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### Digital database training to support school management

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#### ABSTRACT

One of the challenges and important aspects in supporting the implementation of school management is the availability of a comprehensive and integrated digital database. However, there are still obstacles in development and development directions that still need to be managed optimally. Therefore, it is necessary to manage a digital database that can be accessed by students, teachers and school principals online. The aim is to conduct an initial study of digital database management to support school management. This Community Service was carried out by school principals, teachers and school operators in Limo District, Depok City to improve data-based planning initiated by the Ministry of Education and Culture. Data-based planning training is carried out in two stages, namely coaching & discussion, action in the form of training and evaluation. The process is carried out in 5 steps, namely (1) a session starting from the self, (2) a concept exploration session, (3) a comprehension elaboration session, (4) contextual demonstration sessions, and (5) an action plan preparation session. The results of the service show that Data-Based Planning Activities have had a good impact on School Principals, Teachers, and School Operators, and no obstacles were found in their implementation.

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#### ABSTRAK

Salah satu tantangan dan aspek penting dalam mendukung pelaksanaan manajemen sekolah adalah tersedianya pangkalan data digital yang komprehensif dan terintegrasi. Namun masih terdapat kendala dalam pembangunan dan arah pengembangan yang belum terkelola secara optimal. Oleh karena itu perlu tata Kelola pangkalan data digital yang dapat di akses oleh siswa, guru, dan kepala sekolah secara online. Tujuannya ialah sebagai studi awal tata kelola pangkalan data digital untuk menunjang manajemen sekolah. Pengabdian Kepada Masyarakat ini dilakukan pada Kepala Sekolah, guru, dan operator sekolah se Kecamatan Limo Kota Depok dalam upaya peningkatan perencanaan berbasis data yang dicetuskan oleh Kemendikbudristek. Pelatihan Perencanaan Berbasis data dilakukan melalui dua tahap, yaitu coaching & diskusi, tindakan berupa pelatihan serta evaluasi. Prosesnya dilakukan melalui 5 langkah, yaitu (1) sesi mulai dari diri; (2) sesi eksplorasi konsep; (3) sesi elaborasi pemahaman; (4) sesi demonstrasi kontekstual; dan (5) sesi penyusunan rencana aksi. Hasil pengabdian menunjukkan Kegiatan Perencanaan Berbasis Data memberikan dampak yang baik bagi Kepala Sekolah, Guru dan Operator Sekolah serta tidak ditemukan kendala dalam pelaksanaannya

**Kata Kunci:** Pangkalan data digital; pelatihan; perencanaan berbasis data

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## INTRODUCTION

Effective data management is crucial in improving educational institutions' performance, particularly in school management. In this digital era, databases are a fundamental element for managing information related to students, educators, and school administration more efficiently (Ramadhani et al., 2023; Sirojuddin et al., 2022). A comprehensive understanding of digital database training among educators and education personnel can significantly support school management. Equipping stakeholders in the education sector with the necessary skills and knowledge to utilize information technology in managing school data is expected to optimize resources and enhance operational effectiveness to achieve better educational outcomes (Safrizal, 2019; Soedjono, 2022).

Data from PISA scores between 2000 and 2018 indicate that student learning outcomes in Indonesia remain below average, with significant disparities across different groups and regions (Hewi & Shaleh, 2020; Rihada et al., 2021). Furthermore, the current governance of Indonesia's education system has yet to support optimal student learning outcomes fully (Piliano et al., 2023). Education in Indonesia should focus on improving both cognitive and non-cognitive competencies. However, the gap between expectations and reality is influenced by various factors, including the quality of teachers, school principals, and supervisors who have yet to effectively and productively lead school development (Muflikha & Haryanto, 2019; Kusnandi, 2017). A key issue is that school programs often fail to significantly impact education quality due to planning that is not based on relevant data (Salsabila et al., 2023; Schildkamp, 2019).

Many schools still develop plans based on invalid reports or unverified data. They often fail to identify the root causes of problems, resulting in school activities, procurement, and program planning that fail to improve educational quality. Additionally, schools have not yet implemented consistent and systematic evaluations of the activities they undertake. The future vision of Indonesian education is to develop learners who are lifelong, excellent, continually growing, prosperous, and morally upright (Fatahillah & Afadh, 2022; Tjalla, 2021). These learners are expected to possess global competencies and demonstrate values aligned with Pancasila, including faith in God, noble character, international diversity, independence, critical thinking, creativity, and collaboration (Dewi, 2022; Nurgiansah, 2021). To achieve this vision, the government and educational institutions must address key elements, including high student participation rates, quality learning outcomes, and the equitable distribution of quality education across all levels of education. The government has introduced the Merdeka Belajar (Freedom to Learn) policy to develop students' core competencies and character while ensuring that underserved groups have better access to quality education (Suroyyah & Harmanto, 2022). To address the current challenges and realize this vision, one key strategy that educational institutions can adopt is effective and accountable budgeting. This can only be achieved if the budgeting is based on data-driven planning. Data-driven planning can be implemented through school assistance programs that utilize the Profil Pendidikan (Education Profile) as the foundation for continuously designing and improving programs (Yibrie-Ahmed, 2019). The Profil Pendidikan is a comprehensive report that evaluates educational services and is presented as the Rapor Pendidikan (Education Report Card). Schools are the centers where the education process takes place, and therefore, the role of school principals in executing managerial duties becomes a key factor in successful implementation (Connolly et al., 2019; Jaliah et al., 2020). The Sekolah Penggerak program, currently initiated by the government, also supports the development of principals' managerial competencies. As stated in Keputusan Menteri Pendidikan, Kebudayaan, Riset, dan Teknologi Republik Indonesia Nomor 162/M/2021 tentang Program Sekolah Penggerak, one of the program's objectives is to establish a robust ecosystem for enhancing educational quality. This goal can be supported through effective school management, planning, and budgeting (DeMatthews et al., 2020; Sabariah, 2021).

One of the key challenges in supporting school management is the availability of a comprehensive and integrated digital database. However, there are still barriers in its development and strategic direction that have not been optimally managed. Therefore, it is necessary to establish a digital database system that can be accessed by students, teachers, and school principals both online and offline. This aligns with the government's Data-Based Planning (PBD) initiative, as stated in Peraturan Pemerintah Nomor 57 Tahun 2021 tentang Standar Nasional Pendidikan and Permendikbudristek Nomor 09 Tahun 2022. Data-based planning refers to using data from the Rapor Pendidikan platform to guide interventions by schools, education departments, and local governments in improving and maintaining the quality of education over time.

Data-Based Planning (PBD) aims to ensure more effective budget allocation and enhance school management systems in a practical, accountable, and concrete manner. It is also tailored to the needs of each school or institution by identifying key problems based on data from the Rapor Pendidikan, which then encourages improvement actions through programs that are aligned with these findings. PBD follows three main steps: Identify, Reflect, and Improve (IRB). This community service program aims to initiate digital database management practices to support school management. The program was implemented with the involvement of school principals, teachers, and education staff from SD Negeri Meruyung, Limo District, Depok City, West Java, with 31 participants.

## METHODS

This community service activity was conducted in the form of training on Data-Based Planning. The participating schools were public elementary schools in Limo District, Depok City, West Java. The training took place over three days and was conducted online. It involved 31 participants, including school principals, teachers, and operators. Each training session lasted for six hours per day. The implementation of Data-Based Planning training consisted of two main stages: coaching and discussion, followed by training activities and evaluation. The coaching and discussion phase was held monthly from October to December 2023. This process served as a method to explore the capabilities, expectations, and challenges faced by school principals, allowing them to develop constructive thinking facilitated by assigned coaching mentors (Sari, 2021). The coaching sessions helped participants reflect on their school's current planning processes and identify key issues. One of the most prominent challenges revealed was the limited and often invalid use of data in existing school planning and programming.

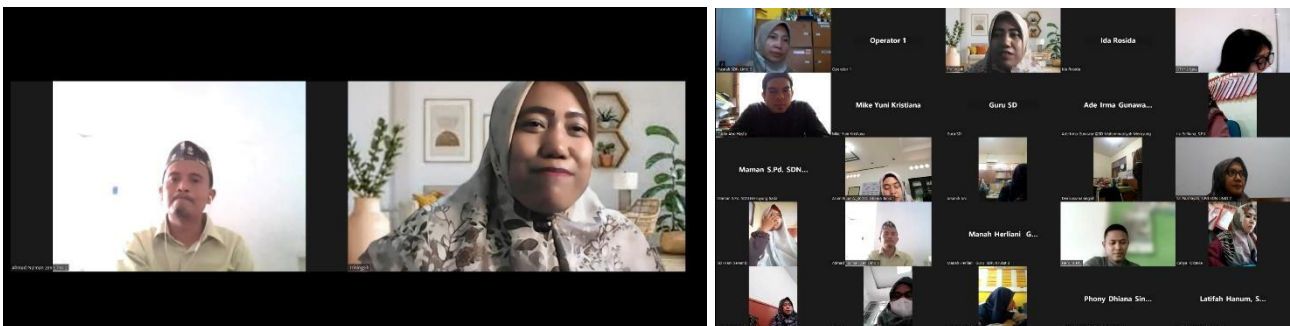
The next step involved a structured training process designed to address the identified issues. The three-day training was conducted by the principles of the Merdeka Belajar (Freedom to Learn) approach. The process followed five key steps: (1) self-reflection session; (2) concept exploration session; (3) understanding elaboration session; (4) contextual demonstration session; and (5) action plan development session. The self-reflection session enables participants to reflect on their contributions to the school program planning process. Participants can then read materials or watch videos supporting their understanding of data-based school program planning concepts. Participants are then invited to elaborate on their knowledge with the facilitator to ensure they share the same perception and have an accurate understanding of the concept. Participants then conduct a contextual demonstration to share best practices in school program planning that have been or will be implemented based on the results of the elaboration of understanding. The final step participants take is to develop a concrete action plan regarding the process they will undertake in conducting data-driven school program planning.

## RESULTS AND DISCUSSION

After the training activities were conducted, participants and trainers conducted a joint evaluation to provide accurate information about the benefits of the training that had been carried out. The Data-Based Planning Training was conducted at three public schools in the Limo subdistrict of Depok City. The training activities began with coaching sessions with school principals and discussions with the Learning Committee through PMO activities. Coaching and discussions were conducted monthly, starting in October 2023. One of the outcomes of the coaching and discussions was the identification of issues or challenges frequently faced by school principals and teachers in carrying out their various activities. One such issue was that they had not fully understood how to use quality reports to develop school plans or programs.

The coaching activities in the digital database training support school management in the context of community service activities, playing a vital role. First, coaching provides a personalized and focused approach to ensure that training participants can effectively implement the concepts they have learned daily. With direct guidance from experienced coaches, participants can overcome obstacles and challenges that may arise while implementing digital databases in the school management environment. Coaching also provides a space for participants to exchange experiences, enabling the formation of collaborative and supportive networks to develop their skills (Caena & Redecker, 2019; Lofthouse, 2019).

Second, coaching also supports the psychological and motivational aspects of training participants. Some individuals may experience uncertainty or fear of change when facing technological changes and adopting new systems. Through coaching activities, participants can obtain moral support, deeper understanding, and guidance to overcome resistance to change. This provides them with additional confidence and motivation to actively engage in using digital databases in the context of school management. Thus, coaching activities ensure mastery of the training material and build participants' independence and confidence in applying their new knowledge in daily practice (Schechter et al., 2021; Shvardak, 2021).



**Figure 1.** Coaching Implementation Process  
Source: Community Service 2023

For the coaching and discussions to have the desired impact on improving school quality, the next step is to conduct Data-Based Planning Training for school principals, teachers, and operators. This training is conducted online. The activity was held over three days, with six hours of training each day. The concepts covered during the training included the reasons for conducting data-based planning, the data-based planning process in education reports, the benefits of data-based planning, the use of ARKAS in creating school program budgets, and individual digital databases.





**Figure 2.** Discussion Process  
Source: Community Service 2023

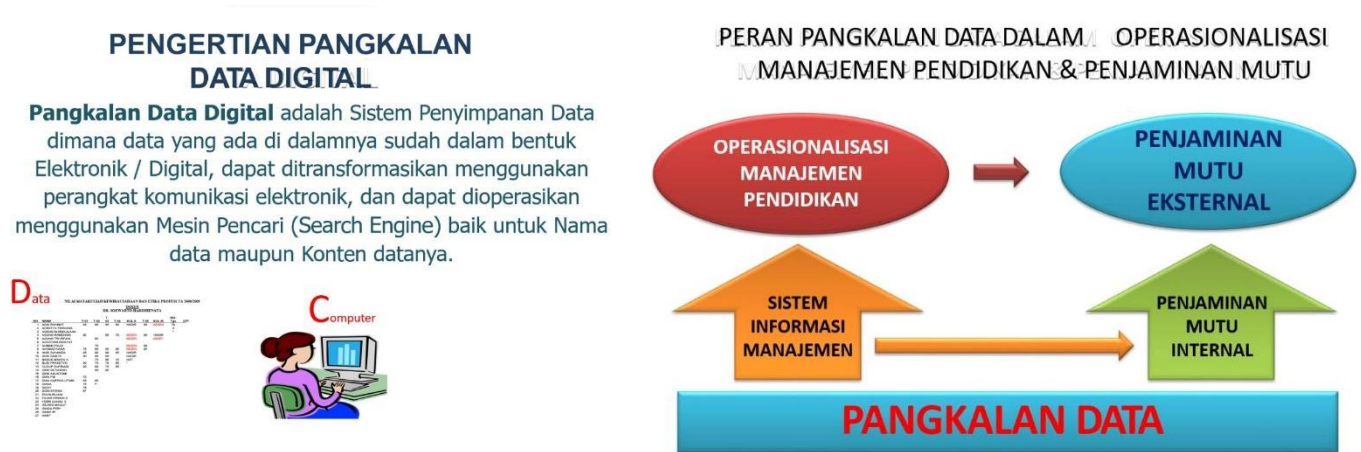
The results of the three-day training indicate that school principals, teachers, and operators have a solid understanding of the data-based planning process outlined in the education report card. The presentation of concepts demonstrates this during the elaboration of the understanding session and the presentation of action plans to be carried out by school principals and operators. The results of the assessment of data-based planning concepts' presentation before and after the training, as well as the evaluation of action plans before and after the training, are presented in **Table 1**.

**Table 1.** Assessment of Conceptual Understanding and Action Plan Before and after the Data-Based Planning Training

School	Conceptual Understanding		Action Plan	
	Before	After	Before	After
School 1	Fair	Excellent	Fair	Good
School 2	Fair	Good	Fair	Good
School 3	Fair	Good	Fair	Good
School 4	Fair	Excellent	Fair	Good
School 5	Fair	Good	Fair	Good
School 6	Fair	Good	Fair	Good
School 7	Fair	Good	Fair	Good
School 8	Fair	Good	Fair	Good
School 9	Good	Excellent	Fair	Good

Source: Community Service 2023

**Table 1** shows that before the data-based planning training was conducted, these nine schools had a sufficient understanding of the concepts and action plans related to the school program planning process. However, after the training, there was an improvement in the knowledge of concepts and action plans, with both falling into the "good" and "excellent" categories. The training activities were conducted over three days through several steps, including self-reflection sessions, concept exploration sessions, elaboration of understanding sessions, contextual demonstration sessions, and sessions for developing action plans. These training steps employed the concept of independent learning, where participants were encouraged to think independently and discover the relevant concepts on their own (Susilawati, 2021). The activities were conducted online using Zoom, Jamboard, and Padlet. The materials for the three-day activities were provided to the participants prior to the activities being carried out. Thus, the participants had an overview of the activities that would be conducted during the training.



**Figure 3.** Training Materials  
Source: Community Service 2023

The training activity began with a self-introduction session. During this session, participants were given several questions to elicit initial information about the school program development activities they had been conducting so far. Participants engage in a story-sharing session with other participants. The findings from the self-introduction session suggest that schools have been developing programs based on limited data, and there has been no involvement of other parties beyond the school principal, teachers, and educational staff in the program development process. The quality reports schools have been using have not been optimally utilized as a data basis for program development.

The next session was the concept exploration session. Participants were guided to read various materials on data-based planning and watch several videos that explained the data-based planning process. The participants carried out this process independently while still being encouraged by the resource persons. According to [Mandasari dan Wahyudin \(2021\)](#), learning through materials or videos is effective for independent learning. In this session, participants strive independently to understand the concepts through materials or videos. Participants are then divided into groups in several breakout rooms to share the information they have obtained. During the discussion, the resource person provides supporting questions to ensure the debate runs smoothly and participants accurately understand data-driven planning.

Furthermore, during the elaboration session, participants reconvene in the main room to present the concepts and data-driven planning processes discussed in the breakout rooms. The elaboration process is conducted to allow participants to complement each other's understanding of the concepts and data-driven planning processes. The resource person serves to clarify any misconceptions about the concepts presented by participants. The resource persons also added new concepts to sharpen the participants' understanding. The central concept that participants must understand in the elaboration session is creating data-based planning in education reports. Participants must first understand the features of education reports and be able to read and understand the data presented in them. This data is then used as the basis for developing school programs.

Next, the contextual demonstration session. In this session, participants are given an example of data from the education report card, which they must analyze. Participants must be able to identify problems and their root causes at the input, process, and output levels. Participants must also see the relationship between the root causes at these levels to develop appropriate plans or programs to address the identified root causes. After the participants have analyzed the groups, the analysis results are presented to obtain input from other participants and resource persons.

After the contextual demonstration session, the final step for participants is to conduct an action plan session. In this session, school principals and school operators develop a work plan for designing school programs to be implemented at their schools. Participants must also consider the challenges they will face when implementing the action plan, whether from teachers, students, facilities, or other factors. The school principal and operator must also consider solutions to address these challenges. The resource person also utilizes this session to reinforce the school principal and operator in implementing the action plan that has been developed.

Following the training activity, an evaluation is conducted. The assessment is carried out by completing a satisfaction survey regarding the activity that has been undertaken. The school principal, teachers, and operator may also provide additional notes. Furthermore, the evaluation results were supplemented with the speakers' observations during the activity. The evaluation results indicated that the training activity was conducted effectively despite being held online. Participants and speakers did not experience any issues with internet connectivity during the training. Participants arrived on time and fully participated in the activity. During the training, participants were provided with worksheets to help them complete various training sessions.

The participants completed the worksheets well. The participants felt greatly assisted by this training, which significantly changed their approach to developing school programs. They also received information about using education reports as a data source for school planning. After this activity, the principal immediately conducted an in-house training session on data-based planning for all teachers in his school. Thus, data-based planning training is an activity that greatly assists schools in accurately understanding the data-based planning process in educational reports. This has been clearly stated by Jumeri, S.TP., M.Si, who is the Director General of Early Childhood Education, Basic Education, and Secondary Education at the Ministry of Education, Culture, Research, and Technology. This activity also supports the government's program in transforming education in Indonesia toward a better direction (Nurlina, 2022), especially in the learning process that leads to a new learning paradigm. Thus, students' needs in the learning process can be well met (Mundayati, 2022).

Evaluation activities in the context of digital database training to support school management in community service activities play a crucial role in ensuring the effectiveness and relevance of such training. First, the evaluation clearly shows how well the training participants understood and implemented the concepts taught. By assessing skills and knowledge acquired, we can identify areas that require further attention or refinement in the training approach. This helps ensure that the training is not merely a routine activity but also has a tangible impact on enhancing participants' capacity and skills to manage digital databases in the context of school management (Al-Rawashdeh et al., 2021; Pugacheva et al., 2020).

Second, the evaluation assesses the long-term impact of this community service activity on improving school management quality. By identifying positive changes or improvements following the training, we can assess the extent to which the objectives of this community service have been met. Evaluation can also provide feedback to activity organizers for future improvements, ensuring that the training program continues to evolve in line with emerging needs. Thus, evaluation activities are not only a final step but also an integrated process to ensure the sustainability and effectiveness of capacity development efforts in the context of digital database training to support school management (Ramadhani et al., 2023).

## CONCLUSION

Data-based planning activities have had a positive impact on school principals, teachers, and school administrators. They understand how to analyze data from education reports and use it to develop school

programs. School programs must meet the school's needs, especially those of the students. Currently, school programs focus on developing basic competencies and character in students. Data-based planning training can help schools carry out the procedure of developing programs correctly and based on valid data. During the implementation of Data-Based Planning activities, no obstacles were encountered. Therefore, it is hoped that the government will continue to carry out these activities by disseminating the information to schools that have received training, and that these schools will, in turn, disseminate the information to other schools. This will lead to an equitable understanding of appropriate school program planning.

### **AUTHOR'S NOTE**

The author states that there are no conflicts of interest related to the publication of this article and affirms that the data and content of the article are free from plagiarism.

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