research, choosing a problem that is suitable as a research topic. It defines its scope and the best approaches for researching it, and sets the appropriate scientific plan for this research. In legal terminology, the researcher is called the author and acquires rights over his work. Copyright is protected by intellectual property rights laws..

It appears that there are two concepts of researcher: a broad one encompassing anyone seeking the truth, and a narrow one pertaining to those who possess the innate and psychological predispositions, in addition to acquired scientific competence, that qualify them to conduct scientific research. Prior scientific training in the field of research and sufficient knowledge are essential requirements for developing a competent scientific researcher. A researcher is someone capable of organizing scattered information and presenting it to the reader in a logical and easily understandable manner, using a scientific style free from ambiguity and excessive detail.<sup>10</sup>

Belonging to the field of scientific research is not achieved merely by obtaining a university degree or registering at a university institution. It is a psychological readiness combined with a number of qualities that the researcher must possess. Scientific research is not achieved by obtaining a master's or doctoral degree to win a research job or by publishing an article to obtain a financial promotion. Rather, it is about taking research, exploration, discovery, creativity, and advancement in the ranks of science as a daily job and a life practice, and conveying what the researcher reaches in

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<sup>6</sup>- Asim Faiq, Suhair Adel, "Introduction to Scientific Research" International Politics Journal, Iraq, Volume 31, Issue 30, 2016, p. 26.

<sup>7</sup>- Ahmed Badr, Principles and Methods of Scientific Research, Kuwait: Publications Agency, 1973, p. 18.

<sup>8</sup>- Ali Salim Al-Alawneh, Scientific Research Methods in Administrative Sciences, Dar Al-Fikr, First Edition, Amman, 1996, p. 16.

<sup>9</sup>- Naji Abdul Nour, Methodology of Political Research, Amman: Dar Al-Yazouri Scientific Publishing and Distribution, 2011, p. 48.

<sup>10</sup>- Aboud Abdullah Al-Askari, Methodology of Scientific Research in Legal Sciences, 2nd ed., Damascus: Dar Al-Numeir, 2004, p. 20.

terms of results and knowledge to his colleagues, students, and the general public through writing, authorship, production, and invention.<sup>11</sup>

For a researcher to truly earn this title, they must adhere to specific ethical standards within the framework of scientific research. A researcher may be proficient in their tools and methodology but lack integrity, exploiting their research capabilities to distort reality and arrive at results that serve their own interests or those of others, while concealing the true findings of the research. Among the most important ethical qualities a researcher must possess are integrity, honesty, objectivity, intellectual neutrality, scientific honesty, and patience.<sup>12</sup>

## **2/ The Scientific research as an objective cognitive system**

Scientific research is a systematic investigation aimed at enriching existing knowledge. Regardless of the methodology or approach used, all research must adhere to scientific and research standards. These standards are known as the characteristics of research. Research is the process of collecting, analyzing, and interpreting information to answer questions. For this process to be considered scientific research, it must possess certain characteristics..

### **2/1/ The objective characteristics of scientific research**

The concept of objectivity holds a prominent place in society, considered desirable and perhaps even essential in many contexts: journalism, justice, education, but it also applies to academic and scientific research, regardless of the discipline. How can this objectivity be achieved? Is it truly possible, and how can it be measured? Doesn't the researcher who chooses their topic express a personal bias and thus reveal a part of their personality through this seemingly simple act?<sup>13</sup>

In its simplest sense, objectivity is the unbiased approach to matters, free from personal opinions, personal whims, and prejudice towards a predetermined opinion, and dealing with scientific knowledge in isolation from subjectivity. Objectivity does not mean the elimination of the researcher's personality; on the contrary, one of the most important characteristics of a researcher's personality is their enjoyment of objectivity and neutrality. It is required that the researcher's personality appear in their scientific work, provided that it does not cause distortion and falsification of scientific facts and the results obtained.

The possibility of replicating and generalizing the results:Scientific knowledge is characterized by its ability to express things that appear similar but are different according to a single law. When a researcher studies particulars, their aim is to arrive at a universal and general law, that is, the consistency of results across a group of phenomena.<sup>14</sup>It is called consistency, and it means the possibility of obtaining almost the same results again, if the same scientific methodology, procedures

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<sup>11</sup>- Masoud Floussi, "**Characteristics of a scientific researcher**" Biology Journal, University of Batna, Volume 16, Issue 1, 2016, p. 9.

<sup>12</sup>- Saad Salman Al-Mashhadani, *Scientific Research Methodology*. Osama Publishing and Distribution House, Jordan, 2019, p. 37.

<sup>13</sup> -« The objects of scientific research », Apply for contributions, Calenda, Published on February 7, 2019,

<sup>14</sup>- Samia Muhammad Jaber, *General Sociology*, Beirut: Dar Al-Nahda Al-Arabiya, 2003, p. 34.

and steps are followed under the same conditions, in order to generalize the results to cases similar to the phenomenon under study.<sup>15</sup>

Accuracy in scientific research means using precise terminology, meanings, and information—or, in other words, employing the language of mathematics, including numbers, statistics, and tables. Scientific research is organized, meticulous, and certain, as it verifies the correspondence between observed and reality. Scientific observation is characterized by its precision and accuracy. Furthermore, researchers exclude preconceived notions and inaccurate or unproven information that could lead them astray and into scientific errors.<sup>16</sup>

Scientific knowledge is cumulative, and the term "cumulative" describes the way science develops and its edifice rises. Scientific knowledge is like a building that is constructed floor upon floor, with the essential difference being that the inhabitants of this building move to the next floor. This characteristic of "cumulative" also reveals a fundamental property of scientific truth: its relativity. Scientific truth is constantly evolving, and no matter how much science may seem to have reached a final, stable opinion on a particular subject, development quickly surpasses this opinion and replaces it with a new one.<sup>17</sup>

Scientific research is also suited to different problems, and is able to address and investigate diverse phenomena.<sup>18</sup> Flexibility is also defined as a mental component that refers to an individual's cognitive ability, which helps the researcher and the research to move from one cognitive state to another with ease.<sup>19</sup>

## **2/2/ Methodology as the basis of scientific research**

The progress of scientific research is linked to the necessity of having a methodology for research and acquisition. If the methodology is absent, the research becomes random and the knowledge becomes unscientific. Methodology, therefore, is a theoretical and conceptual framework that ensures the research has its logical structure, because progress depends on the methodology and the method, which is considered the design of the research and its logical structure. Without it, it is not possible to proceed with the scientific study, as the research design is what provides the gradual or sequential guide to all the steps that must be followed gradually to reach the achievement of the final goal of the scientific research, which is to identify the reasons that led or prompted the researcher or the concerned institution to carry out the scientific research, in addition to proposing all the means that can address the problem or phenomenon that is the subject of the research.<sup>20</sup>

The definitions of methodology in scientific research literature are numerous, and researchers have differing viewpoints on them. The number of definitions of scientific research has reached more

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<sup>15</sup>- Al-Dhamin Munther, *Fundamentals of Scientific Research*, Amman: Dar Al-Masirah for Publishing and Distribution, 2006 p. 31.

<sup>16</sup>- Ahmidouch Madani, *A Concise Guide to Legal Research Methodology*, Third Edition, no publisher, no place of publication, p. 27.

<sup>17</sup>- Fouad Zakaria, *Scientific Thinking*, United Kingdom: Publisher: Hindawi Foundation, 2018, pp. 18, 19.

<sup>18</sup>- Muhammad Ali Sarhan Mahmoud, *Scientific Research Methods*, Sana'a: DarBooks, 3rd edition, 2015.p. 19.

<sup>19</sup>- Abdul Khaleq Fathi Ahmed, "A proposed program in history based on epistemology" *Journal of the Faculty of Education*, Ain Shams University, Issue 45, 2021, p. 358.

<sup>20</sup>Aida Houshi, "A questioning of the relationship between approach and methodology, from the problem of the concept to the mechanisms of application." *Journal of Arts and Languages*, University of Tlemcen, Volume 18, Issue 1, 2018, p. 177.

than one hundred. Perhaps the most comprehensive and simplest definition is that which sees methodology as the way that enables the researcher to adhere to a set of general rules that govern the mind's deliberate course. Methodology is also defined as the way a researcher proceeds to reach the truth in a particular subject, from the decision to study and define the topic until its presentation to supervisors, critics, or readers. It is also defined as the art of correctly organizing a series of ideas in order to reveal the truth, prove it to others, or teach it to them.<sup>21</sup>

Technically, it is defined as: the art of correctly organizing a series of numerous ideas, either to uncover the truth when we are ignorant of it, or to demonstrate it to others when we are aware of it. Or, it is: the path leading to the discovery of truth in the sciences, through a set of general rules that govern the workings of the mind and determine its processes, until it reaches a known conclusion.

Or it is: "The set of mental procedures that the researcher anticipates in advance for the knowledge process he will undertake, in order to arrive at the truth of the material he is targeting."<sup>22</sup>

Logicians define it as "the art of correctly organizing a series of numerous ideas either to reveal the truth or to prove it."<sup>23</sup>

Therefore, the methodology is an intellectual construct upon which theories are built, linked, and formulated. Through it, explicit and implicit variables are revealed, and relationships between the future, the dependent, and the intertwined are explored. From it, the methods that are pursued in order to achieve scientific goals are derived.

The methodology is a conscious intellectual approach that balances information so that it takes its place among the information that precedes it and the information that follows it. In other words, the vision and goal become clear through the methodology.<sup>24</sup> There is no single methodology, but rather multiple methodologies, which are controlled by the nature of the study, the researcher's scientific specialization, and the specificity of the topic related to the problem at hand and the stated objectives. The reasons for choosing the topic and its importance also contribute to determining the methodology used. Often, more than one methodology is relied upon in a single study, considering that the division of methodologies is not intended to fragment the scientific method, but rather to enrich it, especially in light of the emergence of hybrid or composite methodologies that combine the characteristics and techniques of more than one methodology in order to reach documented and correct results.

Research methodology is a systematic framework used to solve research problems by employing the most effective and efficient methods for conducting research, while adhering to the research objectives, in order to arrive at accurate scientific results. Methodology is the sound approach and path by which the researcher can reach the truth. It is, therefore, a structured and scientific approach used to collect, analyze, and interpret quantitative or qualitative data to answer research questions or test hypotheses. The research methodology is like a plan for conducting research and helps keep it on track by defining the scope of the research.

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<sup>21</sup> - Reda Ameiraoui, "The problem of research methodology in the humanities between technology and science" *Journal of Islamic Studies*, University of Laghouat, Volume 7, Issue 2, 2019, p. 123.

<sup>22</sup> - Muhammad Taha Badawi, *The Methodology in Political Science*, Alexandria: Modern University Office, 2000, p. 115.

<sup>23</sup> - Abdul Rahman Badawi, *Scientific Research Methods*, Kuwait: Publications Agency, 1977, p. 04.

<sup>24</sup> - Aqeel Hussein Aqeel, *Steps of Scientific Research from Identifying the Problem to Interpreting the Result*, Beirut: Dar Ibn Kathir, p. 59.

### 3/ The researcher as a producer of knowledge

Research is considered today, more than ever, a core activity at the university, forming an integral part of the formal academic mission. It often coincides with the primary activity of postgraduate students, those writing master's theses or doctoral dissertations, and all individuals publishing in specialized journals and participating in conferences and seminars to address research topics funded by governmental and private entities. Research and the caliber of researchers have become a benchmark for excellence and comparison between universities, departments, and individuals.<sup>25</sup>

#### 3/1/ The personal qualities of a scientific researcher

It is a set of qualities that are present in the researcher's personality and are unrelated to scientific research, by virtue of which he acquires the title of scientific researcher.

##### **Natural talent and aptitude:**

This refers to a person's innate predisposition to excel in any intellectual or practical endeavor. Testing reveals whether a person is ready or not for research. Once a person discovers they possess a talent in this area, it is the first step toward developing their research abilities. Scholars have identified the following indicators of this talent among graduate students and researchers:

-His ability to choose a new research topic through his readings

-His ability to develop a preliminary plan for the subject he has chosen.

His ability to critique ideas and prove his own point.

His ability to discuss and understand, and to draw attention to new ideas.<sup>26</sup>

##### **Credibility and honesty:**

In it, the researcher must verify the credibility of the transmission in the results of his research, and be certain of what he relies on, so that he does not lie in transmitting observations, nor falsify the results reached, nor exaggerate them to serve his desire, and he does not complete any incomplete or missing knowledge based on what he thinks has been obtained. The researcher is also required to refer and attribute all the information he uses to its original owners.

This is in accordance with the methodological guidelines for referencing, ensuring that no piece of information, whether small or large, is omitted without accurately attributing it to the author of the book or work from which it was taken. The only exceptions are ideas and structures that he himself produced.<sup>27</sup>

##### **-Scientific humility:**

It means being humble in one's personal endeavors and disdaining any opinion that differs from one's own, not mocking or belittling any idea that one sees as wrong, even if it is actually true, because it is in the nature of a scholar to stay away from pride, arrogance, and conceit, and the more knowledge a researcher gains, the more humble he becomes.<sup>28</sup>

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<sup>25</sup>- Tardif, M. (1988). The chercheur and the contraintes doxologiques. *Revue des sciences de l'éducation*, 14(2), 149–163. <https://doi.org/10.7202/900592ar>

<sup>26</sup>- Mahmoud Sarhan Ali Al-Mahmoudi, previous reference, p. 19.

<sup>27</sup>- Khadl Sayed Al-Hajj, *Preliminary Frameworks for Scientific Research: From Passion to Hypothesis*, Amman: Dar Al-Bidaya Publishers and Distributors, Jordan, 2019, p. 44.

<sup>28</sup>- Naji Abdel Nour, *Methodology of Political Research*, Amman: Dar Al-Yazouri Scientific Publishing and Distribution, 2011, p. 48.

**- Patience and making the most of difficulties:**

Scientific research is indeed one of the most difficult and arduous tasks, requiring immense effort and the utmost dedication. Anyone embarking on this vast field must be equipped with sufficient energy and patience to confront the anticipated difficulties and obstacles throughout the research process. Since scientific research is a pursuit of discovery, it does not allow the researcher to reach their goal by the shortest route.<sup>29</sup> Therefore, the researcher must get used to patience, composure, and the ability to cope with the various pressures imposed by the nature of scientific research.

**Alertness and attention:**

This means that researchers should avoid errors, negligence, and indifference, and in other words, minimize human, experimental, and methodological errors. They must also avoid self-deception, bias, or conflict for the sake of self-interest. Furthermore, they should heed warnings and precautions related to work both inside and outside the laboratory. Researchers should also be mindful of preserving all documents and evidence that prove their consultations with others relevant to the research topic.<sup>30</sup>

**Intellectual curiosity:**

Or intellectual curiosity and perceived self-efficacy. Curiosity is a form of intrinsic motivation that is key to fostering effective research and spontaneous exploration. Intellectual curiosity is one of the motives or needs that fulfills the desire for knowledge, understanding, and self-actualization. It manifests in an individual's desire to question, inquire, and attempt to comprehend. Failure to satisfy this drive can create fear and anxiety in the researcher. Therefore, intellectual curiosity is considered one of the means by which the highest human motives can be achieved: the motives for self-actualization, knowledge, and understanding. Intellectual curiosity is viewed as the pursuit and intense desire to explore the truth and to challenge uncertain events.<sup>31</sup>

**Imagination and originality:**

They are two indispensable elements for creativity and research. The function of originality and imagination in the scientific method of research has been defined as every discovery and every expansion of understanding begins as an imaginative conception of what the truth might be and arises as an important conjecture emanating from within the self.<sup>32</sup>

**The ability to organize:**

This includes the researcher's ability to organize and categorize their research, and the necessity of their familiarity with the technical and methodological skills that qualify them to build and prepare the organizational structure of the research with its sections, titles, and the consistency and formation

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<sup>29</sup>- Masoud Flousi, "Researcher's qualities and academic qualifications" *Biology Journal*, University of Batna, Volume 3, Issue 01, 2021, p. 11.

<sup>30</sup>- Ali Ibrahim Ali Obeido, *Quality of Scientific Research, Methodological Ethics, Supervision*, Alexandria: Dar Al-Wafaa for Printing and Publishing, 1st Edition, 2014, pp. 12, 13.

<sup>31</sup>Faisal Khalil Al-Rabi, "Intellectual curiosity and its relationship to perceived self-efficacy among Yarmouk University students" *Journal of the Association of Arab Universities*, Volume 40, Issue 2, 2020, p. 36.

<sup>32</sup>- Wahid Raja Dweidri, *Scientific Research: Its Theoretical Foundations and Scientific Practice*, Damascus: Dar Al-Fikr Al-Mu'asirun, 2015, p. 63.

of its parts. This is what is referred to as formal organization, and the researcher's objective ability in formulation and preparation depends on it.<sup>33</sup>

### **3/2/ The objective qualities of a scientific researcher**

These are the qualities that a scientific researcher must possess when dealing with the data of scientific research, and we mention some of them:

#### **The constant demand for science and knowledge:**

This is because scientific research is a continuous pursuit of increased knowledge and a constant thirst for discovering the unknown, and for pursuing the paths that lead to that. The researcher must never cease to learn or stop reading, and must maintain his ambition towards increasing knowledge and seeking science, and nothing should stand in his way.<sup>34</sup>

\*Caution: Objectivity and integrity are part of this caution, and one aspect of caution is not to succumb to temptation during the period of conducting the experiment or study, or not to record information and measurements that do not conform to a pre-formed idea.<sup>35</sup>

Therefore, not being subject to these preconceived ideas is one of the requirements that the researcher must possess.

#### **The researcher must possess a scientific mindset:**

Scientific thinking is defined as the method by which the student processes information and ideas in order to understand the world around him. It is a purposeful mental activity that enables us to assess and solve problems. It also represents the researcher's ability to interpret data, make decisions, and understand ideas. Scientific thinking aims to reach new results that may be intended in the social sciences, or by collecting the necessary information and organizing it. Then, the proposed hypotheses are examined to solve that problem, and the most suitable of them is chosen for the scientific result or the required solution.

It is easier for him to search after the problem is clarified for the researcher. Therefore, the scientific researcher must have a tendency towards scientific thinking. In this regard, the jurist Prashant Vakamat says that the goal of scientific research is to extend human thinking to what is beyond what is known to the general public. However, the researcher cannot bring his ideas and results into the field of scientific research unless he follows the scientific method agreed upon academically and shows through it what he has reached in terms of results.<sup>36</sup>

#### **Academic qualification:**

The researcher is required to be scientifically qualified and have the necessary level to enter the field of scientific research in its formal, methodological and objective aspects, by having a broad knowledge of the subject of research through the quantitative and qualitative accumulation of information, through careful reading of many references and sources, continuously and not resorting to it only when necessary, which is something that is generally lacking in our society. The scientific

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<sup>33</sup>- Naji Abdul Nour, previous reference, p. 51.

<sup>34</sup>- Masoud Flousi, "Characteristics of a Scientific Researcher," Journal of Biology, University of Batna, Volume 16, Issue 1, 2016 p. 10

<sup>35</sup>- Wahid Raja Dweidari, previous reference, p. 64.

<sup>36</sup>- Tayeb Issa, "Ethics of Scientific Research - The Ethics of the Researcher and the Characteristics of Scientific Research", Journal of Legal and Social Sciences, Volume 08, Issue 02, 2023, p. 179.

researcher always seeks to increase his knowledge and work to raise its scope and exert his effort to expand the circle of those who benefit from his knowledge as much as possible.

Thus, the researcher develops what is known as scientific competence in their field, which qualifies them to organize and analyze ideas, and to counter one idea with another and one argument with its counterpart. This, in turn, generates the crucial next element: the ability to think scientifically.<sup>37</sup>.

### **5 - Memory or recall:**

The researcher must be able to recall the information, facts, knowledge, and experiences he has encountered, or the judgments, rules, and interpretations he has made during his research, so as not to fall into contradiction..

### **Doubt and observation:**

By this we mean scientific skepticism, which is a sign of intelligence and a testament to talent and acumen. Researchers use it as a civilizational indicator to achieve scientific creativity, innovation, and a deep dive into meanings and ideas, ultimately leading to conclusions and deductions. This is aided by keen observation in drawing conclusions and by extensive research.<sup>38</sup>.

### **Analysis and correlation:**

It indicates the researcher's ability to break down and dissect complex and multifaceted topics and issues into simple parts that are easy to understand and comprehend, in addition to his ability to link issues and ideas with each other, especially those that appear within the framework of causality.

Scientific research faces many difficulties before, during, and after the research process. The researcher must try to overcome these difficulties or at least mitigate their effects so that they do not negatively impact the integrity and accuracy of the research. Among the most important difficulties facing the researcher are:

**-Time required to conduct the research:** Many research projects require more time to reach final results, sometimes even several years, which makes the task difficult for the researcher..

**-Sample selection:** Selecting the appropriate sample to constitute the study population is not easy, especially if the study is costly and it is difficult to survey the entire population. This forces the researcher to choose a sample whose results may not be suitable for generalization.

**-Search tool:** Choosing a research tool is also a difficult task, and the tool may be unsuitable for the study..

**-Funding:** Many researchers face the problem of limited funding sources, which often forces them to rely on private companies to conduct their expensive research..

**Customs and traditions:** Many research topics have results that conflict with customs and traditions, which makes it difficult for the researcher to conduct research, especially research conducted in the field of social and cultural sciences.

**- Difficulty in isolating the effect of other variables:** Most researchers in various fields also face the problem of isolating the effect of other variables, that is, those variables that affect the phenomenon but whose effect the researcher does not wish to study.

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<sup>37</sup>-Ibid,p. 179.

<sup>38</sup>- Naji Abdul Nour, previous reference, p. 51.

- **Inaccurate information:** Inaccurate information gathered by the researcher leads to erroneous and misleading results; moreover, incomplete information renders the research incomplete..

- **The researcher's lack of enthusiasm:** The researcher may also become discouraged and demoralized due to the length or difficulty of the research, or the numerous problems and obstacles encountered.<sup>39</sup>.

- **Difficulty accessing sources:** A scientific researcher needs access to many information sources and libraries specific to their field, and this can sometimes be difficult.

- **Technical difficulties:** A scientific researcher may encounter technical difficulties in conducting experiments or collecting or analyzing data in fields that require advanced technologies, especially in certain areas.

- **Publishing restrictions:** Researchers face limitations on publishing some research due to intellectual property rights or restrictions imposed by some government agencies or academic institutions.<sup>40</sup>.

### **Conclusion:**

This research demonstrates that the progression of research practices transcends simple adherence to methodologies, evolving into a constructive endeavor that necessitates the researcher's deliberate critical engagement with their instruments.

Rather than perceiving research methodologies as inflexible, objective protocols, they ought to be regarded as adaptable tools that are molded and refined through ongoing interaction with the environment, of which the researcher is a vital component. This transformation calls for the embrace of a "disruptive reflexivity," acknowledging that scientific practices do not solely uncover reality but are involved in a reciprocal relationship that aids in the evolution of a dynamic world. This inclusive approach demands transcending conventional binaries between subject and object, positioning the researcher as an ethical and political intermediary who understands that their actions within the research context extend beyond mere data collection; they actively participate in reshaping the social and epistemic frameworks under examination. Consequently, it becomes evident that the core of modern scientific inquiry resides in the researcher's recognition of their material and relational stance, which redefines the inquiry process as an ethical practice aimed at dismantling the power dynamics inherent in knowledge creation, while simultaneously enhancing the participatory essence that renders research a social act grounded in reality, honoring methodological imperatives without dismissing the investigative potential of inquiry.

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<sup>39</sup>- Mahfouz Joudah, *Scientific Research Methods in the Field of Administrative Sciences*, Dar Zahran for Publishing and Distribution, 1st Edition, 2006, pp. 28, 29.

<sup>40</sup>- Shahbani Ismail, "**Characteristics and ethics of an outstanding scientific researcher**" *Semiotic Research Journal*, Volume 10, Issue 18, 2023, p. 10.