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## The blended learning model with online skills on the learning independence of high school students

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### ABSTRACT

The research aims to determine the effectiveness of blended learning management and online skills on student learning independence in the North Tapanuli region. The low learning interaction between teachers and students is caused by restrictions and forcing students to study independently. Therefore, teachers must develop competence by presenting the right model. Teachers have no other choice but to carry out good blended learning management so that learning activities continue. The method in this research is quantitative with the type of ex post facto research, namely comparative causal research. Data collection techniques by distributing instruments in the form of questionnaires to teacher respondents. The population in this study were all teachers in North Tapanuli Regency with a sample of 90 people from 4 schools that were spread out. Data analysis techniques are correlation and regression. The results of the study show that blended learning management and online skills have an impact on student learning independence. The effect of the blended learning model on students' online skills is 52.10%. Conclusion in increasing student learning independence, teachers use blended learning models to the fullest. However, this model must still be supported by the provision of online student skills.



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### Introduction

The emergence of distance learning activities in Indonesia is a policy carried out by the government in striving for the learning and learning process to continue according to expectations from the curriculum that has been planned, even though it is still in a pandemic condition that has not been completed. (Puspitasari, 2018). The government has socialized and given authority to schools and tertiary institutions in using the appropriate APA learning model for the learning process in their schools and tertiary institutions. Taking this policy into account, schools must still pay attention to and understand that the places that have the most potential to cause crowds large so and have a fairly high risk of spreading Covid-19 (Julaha, 2019). The application of online distance learning policies requires students to study independently at their respective homes (V. J. Caiozzo, F. Haddad, S. Lee, M. Baker et al., 2019). This is due to direct interactions that have been carried out so far and must be avoided and can only communicate through digital media (Brooks et al., 2020). However, with the rapid development of technology and the lack of time in adjusting the ability to master technology. In overcoming this the learning process can be done partly online and partly face-to-face but limited (Rasheed et al., 2020). With a learning model like this, students are expected to have their own

initiative to explore different learning resources to gain knowledge according to WHAT the students themselves want and need. This learning process method requires a lot of great responsibility, high self-discipline, and skills in utilizing learning resources (Niemi, 2002). With the implementation of this hope, the learning process is ensured to be effective and run as previously planned.

In measuring the learning independence of students, it can be measured from the process they learn until they get the specified results (Handayani & Ariyanti, 2021). This independence can be seen from the following characteristics: a) having the ability to plan and choose learning materials independently; b) Having initiative and self-motivation without having to be directed; c) is responsible for carrying out his own work; d) critical, logical and open to all; e) have a high sense of self-confidence. With the appearance of a high sense of confidence, it will also generate high enthusiasm in completing the work (Fadhli, 2020). Student learning independence is influenced by several factors including motivation, place of study, learning aids, time availability, economic conditions, and skills in using online media (Jayawardena et al., 2020). Skills in using online media include operating and writing skills in zoom media and Google meet during the learning process. This skill can be acquired by students by independent study, with independent study will have an impact on great curiosity, more critical thinking in decision making, innovation and high self-confidence (Fey et al., 2020). These indicators are important things that must be possessed by students in learning. With social restrictions having a negative impact on students in carrying out independent learning at home. Adult interference in learning for students can have a negative impact on the development of their independent learning. While very limited interaction between teachers and students, it will reduce enthusiasm for independent learning (Grewenig et al., 2021). The motivation that is usually obtained from face-to-face learning is very useful. This is what requires teachers to have the obligation to balance between direct interaction and monitoring developments in online media mastery (Rovai, 2000).

Recognizing the importance of student learning independence, teachers should look for appropriate learning methods to meet current government policies in online and offline learning (Selvaraj et al., 2021). Learning with a new life order requires teachers to make changes by developing basic skills. This is based on the fact that there is an ongoing transition process from the face-to-face learning process method to the online learning process method (Sugiarti, 2020). One choice of suitable method is to combine online and face-to-face learning, which is known as a learning style by combining the two methods which is called the blended learning model. The blended learning model has many advantages, including flexibility, cost-effectiveness, and interactivity (Mali & Lim, 2021). The blended learning application model can be adapted to the current state of students (Yangari & Inga, 2021). Online learning or online learning allows students to access various learning resources online from anywhere they want, anytime and anywhere (Bdair, 2021). This can also be done during direct discussion activities in the classroom face-to-face or online from home. The concept of blended learning management is one of the steps that must be implemented so that quality learning activities are carried out (Dwivedi et al., 2019). Steps that must be done by the teacher is Lapitan et al., (2021): 1) Implement learning plans, 2) material for learning activities based on blended learning, must be able to be discussed in face-to-face and online meetings; 3) It must be in the form of an assessment by the teacher, namely the teacher provides an assessment or assessment, both attitude, knowledge and skills assessment according to the characteristics of blended learning; 4) teachers can implement blended learning management methods, for example carrying out learning activities using hybrid learning methods.

However, in carrying out this learning model, teachers face different obstacles in carrying out blended learning management (Feitosa de Moura et al., 2021). Learning methods are applied suddenly, resulting in them not understanding in depth how the blended learning form of learning management can work well (Gjestvang et al., 2021). Teachers do not have extensive experience with applying this model and little information about the blended learning methods they receive (Chiu, 2021). Teachers in carrying out dominant online learning only give assignments to students without a clear division between material that will be done independently and that which is done during face-to-face learning (Garrison & Kanuka, 2004). Independent learning according to the development of the current technological era requires special skills in obtaining information or sources that can be used in developing the material they will teach (Lavi et al., 2021). Special skills when online provide opportunities for students to be able to define a problem with their own thinking concepts, gather information, analyze it, and freely find solutions to the problem. This skill is particularly useful in today's times as it saves time and money and can obtain information quickly (Sjölje et al., 2021). But the fact is, there is still a gap in the skills of students (Alshwabkeh et al., 2021).

In general, when viewed from its geographical location, students who live in dominant urban areas have the ability to use technology and operate online media properly (Syahrudin et al., 2021). This is supported by the facilities and infrastructure available in the student environment. But on the other hand, skills in using this technology will be seen in rural areas, where students still experience limited facilities and infrastructure, for

example the limited availability of internet access in their environment. In addition, students also need assistance from adults, especially regarding ethical and safety factors in the use of technology (Laksana, 2021). Previous research stated that 21st century skills require online skills in technical aspects, information and communication, collaboration, critical thinking, creativity, and specific skills in solving problems through the use of the latest technology (Yustina et al., 2020). Other research shows that digital skills have a positive effect on the work readiness of the millennial generation in urban areas such as Jakarta (Hendayani, 2019). Interest in learning is also strongly influenced by the ability to operate technology, students who are equipped with good technological knowledge can access various learning resources properly (Sailer et al., 2021).

With a good interest in learning, students will automatically be independent in carrying out learning activities (Lee et al., 2021). In this case, there is a gap between expectations and reality, it is clear that teachers in Tapanuli still need certainty about the right model to use. In theory, it is argued that the blended learning model is very appropriate for use in emergency situations. While the reality on the ground is that not all teachers use the blended learning model, because there is no research that provides certainty about the effectiveness of this model. This study focuses on research to find out how effectively students use online skills with the blended learning model used by teachers to support independent learning processes. Based on the background above, the sub focus that will be examined in this study is whether there is an effect of the management of the blended learning model with online skills on the learning independence of North Tapanuli district students? The purpose of this study was to determine the effectiveness of blended learning management and online skills on student learning independence in the North Tapanuli region. Introduction.

## Method

In this study using a quantitative method with the type of export facto where the research is causal comparative (Harapan et al., 2020). Researchers try to find causal linkages in certain problems. The problem in this research is the link between blended learning management and online skills on students' learning independence. The location of this research was conducted at public and private high schools (SMA) in North Tapanuli Regency, North Sumatra. At the time of testing the instrument was conducted on 20 teacher respondents who were not part of the research sample. The population in this study were all public and private high school (SMA) teachers in North Tapanuli district, with the research sample being teachers who taught at public high school (SMA) 1 and PGRI 20 Si borong-borong, high school Negeri 1 and Negeri 2 Tarutung with a total of 90 teachers who were directly involved as respondents. The data collection technique was by distributing instruments in the form of a questionnaire directly to the respondent's WhatsApp number by making a Google link that had been prepared by the researcher and could be accessed by respondents via cellphone or laptop. The instrument is a statement that has alternative answers as follows: SL = Always (5), S = Often (4), K = Sometimes (3), J = rarely (2), TP = Never (1).

**Table 1.** Validation Instrument

	Pearson Correlation	1
Validation	Sig. (2-tailed)	
	N	94

Based on Table 1 it can be seen that the instrument items on the certified teacher indicator are greater than 0.05. In this sense, all instruments in this study are declared "Valid", because each question item is greater than  $R_{Table}$  Or  $R_{count}$  is greater than  $R_{Table}$ .

**Table 2.** Instrument reliability

Reliability Statistics		
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.849	.910	25

**Table 3.** Learning Independence Instrument Grid

Number	Indicator
1	Have Initiative
2	Have high responsibility
3	Self-Discipline
4	Self-control

All instruments given to teachers in this study were considered reliable because Cronbach's Alpha was greater than 0.7, namely 0.849. The instruments given to teachers can be used to test and standardize in determining the effectiveness, the following are indicators and research grids (Table 3).

**Table 4.** Grid of Blended Learning Management Instruments

Number	Indicator
1	Blended Learning planning management
2	Management of the implementation of Blended Learning
3	Blended Learning learning evaluation management
4	Blended Learning development management

**Table 5.** Kisi-kisi Instrumen Ketrampilan Online

Number	Indicator
1	Information Skills online
2	Intelligence Communicate online (Communication Digital Skills)
3	Media collaboration (Collaboration Digital Skills)
4	Creative (Creative Digital Skills)
5	Problem solving (Problem solving skills)

Data analysis techniques with correlation and regression analysis methods. The variables in this study are blended learning management ( $X_1$ ), Online Skills ( $X_2$ ), and independent learning ( $Y$ ). In this study, researchers conducted a t test (partial test) which aims to find out how significant the independent variable is to the dependent variable with a temporary assumption that the other independent variables are considered constant. Whereas the F test in this study was to determine the effect of all the independent variables contained in the model simultaneously on the dependent variable.

## Results and Discussions

Based on research conducted in North Tapanuli district, from a sample of 4 schools in two different sub-districts, namely state 1 high school and PGRI 20 high school in Si Borong Borong district and Tarutung state 1 and state 2 high school, the data is as follows following. The results of research on aspects of learning independence, blended learning management, and online skills can be seen descriptively in the following table.

**Table 6.** Descriptive Results of Independent Learning, Management of Blended Learning and Digital Skills

Information	Independent Learning	Blended Learning	Online Skills
N	90	90	90
Mean	4,00	3,92	3,81
Range	2,50	2,81	2,76
Std. Deviation	0,47	0,45	0,48
Maximum	4,73	5,03	4,96
Minimum	2,42	2,09	2,05

Based on the descriptive table above it can be seen that the data with the average score obtained by the learning independence indicator shows that, in North Tapanuli district the level of independence of students in learning is quite high, this data obtained a fairly good distribution of data by looking at the standard deviation of 0.47 where the data can be are responsible for the source of the information. By looking at table 4, the blended learning indicator with an average score obtained is 3.92, meaning that the learning model used in North Tapanuli district has been running well and is effectively used for the learning process in the future. The same thing can also be seen in the skills indicator when online, with an average of 3.81, meaning that the skills of students are considered by the teacher to be very good by comparing the assessment of the maximum score given by the teacher on online skills of 4.96 then, the ability of students in the area rural areas are not inferior to the abilities of students in urban areas.

Based on Figure 1, it is known that students who are in the North Tapanuli district have a fairly high learning independence. This can be seen from diagram 1, of the 90 teachers who were respondents there were 34% and 48% who said that the students taught by them were very high and had high independence in learning. This is in line with the average in table 4, which is 4.00 from a maximum scale of 4.73. The blended learning management indicator presents frequency data from teachers who have blended learning management skills in the "very high" category of 29% and high 46%. Or 66%. Even so, there are also teachers

who think that not all students can fulfill the blended learning model, there are 17% in the medium category and 8% in the low category. This can be used as input for education circles to improve and investigate the obstacles of low students in following the blended learning model. In terms of skills when online, students who are in North Tapanuli are rated by the teacher very high and there are 32% and 42% high. This has a positive impact on the progress of education in the North Tapanuli area in dealing with emergency situations such as the Covid pandemic.

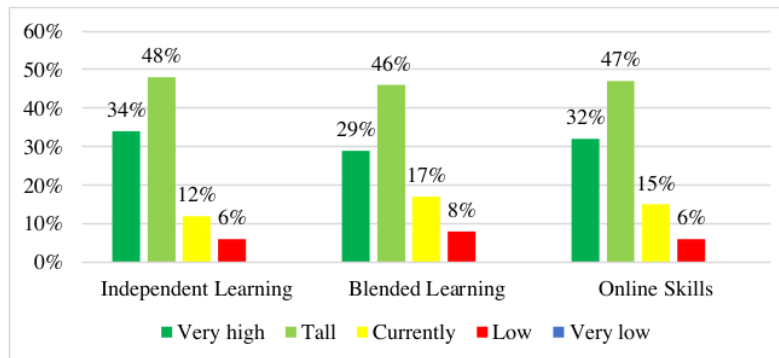


Figure 1. Learning Independence Histogram, Blended Learning and Online Skills

In knowing the effect of blended learning management ( $X_1$ ) and online skills ( $X_2$ ) on student learning independence ( $Y$ ), the researcher conducted a multiple regression analysis test. The results of this multiple regression analysis are shown in the table below:

Table 7. Results of Multiple Linear Regression Analysis  $X_1$  and  $X_2$  against  $Y$

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
Constant	0,476	0,243		1,276	0,051
Blended Learning Management	0,510	0,058	0,476	7,085	0,000
Online Skills	0,488	0,053	0,478	5,067	0,000
Student Learning Independence	0,521	0,051	0,467	6,890	0,000

Based on the results of multiple linear regression tests as shown in the table above, that the significance of the Blended Learning Management variable ( $X_1$ ) is  $0.000 < 0.05$ , and  $t_{\text{count}} 7.0853 > t_{\text{table}} 1.984$ , this can be interpreted that  $H_0$  is rejected and  $H_1$  is accepted which means that there is a significant influence of the blended learning management variable in the implementation of learning conducted by teachers in the North Tapanuli district on high school level students with an effect of 51.0%. On the online skills indicator, a significance of  $0.000 < 0.05$ , and  $t_{\text{count}} 5.0657 > t_{\text{table}} 1.984$  is obtained, this can be interpreted as  $H_0$  being rejected and  $H_1$  being accepted. This means that there is a significant influence of students' online skills on learning independence. The effect is 48.8%. The results of the F test analysis with blended learning management variables ( $X_1$ ) and online skills ( $X_2$ ) on student learning independence ( $Y$ ) obtained a significance of  $0.000 < 0.05$  and the calculated  $F_{\text{value}}$  of  $68.90 > F_{\text{table}} 2.32$ , this is it can be interpreted that  $H_0$  is rejected and  $H_1$  is accepted, which means that the teacher's blended learning management model ( $X_1$ ) and online skills ( $X_2$ ) have a relationship to student learning independence ( $Y$ ) with a variation in  $Y$  of 52.10%.

From the results of the descriptive analysis, it can be seen that the learning independence of high school students in the North Tapanuli region shows that 34% is very high and 48% is high. This was assessed by the teachers who taught and from 90 teacher respondents, only 6% had a low opinion of independence study high school in North Tapanuli and the remaining 12% are moderate. This certainly has a positive impact on the development of education in the area, especially in the North Tapanuli region, North Sumatra which is classified as far from urban areas. This finding refutes previous findings which say that independent learning is dominantly carried out by participants students who are in urban areas (Soesilo et al., 2022). These findings show the independence of students through initiative, responsibility, discipline and self-control as well as skills that are continuously honed through the digital media they have. This independence can be achieved because of the direct impact of government policies that enforce learning from home during the Covid pandemic,

when at that time they were not allowed to leave the house to carry out the learning process at school or were prohibited from working in groups with friends. The online learning method causes teacher-student interaction to be very low so that the opportunity for teachers to participate in directing students is very limited. In the online learning process, the tasks carried out by the teacher are more dominant so that students have their own initiative to explore the subject matter being studied. Learners consciously do the tasks given by the teacher. Through owned facilities such as textbooks or smartphones are used to access various learning resources with discipline. Discipline of students through their learning activities can be seen from the completion of assignments given on time (Chulsum, 2017).

The teachers when giving material and assignments to students by limiting time, this is considered necessary to know the seriousness of students and to keep students disciplined. The students enthusiastically completed the assignments given according to the time limit agreed by both parties. These assignments are collected in person and through social media that the teacher has made links to collect student work. The students realize that learning process activities like this are done for their own good, their future and to overcome the spread of epidemic diseases. With this self-awareness, students are very concerned and try to achieve maximum learning results. Nonetheless, this study noted that the learning outcomes obtained by students were still low in some materials, such as some materials in mathematics, physics and chemistry. Students in terms of exact lessons, are still not able to study independently and are simply let go by the teacher. They are still very dependent on the topic and the way the teacher designs the learning given by the teacher to them. In addition, the level of confidence to solve problems in learning activities is in a fairly good category. If students do not take part in the lesson at the scheduled meeting, they usually try to find other sources, but to ensure their understanding of the material is still in doubt. It was also found in this study that some of these students did not submit assignments given by the teacher. To overcome this, the teacher creates a special strategy to adapt to the problems faced by students. They can apply problem-based learning methods so that students can be more independent in planning and carrying out their learning activities. Their self-confidence can be boosted by giving students more opportunities to communicate what they have learned. This is in line with previous research, that communication can expedite the learning process (Azizah & Widjajanti, 2019).

The results of the descriptive analysis of blended learning management variable data show that teachers in the North Tapanuli region have implemented this model well so that the expected learning objectives can be achieved. Blended learning management is integrated learning between face-to-face and online learning carried out by teachers which includes learning planning, implementation, assessment and development activities. At the learning planning stage, the teacher, through routine activities carried out at school, compiles an annual program and a semester program which will be carried out at the beginning of the school year. Make a semester program as a plan for the next semester's activities to be carried out by the teacher for time management and implementation management. The teacher determines the day and week effectively, based on calculations in the educational calendar by compiling a blended learning curriculum and lesson plan (RPP) so that learning material can be implemented according to the time agreed by the teacher and school principal. The teacher prepares a blended learning-based learning implementation plan as a reference in carrying out learning activities, prepares online and offline learning materials so that each student can easily access them through the links that have been prepared, makes a list of material sites to be studied, and divides topics to be even better in a structured and continuous manner.

As well as planning supporting facilities by preparing learning media that are of interest to students such as Google meet and media zoom. Implementation of the learning process includes opening, core, and closing activities. Teachers interact with students and integrate online learning and face-to-face learning. Planned learning is carried out by the teacher in learning activities. Opening activities such as saying greetings, praying, checking student attendance. Furthermore, in the main learning activities, the teacher conveys topics with methods, learning aids with learning media prepared beforehand. In this activity, the teacher builds communication through interaction, gives problem-based assignments to students to work on independently via the WhatsApp group, directs students to conduct studies on certain topics, and holds virtual or face-to-face meetings in class for discussions. Then in the closing activity, the teacher and students draw conclusions about the topic. The teacher provides continuous reinforcement and assistance to students by providing guidance and solutions to those who find it difficult to understand the subject matter. The teacher always facilitates interactions between students such as greeting kindly at every meeting and inviting them to be active in discussions and always providing feedback in every discussion session. At the learning assessment stage, high school teachers in the North Tapanuli region provide an assessment of the results of student learning activities at the end of each subject both online and offline. Evaluation is carried out by providing an assessment of attitudes, knowledge and skills during face-to-face learning in the curriculum. Evaluation is carried out continuously and planned to find out progress and deficiencies in the learning process by providing continuous remedial to students who have not achieved the minimum completeness criteria (KKM) in each subject topic.

This is proven, many teachers get appreciation with one proof, students are active in carrying out online and offline learning activities. At the learning development stage, teachers use Google Classroom, zoom, google meet and through WhatsApp the development of learning process management. The teacher organizes blended learning-based learning activities where students can participate face-to-face or virtually through proximity, Google meet at the same time. In the skill variable with descriptive analysis it is known that the teacher gives an assessment of the instrument by 32% and 47% in the very high category and the students' ability to operate media online is high. This data provides information that the abilities of students in the North Tapanuli region are very proficient in using online media. These digital skills can be seen from students' skills in using digital devices to learn, communicate digitally, collaborate digitally, and develop creativity by creating digital content and solving problems related to digital technology that they have used so far in finding answers to questions that arise in their minds. Students' skills in using digital information are very good. They can search for the topics they need from online sites. The data they get can be stored in their own computer folder which they can access when they need it again. In online learning activities, they use these skills to share information in solving a problem encountered from the assignment given by the teacher.

Technology that connects teachers and students is constrained by regulations made by the government because the covid factor is no longer an obstacle for them to learn more. They prove this by being able to communicate through voice calls, video calls, and messages sent via Google Meet and Zoom. Group assignments given by the teacher can be carried out collaboratively through an active virtual world. With the skills they have, they create digital content such as making learning videos and things that become projects or assignments that the teacher gives to students. This can hone student creativity with one proof, students are more confident and have a lot of time and sources of information obtained online. However, the results of this study also show that at points in problem solving. Some of the students got scores below the average. Some students experience obstacles in operating the media used during the learning process. About 8% of teachers think that the students they teach experience difficulties. This happens because the condition of students who are not evenly distributed in owning electronic devices such as hempon and laptops. In this case, the teacher must be able to provide solutions to the difficulties faced by students when online learning is carried out.

Teachers must be able to direct students who have difficulty using technology at home or around the house, or invite other students to help each other by lending their communication tools. Based on the results of the t-test analysis, it is known that the learning model with blended learning has a significant effect on the learning independence of students. Generating self-directed learning requires that each learner has a well-planned and modifiable strategy. Teachers can organize blended learning very well. Even though this online learning method is implemented, the teacher is sufficient in its implementation. Teachers can design quality learning, organize learning, and make assessments that are appropriate to the circumstances and conditions of students. Good learning planning starts with preparing a learning implementation plan using a blended learning model, and choosing learning media that is appropriate to the subjects to be taught and adapts to the circumstances of students. With this plan, the teacher is more focused on carrying out each stage of the implementation of learning, has more control over the subject matter, and is more responsive to any problems that arise in learning activities. Teachers can carry out the process of implementing learning using an online blended learning model. The teacher distributes study material through the WhatsApp group application or google classroom well before the learning process begins.

In the initial stage the teacher provides a learning implementation plan (RPP) and is followed by briefly providing topics and material by giving students the opportunity to discuss problems and difficulties. The teacher also prepares the rubric provided by the teacher which includes an assessment covering cognitive competence in the form of student worksheets which are collected via the prepared link. Skills assessment is carried out through products produced by students such as creating digital content or other products made by students at home. Situation assessment is carried out by involving students in learning activities or completing assignments appropriately according to the allotted time. The results of the data analysis show that students' digital skills have a significant effect on learning independence. With this method they can learn according to their circumstances. They can access various learning resources from their devices independently with a little guidance from the teacher. Various applications that are available for free support their creativity in creating digital content related to their studies, for example making tutorials on making a product. The ease of content sharing allows them to collaborate on an issue or create content either as assignments given by the teacher or on their own initiative. They can also find colleagues with the same talent without being limited to one school but on a larger scale so that they can share ideas and creativity.

The management of blended learning and digital skills has a significant impact on student independence. Teachers who are able to apply blended learning planning well will be able to organize fun and challenging learning for students. Sharing material studied offline and material studied online will be more sustainable.



Online learning provides opportunities for students to explore material without limits, whereas in offline learning, teachers can directly check the achievements and progress of each student. The teacher can also provide reinforcement of the material that has been delivered. If the Blended Learning Department is supported by good numerical abilities, students will support each other to increase student learning independence. Students focus more on studying the topic of the lesson, and it's easy to get good references for the lesson. Obstacles and difficulties faced by students can be found a solution right away by discussing together. The implications of this research can be used as input, reference and discourse on student learning independence in managing blended learning and students' digital skills. By having good digital skills and supported by good education management, student learning independence will also increase so that the impact on improving the quality of education is getting better. In the administrative aspect of blended learning, teachers should provide more intensive guidance to students who experience difficulties in online learning activities by providing lists and recommendations of trusted learning resources to focus more on exploring topics.

## Conclusions

Learning management using the blended learning model conducted by teachers in the North Tapanuli district has a positive impact on the learning independence of students at the senior high school level. A well-designed and implemented blended learning model will generate interest and provide motivation for students in the independent learning process. The independent learning process will have a positive impact and value for the expected improvement in quality and education. The skills of students when online have an impact on increasing students' interest in learning independently. With these online skills, students have more time to find sources of information to answer questions from the teacher, this makes students more developed and faster in solving problems they face.

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