



## Parents' and Students' Perception on Learning in the Age of Industrial revolution 4.0 at SDN 22 Inpres Pali, Tana Toraja

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### Abstrak

Pembelajaran saat ini perlahan mengarah ke sebuah perubahan besar yakni revolusi industri 4.0. Tujuan penelitian ini adalah untuk mendeskripsikan tentang Persepsi orangtua terhadap pembelajaran pada era Revolusi Industri 4.0 dan persepsi siswa terhadap pembelajaran pada era Revolusi Industri 4.0 di SDN 222 Inpres Pali Kabupaten Tana Toraja. Pendekatan yang digunakan dalam penelitian ini adalah model metode mixed method dengan model sequential exploratory. Metode mixed method model sequential exploratory merupakan metode penelitian yang menggabungkan pendekatan kualitatif dan kuantitatif untuk mendapatkan data yang valid. Data dalam penelitian ini terdiri dari dua sumber data yakni data primer dan sekunder. Secara terstruktur didapatkan hasil kualitatif, peneliti melakukan wawancara kepada 4 orang tua perwakilan wali siswa kelas rendah dan tinggi. Begitupun dengan siswa, yang dilibatkan ialah 4 orang dari perwakilan kelas tinggi dan rendah. Dalam hasil penelitian dirumuskan beberapa tema yang mewakili jawaban informan antara lain deskripsi sekolah, pemanfaatan, pemahaman, prosedur pembelajaran, dampak positif serta negatif dan pandangan tentang pembelajaran dengan alat teknologi dan komunikasi. Data kuantitatif diperoleh dari data angket. Dari hasil dan pembahasan tentang persepsi orangtua dan siswa terhadap pembelajaran di era revolusi industri 4.0 ditemukan bahwa SDN Inpres 222 Pali telah mengarahkan siswa dan orangtua dalam memanfaatkan alat teknologi, komunikasi dan informasi secara positif, pembelajaran dengan menggunakan alat teknologi dan komunikasi membawa dampak positif bagi orangtua dan siswa. Kelebihan terbesarnya ialah membantu siswa dalam mengatasi kesulitan belajar seperti menyelesaikan tugas pembelajaran yang berat, terdapat keraguan dari pihak orangtua akan kebijakan siswa dalam memanfaatkan handphone yaitu ketakutan anak tidak belajar, serta siswa mampu mengikuti secara maksimal bila dibantu guru dan orangtua.

**Kata Kunci:** Persepsi, Revolusi Industri 4.0, Siswa, Orangtua, Angket, Mixed Method, Sequential Exploratory.

### Abstract

Learning is currently slowly leading to a major change, namely the industrial revolution 4.0. The purpose of this study was to describe parents' learning perceptions in the Industrial Revolution 4.0 era and students' learning perceptions in the Industrial Revolution 4.0 era at SDN 222 Inpres Pali, Tana Toraja Regency. The approach used in this research is a mixed methods model with a sequential exploratory model. The mixed methods sequential exploration model is a research method that combines qualitative and quantitative approaches to obtain valid data. The data in this study consisted of two data sources, namely primary and secondary data. Qualitative results were obtained in a structured way, the researcher conducted interviews with 4 parents, representatives of guardians of lower and upper grade students. Also, among the students involved, there were 4 people representing upper and lower classes. Several themes were formulated in the results of the study to represent the responses of the informants, including school descriptions, usage, understanding, learning practices, positive and negative impacts, and views on learning with technology and communication tools. Quantitative data from questionnaire data. From the results and discussion of parents' and students' perceptions of learning in the age of Industrial Revolution 4.0, SDN 222 Inpres Pali students and parents to use technology, communication and information tools positively, to learn with technology and means of communication had a positive impact on parents and students. The biggest benefit is to help students overcome learning difficulties, such as teachers and parents.

**Keywords:** Persepsi, Revolusi Industri 4.0, Siswa, Orangtua, Angket, Mixed Method, Sequential Exploratory.

### Pendahuluan

The success of the learning process that occurs with individuals/students requires the help of other parties to be optimally realised. Likewise with learning that requires

feedback or input from various parties for improvement and evaluation efforts. Perception, according to the Big Indonesian Dictionary (Language Development and Development Agency, 2016), has two meanings,

namely as a direct reaction (acceptance) of something; and a person's process of knowing things through his five senses. Asiyah (2019) proposed the definition, according to the results of her study, as an individual process in which an object is recognized from the stimuli it receives through its senses, causing individuals to infer the stimuli received, be they in the form of courtship, and able to interpret events or objects they encounter

Objective responses derived from the truth of sensory observations have empirical value and are useful in the world of research, especially education. Perceptions in the primary school (SD) world, which can come from different parties, one of which is parents, are input and reflection on the quality of education given by teachers. This input/reflection, if used properly, can be a reference for developing learning in a better direction.

The answer can be an assessment that evaluates the learning process because it checks the opinions of other parties that also monitor and support the educational process, especially those related to the students of SDN 222 Inpres Pali. Parents are the most important partners of schools and teachers in assessing learning success. Availability of educators who actively fulfill their duties, there is good cooperation Hakpantria (2021).

The perception of people who are directly involved in the learning process, namely students, is needed because they feel and experience the real learning experience directly. Pupils can also provide perceptions/responses because they receive a stimulus with the senses and then interpret it in such a way that they are able to give a response (feedback/response) to the received stimuli Novinggi, (2019). Both as subjects and objects of education, students are directly involved in the formal and non-formal learning process.

Learning is currently slowly leading to a major change, namely the industrial revolution 4.0. According to Prasetyo and Trisyanti, (2019) The development of the 1.0 revolution can be observed since the 18th century, where it is said to have been shaped by the invention of the steam engine, which made it possible to carry out the production process on a large scale. At the beginning of the 19th-20th centuries, the Industrial Revolution 2.0

began and developed with the presence of electricity to reduce production costs. It was only here in the 1970s that there was a third form called Industrial Revolution 3.0 with computerized power. Science and technology, constantly evolving, will keep advancing civilization until it reaches the age of Industrial Revolution 4.0 marked by globalization.

Globalization has many influences and effects, especially in the educational world where science and technology are widely used in learning, e.g. B. when accessing teaching materials, online learning or when sending assignments. This can be useful if students, parents and especially teachers can put it to good use.

In the age of modern learning leading to Industrial Revolution 4.0, the use and mastery of technology is expected to take place in the world of education. This assumption is supported by the opinion (Cholily and Kusgiarohmah, 2019) stating that education in the age of the digital revolution requires the use of digital technologies as a tool to improve academic quality. This hope certainly requires great efforts from all parties, especially teachers, especially to offer effective learning in distance learning packages during the current Covid-19 virus pandemic.

The outbreak of the Corona virus (Covid-19) taking place worldwide is a gradual phenomenon and is changing the level of human life patterns, including in the world of education. Indonesia is also feeling the effects of the spread of the disease. Various prevention efforts are carried out by the government in cooperation with the community, among others, including the implementation of learning. One of the directives to prevent the spread of the Covid-19 virus in the formal education world is to ask students to study from home each is like distance learning until an indefinite date (Muhammad, 2020).

Based on the Regulation of the Minister of Education and Culture of the Republic of Indonesia No. 11 of 2014, Chapter 1, Article (1) on the Conduct of Distance Learning, which reads: "Distance Learning, hereinafter referred to as PJJ, is an education in which students are separate from educators and learning utilizes diverse learning resources by applying the principles of educational/teaching

technology". This can be interpreted to mean that all learning activities during the Covid-19 virus pandemic should only be carried out from home, using different sources and learning approaches that are considered effective (Collection of Higher Education, 2014).

One of the national educational strategies in dealing with technological changes related to teaching and learning is home learning, referred to as BDR. This is accompanied by the issuance of Circular No. 15 of 2020 on guidelines for organizing home learning in an emergency situation due to the spread of the coronavirus disease (Covid-19). Besides this notion, other notions have also emerged related to the concept of implementing learning during a pandemic emergency (Ministry of Education and Culture, 2020).

Distance Learning (PJJ) is applied as a form of completing learning activities between teachers and students. Cahyani and Larasati (2020) stated that "Distance learning (PJJ) is an open education with relatively tightly structured learning programs and learning patterns that take place without face-to-face encounters or separation between teachers and students". This statement is supported by the opinion of Rosarian and Dirgantoro (2020), who state that "distance learning is a learning method that uses correspondence as a means of communication between learners and teachers".

Distance learning is an elaboration of the Learning From Home (BDR) program initiated by the Ministry of Education and Culture, Ekantini and Hayati, (2020). The learning strategy uses two methods, namely online (inside the network) and offline (outside the network). The policy of using the online/offline method is left entirely to the school, based on the conditions/zones of spread of Covid-19 in the region.

Online learning methods use the Internet as a link in learning. Online learning is the use of the internet network in the learning process by Ekantini and Hayati, (2020). With online learning, students have the flexibility of study time and can study anywhere, anytime. Consistent with this, Malyana (2020) stated: "Online learning is learning that uses multimedia technology, voice messaging, email and online video streaming". This method can

only be applied to certain regions/regions that have access to a strong technology and communication network, as the success of this method is determined by an internet connection.

Based on the results of a preliminary study conducted using observation techniques and initial interviews with several class teachers, namely class 1 and class 4 teachers, conducted on April 5, 2021 at the SDN 222 Inpres Pali, it was found that all the Page Since the introduction of the teaching, the teachers have been conducting distance learning, Learning from Home (BDR), although this is done offline (off-network) due to the very limited conditions of internet access.

Learning is implemented offline, namely by assigning tasks to students. There are various efforts recommended by the Ministry of Education and Culture to conduct distance learning, especially in this offline method, Handayani, (2016). The strategy adopted is carried out by Learning outside of the network is also a learning strategy without using a network that is carried out outside of school, for example, by watching learning videos, study houses, teachers' rooms, etc. Asmuni, (2020).

Based on the observation results, the offline method applied to SDN 222 Inpres Pali, Tana Toraja Regency will be carried out by assigning tasks, student textbooks represented by the students' parents, distributed in turns on days determined by the school health protocols, print teaching reading materials, and complete student worksheets as assignments. Thus, the purpose of this study is to describe: 1) Parents' learning perceptions in the Industrial Revolution 4.0 era at SDN 222 Inpres Pali, Tana Toraja Regency. 2) Student Perceptions of Learning in the Industrial Revolution 4.0 Era at SDN 222 Inpres Pali, Tana Toraja Regency.

## Method

This research was conducted at SDN 222 Inpres Pali, Lembang Pali, Kec. Bittuang, Cab. Tana Toraja Prov. South Sulawesi. The researchers chose the school because it implemented learning with the characteristics of Industrial Revolution 4.0, based on communication technology (IPTEK). The time of this research is aligned to a set schedule, this

research activity will be conducted in the odd semester of the 2021/2022 academic year. The approach used in this research is the mix method with a mixed methods model with a sequential exploration model. The mixed methods sequential exploration model is a research method that combines qualitative and quantitative approaches to obtain valid data. The data in this study consisted of two data sources, namely primary and secondary data. Primary data sources Primary data were obtained directly from researchers without intermediaries, such as through interviews, observations, tests, and questionnaires (Sugiyono: 2015).

The selection of informants in this study was selected through a targeted sampling technique, namely the technique of determining the sampling of data sources to achieve the objective. The informants/respondents in this study were 1 student representative from the lower class (one representative each from class II or III) and as many representatives from the upper class (classes IV and VI).

The information/informant came from the parents and students. This concludes that the number of said/informants is 8 with details of 4 parents and 4 students. An explanation of the sources of information in this study.

**Table 1. Qualitative primary sources of information**

Primary Source	Role
AM	Class II Students
TP	Class III Students
NCP	Class IV Students
FP	Class VI Students
KK	Parents of Class II Students
MP	Parents of Class II Students
SS	Parents of Class II Students
YK	Parents of Class II Students

In quantitative research, the primary source of information is called the respondent. But before that, the population in this study were students and parents at SDN 222 Inpres Pali. The details of the population of this study are in the following table:

**Table 2. Qualitative Primary Information Sources**

No	Classes	Gender		Total students	Number of Parents
		L	P		
1	I	14	10	24	23
2	II/a	10	19	29	28
3	II/b	10	22	32	31
4	III	19	18	37	36
5	IV	22	12	34	34
6	V	18	16	34	33
7	VI	9	13	22	21
<b>Total</b>				<b>212</b>	<b>206</b>

The sample consists of a sample of students and parents. The sample of students in this study was determined by the Yamane or Slovin formula. This is done to get the size of the number of samples in this study, namely:

$$n = \frac{N}{1+Ne^2} = \frac{212}{1+(212*0.05^2)} = 138.568 \text{ or } 139$$

In addition, the sample of parents was also determined using the same formula, namely the Yamane/Slovin formula. Here's the equation below if it is included in the following equation/formula.

$$n = \frac{N}{1+Ne^2} = \frac{206}{1+(206*0.05^2)} = 135.794 \text{ or } 136$$

In addition to primary data, there is also secondary data that supports it. Secondary data are various types of additional supporting sources that are relevant and support research. The secondary data used in this study, among others, came from journals, books, and photos of activities during the research. Data collection techniques used in this study were questionnaires, interviews and documentation. In analyzing the data obtained, the researcher used the Miles and Huberman model to analyze the existing data. The stages in the model begin with collecting data, reducing data, displaying, and verifying.

## Results and Discussion

After reviewing the research conducted at SDN 222 Inpres Pali from July to August 22, 2022 using multiple research tools namely interview guides, documentation and questionnaires, two types of research results were obtained. These results are the results of



qualitative and quantitative research. These two results strengthen the identity of this type of research, namely mix-method research.

The qualitative results in this study are all results of data analysis obtained through the application of qualitative tools. Interview guide and documentation are the two tools used to gain insights into parent and student learning perceptions in the age of Industry 4.0 conducted at SDN Inpres 222 Pali. In a structured manner, the researcher conducted interviews with 4 parents, guardian representatives of lower and upper grade students. Also, among the students involved, there were 4 people representing upper and lower classes. In these results, several themes were formulated representing the responses from informants regarding parent and student perceptions of learning in the age of Industry 4.0 conducted at SDN Inpres 222 Pali. The theme consists of 5 themes namely School Description, Utilization, Understanding, Learning Procedures, Positive and Negative Impacts and Views on Learning with Technology and Communications.

#### **Use of technology and communication in positive learning**

The use of technology, communication and information tools such as smartphones has been used by parents and students in SDN 222 Inpres Pali. The three informants (parents) indicated that their children used cell phones to obtain information about study. This statement is reflected in the following interview results.

*Do you think learning using information/communication media (TV, cellphone, Youtube, or other learning applications) is good enough to apply? Tell!*

'I think it's good if used in a good way. On the other hand, it would be bad if it was used for the wrong things, right? (P1, Interview with SS on Friday, July 22, 2022).

Similar responses were also made by MP whistleblowers on Thursday 21 July 2022 and YK on Saturday 23 July 2022. Learning through the use of technology. Some parents recognize that today's learning resources can be obtained from a variety of sources, one of which is the use of technological sophistication.

"Yes. Because now kids can learn more from the internet. It just needs to be supervised because many videos aren't worth watching." (P1, Interview with MP on Thursday 21 July 2022).

"yes, Because now the modern age is, yes, everything is sophisticated and children are discovering a lot of new things from the internet." (P1, Interview with YK on Saturday 23 July 2022).

In addition to the results of the interviews with the parents, the results of the interviews with the students also indicate the use of technology and communication tools used in the learning process. Students feel comfortable because they can use communication tools and technology as learning resources. In addition to being able to view videos and images that are not included in the student book, they can also see the steps of the task they are looking for.

Do you like studying from your phone or using TV/YouTube/other learning apps? Tell!

"Yes. Because I can watch videos." (P1, Interview with NCP on Tuesday, July 19, 2022).

"Yes. Because it's new and you can find answers and examples of steps on Google." (P1, Interview with NCP on Monday 18 July 2022).

However, there are also those who argue that in certain materials/subjects technical support is less able to meet learning needs, such as mathematics. The results of interviews with 4 students as informants follow.

"Yes. Because it's fun and you can look it up from other sources." (P1, Interview with TP on Tuesday 19 July 2022).

"Sometimes I like it, sometimes I don't. Because if I just look at my cell phone, sometimes I don't understand much more about math. Then no friends either." (P1, interview with FP on Wednesday, July 20, 2022).

Regarding the use of technology, all parents who became informants supported learning strategies using communication tools and technology. Some parents agree that the current generation needs to be tech-savvy. However, there are also concerns about the negative effects of technological sophistication when used for negative things like watching

adult movies or playing games until you lose track of time. Here are the results of the interview.

Do you support technology-based learning?

"Yes. Because now is the age of technology, so we need to be able to read and write." (P2, Interview with KK on Friday, July 22, 2022).

"Yes. I support them because now you can get information quickly and easily." (P2, interview with SSL on Friday, July 22, 2022).

"Yes. Because now is the era, so as parents we have to keep up with the times." (P2, Interview with MP on Thursday 21 July 2022).

"Support". (P2, Interview with FP on Saturday 23 July 2022).

When using communication tools and technologies, there are several tools that teachers and students use to support the learning/learning process. Mobile phones and laptops are two types of tools that are always used in learning. In their narrative through interviews, mobile phones (HP) are the most widely used technological tool by students. The following acknowledgment of the statement was submitted by the parents of students represented as informants.

Which technical aids do your children often use when learning?

"HP, laptops." (P9, Interview with KK on Friday 22 July 2022).

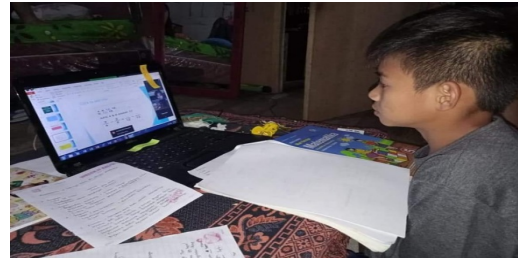
"MOBILE." (P9, Interview with SSL on Friday 22 July 2022).

"HP" (P9, Interview with MP on Thursday 21 July 2022).

"HP, usually YouTube too." (P9, Interview with FP on Saturday 23 July 2022).

The results of the documentation collected by the fourth and fifth grade teachers learning from home during the Covid-19 pandemic showed the independent activities of the students. The image explains the use of technology and communication tools by students and teachers to enable learning despite distance / not face to face. The following are the results of the documents obtained by researchers as reinforcement for parents' and children's use of technology, communication and information tools

Students of SDN Inpres 222 Pali.



**Figure 1. Photo of Students Learning from Laptops During a Pandemic**



**Figure 2. Photos of students studying together**

Learning using information technology essentially aims to encourage students in the learning process, so that a series of cognitive processes that change the nature of environmental stimulation are transformed into new skills through the processing of information. In addition, learning encourages students to acquire knowledge that can transform a person's responsiveness, which is permanent when done with practice (Gagne in Malyana, 2020).

### **Understanding the use of technology and communication tools in learning.**

Another indicator of parents' and students' perceptions of learning in the age of the 4.0 revolution is their understanding of the use of technology and communication tools. In this subject, understanding the use of technology and communication tools is linked to the learning process. Especially when understanding learning materials that come from sources outside of textbooks. Some students indicated that they could understand the material better with the help of technology and communication tools.

Do you understand learning materials that are supported by information and communication media such as mobile phones/laptops/the Internet?

"Once in a while." (P3, interviewed by AM on Tuesday 19 July 2022).

"Yes, because there are examples." (P3, Interview with TP on Tuesday 19 July 2022) .

"Sometimes. But math is the hardest."

"Yes, but there are also those who don't like math, science and PJOK." (P3, Interview with NCP on Wednesday 20 July 2022).

When using technology and communication tools, the ability to follow all procedures/series of learning activities is an important thing to explore. Some students are able to follow a series of lessons using communication tools and technology with help from parents/family or teachers. The following are the results of interviews collected from informants.

Can you follow all the study series from your mobile phone?

"Yes, if taught by a teacher or supported by parents." (P8, interviewed by AM on Tuesday 19 July 2022).

"Yes. Because the teacher helped." (P8, Interview with TP on Tuesday 19 July 2022) .

"Yes." (P8, Interview with NCP on Monday 18 July 2022) .

"Yes. Because the teacher helped." (P8, interview with FP on Wednesday 20 July 2022) .

In addition, some parents also indicate that children/students can participate in technology-based learning. The statement is based on an awareness of the dynamic changes of the times and the ability to find sources/references in the learning process is required. The following are the results of interviews with four parents of students.

*Based on your monitoring results, can the children/students participate in technology-based learning?*

"One can only be taught. But today's children sometimes understand better than their parents." (P3, Interview with KK on Friday, July 22, 2022).

"If my child can. If an example is given." (P3, Interview with KK on Friday, July 22, 2022).

"Maybe. Today's children are quicker to play with their mobile phones and are more tech-savvy than their parents." (P3, Interview with MP on Thursday 21 July 2022).

"It seems possible because today's kids are more technologically savvy. Hehehe.." (P3,

Interview with FP on Saturday, July 23, 2022).

"One can only be taught. But today's children sometimes understand better than their parents." (P3, Interview with KK on Friday, July 22, 2022).

"If my child can. If an example is given." (P3, Interview with KK on Friday, July 22, 2022).

"Maybe. Today's children are quicker to play with their mobile phones and are more tech-savvy than their parents." (P3, Interview with MP on Thursday 21 July 2022).

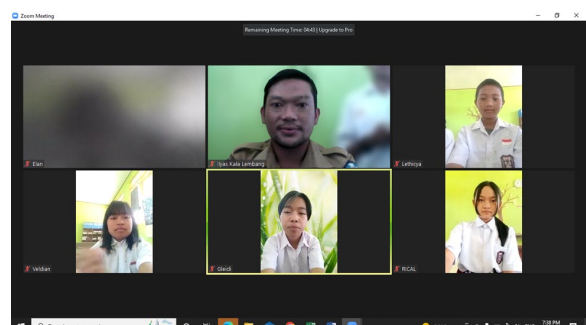
"It seems possible because today's kids are more technologically savvy. Hehehe.." (P3, Interview with FP on Saturday, July 23, 2022).

However, it turns out that there are also concerns about the use of communication technology tools used by students. Some parents responded that parental supervision was needed to limit students' activities outside of study.

"Only sometimes I see unsupervised children, as they want and play freely. It was assumed that learning turned out to be watching online games or something else. That's why I'm a bit afraid. (P7, Interview with MP on Saturday 23 July 2022).

The results of these interviews are supported by documentary evidence in the form of photographs. In the photo below, the researcher conducted a comprehension test using the Zoom application from a mobile phone with several student representatives from informants from low and high grades. The researcher gave the students the Zoom link, then the students tried to join the online class reunion on their own. The following is evidence that students understand how to use the Zoom learning application from their respective mobile phones.

Figure 3. Zoom learning from mobile.





Learning process with technology and communication tools

It is not only important to pay attention to the understanding and use of technology and communication tools, but also to learning processes. There are differences in the use of technology and communication tools during learning during the Covid-19 pandemic and post-pandemic. When learning from home, some teachers conduct the online learning with the help of applications like Zoom or similar. The following is the narration of the explanation.

*Does the school, in this case your child's class teacher, offer a regular timetable by learning how to use technical facilities, e.g. other learning sites.*

"If there's a pandemic, study on Zoom once a week. But now it's face-to-face, so I go to school every day." (P5, Interview with KK on Friday, April 22 July 2022).

"Yes. Weekly." (P5, Interview with SSL on Friday 22 July 2022).

"Yes. Normally once a week." (P5, Interview with MP on Thursday 21 July 2022).

"Yes. Normally once a week." (P5, Interview with MP on Saturday 23 July 2022).

In addition, the involvement of schools in supporting students in using technological tools is also a concern.

Based on the results of interviews with parents and students, teachers and schools are actively involved in helping students create learning innovations shaped by the Industrial Revolution 4.0. The following is an excerpt of the statements made by the informants.

In your experience, what is the involvement of schools in supporting students after learning with technical aids such as mobile phones, laptops or other digital learning media.

"It seems that teachers at school often assign assignments outside of books. So the students have to look for the answers on the Internet." (P4, interview with KK on Friday, July 22, 2022).

"The school also seems to be moving with the times. The evidence is that many assignments are set by teachers and require

answers from the internet" (P4, Interview with SSL on Friday, July 22, 2022).

"Teachers guide us parents and students a lot in dealing with technology. For example, if he gives an assignment, he must also send a link to an example or video." (P4, Interview with MP on Thursday 21 July 2022).

"It seems that schools, in this case teachers, are starting to introduce children to the use of technology. The proof is that sometimes my child's work needs to be searched from the phone." (P4, Interview with YK on Saturday, July 23, 2022).

Positive and negative effects of technology and communication tools on learning

A learning innovation certainly has its own positive and negative effects. In conducting learning in the Industrial Engineering 4.0 era, characterized by the use of technology, communication and information tools, education faces two impacts that can be felt at the same time without parental guidance/cooperation.

The positive impacts responded to by three parents, one of which was the use of technology, communication and information tools in the children's learning/learning processes, could help guide children in fulfilling their tasks. The statement was clearly conveyed by the parents in the learning process.

"Yes. Not bad because as parents we also helped to remember the previous class material. Hehehehe.." (P6, interview with MP on Thursday 21 July 2022).

"It's quite helpful. Because when I can't teach, he can look on the internet, hehehe..." (P6, Interview with YK on Saturday 23 July 2022).

"Yes" (P6, Interview with KK on Friday, July 22, 2022).

Another positive effect that parents feel is the usefulness of mobile phones as learning aids. Even before the sophistication of technology, communication and information, students learn only through books and the teachings of educators. However, after the internet, mobile phones and other technological tools, learning and learning resources became more diverse. Learning becomes innovative when it is developed using learning applications



or other creative learning media. This is supported by the following parental answers.

Do you think that ICT based learning carried out by children and teachers has had a positive impact? Why?

"Not bad, because finally children can not only play with their cell phones, they can also learn." (P10, interview with YK on Saturday, July 23, 2022).

In terms of students, the positive impact is also felt through the presence of communication technology tools in learning. This is reflected in the following excerpt from the interview.

Learning that uses technology makes learning fun? Why?

"Yes, because if you use a good cell phone, you can see an example." (P5, interviewed by AM on Tuesday 19 July 2022).

"Yes. Because I can find answers myself and learn more from the internet. (P5, Interview with TP on Tuesday 19 July 2022).

"Yes. Because I find answers myself and learn more from the internet..." (P5, interview with FP on Wednesday, July 20, 2022).

In addition to the positive impacts, there are also potential negative impacts when communication technologies such as mobile phones are made available to children without adult (parent) supervision. Some parents argue that there are still unwise habits children adopt when learning to use cell phones, such as B. playing online games or watching videos that have nothing to do with learning.

Does your child find it helpful to learn more optimally and look for other learning resources from TV, cell phone, Youtube or other learning apps?

"Sometimes. If they are accompanied, they learn, but if they are not controlled, they still lack concentration. Maybe because I was young." (P7, Interview with KK on Friday 22 July 2022).

### **Perspectives on learning through the use of technology and communication tools**

Students' feelings after using technology and communication tools are summarized in the results of the interviews. The statement of students' feelings is one of the considerations that students are not burdened

with following or using technology and communication tools. The learning process that uses information technology, in this case, uses technology as a method of providing information, interactions and facilities to Hakpantria students (2020).

In describing the results of the interview, it is implied that most of the students like to carry out the learning process using technology. Indirectly, the positive impact of using communication technology tools in learning is to increase students' interest in learning. The advantage of cell phones as learning resources is that they can display two, three or four dimensional images and videos with interesting sound. This variation can rarely be attained by students in direct learning that comes only from printed books. The following is a snippet of the entire interview.

*Do you think using technology tools makes learning more fun.*

"Yes." (P9, interviewed by AM on Tuesday 19 July 2022).

"Yes, because we can see many videos and clearer examples with varied images too." (P9, Interview with TP on Tuesday 19 July 2022).

"Not bad. What's fun is when it prompts you to create videos using the application HANDY." (P9, Interview with NCP on Monday 18 July 2022).

"Yes, because we can see many videos and clearer examples with different images too." (P9, Interview with FP on Wednesday 20 July 2022).

The usefulness of mobile phones as a learning resource is also recognized by students. Four of the SDN Inpres 222 Pali students indicated that they enjoy learning using technology and communication tools. This is because of the many features and learning resources on mobile phones that can stimulate interest in learning. Here is his statement.

Do you think that learning with technology and communication tools is very useful today? Tell!

"Yes, because I can learn to understand more." (P10, interviewed by AM on Tuesday 19 July 2022).

"Yes, for now the era is highly developed for the book of Jesus to learn more." (P10, Interview with TP on Tuesday 19 July 2022).

"Yes, because there are very few textbooks."  
(P10, Interview with NCP on Monday 18 July 2022).

"Yes, because now the era is highly developed so that we can learn more." (P10, Interview with FP on Wednesday 20 July 2022).

In addition to the above views, there are also perceptions about the perceived barriers to learning in the age of Industrial Revolution 4.0. The biggest obstacle parents feel is network issues. These problems are especially felt for people living in rural areas. Where the geographic conditions are uneven and the distance between the house and the tower is long, this usually causes problems with the Internet network in rural areas. The following are the results of interviews with informants who are parents of SDN Inpres 222 Pali students.

In your opinion, what are the obstacles/weaknesses in ICT-based learning?

"Maybe it's a problem with the internet network. Sometimes it's not stable, especially when the house is in the village."  
(P8, Interview with KK on Friday, July 22, 2022).

"Mmngg... the problem could be the network. If you don't have data, it must be there, and if the network is bad, you can't use it. (P8, Interview with SSL on Friday 22 July 2022).

"Obstacles ... network how." (P8, Interview with MP on Thursday 21 July 2022).

"That was it. Naughty kids can take advantage of the situation with the excuse of work assignments when in reality they are playing/watching other things. I'm afraid to watch negative films. (P8, interview with YK on Saturday 23 July 2022).

**The results of the survey on parents' understanding of learning in the age of the industrial revolution 4.0**

The results of the Questionnaire on Parental Understanding of Learning in the Age of Industrial Revolution 4.0 were collected using a questionnaire instrument with a total of 10 closed-ended questions. The questionnaire uses a Likert scale with response options of SS (strongly agree), S (agree), N (neutral), TS (disagree) and STS (strongly disagree). Because each answer of the respondent is interpreted in numbers 0-4. Responses SS (strongly agree) are

scored 4, S (agree) 3, N (neutral) are scored 2, TS (disagree) are scored 1, and STS (strongly disagree) are obtained a Score 0.

Then each parent's response to the questionnaire is added together and converted to a scale of 0-100 using the following formula:

$$\text{Skor persepsi} = \frac{\text{skor angket}}{\text{skor maksimum angket}} \times 100$$

Im Folgenden wird der Score der Lernwahrnehmung der Eltern im Zeitalter der industriellen Revolution 4.0 beschrieben.

**Table 1 Description of parents' perceptions Descriptives**

		Statistic	Std. Error
Persepsi orang tua	Mean	72.6596	1.14496
	95% Confidence Interval Mean	Lower Bound	70.3959
		Upper Bound	74.9232
	5% Trimmed Mean	73.5688	
	Median	75.0000	
	Variance	184.8400	
	Std. Deviation	13.59560	
	Minimum	32.50	
	Maximum	95.00	
	Range	62.50	
	Interquartile Range	15.00	
	Skewness	-1.081	.204
	Kurtosis	1.015	.406

Based on Table 1, the average parent perception score is 72.6596, the average is in the high category, which means the average parent generally agrees with the Industrial Age 4.0 learning system that uses information technology for learning. The median of the data is 75 and the standard deviation of the data is 13.5956 with a data variance of 184.840. The lowest score for parental cognition is 32.5 and the highest is 95. The following is the frequency of parental cognition.

**Table 2 distribution of parents' perception frequency**

Skor	Frek	Persentase	Kategori persepsi
0-20	0	0%	Strongly Disagree
21-40	7	5%	Don't agree
41-60	17	12%	Netral
61-80	79	56%	Agree
81-100	38	27%	Strongly agree
Total	141	100%	

Based on the data in the table, 38 respondents or 27% strongly agree with learning to use information technology. 79 respondents or 62% agree with learning in the age of the industrial revolution, 17 respondents or 12% are neutral. 7 respondents or 5% of parents do not agree with learning how to use information and communication technology. The percentage of parents' answers when considering the individual items is described below as an indicator of parental perception of learning in the industrial age 4.0

**Table 3. Percentage of parental perceptions seen by each indicator.**

Indikator	Persentase				
	SSS	S	N	TS	STS
Pemanfaatan teknologi informasi dan komunikasi dalam pembelajaran	56.74%	35.46%	4.96%	2.84%	0.00%
Pemahaman akan cara menggunakan teknologi informasi dan komunikasi dalam pembelajaran	43.97%	47.52%	7.09%	1.42%	0.00%
Prosedur pembelajaran menggunakan teknologi informasi dan komunikasi	26.24%	38.30%	17.02%	14.89%	3.55%
Dimanfaatkan positif yang diwujudkan kriteria pembelajaran menggunakan teknologi informasi dan komunikasi	31.21%	49.65%	17.73%	1.42%	0.00%
Pembelajaran menggunakan teknologi informasi dan komunikasi sebagai motivasi belajar	29.79%	52.48%	16.31%	1.42%	0.00%

Based on the above table, data obtained 56.74% totally agree on the use of information and communication technology in learning, 35.46% agree, 4.96% neutral, 2.48% disagree. 43.97% of parents totally agree and understand the importance of using information and communication technology in today's learning. In addition, 47.52% of parents agree. the remaining 7.09% of parents are neutral or undecided and the remaining 1.42% disagree.

26.24% of parents totally agree and know how to use information technology in learning, 38.3% of parents agree, 17.02% are neutral or unsure, 14.89% of parents disagree and 3.55% of parents totally disagree or do not understand regarding the use of knowledge to use information technology in learning.

Learning how to use information and communication technology in its application has a positive effect. 31.21% of parents totally agree, 49.65% of parents agree, 17.73% neutral, 1.42% disagree. In addition, 29.79% of respondents totally agree with the indicator that learning using information and communication technology provides motivation for learning, also 52.48% agree, 16.31% are neutral, 1.42 % do not agree.

**The results of the data questionnaire on student perceptions of learning in the age of industrial revolution 4.0**

Student perceptions were obtained from the sum of questionnaire results given to students. the same as measuring parental cognition. The student perception questionnaire consists of 10 questions with responses using a Likert scale with response options of SS (strongly agree), S (agree), N (neutral), TS (disagree) and STS (strongly agree). not to). In the following, the data on student learning perception in the industrial age 4.0 are described.

**Tabel 4 Deskripsi persepsi siswa terhadap pembejarandi era industri 4.0**

Descriptives		Statistic	Std. Error
Persepsi_siswa	Mean	73.0420	1.05938
	95% Confidence Interval for Mean	Lower Bound 70.9478	Upper Bound 75.1362
	5% Trimmed Mean	74.2657	
	Median	75.0000	
	Variance	160.488	
	Std. Deviation	12.66837	
	Minimum	27.50	
	Maximum	92.50	
	Range	65.00	
	Interquartile Range	12.50	
	Skewness	-1.571	.203
	Kurtosis	2.793	.403

From the descriptive table, the mean for the students' perception was 73.042 with a 95% confidence level, the lower bound of the mean was 70.9478, and the upper bound was 75.1362. then the average trimmed data is 74.2657. the median of the data is 75, the variance of the data is 160,488, and the standard deviation of the data is 12.66837. the minimum

data value is 27.5 and the maximum value is 92.50. The skewness, or data skewness, is -1.571 and the kurtosis is 2.793. The following is the frequency distribution of student perception data.

**Table 5 Distribution of student perception frequency**

Skor	Frekuensi	Persentase	Kategori persepsi
0-20	0	0%	Sangat Negatif
21-40	7	5%	Negatif
41-60	10	7%	Netral
61-80	86	60%	Positif
81-100	40	28%	Sangat positif
Jumlah	141	100%	

Statistically on the data in the table, 40 respondents or 28% gave very positive results in learning the use of information technology. 86 respondents or 60% are positive about learning in the age of the industrial revolution 4.0, 10 respondents or 7% are neutral. 7 respondents or 5% of the students disagreed and gave a negative answer by learning to use information and communication technology. The following is the percentage of student responses seen by the indicators

**Table 6. Percentage of student perceptions seen from each indicator**

Indikator	Persentase				
	SS	S	N	TS	STS
Pemanfaatan teknologi informasi dan komunikasi dalam pembelajaran	25.87%	55.24%	17.48%	1.4%	0.00%
Pemahaman akan cara menggunakan teknologi informasi dan komunikasi dalam pembelajaran	37.06%	57.34%	4.2%	1.4%	0.00%
Prosedur pembelajaran menggunakan teknologi informasi dan komunikasi	32.17%	43.36%	18.18%	6.29%	0.00%
Dampak positif yang dirasakan ketika pembelajaran menggunakan teknologi informasi dan komunikasi	33.57%	52.45%	9.09%	4.90%	0.00%
Pembelajaran memanfaatkan teknologi informasi dan komunikasi memberikan motivasi belajar	41.96%	48.25%	8.39%	1.4%	0.00%

Based on the table above, 25.87% of students totally agree, 55.24% agree, 17.48% neutral, 1.4% disagree on the use of information and communication technology in learning. 37.06% of students totally agree and understand and use ICT in their learning at this point. Furthermore, 57.34% of the students agree, the remaining 4.2% of the students are neutral or doubtful and the remaining 1.4% disagree.

Regarding learning methods using information and communication technology, 32.17% of students totally agree and know how to use information technology in learning, 43.36% of students agree, 18.18% are neutral or unsure, 6.29% of students disagree or have no

difficulty using information technology in learning.

Learning how to use information and communication technology in its application has a positive effect. 33.57% of the students totally agree, 52.45% of the students agree, 9.09% neutrally, 4.9% disagree. In addition, 41.96% of students totally agree with the indicator that learning with information and communication technology provides motivation for learning, also 48.39% agree, 8.39% neutral, 1.4% agree not to.

### Simpulan

SDN Inpres 222 Pali has guided students and parents to use technology, communication and information tools positively. This has stood the test of time since learning from home during the Covid-19 pandemic and will continue by giving assignments that allow students to think critically and look for sources of answers outside of books. Parents and students understand ways and methods like Zoom from a cell phone/laptop Learning through the use of technology and communication tools has a positive impact on parents and students. The biggest benefit is that it helps students to overcome learning difficulties, e.g. B. completing difficult learning tasks. There are doubts on the part of the parents about the student's policy on the use of mobile phones, namely the fear that children will not learn (play games / watch other videos unrelated to study). The technology and communication tools commonly used by parents and students are mobile phones and laptops. Students can follow optimally when they are supported by teachers and parents. Network issues are a barrier to learning through the use of technology and communication tools.

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#### Profil Penulis

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