Field Investigation Tools and Study Results Analysiss

أدوات التحري الميداني وتحليل نتائج الدراسة

Outils d'enquête sur le terrain et analyse des résultats des études

Fatiha Haid
Abu Al-Qasim Saadallah University, Algiers 2

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Abstract

The article aims to examine the concept of field investigation tools, their construction methods, and analysis mechanisms, employing a descriptive approach. It emphasizes how these tools are utilized by researchers across various disciplines. Field investigation tools are integral to linguistic research and other fields, and each has its own specific methods for construction, distribution, and data collection. A skilled researcher must be well-versed in applying these tools effectively, taking into account the nature of the subject matter. Furthermore, the researcher must select the appropriate tool for the study and analyze the results objectively, without personal bias or predetermined perspectives.

Keywords: research tools, questionnaire, interview, observation, tests, study sample.

الملخّص

يهدف المقال إلى التعرف على مفهوم أدوات التحري الميداني وطرق بنائها وآليات تحليلها وذلك باتباع المنهج الوصفي، مركزا على مدى توظيفها من قبل الباحثين؛ إذ تعرف أدوات التحري انتشارا واسعا من حيث الاستخدام في البحوث اللغوية الميدانية منها، وأن لها طرقا خاصة ببنائها وتوزيعها وجمعها، والباحث الجيد هو الذي يكون على اطلاع واسع بكيفية إسقاطها على الواقع بحسب طبيعة الموضوع، مع حسن توفيقه في تحديد نوع الأداة المختارة المناسبة له، ليقوم بعد ذلك بتحليل نتائجها تحليلا موضوعيا بعيدا عن كل اعتبار شخصي أو توجه خاص.

كلمات مفتاحية : أدوات البحث العلمي، الاستبانة، المقابلة، الملاحظة، الاختبارات، فئة الدراسة.

Résumé

L'article vise à examiner le concept des outils d'enquête de terrain, leurs méthodes de construction et leurs mécanismes d'analyse, en employant une approche descriptive. Il met l'accent sur la manière dont ces outils sont utilisés par les chercheurs de diverses disciplines. Les outils d'enquête sur le terrain font partie intégrante de la recherche linguistique et d'autres domaines, et chacun a ses propres méthodes spécifiques de construction, de distribution et de collecte de données. Un chercheur qualifié doit savoir appliquer efficacement ces outils, en tenant compte de la nature du sujet. De plus, le chercheur doit sélectionner l'outil approprié pour l'étude et analyser les résultats de manière objective, sans préjugés personnels ni perspectives prédéterminées.

Mots-clés : outils de recherche, questionnaire, entretien, observation, tests, échantillon d'étude.

1. Introduction

The goal of the scientific method is to gather data and information in a precise manner to address a specific research question or test a particular hypothesis. This process is fundamental to the development of theoretical research or the solution of real-world problems. The distinction between these types of research lies in the subject matter the methodologies address.

There are two primary types of scientific research: theoretical and field research.

- **Theoretical Research:** This type of research relies on existing sources and references to gather scientific material. The data primarily consists of the conclusions from studies conducted by other researchers, typically ready for analysis and retrieval from libraries or information centers. However, this information is often dispersed across various sources and requires synthesis. An example of this would be conducting descriptive studies on linguistic theories.
- **Field Research:** In contrast, field research involves collecting data directly from nature, reality, or the field, with the information being relevant to the research topic. Although the data may have been previously collected by others, it is retained in its original form. Examples of field research include observations of humans, plants, animals, or inanimate objects in their natural environments or laboratories, as well as statistical data.[1]

The nature of field research necessitates the use of specific field investigation tools to collect data and analyze results, with the ultimate goal of answering the research question. These tools include questionnaires, interviews, observations, linguistic corpora, and tests or exercises.

1- Saeed Ismail Sini, Basic Rules in Scientific Research, 1st ed., Al-Risala Foundation, Beirut, 1415 AH, pp. 158–156.

2. Tools for Data Collection in Field Research

The principal tools for data collection in field research are: the questionnaire, interview, observation, and tests. Among these, the questionnaire is one of the most widely used tools across various fields such as linguistic, educational, psychological, social, geographical, and economic studies.

2.1 The Questionnaire: Its Concept and Construction Requirements

The term "questionnaire" encompasses several meanings, often used interchangeably with terms like "survey" and "inquiry." However, "questionnaire" is the most accurate term, referring to a structured form containing a set of questions that respondents must answer. A questionnaire should only be used as a research tool when it is impossible to obtain the necessary information through alternative methods.

In academic dissertations, the questionnaire is frequently utilized, and its use requires the following conditions:[2]

- The study sample must possess sufficient knowledge to answer the questions.
- Respondents should answer the questions honestly and objectively.
- The questions should be relevant to the research topic.
- The cultural context of the study sample must allow for open and honest responses.
- The responses should be systematically organized and recorded.

While selecting a questionnaire as a tool for field research may seem straightforward, researchers must consider potential drawbacks that could compromise the validity of the study and undermine its overall objectives. Therefore, careful design

2- See: Saleh Hamad Al-Asaf, Introduction to Research in Behavioral Sciences, 1st ed., Dar Al-Zahra, Riyadh, 1431 AH, pp. 311-309.

and attention to detail are paramount. A well-constructed questionnaire ensures the reliability and validity of the results, and should be reviewed by experts to mitigate any possible errors.

2.2. Components of the Questionnaire

A questionnaire typically consists of the following components:

General questions about the respondent's personal information, such as age, educational level, and academic background.

Subject-specific questions, such as evaluative questions regarding how teachers present reading activities or how they ask questions.

It is evident that the questionnaire includes questions that require responses, and each of these questions plays a crucial role in addressing the research questions. Therefore, the researcher must carefully craft these questions to ensure they align with the study's objectives.(3)

2.3. Steps for Constructing a Questionnaire:

The process of constructing a questionnaire begins with defining the research topic. It is essential that the areas covered in the questionnaire are directly aligned with the study's objectives. Additionally, a set of questions should be formulated for each area to ensure comprehensive coverage. It is also important to determine whether the questionnaire will include open-ended or closed-ended questions.

When formulating the questions, the researcher must adhere to several key principles. These include clarity, avoiding ambiguity,

3- For more information, see: Abdelrahman Saleh Abdellah, ducational Research and Writing University Theses, 1st ed., Kuwait, 1426 AH, pp. 154-153. Also, see: Saeed Ismail Sini, Basic Rules in Scientific Research, 1st ed., Al-Risala Foundation, Beirut, 1415 AH, p. 572.

and ensuring that the questions are suitable for the study sample. Each question should focus on a single concept and should not combine two or more issues. Furthermore, the questions should be framed in a way that engages the respondent and encourages participation, while avoiding questions that are leading or imply a bias towards a particular answer.

As outlined, constructing a questionnaire requires thoughtful consideration to ensure that the content is coherent with the research goals and relevant to the specific areas being investigated.

Whether the questionnaire is open-ended or closed-ended must be clearly defined, and the researcher should not overlook the importance of drafting well-structured questions that stimulate genuine interest from the respondents. Achieving this requires thorough reading, reviewing previous field studies, examining existing questionnaires, and consulting with experts in the field.[4]

2.4. Final Formulation of the Questionnaire:

At this stage, the researcher incorporates open-ended questions that allow respondents to express their answers freely, potentially providing responses that the researcher had not anticipated. An example of an open-ended question might be: "What is your opinion on Professor ...'s teaching method?" In contrast, closed-ended questions provide a set of predefined response options from which the respondent must choose. For instance, regarding the professor's teaching method, the options could be: Poor - Acceptable - Good - Very Good - Excellent.

4- See: Abdulrahman Saleh Abdullah, Educational Research and Writing University Theses, 1st ed., Al-Falah Library, Kuwait, 1426 AH, pp. 155–154.

2.5. Final Layout of the Questionnaire:

The researcher must ensure that the questionnaire meets a set of formal specifications, with the most important aspects being:

- **Appealing layout:** A printed questionnaire should be distinct from a handwritten one. Using colored paper for printed questionnaires helps them stand out, and a well-designed cover page, numbered pages, and organized formatting enhance the visual appeal, reducing respondent fatigue.
- **Question progression:** Questions should be organized in a logical sequence, starting with simpler ones and progressing to more complex or detailed questions. Engaging questions should come before less interesting ones, and shorter questions should precede longer ones.
- **Clarity of response instructions:** Clear and concise instructions should be provided to guide the respondents on how to answer the questions in an easily understandable format.
- **Organization of sections:** Each section of the questionnaire should serve a distinct purpose, with its importance and objectives clearly defined. The questions within each section should focus solely on that objective.
- **Accompanying message:** A letter should accompany the questionnaire immediately after the cover page. This letter should briefly explain the research problem, the objectives of the study, and the importance of the respondent's participation. To be effective, the letter should not exceed one page and must clearly articulate the research's significance and the role of the respondent in achieving its goals. It should also emphasize confidentiality and request the prompt return of the completed questionnaire.[5]

A competent researcher should adhere to these steps and

5- Mohannad Ben Hassan Al-Subaie, Guide to Designing Questionnaires, 4th ed., Dar Al-Marefa Al-Jami'iya, Riyadh, 2021, p. 43.

procedures to ensure that the study's objectives are met effectively. When selecting the questionnaire as a data collection tool, it must be constructed following the guidelines outlined above.

3. The Interview

The interview is a pivotal tool in scientific research, involving direct communication between the researcher and a participant from the study sample to gather the required information through specific questions. What sets the interview apart from other field investigation tools is its emphasis on direct interaction. Through this method, the researcher can prompt participants to explore the research problem more deeply, obtaining insights that written responses alone cannot provide. This includes non-verbal cues such as facial expressions and body language, which offer additional layers of meaning.

Furthermore, the interview allows for the extraction of personalized information, which can be tailored to the specific context of the study, ensuring that the collected data is both accurate and clear.

3.1. Steps in Conducting an Interview

The following steps should be followed by the researcher when conducting an interview:

- **Step One:** Define the research problem, objectives, theoretical framework, hypotheses, and the rationale for choosing the interview as the field investigation tool.
- **Step Two:** Translate the general research objectives and related hypotheses into specific goals, topics, and areas from which interview questions will be derived.
- **Step Three:** Formulate a preliminary framework consisting of several questions to guide the interview. The framework should ensure that:
  - Specific topics, aligned with the research problem and objectives, are addressed.

- The researcher can facilitate in-depth discussions, obtaining
- valuable insights during the interview.

- A comfortable and open atmosphere is created to encourage honest and thoughtful responses.

There is continuity in communication after the interview, enabling the verification of responses given.

- **Step Four:** Conduct a pilot study or trial interview to test the approach, followed by the actual interview. This may include audio or video recordings to document the process and ensure accurate data collection.

2..3 How to Prepare for the Interview:

The researcher must prepare a well-thought-out set of questions aimed at eliciting the necessary information for the interview. Key considerations include:[6]

- Has the researcher identified the specific areas of information to be covered?
- Has the researcher prepared appropriate questions that will yield the required information?
- Has the researcher included conversational prompts to help the respondent feel comfortable and encourage ongoing dialogue?
- Has the researcher learned about the respondent's interests, beliefs, and background to build trust and avoid potential conflicts?
- Has the researcher conducted trial interviews to identify any weaknesses in the approach, style, questions, or recording methods?

6- Adapted from: Ahmad Naki, The Interview: Its Nature, Goals, and Types, 2nd ed., Vol. 1, Afanin Al-Khitab Journal, University of Khamis Mushayt, 2021, p. 91.

3.3. Common Errors in Conducting Interviews:

Researchers may make several errors that can undermine the value of the study, particularly concerning the accuracy of the information collected. Common mistakes include:

- Neglecting or minimizing important fact, this is known as omission.
- Excluding certain facts, expressions, or experience, this error is referred to as deletion.
- Overestimating the responses provided by the interviewee, this is called exaggeration.
- Misrepresenting the exact words of the interviewee, substituting them with different terms that alter the intended meaning, this is known as substitution.
- Failing to recall the correct sequence of events or the accurate relationships between fact, this is known as alteration.

4. Observation:

Observation is one of the most vital research tools used by researchers to collect data on specific facts and information. It involves the accurate noting and recording of observed events, often supplemented by audio or visual recordings to document the occurrences in detail.

4.1. Choosing the Observation Tool:

The researcher should opt for observation as a data collection tool when focusing on specific events or particular dimensions of interest. Observation is especially effective when the researcher needs to differentiate between relevant and irrelevant details, enabling them to selectively focus on the necessary information.

Unlike interviews or questionnaires, which may inadvertently influence respondents to provide answers that align with the researcher's expectations or conceal certain facts, observation

allows for the unbiased monitoring of behavior.[7]

Additionally, observation is indispensable when assessing groups, particularly in experimental research, where differences between control and experimental groups need to be identified. This ensures that the researcher can directly control the data being recorded. Observation is also particularly useful when qualitative information is sought, as it provides detailed descriptions of situations that reflect the research process in a direct and vivid manner. For instance, field observations in educational research, conducted in authentic classroom settings, can yield reliable data that represents real-world interactions.

4.2. Procedures for Conducting Observation:

To ensure the success of the observation process in scientific research, the following procedures should be adhered to:

- The researcher must clearly define the scope of the observation and the objectives of the study. For example, if the researcher aims to study language communication between teachers and students, the classroom becomes the designated observation site.
- The researcher should prepare an observation sheet in advance to systematically record the data collected. This sheet should include predefined categories of expected behaviors and events to be observed. For example, if the researcher is interested in student-teacher interactions, they may record the duration of teacher talk, the duration of student responses, and specific instructional actions by the teacher. Without such a sheet, the researcher risks overlooking key observations.
- The researcher must repeat observations multiple times at

7- Joudah Azza Atawi, Methods of Scientific Research, Dar Al-Thaqafa for Publishing, Cairo, 2007, p. 135.

different intervals, or compare their findings with those of another researcher in the same field, to ensure the accuracy and consistency of the data.

- The researcher should consider using recording tools such as cameras or audio/video recorders to document observations. However, it is crucial to obtain prior consent from the participants, as they may alter their behavior or object to being filmed. Recording tools provide an accurate and objective depiction of the observed phenomena, minimizing the risk of errors or memory lapses. Nonetheless, the researcher must ensure that the consent of all parties involved is obtained before commencing the observation process.

5. Tests (Exams or Linguistic Records):

Tests are one of the most valuable tools in field investigation, used to assess specific characteristics and tendencies of the study population or sample group. Tests generally involve a set of topics or tasks presented in various formats, such as images and questions, to gather both quantitative and qualitative data from the sample. This data is then analyzed to support the researcher's study objectives.

5.1. Types of Tests in Scientific Research:

Tests can be categorized into several types, the most notable of which include:

5.1.1. Tests Based on Purpose:[8]

- **Academic Tests:** These are used to assess the academic achievement and performance levels of students across different educational stages.
- **Psychological Tests**: These tests are designed to measure

8- Bro Anderson, Building Tests and Questionnaires, Arab Library of Education for the Gulf States, Kuwait, p. 62.

psychological aspects such as emotions, behaviors, and mental states.

- **Skill Tests:** These tests evaluate the performance of specific groups, such as physical fitness tests or skill-based assessments.
- **Research Tests**: These tests are employed to study the traits and characteristics of a research sample in relation to the research topic.

5.1.2. Tests Based on Presentation Method:[9]

- **Oral Tests:** These tests involve asking a series of questions to the study sample and listening to their verbal responses.
- **Written or Textual Tests:** These tests are conducted using either digital or paper formats, and do not require the presence of the participants in person.

5.1.3. Tests Based on Procedure:

These tests are further divided into two categories:

- **Individual Tests:** These assess the characteristics, behaviors, and tendencies of individual participants.
- **Group Tests:** These tests are used to evaluate the collective characteristics, behaviors, and tendencies of a study group.

5.1.4. Tests Based on Content:

Tests based on content adhere to specific conditions, which can be summarized as follows:

- **Open Tests:** These require respondents to provide detailed, descriptive answers. Open-ended questions are used when the study topic necessitates more thorough explanations.
- **Closed Tests:** These consist of questions with predefined answer choices, from which the respondent must select the most appropriate option.

9- Noura Saleh Al-Mohareb, Research Tools (Tests), p. 5.

- **Visual Tests:** These tests incorporate images as the primary subject matter for evaluation.
- **Numerical Tests:** These tests involve the use of numbers and figures for analysis, often assessing quantitative aspects of the research topic.

5.2. Characteristics of Tests:

Several key characteristics define a well-designed test:

- **Validity:** Tests must be valid, meaning the questions asked should be appropriate and objective, free from any biases that could influence the research results.
- **Avoidance of Bias:** The researcher must select questions that align with the study's nature, ensuring the scientific quality and relevance of the data collected.
- **Comprehensiveness:** Tests should be thorough, covering all pertinent aspects of the research while avoiding irrelevant or repetitive questions that could detract from the study's focus.
- **Timing Appropriateness:** Questions should be posed at the right moment to ensure participants' responses are both honest and accurate, reflecting their true opinions or behaviors.

5.3. Steps in Preparing Tests:

The process of preparing tests involves several important steps:

- **Defining the Goal of the Tests:** The researcher must clearly define the purpose of the tests and the types of questions to be asked, ensuring they align with the study's specific research problems and objectives.
- **Designing the Tests:** Tests should be designed with careful consideration of the study sample's characteristics and the best methods for obtaining the necessary data (such as textual questions, images, or numerical data).
- **Testing the Tests:** Pre-testing the tests is essential to verify

their validity. A small segment of the sample should take the test first, allowing the researcher to assess the results and make any necessary adjustments before distributing the test to the entire sample group.

- **Administering the Test:** Once the tests have been finalized, they are distributed to the study sample, and the researcher collects the necessary data and results.

A researcher must be well-versed in the nature of scientific research, its methodologies, and the appropriate tools to ensure their work serves both their academic institution and the broader community. High-quality research contributes to the growth and advancement of the field, providing valuable insights and solutions.

6. Conclusion

This article explores the various tools used in field investigations by researchers. To effectively utilize these tools, researchers must adhere to specific guidelines:

- The researcher must carefully choose the appropriate tool for the field study to ensure accurate data collection, which is crucial for achieving the desired research outcomes.
- The chosen field research tool should align with the available budget and resources, ensuring practical feasibility.
- The researcher must select the most suitable time and location for conducting the field study, as these factors can influence the choice of tool.
- The researcher should select a sample group based on shared criteria. For instance, interviews conducted via digital platforms are unsuitable for participants who lack access to necessary technology, such as computers or smartphones. In such cases, face-to-face interviews may be the most viable option.

When using field research tools, it is essential for the researcher to formulate clear, understandable questions that are well-suited to the sample group.

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