

The Google Form and Microsoft Excel applications: Non-Cognitive Initial Diagnostic Test Instrument for Guidance and Counseling Teachers

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Abstract

This research is motivated by the lack of effectiveness and efficiency of the implementation of the distribution of non-cognitive initial diagnostic tests conducted by Guidance and Counseling teachers. The very longtime allocation makes many Guidance and Counseling teachers unwilling to carry out the initial non-cognitive diagnostic test because it requires up time for other student assistance services. The Non-Cognitive Initial Diagnostic Test is very important to do as student learning profiling, which can be used as initial data in conducting differentiated learning. This study aims to determine the effectiveness and efficiency of the use of Google Forms and Ms Excel applications as non-cognitive initial diagnostic test instruments for Guidance and Counseling teachers. The type of research is descriptive qualitative. Data collection uses observation, interviews and documentation studies. Data validity techniques using triangulation techniques. The results of research use the Five Stages method, namely the Preliminary Research Stage, Model Development Stage, Model Validation Stage, Effectiveness Test Stage, and Dissemination Stage. Google Forms and Ms. Excel have ease of operation, distribution, data processing and accessibility.

Keywords: Educational Technology, Google Form, Ms. Excel



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INTRODUCTION

Curriculum is independent was launched in 2020 by the Ministry of Education Culture Research and Technology (Kemendikbudristek) as response to need more learning adaptive and student- centered. Curriculum This give school more Lots freedom For adapt learning with context local and needs student (Melo, Howard-Reed, & Berdanier, 2020; Usova, Chevtavaeva, Nikitina, & Scavo, 2020; Villalobos, Sanabria, & Cáceres, 2011). Mapping student needs are pillar main Independent Curriculum. This done For understand interests, talents, profiles and needs Study every student. With understand need students, teachers can designing more personalized and easier learning , so that the educational process become more easy and effective.

The Independent Curriculum requires teachers to be able to create learning mapping based on children's needs. This mapping is a crucial first step to ensure the education process runs easily and optimally. Teachers who understand the mapping of each child's learning needs will be able to design learning that is more effective and appropriate to student needs, so that every child has the opportunity to reach their maximum potential (Kana & Rotteveel, 2018; Khalid dkk., 2024; Narayana, Ranjan, & Tyagi, 2023). The teacher's ability to create learning mapping based on children's needs is the key to ensuring an easy and optimal education process. By understanding each child's learning needs, teachers can design more effective and personalized learning, so that each child has the opportunity to reach their maximum potential.

To obtain data on children's learning needs, there are two ways, namely by using cognitive assessments and non-cognitive assessments (Kanyika, Sadykova, & Kosmyrza, 2024; Kopytko, Levkiv, & Vinichuk, 2019; Marek, Doucek, & Nedomová, 2016). Cognitive diagnostic assessments aim to determine students' basic abilities on subject topics, while non-cognitive diagnostic assessments are usually carried out before learning begins and aim to evaluate students' psychological and emotional conditions. The results of cognitive and non-cognitive diagnostic assessments can be used by teachers as a tool to map students' learning needs and identify appropriate learning strategies according to students' conditions and competencies.

One of the roles of the Guidance and Counseling Teacher is to provide data needs child. Guidance teacher responsible answer For provide required data child, the later used For do mapping need children's learning. Guidance and Guidance Teachers have special skills and knowledge in understanding children's development, both physically, emotionally, socially and cognitively. Guidance and guidance teachers can use various instruments and methods to collect data about children's needs (Dfa & Su, 2024; Fastovets, Matvieienko, Kobylyak, & Kryvchuk, 2024; Legaspi-Rodríguez dkk., 2022). Instruments that are often used include psychological tests, behavioural observations, interviews, and questionnaires. This data is then processed and analyzed to produce a profile of each child's learning needs.

In this regard, guidance and counselling teachers focus more on implementing non-cognitive diagnostic assessments, which are related to extracting data on children's development, both physically, emotionally, social and cognitively (Aponte-Martín, Corso-Bernal, Aponte-Aparicio, & Sabbagh-Sanvicente, 2024; Matsuda, 2013; Sedykh & Istomin, 2021). In carrying out non-cognitive diagnostic tests, several stages must be carried out, namely (S. A. Carson & Kallen, 2021): (1) Distribution of test instruments, (2) Input of test results for each student, (3) recapitulation of data per individual. In the process of obtaining data by distributing instruments, the problem that arises is the length of time to obtain test results (Siddiqui dkk., 2019). Data processing is carried out by entering one by one the answers to each statement from all available statements, then multiplying by the number of students in one class, and multiplying again by the target class. BK teachers who hold a minimum of 9 – 10 guided classes per person (Borodzhieva, 2019; Fechová, 2016; Malini, Deepak, Kannan, & Venishri, 2017). This is still an obstacle among guidance and counselling teachers in Cirebon Regency, which makes it impossible to carry out diagnostic tests because it takes a very long

time, while they have to carry out other guidance services for students. Meanwhile, in diagnostic tests that are available on website service sites spread across the internet, the diagnostic test results can only be seen for one person, cannot be used for a larger number of students, for example, one class, cannot get recapitulated test results from all students (Al Shahrani dkk., 2024; Konnova, Rylov, & Stepanyan, 2021; Zarichkova & Mishyna, 2024). For those who take the tests, the guidance counsellors ask for students' screenshots of the results of their non-cognitive diagnostic tests from their respective cellphones, then send them to the guidance counsellor and input them one by one.

The Non-Cognitive Initial Diagnostic Test Application is an application intended for guidance and counseling teachers with the aim of making it easier for guidance and counseling teachers to quickly obtain data on children's needs, which is expected to cut processing time, so as not to interfere with other guidance and counseling service activities (Carnevale & Hatak, 2020). The basis of this application uses the Google Forms (GForm) service which is integrated with Microsoft Excel (Ms. Excel) (Balychev, Batkovskiy, Kravshuk, Trofimets, & Trofimets, 2018; Naz, 2023; Shirobakina, Stetsenko, Khovanskaya, & Abdrakhmanova, 2015). The use of this application is considered because it is easy to use for all groups, both young and old. Gform was often used by teachers when the Covid outbreak hit where learning was required to use online methods , while Ms. Excel is very familiar (Pan dkk., 2020), because this software is a basic skill for teachers. In this application, a number of non-cognitive diagnostic tests are available that explore student data related to student learning styles, multiple intelligences, Myers-Briggs Type Indicator (MBTI) / personality tests, Aptitude and Interest tests.

This application is expected to be a solution for guidance and counseling teachers, so that guidance and counseling teachers can present data quickly and can use it at the beginning of each school year, not only that, with this speed of presentation, guidance and counseling teachers can help teachers of other subjects in finding profile needs (Pasquadibisceglie dkk., 2020). children's learning, so it is hoped that teachers can teach based on the results of mapping the needs that exist in each class or in other words carry out differentiated learning, and of course the learning process will be optimal.

As explained at the beginning, this research aims to provide a literature review regarding the use of " Utilization Google Forms and Ms Applications Excel As Instrument Test Diagnostic Early Non -Cognitive For Guidance and Counseling Teachers ".

RESEARCH METHOD

Type study This is descriptive with a approach qualitative. Election approach study customized with objective research, ie Utilization Google Forms and Ms. Excel as instruments non- cognitive initial diagnostic assessment for guidance and counselling teachers. As for technique data collection uses technique observation (Deivam, 2021; Sharma, Aggarwal, & Saxena, 2021; Sytnykova dkk., 2023). Observation techniques used in the study This is with observing in a way direct utilization process Google Forms and Ms. Excel as instrument assessment diagnostic. Whereas interviews used To dig up question data from the subject's study. The documentation technique is used to determine the level of difficulty in using non-cognitive diagnostic test applications from the exposure to the data used.

The data analysis carried out in this research is data analysis carried out before the research, during the research and after the research until obtaining the research results report. For example, when conducting an interview, the researcher has carried out an analysis of the interviewee's answers, likewise when conducting a documentation study, the researcher observes the data obtained from the results of observations made during the data presentation (Ismagulova, Rakisheva, Chernigovtseva, Sabitova, & Gerfanova, 2024; Kravtsova, Zaytseva, Bezbakh, Kravtsov, & Kaminska, 2022; Stareček dkk., 2018). For data analysis, researchers

used qualitative analysis using an inductive approach through four activities carried out simultaneously, namely data reduction, data categorization, data presentation, and concluding.

Data validity is used to test the data obtained and prove that the research is scientific research. To find the validity of the data in this research, the author used the triangulation technique. This technique is used to test credibility by confirming data obtained in different ways.

Triangulation in this research was carried out through method triangulation and source triangulation approaches. In method triangulation, data is collected from several methods used, for example comparing the results of observation, interview and documentation methods. Meanwhile, source triangulation is an approach used in exploring and processing data through various different sources but using the same technique. For example, researchers collect data from several informants using the interview method.

Triangulation data according to (Beyoğlu & Hursen, 2023; Nataliia dkk., 2019; Ruseva & Krasteva, 2023) is defined as a technique that combines various existing data collection techniques and data sources. By using triangulation, researchers can compare results from various sources and methods, so they can obtain a more accurate and comprehensive picture of the research subject..

RESULTS AND DISCUSSION

Google Form application is very suitable for students, teachers, lecturers, office workers and professionals who often create online quizzes, forms and surveys. Some of the functions of Google Forms in the world of education include (Fechová, 2017; Gurusamy & Muthumari, 2023): 1) Providing online practice/test assignments via the website page, 2) Collecting other people's opinions via the website page, 3) Collecting various student/teacher data via the website page, 4) Creating an online registration form for schools, 5) Distributing questionnaires to people online.

Microsoft Excel (Ms. Excel) has a very important role in the world of education with various functions that support data management, analysis and presentation of information. Excel is used for analyzing student data, creating lesson schedules, managing grades, creating reports, creating visual graphs, as well as creating questionnaires and surveys. With features such as calculations, graphs, filters, and formatting, Excel helps educators plan educational activities, manage student grade information, and present data efficiently and attractively.

In maintenance test diagnostic non- cognitive beginning will done spread questionnaire use Application GForms to people, when the data is already obtained Next the data is processed with use Ms. Excel and later results Finally will Presenting data efficiently and interestingly .

1.1 Steps utilization Google Forms and Ms. Applications Excel

Suitable model with study This is the Five Stages (Mantap) model , which was developed by three people, namely : Sumarni , Istiningsih , and Nugraheni , the Mantap Model This consists of five stages main in research and development namely : (1) Stage Study Introduction , (2) Stage Model Development , (3) Stage Model Validation , and (4) Effectiveness Test Phase , and (5) Phase Dissemination (Sumarni, 2019).

4.1.1 Stage Study Introduction

As in the explanation previously , in stages this , researcher consider such a problem crucial to effectiveness and efficiency time on deployment questionnaire conventional model of non- cognitive diagnostic tests , namely the distribution model questionnaire use set later documents after finished data input to in application One one by one with amount students reaching 300 students more . Activity spread questionnaire felt Lots confiscate time to activity service guidance counseling other .

Weigh problem the develop it application test possible diagnostics makes it easier the user . Applications used Already familiar to Guidance and Counseling teachers , namely application Gform and Ms. Excel . Hope with use application the will makes it easier its use in disseminate , process data and present data effectively effective and efficient .

Therefore That in line with objective study that is utilization application GForm and Ms. Excel as a test instrument diagnostic non- cognitive beginning for guidance and counseling teachers , researchers need develop application that can beneficial for guidance and counseling teachers .

4.1.2 Stages Model Development

Step beginning is make Google Forms application (GForm) with making Google universal account (GMAIL), account this will be it used For making Google Forms . After doing making account Google (GMAIL), Researcher gather the data source will be made become google form . On development application this , researcher look for valid data sources based on possible data sources insured answer . So researcher No designing your own instrument, but rather develop existing applications Lots used, however Still there is weaknesses in the application previously including around insufficient recording efficient and effective .

Test non- cognitive diagnostics that researchers can develop like test student learning styles (Walter Burke Barbe), intelligence compound (multiple intelligence – Howard Gardner), Myers-Briggs Type Indicator (MBTI) / test personality / test Talents and Interests (Florence Littauer 1). Test diagnostic This Can just found on the site or applications circulating on the internet.

Statements test Diagnostics copied to in Google Forms and compiled sequentially from test style learning , MBTI, intelligence compound , and test talent interest .

Step to two is making application Google Forms with make design . Design available from templates provided by the platform Google Forms as below this , however If Want to make it in a way custom so Can choose templates form blank ..

Figure 1 : Design available *templates* chosen .

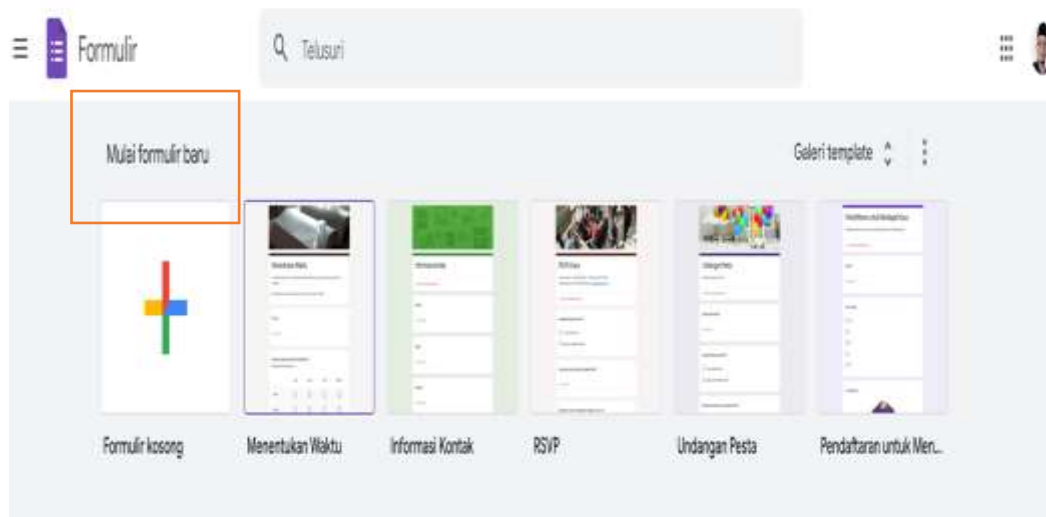


Figure 2: Google form *layout* Test Diagnostic Beginning

TES DIAGNOSTIK AWAL

Deskripsi Formulasi

PETUNJUK:

1. Pilihlah pernyataan-pernyataan berikut ini sesuai dengan keadaan sebenarnya.
2. Gunakan waktu sebaik mungkin.
3. Jika saat mengerjakan timbul rasa bosan, maka beristirahatlah sejenak.
4. Pastikan layar selalu idle / nyala.
5. Pernyataan ini digunakan sebagai tes diagnostik awal pembelajaran.
6. Jika ada pertanyaan silahkan hubungi guru.

--- Selamat Mengerjakan ---

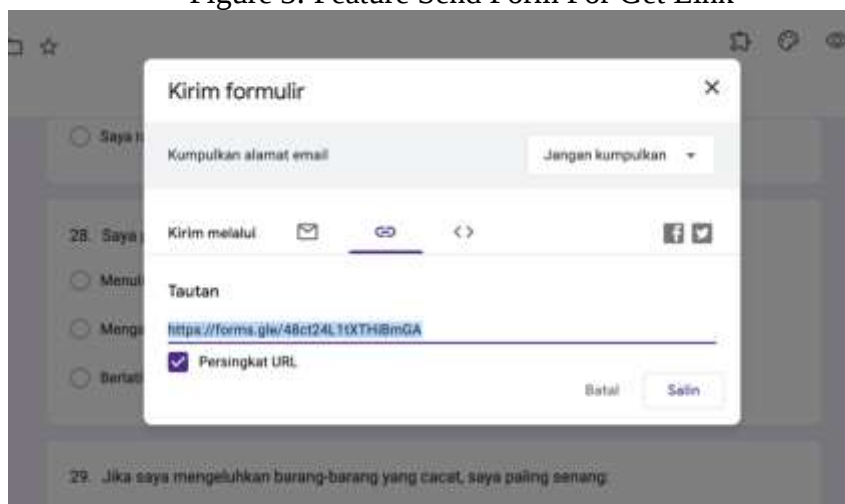
After selecting templates form empty , then make initial design with make title and instructions as well as column future identity will filled in by students . Furthermore make statements with the selected model double , with amount statement each Diagnostic tests as below This :

Table 1 : Amount Item Statement Each Type Test Non Cognitive Diagnostics

No.	TYPES OF NON-COGNITIVE DIAGNOSTIC TESTS	NUMBER OF STATEMENT ITEMS
1.	Learning Styles Test - Walter Burke Barbe	30 items
2.	Intelligence Compound – Howard Gardner	80 items
3.	MBTI - <i>Myers-Briggs Type Indicator</i>	60 items
4.	Aptitude and Interest test - Florence Littauer 1	40 items
		210 items

After the Google Form has been completed made finished designed , step furthermore is prepare link already shortened earlier , later link the will spread to the students , as for the way it looks like image below This :

Figure 3: Feature Send Form For Get Link



If charging google form already done , step next is data retrieval via connected spreadsheet with Google Forms that have made . The appearance like image below This :

Figure 4 : Google Spreadsheet application from Test Google Form Diagno

Tipe	Nama Siswa	Jenis kelamin	Kelas	1. Ketika saya mendengar 2. Ketika saya mendengar 3. Ketika saya mendengar 4. Jika saya mendengar 5. 1
15/01/2022 8:19:40 Tp 1	asa	Laki-laki	asa	Mendengarkan penjelasan Mengikuti kerendak hat, Meminta penjelasan kopy Memberikan penjelasan (Der
15/01/2022 9:06:01 Tp 1	Razi	Laki-laki	7A	Membaca petunjuknya li Malhal peta Mengikuti wasp tertulu Melakukan suruhan ant.Lih
15/01/2022 11:20:53 Q9K,1	Isah Muliha	Perempuan		8 Meminta petunjuknya li Meminta petunjuk liam Mengikuti wasp tertulu Mempengaruhi tentoh (Der
15/01/2022 11:20:08				Saya langsung menggunakannya, saya bisa belajar ketika menggunakannya
15/01/2022 11:09:12 Qw	ingepa	Laki-laki		8 Saya langsung menggunakannya, saya bisa belajar ketika menggunakannya
17/01/2022 9:25:30 SA.1	Idin	Laki-laki	8A	Membaca petunjuknya li Malhal peta Mengikuti wasp tertulu Melakukan suruhan ant.Lih
18/01/2022 9:27:18				Membaca petunjuknya tentoh tentulu
18/01/2022 9:27:18				Saya langsung mengon Meminta petunjuk liam Mengikuti wasp tertulu Mempengaruhi tentoh (Der
20/01/2022 18:09:22 Tp 1	AWA ANDWA	Laki-laki	7A	Membaca petunjuknya li Mengikuti kerendak hat, Mengikuti inding, saya n Mempengaruhi tentoh (Sic
22/01/2022 18:26:28 Qr	Amad	Laki-laki	Vi g	Mendengarkan penjelasan Meminta petunjuk liam Meminta penjelasan kopy Mempengaruhi tentoh (Sic
24/01/2022 17:47:05	13 An	Laki-laki	7u	Mendengarkan penjelasan Malhal peta Mengikuti inding, saya n Memberikan penjelasan (Sic
25/01/2022 18:51:43 QD	yaku 3A	Perempuan	3B	Membaca petunjuknya li Malhal peta Mengikuti wasp tertulu Memberikan penjelasan (Der
25/01/2022 14:09:02 QC 14	Lala Ramadhani	Perempuan	3C	Membaca petunjuknya li Malhal peta Mengikuti wasp tertulu Mempengaruhi tentoh (Lih

Step third is prepare application Ms. Excel , app processing and presentation from test designed non - cognitive diagnostics in a way special . Application This designed to Can connected in a way automatic with application spreadsheets Google Forms with arrange a number of arrangement addition so that user made easy during the data updating process . After data is connected then the Guidance and Counseling teacher Can processing and direct see results per- class test as well as individually .

Figure 5: Appearance application Test Non- Cognitive Diagnostics Version 1 (MS. Excel)



Results of student data processing Can data is presented per class and per individual in accordance with Guidance and Counseling teacher needs , appearance Can seen in the picture under This :

Figure 6: Example Test Results Display Non- Cognitive Diagnostics Per Class.

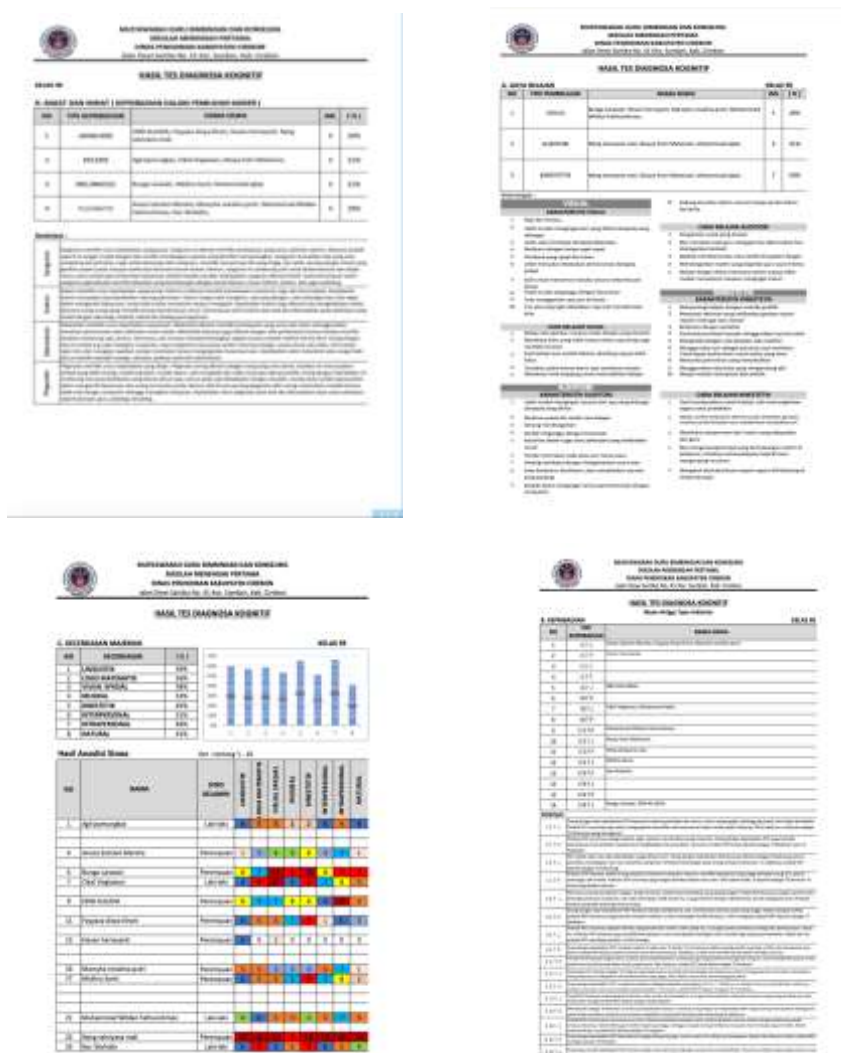


Figure 7: Example The non- cognitive diagnostic test results per individual will appear



4.1.3 Stage Model Validation

After application non- cognitive diagnostic tests considered can used , researchers test it with carry out validation tests to colleague colleague from administrator The Junior High School Guidance and Counseling Teachers' Conference (MGBK) is in control technology informatics (IT). Then application the tested try to the BK teachers who are members as management of MGBK SMP with simulate it as if as student . The MGBK SMP management consists of: from an aged guidance and counseling teacher between 35 – 50 years , with level diverse IT capabilities .

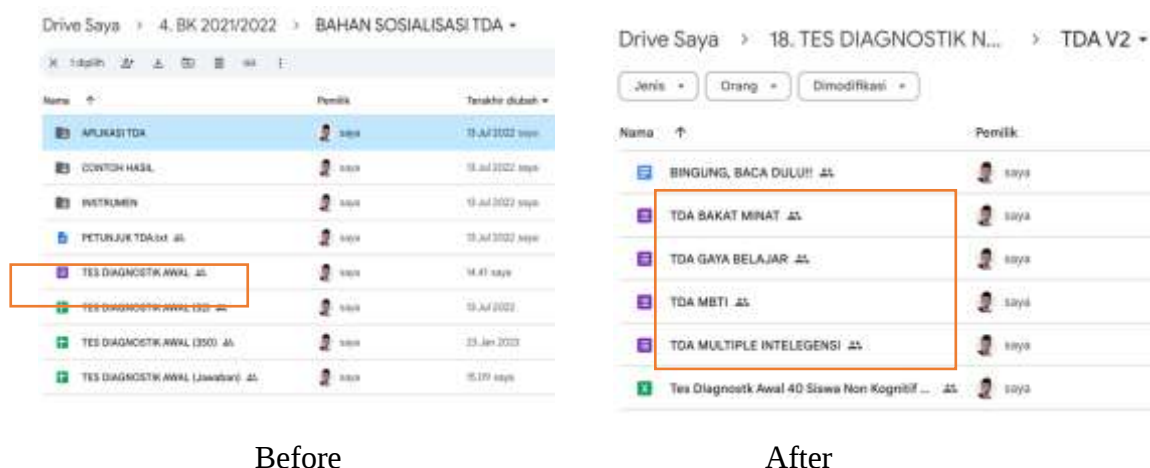
After implementation simulation and that's it get results , then colleague colleagues who master IT try processing data from Application Google Forms Keep going to Google Sheets App , then connected to Application Ms. Excel , that is Application Test Diagnostic Beginning.

Researcher in analyze data using Triangulation Technique, this technique used For do testing credibility with method confirm the data obtained with method different (Alfansyur & Mariyani, 2020). For example, the data obtained through observation will checked through interviews and studies documentation . In find post data activity simulation spread initial diagnostic tests , researchers do observation in a way direct with do internal observations the course of the simulation process , no only That researcher do interview to a number of Guidance and Counseling teachers involved activity simulation , first interviewing guidance and counseling teachers who master IT, then to the guidance and counseling teacher who did it test non- cognitive diagnostics .

Result of data collection found a number problem as following : (1) Regulatory process synchronization from Google Sheets App to Application Ms. Excel Still considered difficult for lay people ; (2) Items what a statement Lots make saturation for those who fill in test , so Can happen origin fill in ; (3) Data processing carried out in a way mass , a total of 300 students in a way direct cause computer become slow and even error. Data from results observations and interviews the Then analyzed through studies documentation , with test and analyze application post simulation .

From the problems found , researchers change Google Forms App become four part in accordance with each test diagnostic in a way separated . So that each type test non- cognitive diagnostics made Google Forms Applications , p This expected Can reduce saturation of fillers test .

Figure 8: Appearance after and before repair Application



Application on Ms. Excel was also changed (Version 2) with a database input process as much four times accordingly with each type test , and even if There is tests that don't need filled or spread , then No need not even done problematic , different on application previous (Version 1). Appearance Application Test Diagnostic Early Non -Cognitive Version 2 can seen in the picture following :

Figure 9 : Appearance application Test Non- Cognitive Diagnostics Version 1 (MS. Excel)



Problem next is a synchronization process that does not everyone can . From the problems that arise the researcher look for way more practical , and from so many trials Finally found method transfer more databases easy without do arrangement complicated synchronization , that is with make settings in the app Ms. Excel with change Ms. formulas Excel so technical transfer databases easy for lay people . How to do it is with perform the copy and move process (copy paste) in the database in the Application Google Spreadsheets to Application Ms. Excel.

Problem third to appear that is computer is having problems after open application Ms. Excel Test Diagnostic Early Non Cognitive , ie exists computer that becomes slow or errors, solutions carried out is with limit number of database inputs become One class (maximum 40 students), not a large number per class student Can more of 300 students .

After all repair done , next Application Test Non Cognitive Diagnostics tested try return to colleague fellow Guidance and Counseling teachers who master IT, and do simulation spread test to the Guidance and Counseling teacher who is administrator of MGBK SMP Kab . Cirebon.

When the simulation process starts walking , researcher do observation to parties involved simulation , and after the result found , returned researcher do interview to colleague colleagues who master IT and Guidance and Counseling teachers who do test non- cognitive diagnostics . Results after do observations and interviews , previous problems appear No found back , and even there is significant improvement especially in the manufacturing process test , processing and process of transferring data base to application Ms. Excel.

Of a number research conducted For look for validity and credibility concluded that results repair application non- cognitive initial diagnostic tests version 2 have in accordance with hope researcher that is increasing efficiency and effectiveness in utilization application Gform and Ms. Excel against use test diagnostic non- cognitive beginning for Guidance and Counseling teachers .

4.1.4 Stage Dissemination

In stages this , after the application is tested through the research process that has been carried out done , stage furthermore is disseminate application to junior high school guidance and counseling teachers throughout Cirebon Regency with conducting a workshop organized by the Guidance and Counseling Teachers' Conference (MGBK). At the workshop , among others material presented by the committee is Socialization Application Test Diagnostic Early Non -Cognitive for Guidance and Counseling Teachers throughout Cirebon Regency .

Researcher do efforts to make it easier for BK teachers to do so utilise Application Test Diagnostic Early Non -Cognitive This with create a tutorial on the page YouTube <https://www.youtube.com/watch?v=XIOTi9gUe2o&feature=youtu.be> , which includes with saved drive link application and instructions its use .

1.2 Advantages and disadvantages

4.2.1 Excess

Utilization Application GForm and Ms. Excel own excess including : (1) Google Form and Ms. Excel can create and send form with easy and fast (efficient). (2) GForm and Ms. Excel can accessed wherever and whenever . (3) Data collected can with easy analyzed, (4) Can used by various type field profession, like students , students, teachers, lecturers, employees even professionals . (5) Highly accessible easy , features provided very easy used , (6) Can be integrated with various application Google Workspace . (7) Got it used by everyone various level age and level ability IT mastery .

4.2.2 Lack

Besides the advantages contained in the application GForm and Ms. Excel has described above , there is deficiencies in the application These are (1) Google Form No exists feature scoring automatic and interpretation results comprehensive test . (2) Integration with platform besides category Application Google Workspace Still limited. (3) To Ms. Excel needed high ability For make more applications complex . (4) User need to learn methods use Excel formulas and functions for scoring and interpretation results test .

CONCLUSION

Google forms application is application non- profits can used by various profession and level ability . Everyone can give his response in a way fast and not limited space and time , the device used can using a cellphone, tablet or laptop/ computer . Required network No need high data access so that all network Can use application Google Forms . Data obtained Can real-time and deep analyze Can done although in a way simple .

Whereas Ms. Excel is existing applications familiar among teachers, because Ms. Excel is basic skills a must application mastered apart from Ms. Word. Data processing is possible done in a way fast and precise , moreover for someone who has control formulas Ms. Excel, will Can finish various more applications complex . Ms. Excel Can made layouts in accordance with will user , in Ms.'s visual appearance Excel No lost interesting from other applications . Who does not lost interesting Can used in a way online nor offline . With Thus , application Google Form (Gform) and Ms. Excel is combination very application suitable For increase efficiency and effectiveness in implementation spread test diagnostic non- cognitive beginning for Guidance and Counseling teachers in collect as much student profiling data as possible used as improvement tools quality of the learning process .

AUTHOR CONTRIBUTIONS

Look this example below:

Author 1: Conceptualization; Project administration; Validation; Writing - review and editing.

Author 2: Conceptualization; Data curation; In-vestigation.

Author 3: Data curation; Investigation.

Author 4: Formal analysis; Methodology; Writing - original draft.

CONFLICTS OF INTEREST

The author(s) declare no conflict of interest

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