THE EFFECT OF JIRE'S COLLABORATIVE LEARNING MODEL BASED ON SMART APPS CREATOR ON STUDENT LEARNING OUTCOMES AND STUDENTS' CHARACTER ON PHYSICS LEARNING AT SMALL HIGH SCHOOL IN BONE BOLANGO DISTRICT

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This study shows that there is an influence of the Jire collaborative learning model based on smart apps creator on student learning outcomes. This is based on the t test using simple linear regression on the SPSS version of the application with a significance level of 0.000-0.05, it can be stated that there is a positive influence between the Jire Collaborative Learning Model Based on Smart Apps Creator on student learning outcomes. In addition to the t test, the F test (Anova) was used and it resulted that there was a significant effect between the collaborative learning model based on smart apss creator and the effect on student learning outcomes with the F-count greater than the F-table (FF,67,364>3.93). There is an influence of character on student learning outcomes. This is based on the t-test using simple linear regression on the SPSS version 16 application with a significance level of 0.000-0.05, it can be stated that there is a positive influence between characters on student learning outcomes. In addition to the test, the F test (Anova) was used and it resulted that there was a significant effect between characters on student learning outcomes with F-count greater than F-table (FF, 38.778 > 3.93). Students This is based on the t test using simple linear regression on the SPSS version 16 application. With a significance level of 0.000 0.05, it can be stated that there is a positive influence between the Jire collaborative learning model based on smart apps creator and character on student learning outcomes. In addition to the t-test, the F test (Anova) was used and it resulted that there was a significant effect between the jire collaborative learning model based on smart ass creator and the character had an effect on student learning outcomes with the F-count greater than the F-table (F-F-48,577 >3.93)

INTRODUCTION

The target of the educational process is not just the intellectual development of students by supplying as much knowledge as possible, more than that, education is a process of giving understanding, understanding, and appreciation to the practice that is known. Thus, the highest goal of education is the development of the personality of students as a whole by changing the behavior and attitudes of students from negative to positive, from destructive to constructive, from bad character to noble character, including maintaining the good character it bears. 2014:30).

Permendikbud No. 65 of 2013 concerning Standards for Primary and Secondary Education, states that the learning process in educational units is held interactively, inspiring, fun, challenging, motivating students to participate actively, and providing sufficient space for initiative, creativity and independence according to their talents, interests. and the physical and psychological development of students. For this reason, each education unit needs to carry out

learning planning, implementation of the learning process and assessment of the learning process to improve the efficiency and effectiveness of the achievement of graduate competencies. In order to achieve this, the learning process needs to be well planned and supported by valid, practical and effective learning tools that can be obtained through development research (Fatmawati, 2016:94).

One of the goals of national education is an effort to educate the nation's life. Without a good education, it is difficult for the Indonesian people to achieve a bright, peaceful and prosperous future (Mulyasa, 2008: 4). Physics is one of the subjects associated with the intelligence of the nation which has a major role in supporting science and technology, thus inspiring educators to be able to design and implement education that is more focused on mastering the concepts of physics that can support everyday life. Efforts made by the central government to achieve national education goals include equipping school facilities, perfecting strategies that can be used to be implemented in the classroom, conducting teacher certification which aims to support the implementation of good education and improving the curriculum from KBK in 2004 to KTSP in 2006 (Chodijah Etc., 2012: 2).

In 2013 the government refined the curriculum from KTSP to the 2013 curriculum. Learning in the 2013 curriculum demands the activeness of students in the learning process and is student-centered. One of the skills that need to be developed at this time is problem solving skills. Problem solving skills can be trained if supported by learning that can encourage students to actively seek solutions to the problems given. Therefore, learning tools are needed that support in practicing problem solving skills. These learning tools can be in the form of a syllabus, lesson plans (RPP), student worksheets (LKPD), evaluation instruments or learning outcomes tests (THB), learning media, and student textbooks (Mizan and Badrun, 2014:52).

Teachers play an important role in efforts to improve the quality of education related to their main duties and functions as educators. To organize active, creative, effective and fun learning, teachers need to design lesson plans, choose varied learning models, interesting media, and good evaluation tools. A teacher carries out the learning process in the classroom first by preparing a learning model that is in accordance with the available learning tools (Chodijah et al, 2012: 2).

Based on the results of observations, the problem faced is the problem of the weakness of the learning process. In the learning process in the classroom, it only focuses on the teacher and students become passive, the teacher has not implemented the learning model used during the learning process. The result of these problems is the low learning outcomes of physics with an average value of 50 with a score that must be achieved 70 and the lack of cooperation between students in the learning process.

The concept of collaborative learning is a learning method that has the potential to meet that problem, and can offer a way of solving how these problems can be solved by involving the participation of related students collectively in a group. Groups of learners like this carry out collaborative learning according to their respective competencies (Ntobuo, 2018: 2). The Jire collaborative model has been tested at the higher education level and concluded that the model is valid, practical, and effective in learning activities so that it is suitable for use in higher education.

Based on this, researchers are interested in developing learning tools using a collaborative model of jire and will be tested for quality at the high school education level. This jire collaborative learning model can be used at high school education level because students are trained to work together, further according to Ntobuo (2018) jire collaborative learning makes it easier for students to work together, foster each other, learn and change together, contribute ideas and be responsible for each other. towards the achievement of learning outcomes, and progress together as well. This is the philosophy that the global world needs today. If different people can learn to work together in the classroom, in the future these high school students are expected to become better citizens for their nation and country, even for the whole world. It will be easier for them to interact positively with people with different mindsets.

RESEARCH METHODS

This research is an experimental research involving several research variables. This research is an experimental study using the Pre-Experimental Design research method in the form of One-Group Pretest-Posttest Design. According to Sugiyono (2016: 110), this design has a pretest before being given treatment. Thus the results of the treatment can be known more accurately, because it can compare with the situation before being treated.

The dependent variable or dependent according to Sugiyono (2012: 33) is a variable that is influenced or that becomes a result, because of the independent variable. The dependent variable in this study is the character of student learning outcomes based on Bloom's Taxonomy, namely:
a. Knowledge, which is defined as the memory of previously studied materials or materials.
b. Comprehension, which is defined as the ability to absorb the meaning of the material or material being studied.
c. Application, which is defined as the ability to use what has been learned in new real (concrete) situations.
d. Analysis, which is defined as the ability of students to be able to solve the problems found in the material.
e. Synthesis, which is defined as the ability to form a new pattern in the learning process.
f. Evaluation, which is defined as the ability to be able to form opinions about several things in learning based on criteria or statements.

According to Sugiyono, (2012: 33), the independent variable or Independent is a variable that affects or is the cause of the change or the emergence of the dependent variable (bound). The independent variable (X) in the study is a collaborative learning model based on smart apps creator which is used as a treatment in each experimental class

The moderator variable is a variable that affects (strengthens and weakens) the relationship between the independent and dependent variables (Sugiyono: 62). The moderator variable in this study is the student's character. The student's character as the moderator variable is intended to analyze the interaction between the learning model and student learning outcomes. Student character is a student personality that is formed from learning outcomes that show the values of honesty behavior, namely an attitude that always gets used to being trustworthy in words, actions, and work, responsibility, namely the attitude of students related to carrying out the tasks that have been given and is an obligation. that must be carried out, discipline is the attitude of students who always obey the rules and regulations that apply in schools relating to compliance, and cooperation is an attitude that shows a sincere effort in completing tasks or working and solving problems as a group, which is used as a basis for ways of looking, thinking, behaving, and behaving students.

The population in this study is high school in the city of Gorontalo which consists of 7 (seven) high school schools. The sample is the part taken from the population (Sudjana, 2006: 6). The sample is part of the number and characteristics possessed by the population (Sugiyono, 2013: 118). Based on this description, the sampling technique in this study is purposive sampling.

RESULTS AND DISCUSSION

In this study, the quantitative data analysis used is a test or measurement of the validity and reliability of an instrument. The descriptions related to these tests are as follows.

a. Instrument Validity and Reliability Test

1) Validity and Reliability of Jire Collaborative Learning Model Instruments Based on Smart Apps Creator

To test the validity of the instrument, analysis was used with SPSS version 16. The Jire Collaborative Learning Model Instrument Based on Smart Apps Creator is a questionnaire given to 30 respondents with a total of 15 questions.

For the level of validity, a significance test was carried out by comparing the calculated r value with the r table value. For degree of freedom or degrees of freedom (df) = n-k in this case n is the number of samples and k is the number of constructs. In this study, the magnitude of df can be calculated as 30-2 or df = 28 with an alpha of 0.05 obtained r table 0.36; if r count (for each question item can be seen in the corrected item total correlation question column) is greater than r table and the value of r is positive, then the question item is said to be valid. The results of the validity of the instrument can be seen in the following table.

Table 4.1 Test Results of the Validity of Jire Collaborative Learning Model Instruments Based on Smart Apps Creator

Question Items	Pearson Correlation	r table	Info
Item 1	0,64	0,36	Valid
Item 2	0,67	0,36	Valid
Item 3	0,66	0,36	Valid
Item 4	0,47	0,36	Valid
Item 5	0,63	0,36	Valid
Item 6	0,65	0,36	Valid
Item 7	0,32	0,36	Invalid
Item 8	0,42	0,36	Valid
Item 9	0,33	0,36	Invalid
Item 10	0,66	0,36	Valid
Item 11	0,67	0,36	Valid
Item 12	0,68	0,36	Valid
Item 13	0,56	0,36	Valid
Item 14	0,67	0,36	Valid
Item 15	0,69	0,36	Valid

Source: Processed SPSS output: 2022

The calculation results for testing the validity of the questionnaire using the SPSS version 16 application obtained 13 questions or 87% were declared valid.

a) Instrument Reliability Testing

Reliability is related to the level of trust. The instrument is said to be reliable if it gives steady or steady results when used many times. The reliability in this study uses the SPSS version 16 application. The level of reliability is measured based on an alpha scale of 0 to 1. According to Suharsimi Arikunto (2006: 108) is interpreted with the level of instrument reliability, the following criteria are used.

Table 4.2 Interpretation of Instrument Reliability Coefficient

Reliable Index	Qualification Results
0,91 − 1,00	Very high
0,71 − 0,90	Tall
0,41 − 0,70	Currently
0,21 − 0,40	Low
0,00 − 0,20	Very low

Source: Arikunto (2006: 108)

Based on the calculation, the instrument reliability value r11 = 0.82 with a high result qualification was obtained.

1) Validity and Reliability of Student Character Instruments
a) Instrument Validity Test

Testing the validity of the student character instrument was used in 2 forms of testing, namely expert validity and content validity. The validity of the expert was validated by 3 lecturers and concluded that the general assessment was very good. The content validity of the student character instrument used an observation sheet given to 30 respondents with a total of 9 questions.

For the level of validity, a significance test was carried out by comparing the calculated r value with the r table value using the Bivariate Correlation formula in the SPSS version 16 application. For degree of freedom (df) = n-k in this case n is the number of samples and k is the number of constructs. In this case the magnitude of df can be calculated as 30-2 or df = 28 with an alpha of 0.05 obtained r table 0.36; if the calculated r (for each question item can be seen in the Pearson Correlation column of the question item) is greater than the r table and the r value is positive, then the question item is said to be valid. The results of the student character instrument validity test can be seen in the table below.

Table 4.3 Result of Student Character Instrument Validity Test

Question Items	Pearson Correlation	r tabel	Info
Item 1	0,61	0,36	Valid
Item 2	0,63	0,36	Valid
Item 3	0,68	0,36	Valid
Item 4	0,47	0,36	Valid
Item 5	0,59	0,36	Valid
Item 6	0,69	0,36	Valid
Item 7	0,39	0,36	Valid
Item 8	0,41	0,36	Valid
Item 9	0,39	0,36	Valid

Source: Processed SPSS output: 2022

The calculation results for testing the validity of the questionnaire using the SPSS version 16 application obtained 9 questions or 100% declared valid.

a) Instrument Reliability Testing

The reliability of this student character instrument was calculated using the SPSS version 16 application. The level of reliability was measured based on an alpha scale of 0 to 1. Based on the calculation, the instrument reliability value was r11 = 0.63 with a moderate result qualification in accordance with the interpretation of the instrument reliability coefficient in table 4.2.

1) Validity and Reliability of Student Learning Outcomes Instruments

a) Instrument Validity Test

Testing the validity of the student learning outcomes test is used in 2 forms of testing, namely expert validity and content validity. The validity of the expert was validated by 3 lecturers and it was concluded that the general assessment was good. The content validity of the test instrument for student learning outcomes used an observation sheet given to 30 respondents with a total of 15 questions.

For the level of validity, a significance test was carried out by comparing the calculated r value with the r table value. For degree of freedom (df) = n-k in this case n is the number of samples and k is the number of constructs. In this case the magnitude of df can be calculated as 30-2 or df = 28 with an alpha of 0.05 obtained r table 0.36; if the calculated r (for each question item can be seen in the Pearson Correlation column of the question item) is greater than the r table and the r value is positive, then the question item is said to be valid. Testing the Normality of Data between the Jire Collaborative Learning Model Based on Smart Apps Creator and Student Learning Outcomes

If the test of normality table using the Kolmogorov-Smirnov sig value > 0.05, then the data is normally distributed. The normality test in this study can be seen in the following histogram image.
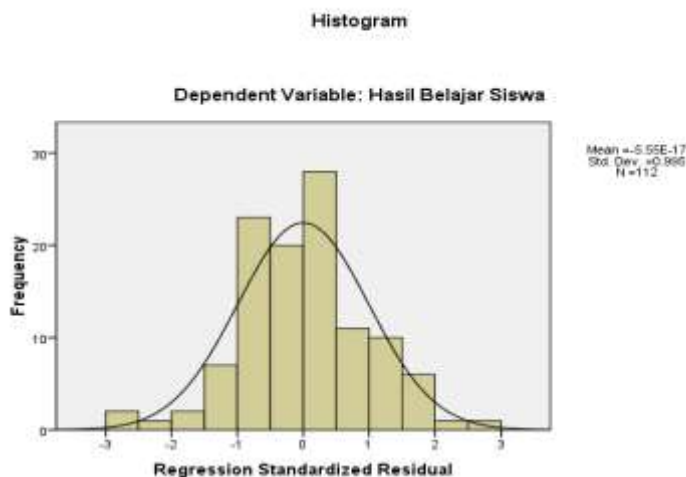
Figure 4.1 Normality test histogram graph between variables X1 (Jire Collaboration Based Learning Model on Smart Apps Creator) and Y (Student Learning Outcomes) (source: Processed SPSS Output: 2022)

Based on the histogram graph, the residual data has shown a normal curve that forms a perfect bell. Likewise, on the normal P-P plot the residual data distribution is not yet a normal line (straight line). To further ensure that the residual data has followed the assumption of normality, then the residual data is tested again using the Kolomorov Smirnov test. In the table above, the Kolomorov Smirnov test shows that the residual data obtained follows a normal distribution, based on the output results, the Kolmogorov-Smirnov value is significant at 0.552 > 0.05. Thus, the residual data is normally distributed.

a. Testing the Normality of Data between Student Characters and Student Learning Outcomes

If the test of normality table using the Kolmogorov-Smirnov sig value > 0.05, then the data is normally distributed. The normality test in this study can be seen in the following histogram image.
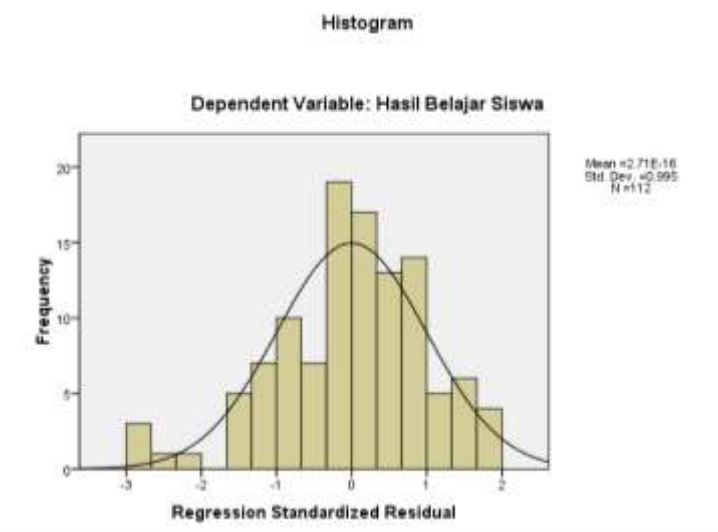

Figure 4.3 Normality test histogram graph between variables X2 (Student Character) and Y (Student Learning Outcomes) (source: Processed SPSS Output: 2022)

Based on the histogram graph, the residual data has shown a normal curve that forms a perfect bell. Likewise, in the normal P-P plot the residual data distribution is not yet a normal line (straight line). To further ensure that the residual data has followed the assumption of normality, the residual data is tested again using the Kolomorov Smirnov test. In the table above, the Kolomorov Smirnov test shows that the residual data obtained follows a normal distribution, based on the output results, the Kolmogorov-Smirnov value is significant at 0.319 > 0.05. Thus, the residual data is normally distributed.

DISCUSSION

The purpose of this study was to determine the influence between the independent variable and the dependent variable. In this study, there are two independent variables, namely the Jire Collaborative Learning Model based on Smart Apps Creator (X1) and student character (X2), while the dependent variable is student learning outcomes (Y) on Momentum and Impulse material. The sample in this study were students of class X IPA 1 and X IPA 2 at Senior High School1 Suwawa.

In this study an instrument is needed to measure the effect of one variable on another variable. The instrument for the Jire Collaborative Learning Model based on Smart Apps Creator requires a closed questionnaire instrument that is given to each respondent. As for the student character instrument, a character observation sheet is used which is observed directly by two observers at each learning meeting. learning is given to all respondents after being given treatment.

Before the instruments are used, validation is carried out to state that the instruments are valid for use. In this study, validation was carried out in 2 (two) forms of testing, namely testing with expert validity, namely 3 (three) lecturers who stated that the instruments the instrument is good for use and testing with content validity given to 30 respondents.

For content validity, the results of the content validity test of the questionnaire instrument given to 30 respondents stated that out of 15 statement items, there were 13 statements declared valid. The results of the content validity test of the student character observation instrument stated that all statements (9 items) were declared valid, while for the validity of the student learning outcomes test instrument, 14 items were declared valid.

In addition to testing the validity, these instruments were tested with reliability testing. Instrument reliability testing aims to see the consistency of an instrument. In this study, the reliability test for the questionnaire instrument resulted in a value of $r_{11} = 0.82$ with a high result qualification and the character observation instrument reliability test had a value of $r_{11} = 0.63$ with a moderate result qualification, while for the reliability of the student learning outcomes instrument, it yielded a value of $r_{11} = 0. .83$ with a High qualifying result. From this explanation, the instruments used in this study are valid and reliable.

Before testing the hypothesis, it is first tested requirements. Testing requirements in this study is testing the normality of the data. Testing the normality of the data aims to test the normality of the research sample. Testing for normality in this study uses the Kolmogrov-Smirnov (One Sample KS) testing technique with test criteria. If the value of sig > 0.05 then the data is normally distributed. Based on table 4.5 and table 4.6, it can be concluded that the data is normally distributed because the value of sig > 0.05 (0.552 > 0.05 and 0.319 > 0.05).

After the test requirements are met, then the hypothesis can be continued. The hypothesis testing in this study used the t test (simple linear regression), F test (Anova) and the Coefficient of Determination (Adjusted R Square). The results of the first hypothesis testing showed that there was an effect of Jire's Collaborative Learning Model Based on Smart Apps Creator on student learning outcomes. This is based on the t test using simple linear regression on the SPSS version 16 application which has a significance value of 0.000, it can be stated that there is a positive influence between the Jire Collaborative Learning Model Based on Smart Apps Creator on student learning outcomes. In addition to the t test, the F test (Anova) was used to find a significant effect between the Jire Collaborative Learning Model Based on Smart Apss Creator and the effect on student learning outcomes with F-count greater than F-table ($F_h > F_t = 67.364 > 3.93$).

The results of testing the second hypothesis indicate that there is an influence of character on student learning outcomes. This is based on the t test using simple linear regression in the SPSS version 16 application which has a significance value of 0.000, it can be stated that there is a positive influence between characters on student learning outcomes. In addition to the t test, the F test (Anova) was used to find a significant effect between characters on student learning outcomes with F-count greater than F-table ($F_h > F_t = 38.778 > 3.93$).

The results of testing the third hypothesis indicate that there is an effect of Jire's Collaborative Learning Model Based on Smart Apps Creator on Student Character. This is based on the t-test using simple linear regression on the SPSS version 16 application which has a significance value of 0.000, it can be stated that there is a positive influence between the Jire Collaborative Learning Model Based on Smart Apps Creator on the character of students. In addition to the t test, the F (Anova) test was used to find a significant effect between the Jire Collaborative Learning Model Based on Smart Apss Creator which affected the character of students with an F-count greater than the F-table ($F_h > F_t = 17.790 > 3.93$).

The Jire collaborative learning model has several advantages, namely: (1) Increasing students' self-confidence; (2) Learners are more active; (3) Improving students' learning motivation; (4) Can understand the material more quickly and effectively; (5) The expert group mastered the correct topic; (6) Have the perception of the correct answer and the same in one group; (7) Learning to teach peers; (8) Improving social relations between students in groups. In addition to the advantages that have been described, the Jire collaborative learning model has several drawbacks, namely in the distribution of material to students. If the number of members in each group As long as the number is not the same, then what usually happens in one group is that there are more than one student who discusses the same material. Another drawback is the speed of each student to solve problems in the different home groups, so there is a situation where some students have completed their assignments while other students have not completed the task, if limited by time, the task tends to be completed entirely during discussion in the expert group, This can be minimized by continuing to motivate students to be able to complete their assignments ejNts in the home group.

However, if the time given is still sufficient, then in one group there will be a condition where some students are still working on the practice questions while students who have finished working on the questions will usually do other activities that could disturb their group mates. This can be overcome by motivating students who have finished doing the exercises to understand more deeply the material because it will explain the results to the expert group later (Ntobuo, 2018: 183).

Collaboration is one way to be able to carry out the learning process more focused on learning objectives because the collaborative system provides opportunities and flexibility for students in their groups to study and find problems that exist through their respective LKPD which is then given the task of each student to discuss and state. opinions related to the material being taught with the help of guidance from educators. Each group member is given the task and responsibility to examine the existing problems and then gather in the expert group to discuss the existing problems so that the results are obtained which become a joint decision to be conveyed back to the original group. The advantage of the collaborative learning model is that it provides opportunities for students to be able to work together, respect the opinions of fellow groups, give responsibility to each student to discuss with friends in expert groups to get a conclusion on the problems given so that this will become a concept. concrete skills possessed by the students with the help of the teacher.

Jire Collaborative Learning Model Based on Smart Apps Creator is one model that provides opportunities for students to be able to express ideas or opinions in the original group which then becomes one of the group representatives in the expert group. Armed with material and explanations given by the teacher, the role of the participants Students in the expert group are very important because they can find solutions to the problems given and then the results from the expert group are conveyed back to the home group. This model also directs students to be able to work together and respect the opinions of group members. A sense of pleasure will be seen from students when expressing their opinions because of mutual respect from other students and teachers. One of the advantages of this model is that it is assisted by Smart Apps Creator where this application is very easy to use and contains learning support materials that are packaged in audio visuals making it easier for students to understand the material presented. This application is also very supportive of the learning process because this application can be used online or offline. Students can see the material delivered wherever they are so that this is a positive impact on students to better understand each material presented. This understanding of the material presented is one of the supporting factors for improving student learning outcomes. Students who are taught by using This learning model is interested in continuing to develop and know in depth related to the material provided, can learn anywhere and the application is very easy to use.

The advantages and disadvantages of an application are very diverse and not the same, as well as Smart Apps Creator. Smart Apps Creator is a multimedia application that is designed to be capable and able to create interactive learning based on android and without coding. Smart Apps Creator can be used both in the online learning process (in the network) and offline (outside the network). The use of Smart Apps Creator is highly recommended in learning or teaching activities in the classroom, considering that currently students are in the world of technology that allows every student's daily activities to use mobile phones/androids, including studying. Some of the advantages and disadvantages of Smart Apps Creator are:

Pros: Practical and easy to use, without coding or without programming applications so it is very easy to enter materials and images and create navigation buttons or instructions and menus, the learning outcomes are very interactive so that students don't get bored easily, the file size used does not require memory or specifications Very high HP, the features in the learning process can be made by the teacher themselves and enough for learning materials, the features in it are in the form of icons so they only need a small capacity to make them, it's easy to make animations in the form of give or others, the appearance is very simple and cool depending on the creativity of the educator who made it and can be saved with results for android and HTML 5 devices and can export projects to HTML 5 and doesn't require too much storage space (RAM). While some of the drawbacks are trial nature, because it can only be used within a month or 30 days unless you have purchased a license, the features provided are still limited, the use of Indonesian language has not been inputted in it so that the only language used in making learning materials is English. , and can only make simple applications related to learning materials

Thus, the Jire Collaborative Learning Model Based on Smart Apps Creator is very influential on student learning outcomes and on student character. This is because in the learning process, students learn by following technological developments, namely learning by using smart phones (android) which results in changes in students' character in a more positive direction in terms of using smart phones (android) and can also affect the level of mastery of material or learning outcomes. student.

CONCLUSION

Based on the analysis of data from the results of the study, researchers can draw the following conclusions:

1. There is an influence of the Jire collaborative learning model based on smart apps creator on student learning outcomes. This is based on the t test using simple linear regression on the SPSS version of the application with a significance level of 0.000-0.05, it can be stated that there is a positive influence between the Jire Collaborative Learning Model Based on Smart Apps Creator on student learning outcomes. In addition to the t test, the F test (Anova) was used and it resulted that there was a significant effect between the collaborative learning model based on smart apss creator and the effect on student learning outcomes with the F-count greater than the F-table ($FF,67,364>3.93$).

2. There is an influence of character on student learning outcomes. This is based on the t-test using simple linear regression on the SPSS version 16 application with a significance level of 0.000-0.05, it can be stated that there is a positive influence between characters on student learning outcomes. In addition to the test, the F (Anova) test was

used and it resulted that there was a significant effect between the characters on student learning outcomes with the F-count greater than the F-table (FF, 38.778 > 3.93)

3. Fes can influence the high school-based collabere learning model and character on student learning outcomes. This is based on the t test using simple linear regression in the SPSS version 16 application. With a significance level of 0.000 0.05, it can be stated that there is a positive influence between the collaborative learning model jire based on smart apps creator and character on student learning outcomes. In addition to the t-test, the F test (Anova) was used and it resulted that there was a significant effect between the jire collaborative learning model based on smart ass creator and the character had an effect on student learning outcomes with the F-count greater than the F-table (F-F-48,577 >3.93)

REFERENCES
1. Abustan, et al. 2019. The Effect of Character on Science Learning Outcomes. Journal of Teaching and Learning Research Universitas Muhammadiyah Makassar. Vol. 1 No. 2 2-ISSN: 2656-9086
2. Adisusilo, Sutarjo. 2012. Character-Value Learning. Depok: PT. Rajagrafindo Persada
3. Arikunto, Suharismi. 2006. Qualitative research methods. Jakarta: Earth Literacy
4. Azizah, AR. 2020. The use of Smart Apps Creator (SAC) to work on Global Warming. Proceedings of the National Seminar. ISBN 978-602-0951-34-8 (EPUB)
5. Basyaroh, A. 2016. Differences in Student Learning Outcomes Through the Use of Adobe Flash and Power Point-Based Learning Media in Biology Scope Materials. Thesis. Pasundan University
6. Dharma Kesuma, Cepi Triatna, & Johar Permana. 2011. 2011. Character Education Theory and Practice Studies in Schools. Bandung: PT. Rosdakarya Teens
7. Dimyati and Mujiono. 2006. Learning and Learning. Jakarta : Rineka Cipta
8. Ibrahim, Nurdin. 2006. Student Learning Outcomes. Jakarta : http://www.depdiknas.go.id
9. Imron, Ali. 1996. Learning and Learning. Jakarta : Pustaka Jaya
10. Muchlas Samani & Hariyanto. 2011. Concepts and Models of Character Education. Bandung: PT. Rosdakary Teens
11. Munawar, A. (2016). The Influence of Interactive Power Point Learning Media on Student Interest in Professional Ethics Subjects Class X AK 3 At SMKN 3 Bandung. Thesis. Pasundan University. Bandung.
12. Ntobuo, Nova Elysia. 2018. Jire Collaborative Learning Model Theory and Applications. UNG Press: Gorontalo
13. Purwanto, Ngalim. 2001. Teaching Evaluation Principles and Techniques. Bandung : PT. Rosdakarya Teens
14. Riduwan.2004. Easy Learning Research for Teachers-Employees and Beginners Researchers.Bandung : ALFABETA
15. Sudjana, Nana. 2006. Assessment of Teaching and Learning Outcomes. Bandung : PT. Rosdakarya Teens
16. Sugiyono. 2016. Educational Research Methods. Bandung: ALFABETA
17. Sugiyono. 2015. Comprehensive Action Research Methods. Bandung: ALFABETA
18. Sutanto, Andina, et al. 2019. Positive Parenting. Yogyakarta: PT. New Library
19. Sutoyo, Agus. 2000. Tips for success Prof. Hembing. Jakarta: Achievements of Indonesian people.
20. Syaputra and Prismana, 2021. Development of Android-Based Interactive Learning Media Using Smart Apps Creator (SAC) for Class XI 2D & 3D Animation Subjects at SMKN 1 Driyorejo Gresik. Journal of Technology and Information Education, Faculty of Engineering, State University of Surabaya.Vol. 5 No. 2.
21. Wibowo, Agus. 2012. Character Education Strategy to Build the Character of a Civilized Nation. Yogyakarta: Libraries
22. Widada HR. 2010. An easy way to design presentations with PowerPoint 2007. Yogyakarta: Cakrawala
23. Yubert, et al. 2021. Development of Mobile Learning based on Smart Apps Creator as Physics Learning Media. Journal of the State Islamic University Raden Intan.Vol. 1 No. 2. E-ISSN 2776-8163