Design and Implementation of Hybrid Learning

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ABSTRACT

This writing aims to describe the design and implementation of hybrid learning in SMAIT NFBS Bogor. This research uses the descriptive qualitative method. The data is collected by observation, interview, documentation, and questionnaire. The design is focused on: 1) availability of infrastructure and equipment operational skills; 2) Student-focused learning; and 3) Balanced interaction between teachers and students online and offline. The implementation of hybrid learning in general can be carried out according to the design and continuously improve the quality of better hybrid learning.

Keywords: Hybrid Learning, Infrastructure, Interaction.

INTRODUCTION

COVID-19 is something that we cannot easily ignore. According to the symptoms, people would rather say it is a common cold. But for medical analysts, it is a severe and deadly virus (Yunus & Rezki, 2020). COVID-19 pandemic in 2020 significantly changes the life order in the countries, one of which is Indonesia. The impact is not only in the public health field but also in the economy. Nowadays, the world economy is through a severe depression the virus (Burhanuddin & Abdi, 2020).

The education field is also affected due to this pandemic. Many challenges are being faced, for instance, that exposed by one of the online sites "mediaIndonesia.com" online education system has the challenges both from the students' character in self-learning and the resource like learning devices and internet connection (Yudhoyono, 2020). Post-pandemic education has undergone very significant changes. In April 2020, there was a change in learning methods due to the COVID-19 pandemic. It was planned for face-to-face learning before. Afterward, it carried out online learning using WAG (WhatsApp Group), social media, video conferences, and Google Classroom. During the COVID-19 pandemic, the implementation of education was online that known as distance learning or remote learning (Hardini et al., 2021).

SMA IT NFBS Bogor is one of the schools affected by the COVID-19 pandemic. In March 2020, the students were back home to minimize the spread of COVID-19. SMA IT NFBS Bogor has students from various regions that belong to the middle and upper economic levels so they have a pretty good opportunity to continue the online teaching and learning process. Learning devices such as laptops, cellphones, and internet networks facilitated by parents of the students are the best support systems in this online learning. SMA IT NFBS Bogor tries to maximize online learning using various online learning tools, such as quizizz.com, jamboard.com, menti.com, padlet.com, wordwall.com, and many more. A year later, as the COVID-19 pandemic progressed, NFBS Bogor innovated the learning process with a hybrid learning system. Hybrid learning carried out by SMA IT

NFBS Bogor was a combination of offline and online learning methods. It was implemented simultaneously (real-time) or synchronous, where some students are in the class (offline) while the other students are in their homes at the same time (real-time) using media zoom. According to Jhon Spencer, it is The Differentiated Model (Spencer, 2020).

This learning process provides opportunities for students to choose Learning from Islamic Boarding Schools (BDP/*Belajar Dari Pesantren*) or Learning from Home (BDR/*Belajar Dari Rumah*). It is applied to help students learn according to their choice. Based on the results of simple interviews with several students, they stated that they chose to take BDP because they preferred to study face-to-face and interact directly with teachers and friends. Thus, some others feel comfortable learning from home with the help of increasingly sophisticated technology.

The hybrid learning model has both advantages and disadvantages. The advantage of hybrid learning is that participants are not limited to a room because this learning occurs online and face to face simultaneously. In addition, it is also more efficient in terms of time because delivered to online and offline students. However, the disadvantage is that hybrid learning is quite challenging in the interaction process because the teacher has to share the focus between students in the classroom (offline) and students online. The next challenge is the readiness of hybrid learning supporting tools. The third challenge is student-centered learning design. Previous articles also discussed the challenges of distance learning, including the low level of students' self-study habits (Alwi et al., 2021).

Other literature searches also found several writings on hybrid learning, including The Implementation of Hybrid Learning Models in the Learning Process in Statistics II Course in Management Study Program FPEB UPI (Hendrayati & Pamungkas, 2003). Furthermore, the Development of Online Classrooms with the Application of Hybrid Learning Using Chamilo in Citizenship Education Courses (Purmadi & Hadi, 2018). However, there have not been many writings that describe hybrid learning which is implemented simultaneously between online and offline students. The previous articles generally discuss hybrids for an alternating online and offline learning method that is commonly known as the concept of blended learning. Hence this paper aims to describe the implementation of hybrid learning at SMA IT NFBS Bogor simultaneously between students at home and school. In addition, hybrid learning is an attractive method to study because it is an alternative to future learning that can connect students anywhere and anytime.

METHODS

The approach used in this paper is qualitative. Data was collected using observation, interviews, documentation, and questionnaires. It is provided Google forms about the Hybrid Learning process were distributed to all students of SMA IT NFBS Bogor. After collecting the data, triangulation techniques tested the data. The data are compared with observational data and collected data from different sources. On the other hand, the data analysis techniques used in this paper are data reduction, data presentation, and conclusion drawing (Miles & Huberman, 1992).

RESULTS AND DISCUSSION

The main challenges of hybrid learning are the infrastructure, student-centered learning design, and interaction. The interaction copes with the teacher sharing the focus for the

students at home and the students at school simultaneously. The following chart (Fig 1) describes the design and implementation of Hybrid Learning based on these three variables.
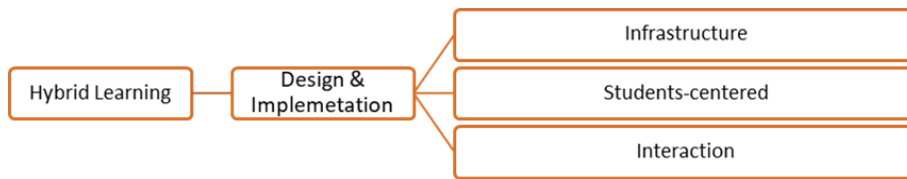

Fig 1. Theoretical Framework

A. Design

There are three considered things in designing hybrid learning. The first is leading to facilities and infrastructure. The hybrid learning process in boarding schools and homes requires several pieces of equipment. This equipment connects teachers and students with different locations simultaneously. The equipment needed includes a computer with two monitor screens and a projector/LCD/TV screen, a microphone for the teacher, a microphone for students, class speakers, and two cameras, one of which is needed to record teacher activities in front of the class and the other camera. to record student activities in class, LAN cable with a strong signal and stable internet connection, VGA/HDMI cable, audio cable. The teacher uses the laptop as an alternative control tool to monitor online learning situations. The learning process uses a zoom meeting to connect BDP and BDR students. An electronic tablet pen also is used as an alternative to the whiteboard. The following is the design of facilities and infrastructure (Fig 2.) in the hybrid class:
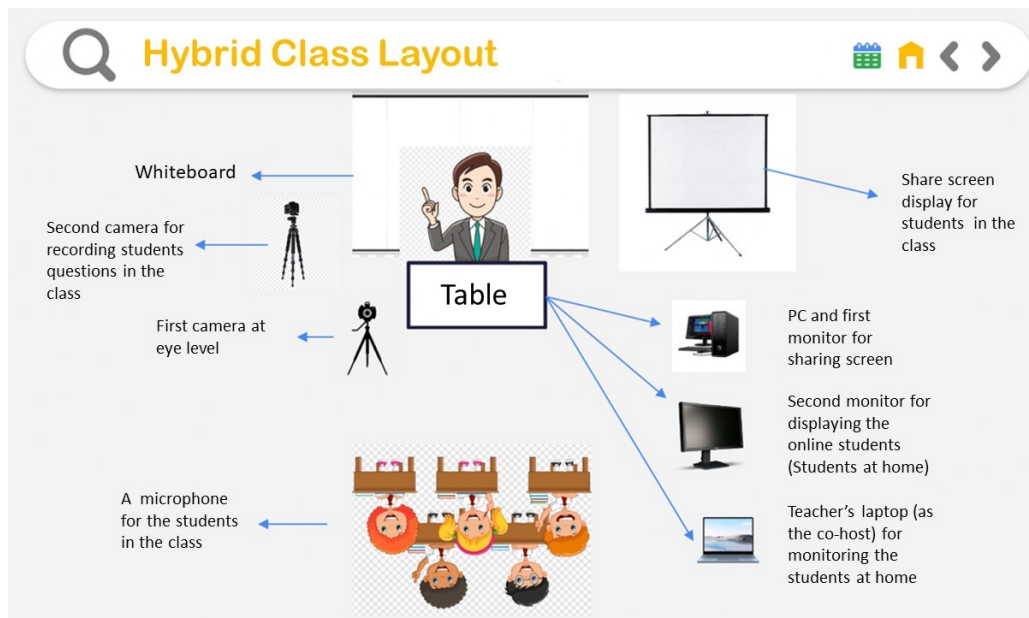

Fig 2. The Design of Hybrid class

The following figure (Fig 2) shows the facilities and infrastructure for the hybrid learning implementation in SMAIT NFBS Bogor. The position of the facilities and infrastructure is adjusted to the needs of students and teachers. The blackboard is located in the front of the class, behind the teacher. At least two cameras serve to capture videos of the teacher explaining and one that points at the students in the classroom. Students in class must also be supported with wireless microphones so that their voices enter the zoom to

interact with students at home. In addition, a double PC (Personal Computer) also helps teachers during the learning process. The first PC displays students in Zoom, while the second PC displays learning media such as PowerPoint. Then the PC is also supported with a projector or LCD TV. And to anticipate problems that occur in zoom or devices at school, they are also backed up with the teacher's laptop.

Besides setting the classroom area with several devices that support hybrid learning, teachers are also designed to be proficient in operating tools. The teachers also join several workshops to support their operational skills. The second is on hybrid learning which is necessary to design student-centered learning situations. Several things need to be prepared by the teacher before starting the learning process as a lesson plan (RPP), complete teaching materials, learning methods, and interesting learning videos. Thus, they can motivate students (Salimah, 2020). The following is an example of a hybrid learning lesson plan for SMA IT NFBS Bogor (Table 1).

Table 1. Hybrid learning lesson plan (In Indonesia)

Kompetensi Dasar	Kegiatan Pembelajaran	
3.3 Menerapkan konsep-konsep dasar Sosiologi untuk memahami ragam gejala sosial di masyarakat. 3.4 Mengaitkan realitas sosial dengan menggunakan konsep-konsep dasar Sosiologi untuk mengenali berbagai gejala sosial di masyarakat	**Kelas PJJ (di Rumah)**	**Kelas PTM (di Kelas)**
	Pendahuluan *Orientasi* 1. mengingatkan siswa melalui grup whatsapp untuk membaca materi yang telah dibagikan via google classroom (sebelum sesi zoom).	
	2. mengingatkan siswa untuk join *zoom meet* dengan mengkliktautan/*numbermeet* dan *password*sesuai kelas masing-masing 3. mengingatkan siswa *untuk on camera zoom*	2. meminta siswa menutup layar laptop dan membukanya jika diberikan instruksi membuka GC atau online tools 3. meminta siswa mencek kebersihan kelas, menyiapkan buku sumber, catatan dll
	4. membuka pembelajaran dengan salam, berdoa dan basmallah 5. mengisi presensi melalui *Google Form*, baik siswa di PTM dan PJJ harus menjawab	
	Inti 1. Meminta siswa mengamati tayangan atau baca antar kait materi *Penyimpangan sosial* melalui share screen zoom 2. Meminta siswa diminta untuk memberikan tanggapan/pendapat dan mengaitkannya dengan kondisi aktual di kolom diskusi google classroom	**Inti** 1. Meminta siswa mengamati gambar mengamati tayangan atau baca antar kait materi *Penyimpangan social* melalui slide proyektor 2. Meminta siswa untuk memberikan tanggapan/pendapat dan mengaitkannya dengan kondisi aktual secara lisan
	1. Memaparkanmateri dengan menambahkan penjelasan terkait dengan wacana tersebut dengan berbagai fakta baru yang berhubungan dengan kehidupan sehari-hari. 2. Mengarahkan siswa untuk melakukan diskusi kelompok, memilih ketua kelompok, membagi tugas, sehingga siswa dapat mempersentasikan hasil diskusinya.	

Source: Documentation of SMA IT NFBS Bogor.

This plan splits the activities for BDR and BDP students. Before starting learning, the teacher reminds students through the WhatsApp/Telegram group to read the material that has been shared via Google Classroom. The teacher distributes the zoom link, conditions students on both BDP and BDR, and opens the class by praying in the beginning. One of how the learning process is designed to be student-centered is group discussion. Besides the group discussion, project-based learning collaborates with several fields of study. This process showed how the student-centered works. Third, in addition to choosing a suitable learning model, in hybrid learning, the teacher also needs to consider the interaction between the teacher and the student as one that can affect students' learning motivation. With high learning motivation, a student will be more active and diligent in carrying out learning so that their learning outcomes tend to be better than other students who have low learning motivation (Soetrisno & Yoku, 2019). The better the interaction between teachers and students in the teaching and learning process, the learning outcomes will also be better. On the other hand, if the interaction between teachers and students in the teaching and learning process is not good, students will also get low learning outcomes (Setiawan et al., 2013). Therefore, it is necessary to design the interaction process in such a way as to

continue to support student development when hybrid learning takes place. Learning interactions have a specific purpose in helping children with current development (Setiawan et al., 2013). On the other hand, interaction in hybrid learning is a challenge for teachers. The teacher must divide the focus between students at home and students in class. The teacher must provide a stimulus to students impartially both at home and in the classroom. The following is an interaction design in PBM hybrid learning:
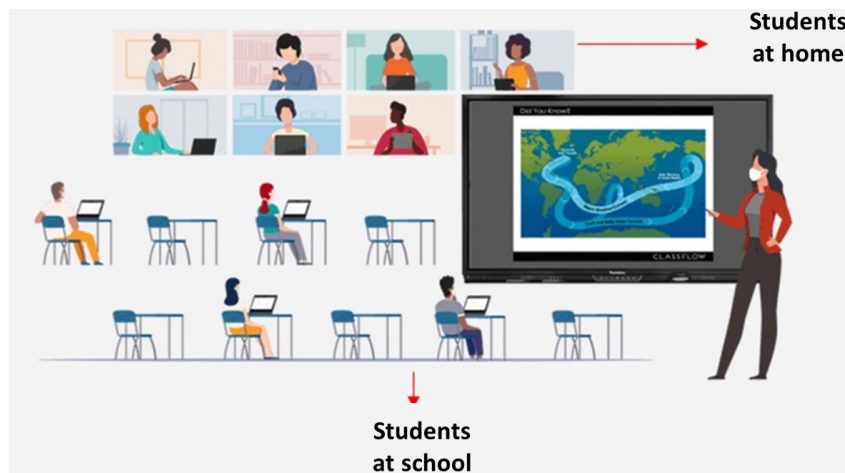

Fig 3. The interaction of the teacher and students in hybrid class

For connecting the interactions during the hybrid learning process, the teacher and students join Zoom Meeting as the video conferencing tool. This interaction is designed to occur between teachers and students at home, teachers, and students at school, students at home, and students at school. In distributing the group discussion, students at home were grouped with students at home, while students at school were grouped with students at school. It facilitates interaction between students at home and students at school. In line with research conducted by (Ainur, 2015) the teacher's efforts in creating interactions that can motivate student learning are designed by firstly fostering student interest in learning through ice breaking, videos related to the material, intensive giving by giving points or plus points, holding competitions in the classroom, rewarding prizes, notifying learning outcomes, complimenting, and punishing, as well as directing student behavior well.

B. Implementation

Hybrid learning at SMA IT NFBS Bogor is online and offline learning simultaneously. In the early development of hybrid learning, online and offline learning were conducted alternately. The phenomenon of the COVID-19 pandemic has made PBMs diverted online. SMA IT NFBS Bogor can be said to be successful in running online learning supported by the capability of the school and its students. The following illustrates the implementation of online learning that runs after the pandemic.

Fig 4. Online learning

Online learning at SMA IT NFBS Bogor lasts more than one year. With the advantages and disadvantages of online and offline learning, SMA IT NFBS Bogor combines online and offline processes simultaneously from different locations. The following is the documentation of hybrid learning at SMA IT NFBS Bogor:

Fig 5. Hybrid learning class condition

The figure shows the implementation of the previously designed hybrid learning design. In front of the teacher, there are online students on the PC screen and offline students in their respective seats. The necessary variable in the implementation of facilities and infrastructure is the availability of tools and the ability of teachers to operate these tools. Hybrid learning at SMA IT NFBS Bogor cannot be separated from the existing equipment, and teachers must be proficient in using some quite complex equipment for beginners.
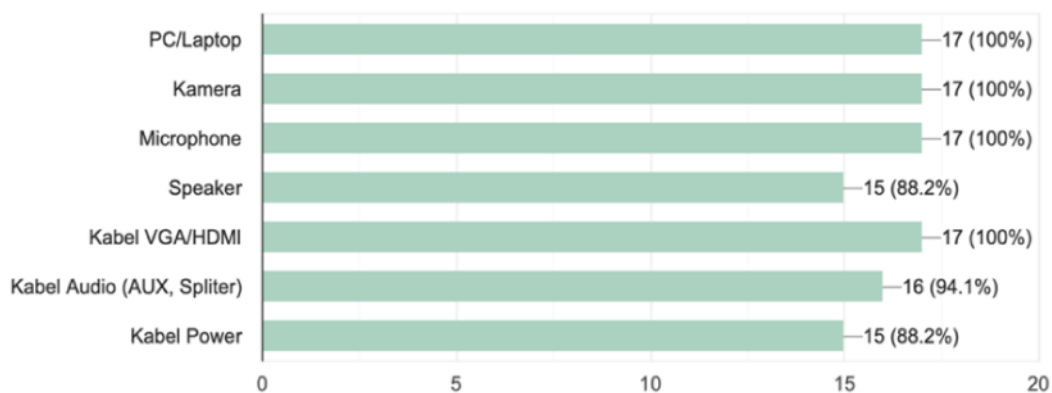

Fig 6. The capability of Hybrid learning infrastructure (In Indonesia)

The availability of tools to support hybrid learning at SMA IT NFBS is complete enough due to tool procurement according to the needs of hybrid learning designs, including PCs, cameras, microphones, speakers, VGA/HDMI cables, audio cables, power cables. Furthermore, there are still challenges in using the tools as charging the battery on the wireless mic manually after the PBM ends. It is the preparation step for the next meeting. If there is negligence in charging, it can interfere with the PBM on the next day. Besides the availability of facilities and infrastructure, one of the biggest challenges in hybrid learning is the teacher required to operate the tool according to the hybrid setting. Therefore, debriefing and simulations were carried out for teachers. The following are the results of the evaluation of the hybrid learning simulation:
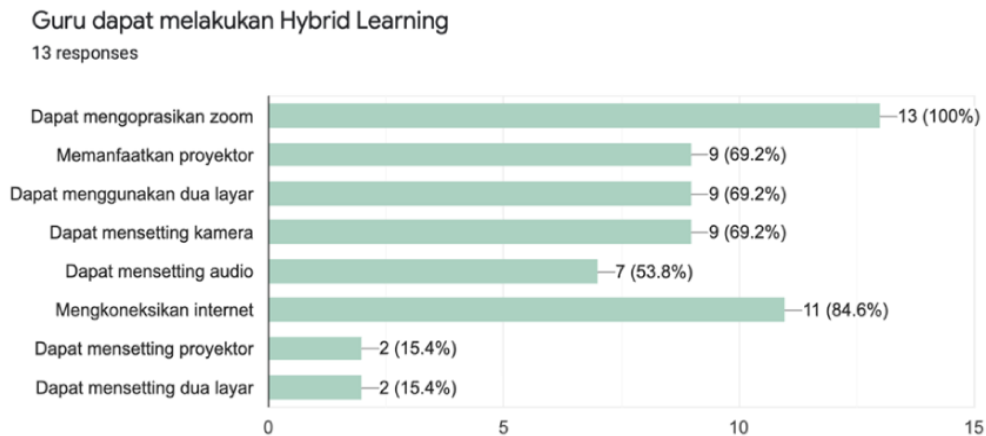
Fig 7. Tools operating skill (In Indonesia)

When conducting the simulation, it can be seen from the data in Figure 8 above that 100% of the teachers can operate the zoom, but they still have difficulty in using hybrid learning equipment such as setting up two screens, projectors, audio and cameras. However, practically, it continues to be studied during daily PBM until the teachers are familiar with these tools. With the capability of teachers in implementing hybrid learning, the teachers can focus on implementing student-centred learning. One of how student-centred learning can be implemented is by using discussion forums and collaboration between students. Students can be grouped based on their respective locations and learning modes. Students (BDR) who use online mode are grouped with other online mode students. The students in the classroom (offline) will be grouped with students in the class as well. It can also continue up to the grouping of students in project-based learning, during collaboration in the field of study in social projects and STEAM (Science Technology Engineering Art and Math).
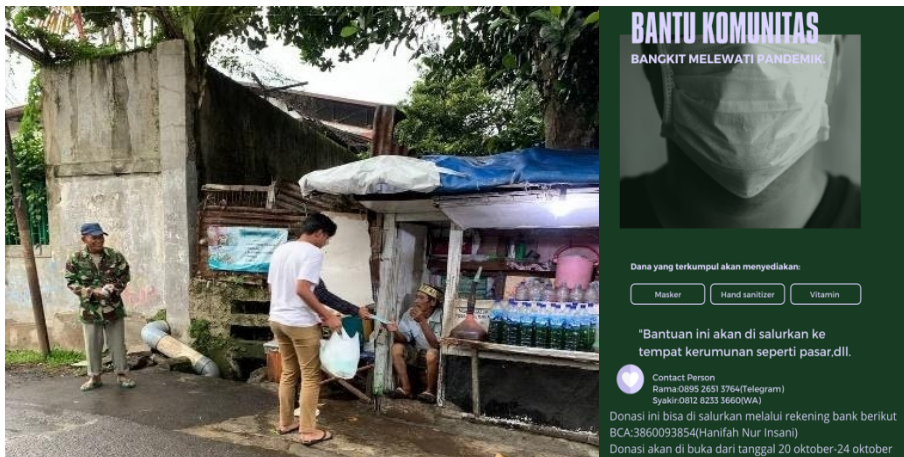

Fig 8. Project based learning (In Indonesia)

The figure above is an example of a social project from the students during a pandemic using a hybrid learning method. The students analyzed the problems that happened around. The students also conducted fundraising and distributed it to the surrounding community. Meanwhile, students with science studies have STEAM projects, one of which is an automatic trash bin. Then the works were displayed in a student celebration held at the end of the semester and shown on YouTube and the virtual museum of SMA IT NFBS Bogor. (https://bit.ly/virtual-museum-sc-nfbs) Hybrid learning at SMA IT NFBS Bogor is supported by LMS (Learning System Management). That is Google Classroom (GC). The

teacher prepares some materials in Google Classroom. SMA IT Bogor NFBS provides the standard in preparing the materials. Those are 1) Overview of the material, learning activities and material keywords; 2) Learning media such as asynchronous video or audio PowerPoint; 3) Forum for discussion that provide simple questions to equalize students' perceptions; 4) Assignments. Here is an example of a GC assignment figure:
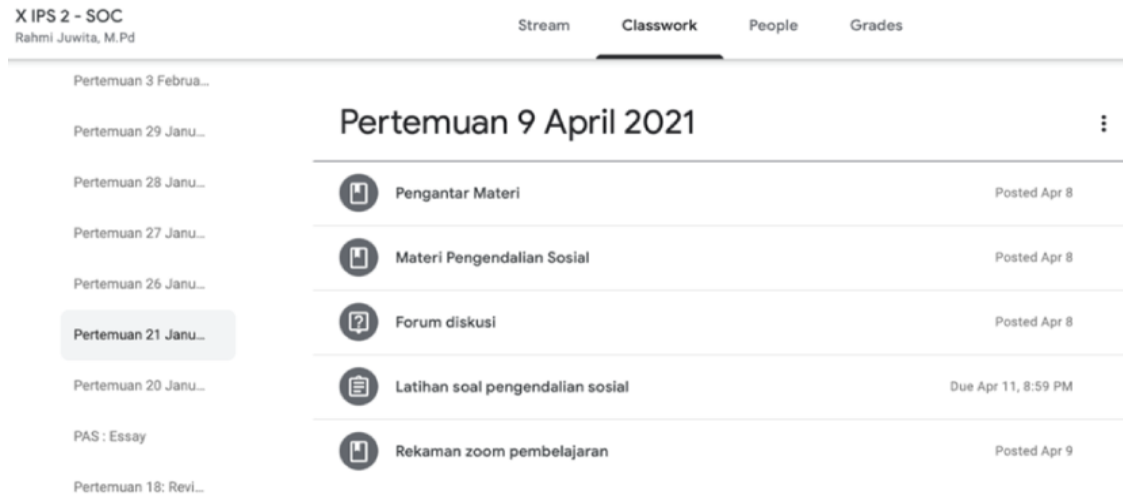

Fig 9. Google classroom (In Indonesia)

In addition to the preparations described above, zoom recordings during learning can be added to the GC after class ends. This recording is beneficial for students who do not attend or still do not understand the material. So, they can study again anytime and anywhere. The implementation is quite challenging, especially in the interaction between teachers and students at home and school. The teacher must provide the activity which is suitable for BDP and BDR students to play, providing balanced competition and fair rewards and punishments for them. Based on the observations and interviews result, the teachers revealed that sharing attention for BDP and BDR students is quite challenging. As one teacher said: "Ten students in my class who take offline learning (BDP) are children who like to seek the teacher's attention, thus making online students less focused from me". Based on the data above, it can be seen that 83.3% of students stated that the teacher gave equal attention to students online and offline. 50% of students stated that the teacher's voice was heard clearly when explaining. And very little proportion to interference from BDP and BDR sound. The following is data on the satisfaction of SMA IT NFBS Bogor students in the hybrid learning process:
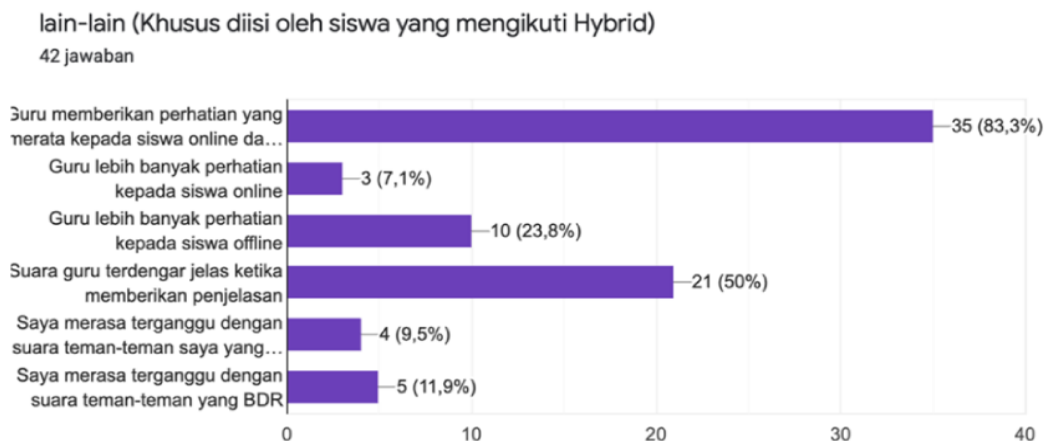

Fig 10. Google classroom (In Indonesia)

CONCLUSIONS

Hybrid learning has been taking place at NFBS since March 2021. This article seeks to answer the existed challenges in hybrid learning by describing the design and implementation of hybrid learning applied at SMA IT NFBS Bogor. It is concluded that there are three variables discussed related to the design and implementation of hybrid learning at SMA IT NFBS Bogor. That is the aspects of infrastructure, student-centered learning, and interaction. From the facilities and infrastructure aspect, SMA IT NFBS Bogor has ideally completed the availability of facilities and infrastructure. Teachers have also been given training and support, hence the competence in operating hybrid devices can be fulfilled. From a student-centered learning aspect, it can be carried out well, with several indications. Those are the existence of discussion forums, implementation of STEAM projects, and social experiments. Meanwhile, in terms of interactions based on interviews and questionnaires distributed, students stated that teachers could give equal attention to online and offline students. In general, the hybrid learning implemented at SMA IT NFBS Bogor has been going well, but the school is still conducting studies on this learning system to make it more effective.

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