

Compilation of Criteria for Types of Data Collection in Management of Research Methods

Qurotul Aini¹, Zaharuddin², Yuliana³

^{1,3} STMIK Raharja, Jl. Jendral Sudirman No.40 Modernland, Cikokol, Tangerang

² STKIP Panca Sakti Bekasi, Jl. Raya Hankam No. 54 Jatirahayu, Pondok Melati Bekasi

e-mail: aini@raharja.info, zaharuddin111264@gmail.com, yuliana@raharja.info

Abstract

Writing activities are an integral part of the learning process. Writing means managing ideas systematically and expressing them explicitly. Writing can mean lowering or describing graphic symbols that describe a language understood by someone. For a researcher, compiling a research management is a very important step because this step greatly determines the success or failure of all research activities. Research activities are one of the activities that are scientific in nature. Before someone starts with research activities then he must make a written plan commonly referred to as the management of research data collection. In addition, scientific research management has a clear purpose, which can later be useful as a study material about a matter and most importantly as a reference in making decisions both for the benefit of the public or government or the private sector or company.

Keywords: *Research data, Activities, Research management*

1. Introduction

There is an assumption in some students that compiling scientific essays in the right language is complicated and troublesome so they complain when they get the task of compiling a paper or thesis. Here, they seemed to give up before fighting. In fact, these assumptions and feelings are too excessive. Compiling scientific essays is basically not much different from compiling other essays, such as journalistic essays or trip reports [1]. The difference is that the preparation of scientific essays follows the management of the scientific method which consists of steps to organize and organize ideas through conceptual and procedural lines of thought that have been agreed upon by scientists [2].

The method of data collection is an important thing in research, because this method is a management strategy or method used by researchers to collect data needed in their research [3]. Data collection in research management is intended to obtain materials, information, facts, and reliable information. Data collection methods are techniques or ways that can be used by researchers for management to collect data. Method (method or technique) designates an abstract word and is not manifested in objects, but can only be shown its use [4]. To obtain data as intended, in research management various methods can be used, including questionnaires, observation, interviews, tests, document analysis, and others. Researchers can use one or a combination depending on the problem at hand [5].

The scientific method is essentially a management combining deductive and inductive thinking. If the submission of the hypothesis formulation is painstakingly derived from a theoretical framework and a deductive frame of mind, then to test the hypothesis received or rejected it is necessary to prove the truth with the data in the field [6]. These data are collected by certain techniques called data collection management techniques. Furthermore, the data are analyzed and inferred inductively. And finally we can decide that the hypothesis is rejected or accepted [7].

2. Research Method

Within the framework of research has been described that the main subject that determines everything in research is the problem or problem of research. The problem is a provocation for the formulation of research objectives and hypotheses if there are [8]. To answer problems, achieve goals, and prove hypotheses, data is needed. In order for researchers to simplify their work, the data collection instruments used above are used.

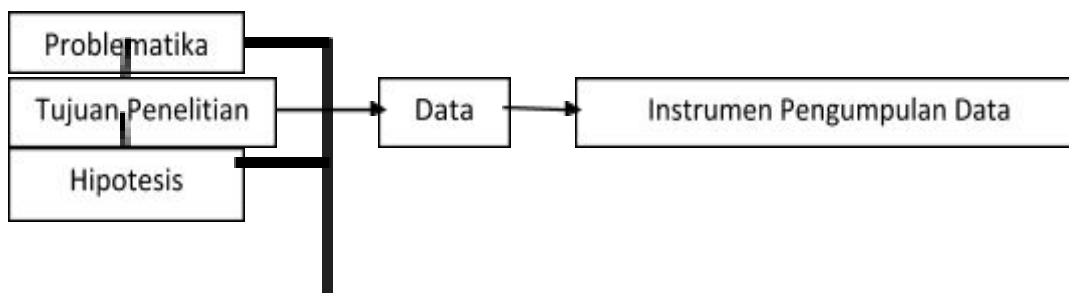


Figure 1. Linkages between Research Objectives, Data, and Management Instruments Data collection

Looking at the chart above, data is something very important position, because with data researchers can: 1. Answering problems. 2. Achieve research objectives. 3. Prove the hypothesis. Suharsimi (2010: 112) explains, it seems that indeed it is three results, but the three manifestations of these results are only one, in the form of a thesis or truth that will be added to the pile of knowledge [9]. He mentioned three things obtained by researchers from the research data only pointing out how important the data is in research activities, and guessed or approached from three process formulas: asking questions, mentioning in the form of results to be achieved and being tested for validity [10].

The data obtained is decisive. Data sources where data can be obtained in the form of alternatives. Selection of researchers on alternative data sources will influence the selection of alternative methods of data collection management. However both the data source and the data collection management method that has been chosen and the data needed, together are the factors considered in determining the research instrument [11]. Other factors that must also be considered in choosing a data collection instrument are things that relate to the wishes of the researcher as well as the constraints that exist in the researcher himself.

3. Results and Analysis

In the process of conducting research data collection there are 6 (six) research data collection management instruments, which consist of: open and closed questionnaires, structured interviews and unstructured interviews, observation, tests, documentation, position of data collection management instruments, and enjoy data collection management .

A. Questionnaire

Questionnaire or questionnaire is a technique or method in the management of indirect data collection (researchers do not directly answer questions with respondents). The instrument or data collection tool is also called a questionnaire containing a number of questions or statements that must be answered or responded to by the respondent. Similar to interview guidelines, question forms can vary, namely open questions, structured questions and closed questions (Cresswell, 2007) [12]. In other words, a questionnaire is a list of questions given to other people who are willing to respond (respondent) according to the user's request. In other words, the questionnaire is a complete list of questions about the many things needed by researchers to get answers to research questions. Questionnaires are the main research instrument in the survey. Questionnaires differ from questionnaires [13].

Questionnaires are used if the respondent is considered capable of answering questions independently, so that the researcher does not need help. Questionnaires are

used if the researcher still plays a role in guiding respondents when giving answers [14]. In this case the questionnaire serves as an interview guide. The purpose of the questionnaire is to find complete information about a problem from the respondent without feeling worried if the respondent gives an answer that is not in accordance with the reality in filling out the questionnaire. Besides that, the respondent knows certain information requested. Questionnaires are divided into two types, namely: open questionnaire and closed questionnaire.

- **Open Questionnaire:** In questionnaires with open questions, questionnaires contain questions or key statements that can be answered or responded to freely by respondents. There are no children questions or details that give direction in giving answers or responses. Respondents have the freedom to provide answers or responses according to their perceptions.

Example (2). What do you think about the formation of the School Council? Have you ever attended the upgrading of School Based Management (SBM)? if ever, what are your comments?

Benefits of an open questionnaire:

- Like respondents: They can fill in accordance with the wishes according to the circumstances experienced.
- For researchers: Will get varied data, not only those that have been presented because they have been assumed by researchers.

- **Closed Questionnaire:** In the closed questionnaire the questions or statements have been structured in a structured manner besides the main questions or main questions, there are also children questions or sub-questions. In a closed questionnaire, questions or statements have an alternative answer (option) that is left to be chosen by the respondent. In other words, a structured questionnaire is a questionnaire that is presented in such a way that respondents are asked to choose one answer that matches their characteristics by giving a cross (X) or checklist (✓). Respondents cannot provide answers or other responses except those that have been available as alternative answers (Djaali, 2004) [15]. Example: How to give a cross (X)

- (1) Have you ever practiced Information Technology Education and Training materials that support your work in your office?
 - a) Yes, i do
 - b) No, i'm not

If ever, what material do you practice especially in supporting your work?

- a) Individual Working Paper.
- b) Human Resource Management.
- c) Management Information System.
- d) Theme Simulation and Paper Work.

B. Checklist

Checklist or check list is a list that contains the subject and aspects to be observed. The checklist can guarantee that the researcher records every single event that is considered as important (Sukmadinata, 2006) [16]. Various aspects of deeds are usually included in the checklist so that the observer gives a check (✓) to each of these aspects in accordance with the results of his observations.

Table 1.2. How to provide a checklist on Readiness of School-Based Management (SBM) Implementation of the National Education Office.

No	Statement				
		4	3	2	1
		S	CS	KS	BS
Organization					
1.	Guidelines for making the organizational structure of the School Board have been socialized.	✓			
2.	The Education Office has data on a number of schools that already have the School Board organizational structure.		✓		
Curriculum					
3.	Curriculum material meets the minimum standards of the National Curriculum			✓	
4.	The local curriculum is an additional curriculum that is in accordance with the demands of the times and the environment of people's aspirations.				✓
Human Resources					
5.	The school already has a quality school principal of at least D-2 for elementary school; D-3 and S1 for junior high, high school and vocational school.	✓			
6.	The school already has a school principal who has the technical capability of the teacher's main task of pursuing			✓	
Student affairs					
7.	Schools have enabled student organizations to develop students' creativity.	✓			
8.	The school identifies talented students.			✓	
Facilities and Infrastructure					
9.	The school plans, identifies the needs of educational facilities and infrastructure.		✓		
10.	School planning establishes priority needs for educational facilities and infrastructure.			✓	
Financing & Budget					
11.	The Education Office together with the School Council seeks to explore internal and external funding sources.		✓		
Society participation					
12.	Community involvement is not only motivating, but is active in raising funds, labor, and material to support the quality of education.			✓	
13.	The community performs the control function in the implementation of education.				✓
14.	The community is proactive in the development of education.				✓

Information:

- 4 = Ready (R) 3 = Ready Enough (RE)
 2 = Almost Ready (AR) 1 = Not Ready (NR)

C. Interview

Interviews are a way of managing data collection that is used to obtain

information directly from the source. This interview is used if you want to find out things from the respondents in more depth and the number of respondents is small. There are several factors that will influence the flow of information in interviews, namely: interviewers, respondents, interview guidelines, and interview situations (Hadeli, 2006). According to Nasution (2003: 113), interviews are a form of verbal communication, so it's a kind of conversation that aims to obtain information. If the teacher asks students about the condition of the house or the farmer, claiming the ins and outs of agriculture, that is called interview [17].

This interview situation relates to the time and place of the interview. The timing and place of an inappropriate interview can make the interviewer feel awkward to interview and the respondents feel reluctant to answer questions. Based on the nature of the question, the interview can be divided into:

1. Guided Interview. In this interview, questions are asked according to the list of questions that have been prepared.
2. Free Interview. In this interview, there were free questions and answers between interviewers and respondents, but the interviewers used the research objectives as guidelines. The goodness of this interview is that the respondent was not fully aware that he was being interviewed.
3. Guided Free Interview. This interview is a combination of free interviews and guided interviews. In its implementation, the interviewer carries a guideline which is only an outline of the things that will be asked.

D. Observation

Observation is to make observations directly to the object of research to see closely the activities carried out. If the object of research is behavior, human action, and natural phenomena (events that occur in the environment), work processes, and the use of small respondents [18]. Observation or observation is a technique or how to collect data by making observations on ongoing activities. Observations can be made with participation or non-participation. In participatory observation (participatory observation) observers participate in ongoing activities, observers participate as meeting participants or trainees. In non-participatory observation (nonparticipatory observation) the observer does not participate in activities, he only plays a role in observing activities, not participating in activities.

E. Test

Tests as instruments for data collection are a series of questions or exercises that are used to measure knowledge, intelligence, abilities, or talents possessed by individuals or groups. In general, the test is interpreted as a tool used to measure knowledge or mastery object measurement of a set of content or certain material. According to Sudijono (2003), the test is a measuring instrument or procedure used in the framework of measurement and assessment. Tests can also be interpreted as measuring devices that have objective standards, so that they can be used extensively, and can really be used to measure and compare psychological states or individual behavior. In other words, a test is a systematic procedure for observing or describing one or more characteristics of a person using numerical standards or a category system [19].

F. Documentation

Documentation is intended to obtain data directly from the research site, including relevant books, regulations, activity reports, photographs, documentaries, research relevant data. The document is a record of events that have passed.

Documents can be in the form of writing, pictures, or monumental works from someone [20]. Documents in the form of writings such as diaries, life history, stories, biographies, regulations, policies. Documents in the form of images, such as photos, live images, sketches and others. Documents in the form of works such as art, which can be in the form of pictures, sculptures, films, etc.

Document study is a complement to the use of observation and interview methods in qualitative research. In the case of Bogdan's document, he stated, "The phrase personal document is used broadly to refer to any first person produced by an individual which describes his or her own actions, experience and belief." The results of observations or interviews, will be more credible or trustworthy if supported by a personal history of life in childhood, at school, at work, in the community, and autobiography. Publish autobiographies provide a readily available source of data for discerning qualitative research.

4. Conclusion

Data collection methods are techniques or ways that can be used by researchers to collect data. The instrument of data collection is a tool that is selected and used by researchers in collecting activities so that the activity becomes systematic and facilitated by it. Examples: questionnaires, match lists, scales, interview guidelines, observation sheets or observation guides, exam questions, and so on. There are several data collection instruments that are in accordance with research data collection techniques, namely: questionnaires, interviews, observation, tests, and documentation. Questionnaire or questionnaire is a technique or method of collecting data indirectly.

Interviews are a way of collecting data used to obtain information directly from the source. Observation or observation is a technique or how to collect data by making observations on ongoing activities. Tests as instruments for data collection are a series of questions or exercises that are used to measure knowledge, intelligence, abilities, or talents possessed by individuals or groups. Documentation is intended to obtain data directly from the research site, including relevant books, regulations, activity reports, photographs, documentaries, research relevant data.

References

- [1] Rahardja, U., Harahap, E. P., & Dewi, S. R. (2019). The Strategy of Enhancing Article Citation and H-Index on SINTA to Improve Tertiary Reputation. *TELKOMNIKA (Telecommunication Computing Electronics and Control)*, 17(1).
- [2] Sunarya, P. A., Nurhaeni, T., & Haris, H. (2017). Bank Reconciliation Process Efficiency Using Online Web Based Accounting System 2.0 in Companies. *Aptisi Transactions of Management (ATM)*, 1(2), 131-136.
- [3] Supriati, R., Aryani, D., & Maesaroh, S. (2017). Asset Management Using a Web-Based Accounting Online System To Maintain Value of Company Assets. *Aptisi Transactions of Management (ATM)*, 1(1), 34-41.
- [4] Rahardja, U., Aini, Q., & Santoso, N. P. L. (2018). Pengintegrasian YII Framework Berbasis API pada Sistem Penilaian Absensi. *SISFOTENIKA*, 8(2), 140-152.
- [5] Rahardja, U., Aini, Q., & Faradilla, F. (2018). Implementasi Viewboard Berbasis Interaktif Javascript Charts Pada Sistem Penilaian Perkuliahan. *Jurnal Ilmiah Teknologi Informasi Asia*, 12(2), 91-102.
- [6] Rahardja, U., Moein, A., & Lutfiani, N. Leadership, Competency, Working Motivation and Performance of High Private Education Lecturer with Institution Accreditation B: Area Kopertis IV Banten Province. *Man India*, 97(24), 179-192.
- [7] Rahardja U, Aini Q, Putri DM. Pemanfaatan Automated Email System (AEMS) Sebagai Media Notifikasi Penilaian Hasil Belajar. *SENSITEK*. 2018 Jul 31;1(1):49-54.

-
- [8] Aini, Q., Rahardja, U., Moeins, A., & Apriani, D. M. (2018). Penerapan Gamifikasi pada Sistem Informasi Penilaian Ujian Mahasiswa Untuk Meningkatkan Kinerja Dosen. *Jurnal Informatika Upgris*, 4(1).
 - [9] Arikunto, S. (2010). *Metodologi penelitian kesehatan*.
 - [10] Rahardja, U. (2009, May). Artificial informatics. In *Industrial Electronics and Applications, 2009. ICIEA 2009. 4th IEEE Conference on* (pp. 3064-3067). IEEE.
 - [11] Rahardja, U., Harahap, E. P., & Pratiwi, D. I. (2018). Pemanfaatan RinfoSheet Sebagai Media Informasi Laporan Penjualan Barang pada Raharja Internet Cafe. *Jurnal Ilmiah Teknologi Informasi Asia*, 12(1), 65-74.
 - [12] Creswell, J. W., & Clark, V. L. P. (2017). *Designing and conducting mixed methods research*. Sage publications.
 - [13] Aini, Q., Rahardja, U., & Naufal, R. S. (2018). Penerapan Single Sign On dengan Google pada Website berbasis Yii Framework. *Sisfotenika*, 8(1), 57-68.
 - [14] Rahardja, U., Aini, Q., & Thalia, M. B. (2018). Penerapan Menu Konfirmasi Pembayaran Online Berbasis Yii pada Perguruan Tinggi. *Creative Information Technology Journal*, 4(3), 174-185.
 - [15] Mulyono, D., & Djaali, H. (2008). *Pengukuran Dalam Bidang Pendidikan*. Jakarta: Grasindo.
 - [16] Sukmadinata, S. N. (2006). *Metode Penelitian Pendidikan*. Bandung: Remaja Rosdakarya.
 - [17] Nasution, S. (2003). *Metode Research (penelitian ilmiah)*. Jakarta: Bumi Aksara.
 - [18] Guritno, S., & Rahardja, U. (2011). *Theory and Application of IT Research: Metodologi Penelitian Teknologi Informasi*. Penerbit Andi.
 - [19] Aini, Q., Febriyanto, E., & Pratama, D. (2017, August). PENERAPAN TEKNIK GAMIFIKASI DALAM BENTUK SENDING GIFTSUNTUK MENINGKATKAN TRAFFIC RANK. In *SISITI: Seminar Ilmiah Sistem Informasi dan Teknologi Informasi* (Vol. 5, No. 1).
 - [20] Aryani, D., Aini, Q., & Armansyah, F. S. (2017). Perancangan Android Package Mobile Web pada Sistem Penilaian di Perguruan Tinggi. *SISFOTENIKA*, 7(2), 155-166.