

Dissemination of Web-Based Data Weigher Survey Application as A Quantitative Research Aid Facilitator

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Abstract

The knowledge dissemination of the data weighing survey application was motivated by the need for professionals, lecturers, or researchers, to retrieve respondents' data online as well as to process quantitative data directly. This survey application is in the form of a web-based questionnaire system using the Order Average Data Weigher Analysis (DWA) method which can collect and process large amounts of data or Big Questionnaire Data (BQD). The questionnaire system was made not to focus on one area or goal but can be used by all parties from any part. The method of implementing this knowledge dissemination is in the form of training, both theory and practice, directly creating and filling out online questionnaires. The purpose and benefits of this questionnaire system for professionals, lecturers, or researchers are to facilitate quantitative questionnaire research easily. This can happen because in the questionnaire application with the DWA system, there is an effective and efficient method for processing large amounts of questionnaire data automatically which is directly connected to G-Sheets on a web-based questionnaire system. The result and impact of this knowledge dissemination is that the participants benefit in the form of new knowledge of data scales and applications that can be directly used in assisting quantitative questionnaire-based research.

Keywords: big questionnaire data, data weigher analysis, questionnaire, survey

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Introduction

Academics and professionals such as students, lecturers, and researchers will of course continue to have a spirit of active learning to always follow advances in technological developments aimed at making data processing easier and more efficient into useful information (Nafisah, 2013). The development of information technology is certainly one way of making it easier to process data into useful information (Anggraeni & Irviani, 2017). Apart from information technology, the new Data Weigher Analysis (DWA) method which is used as an alternative for processing data is also important for the development of quantitative research (Hendryadi et al, 2019).

The partner's background is a data weigher survey application provider startup owned by Mr. Edmund Widyananda Liwangsa, S.T. which is the result of his research when completing his final assignment (Liwangsa, 2023). The results of his research can be useful for the quantitative research community such as professionals, lecturers, and students. So the community service team asked for their willingness to become partners in knowledge dissemination activities by providing a data weigher survey application account for the training participants.

The application of information systems and information technology in using online questionnaires can be used to collect data from respondents who are in distant places in a short time so as to save costs (Muslihudin, 2016). Cost savings for this questionnaire because there is no need to print paper and no shipping costs or courier costs to deliver the questionnaire. Previously, professionals could collect data through an online questionnaire using G-Form, but of course, there were still shortcomings because the data processing results obtained could not be seen immediately because the program had not been created in Excel. Apart from that, the method previously used in data processing did not use an alternative method, namely data weigher analysis. In general, what is used for quantitative questionnaire research is still using the Likert scale method.

Therefore, in this knowledge dissemination activity, the community service participants in the training on the use of quantitative questionnaire applications are professionals, lecturers, and researchers. The knowledge dissemination of the use of the data scale survey application was carried out at Building K1, Floor 2, Unika Atma Jaya on Friday, June 16, 2023. The participants who attended the knowledge dissemination of this web-based survey application consisted of

professionals, lecturers, and researchers. Professionals include workers who work in administration, human resources, and marketing in the education sector. Meanwhile, the lecturers and researchers who took part came from various faculties, namely the faculties of engineering, economics, medicine, and biology. The number of participants who took part in the knowledge dissemination of the survey application for quantitative research was 21 people from two universities, namely Unika Atma Jaya and Bina Nusantara University (Binus).

The problem faced by partners who act as application partners in this community service is how to introduce a data weigher survey application for those who need support from quantitative research facilities such as knowing customer satisfaction efficiently using a questionnaire application that can directly process data (Rizky, 2014). Meanwhile, on the other hand, professionals, lecturers, and researchers conducting quantitative research need to use the help of survey facilitators who are easy, cheap, efficient, and effective. Therefore, the community service team facilitates the needs of both parties in the form of knowledge dissemination activities on the use of the data weigher survey application. Of course, the methods and theories used in the application use the data weigher analysis method and the theory of balanced data weighting which has been supported by previous research with the original title of “*Analisa Timbangan Data Dampak Positif dan Negatif Dompot Digital*” (Goenawan et al, 2021)

Thus, this community service activity aims to disseminate knowledge about the web-based data weigher survey application so that participants can use it for various needs in making questionnaires and analyzing the results. Training in quantitative questionnaire applications using internet-based applications is very necessary in today's increasingly advanced human population. which is increasing (Chaffey et al., 2020). Sampling through questionnaires is important, one of the reasons is that many companies and other parties certainly want an assessment from consumers regarding the research results they produce to provide an overview of the quality of their products or services (Irawan, 2021). If the result of the assessment is not good, the company or other parties can improve the deficiencies in society to become even better (Kotler & Keller, 2016). If it is good, the company or other party will improve the quality or potential it produces to improve society even better (Oentoro, 2014). With an increasingly growing population, sampling via online questionnaires is becoming increasingly necessary. Big Questionnaire Data (BQD) is a large questionnaire data collection that can be used, for example, to obtain a respondent's assessment of performance or quality (Dumbill, 2014).

The application used during this training would be able to retrieve and process a lot of data using a questionnaire system that is automatically connected to G-Sheets (Bekti, 2015) and also processed directly using Data Weigher Analysis (DWA). One of the benefits of this questionnaire application, for example, is that it can be used to measure customer satisfaction, which is an indicator of the company's product assessment so that it can make developments or changes to the product (Assauri, 2014). The novelty of this questionnaire training is because this application processes data using Weigher Analysis. The average order data used is an effective and efficient method for processing large amounts of data at various scale values (Goenawan, 2019). The knowledge dissemination of DWA-based quantitative questionnaire application training can help professionals, lecturers, and students in conducting various research that requires information from many respondents. So the direct benefit that can be obtained from the knowledge dissemination in this community service activity is that the participants can carry out quantitative research with the help of a survey application with practical and easy data processing because the results of the quantitative values can be directly obtained in a conclusion sheet in spreadsheet form.

Methods

The method of knowledge dissemination and implementation in "Training on the Application of Big Data Scales Questionnaires for the Use of Quantitative Research" includes five sessions (Sugiyono, 2016). The first session was to discuss the use of the Data Scales Analysis method in quantitative questionnaires. The second training was using the Big Data WeigherQuestionnaire Application, both in creating questionnaires and in filling out questionnaires for respondents. The third session was training on measuring validity and reliability tests on questionnaire data before the questionnaire is applied as a whole to a wider range of respondents. The fourth session was training for participants using laptop computers to create questionnaires in the application and how respondents can fill out questionnaires online. The fifth session was training for participants on how to analyze the results of questionnaire data processing by reading the calculation results at the conclusion on a spreadsheet (Nazir, 2015). Table 1 below shows the method stages in implementing the knowledge dissemination of data weigher survey application training.

Table 1. Stages of methods for implementing DWA survey application training

Session	Training
1	DWA Use
2	DWA Application
3	Validity and Reliability Test
4	Creating and Completing Questionnaires
5	Analysis of Questionnaire Results

This training was successfully held in mid-June, precisely on Friday, June 16, 2023. The training material was designed in PPT form while practicing using the DWA questionnaire application and delivered in a detailed and easy-to-understand form, and matters related to learning can be accessed easily and free for participants who take part in this activity. The number of participants includes professionals, students, lecturers, and researchers as many as twenty-one (21) people with free training fees for participants. The concept of calculating survey results using the DWA method is in a neutral qualitative meaning position of zero value. This data weighting questionnaire application can be useful for quantitative questionnaire research because the results of the survey measurements carried out can be directly obtained on the G-Sheets page as shown in Figure 3 to Figure 6.

Results and Discussions

Community service activities in the form of knowledge dissemination about the use of the data weigher survey application had been smoothly and successfully carried out by the Faculty of Engineering's community service team. The event was carried out in one day for approximately between five and six hours. Furthermore, based on the results of the training evaluation, the data weigher questionnaire application can be useful for quantitative questionnaire research, especially for student research because the results of the survey measurements carried out can be directly obtained on the G-Sheets page as shown in the figures 3 to 6. In evaluating training results, the data weighing questionnaire application would be used to obtain questionnaire data from respondents according to the needs of the training participants. There were several suggestions from the training participants, such as whether it would be used for research on students' final assignments, the request could be shared specifically for teaching staff, then there were suggestions that could be used for the needs of faculties, institutions, bureaus or units that needed certain surveys.

The number of participants who attended the knowledge dissemination of the data weigher survey application on Friday, June 16, 2023, was 21 people, including professional categories, lecturers, and researchers from educational institutions, Atma Jaya Indonesian Catholic University (Unika Atma Jaya) and Bina Nusantara University (BINUS), the event started from 9:00 to 15:00 local time. Figure 1 shows photo documentation before and during the training activity on the use of the data weigher application. There are 21 people came during the event, to use the survey application in research (Liwangsa, 2023) utilizing data of 1014 respondents (big data).



Fig. 1. Group photo before and during the DW questionnaire application training

Figure 2 shows the appearance of the web-based application used to create and fill out the DWA questionnaire which is used during knowledge dissemination and training on utilization of data weigher analysis applications.

Fig. 2. Creation and filling the questionnaire of the DWA application

After the knowledge dissemination activity on the use of the data weigher survey application was completed, where previously there was training in creating and filling out questionnaires on a web-based application, then the participants were asked to fill in feedback in the data weigher questionnaire, the results are shown below along with an explanation. The concept of calculating survey results using the DWA method is in a neutral qualitative meaning position of zero value and here it is not yet in a position to compare with a Likert scale. This data weigher survey application usefulness scored 1.89 by the participants. The quantitative value of the data weigher on the five DWA scales has a qualitative meaning between agree and strongly agree and has a tendency towards strongly agree, the results can be seen in Figure 3 below. The concept of calculating survey results using the DWA method is in a neutral qualitative meaning position of zero value and here it is not yet in a position to compare with a Likert scale.

	A	B	C	D	E	F	G
1	ATD survey application training is useful						
2	Amount	Very reject	Reject	Neutral	Agree	Very agree	Total
3		0	0	1	4	14	19
4							
5		Very reject	Reject	Neutral	Agree	Very agree	
6	bD	2	1	0	1	2	
7	f	0	0	1	4	14	
8	d	0	0	0	4	28	
9							
10		d1	d2	d3	d4	d5	
11	$\Sigma 1(dj)$	0	0	0	4	28	
12	$\Sigma 2(dj)$	0	0	0	4	32	
13							
14	Find the avera	$\Sigma 1(dj)$	32				
15		D(1)	6,4				
16							
17	Find the avera	$\Sigma 2(dj)$	36				
18		D(2)	2,4				
19							
20	1K2	4					
21	kD	63%					
22	Conclusion	0,63	1,89				
23							
24							

Fig. 3. Assessment of usefulness of DWA survey application training

The results of the quantitative assessment of how much the trainer explained clearly to the training participants well was 1.80. The quantitative value of the data scales on the five DWA scales has a qualitative meaning between agree and strongly agree and has a tendency towards strongly agree, the results can be seen in Figure 4 below.

	A	B	C	D	E	F	G
25	The trainer explained clearly						
26	Amount	Very reject	Reject	Neutral	Agree	Very agree	Total
27		0	0	0	6	13	19
28							
29		Very reject	Reject	Neutral	Agree	Very agree	
30	bD	2	1	0	1	2	
31	f	0	0	0	6	13	
32	d	0	0	0	6	26	
33							
34		d1	d2	d3	d4	d5	
35	$\Sigma 1(dj)$	0	0	0	6	26	
36	$\Sigma 2(dj)$	0	0	0	6	32	
37							
38	Find the avera	$\Sigma 1(dj)$	32				
39		D(1)	6,4				
40							
41	Find the avera	$\Sigma 2(dj)$	38				
42		D(2)	2,53333333				
43							
44	1K2	3,86666667					
45	kD	60%					
46	Conclusion	0,6	1,8				
47							
48							

Fig. 4. Trainer assessment explains clearly

The results of the quantitative assessment of how much the assistant helped the trainees well was 1.83. The quantitative value of the data weigher on the five DWA scales has a qualitative meaning between agree and strongly agree and has a tendency towards strongly agree, the results can be seen in Figure 5 below.

	A	B	C	D	E	F	G
49	Assistant helps well						
50	Amount	Very reject	Reject	Neutral	Agree	Very agree	Total
51		0	0	1	5	13	19
52							
53		Very reject	Reject	Neutral	Agree	Very agree	
54	bD	2	1	0	1	2	
55	f	0	0	1	5	13	
56	d	0	0	0	5	26	
57							
58		d1	d2	d3	d4	d5	
59	$\Sigma 1(dj)$	0	0	0	5	26	
60	$\Sigma 2(dj)$	0	0	0	5	31	
61							
62	Find average	$\Sigma 1(dj)$	31				
63		D(1)	6,2				
64							
65	Find average	$\Sigma 2(dj)$	36				
66		D(2)	2,4				
67							
68	1K2	3,8					
69	kD	61%					
70	Conclusion	0,61	1,83				
71							
72							

Fig. 5. Assessment of assistant helping well

The results of the quantitative assessment of how much this data weigher survey application will be utilized in quantitative questionnaire research by the participants is 1.59. The quantitative value of the data weigher on the five DWA scales has a qualitative meaning

between agree and strongly agree and has a tendency towards strongly agree, the results can be seen in Figure 6 below.

	A	B	C	D	E	F	G
73	This survey application will be utilized						
74	Amount	Very reject	Reject	Neutral	Agree	Very agree	Total
75		0	0	2	10	7	19
76							
77		Very reject	Reject	Neutral	Agree	Very agree	
78	bD	2	1	0	1	2	
79	f	0	0	2	10	7	
80	d	0	0	0	10	14	
81							
82		d1	d2	d3	d4	d5	
83	$\Sigma 1(dj)$	0	0	0	10	14	
84	$\Sigma 2(dj)$	0	0	0	10	24	
85							
86	Find average	$\Sigma 1(dj)$	24				
87		D(1)	4,8				
88							
89	Find average	$\Sigma 2(dj)$	34				
90		D(2)	2,26666667				
91							
92	1K2	2,53333333					
93	kD	53%					
94	Conclucion	0,53	1,59				
95							
96							

Fig. 6. Assessment of how this survey application will be used

Conclusion

Based on the results of the evaluation and discussion after the training session on utilizing the data weigher questionnaire application ended, the workshop activity turned out to be useful for professionals and lecturers who will conduct quantitative questionnaire research, including research conducted by students. In evaluating the results of the training, the data questionnaire application will be used to obtain questionnaire data from respondents according to the needs of the training participants. This application can be used as an alternative to Google Forms with the advantage of being able to process quantitative data automatically using the DWA method. As a follow-up, this application will be developed through the results of automatic comparison data processing between the DWA and Likert methods. After the participants took part in the dissemination on the use of this data weigher survey application, there were several suggestions from the training participants who hoped that this kind of event could carried out again, such as a request to hold this training for students of the Faculty of Economics and Business (FEB) who are in the stage of writing their thesis, a request that there be training for teaching staff who manage feedback from faculty and students. There is also a suggestion that it may be developed to meet the needs of faculties, institutions, bureaus, or units requiring specific

surveys. As a final conclusion, the application of this data weighing analysis method will be developed further by comparing the results of the Likert method.

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