The Effect of E-learning and Quizizz Applications on Student Learning Outcomes

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Article Info	Abstract

The purpose of this study was to determine the effect of E-Learning and the Use of Quizizz Applications on the Learning Outcomes of Class X OTKP students of SMKN 2 Cikarang Barat. The population in this study were all students of class X OTKP SMKN 2 Cikarang Barat. The sampling technique used in this study was Saturated Sample. Saturated Sample is sampling by taking the entirety of the total population. The research method used in this study is the Quantitative Method using a Likert Scale. Hypothesis testing was carried out using SPSS. The results showed that simultaneously there was an effect between E-Learning and the Use of Quizizz Applications on student learning outcomes as evidenced by the value of Fcount > Ftable of 6.777 > 2.03, and a significance value of 0.002 <0.05.

Abstrak

Tujuan penelitian ini adalah untuk mengetahui pengaruh E-Learning dan Penggunaan Aplikasi Quizizz Terhadap Hasil Belajar siswa Kelas X OTKP SMKN 2 Cikarang Barat. Populasi dalam penelitian ini adalah seluruh siswa kelas X OTKP SMKN 2 Cikarang Barat, Teknik pengambilan sampel yang digunakan dalam penelitian ini adalah Sampel Jenuh. Sampel Jenuh adalah pengambilan sampel dengan mengambil keseluruhan dari jumlah populasi. Metode penelitian yang digunakan pada penelitian ini adalah Metode Kuantitatif dengan menggunakan Skala Likert.Pengujian Hipotesis yang dilakukan dengan menggunakan SPSS. Hasil penelitian menunjukkan bahwa secara simultan terdapat pengaruh antara E-Learning dan Penggunaan Aplikasi Quizizz Terhadap Hasil Belajar siswa yang dibuktikan dengan nilai Fhitung > Ftabel sebesar 6,777 > 2,03, serta nilai signifikansi sebesar 0,002 < 0,05.

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INTRODUCTION

In the field of education, learning activities are very important. The achievement of educational goals that have been designed to be a form of success in the implementation of the educational process, but it depends on how the learning implementation process is carried out. So it can be seen that the learning process is a process of implementing teaching and learning that is useful in determining learning success, so that there is reciprocity between teachers and students.The development of the times from time to time shows very rapid progress. Where now we have entered the 4.0 era between technology and daily life side by side. Most of the activities we do take advantage of current technological advances. These technological advances have covered almost all activities ranging from economic, social, and even education.There is an appeal from the government to require all online learning activities, requiring all schools to adapt to the new learning process.

At first it will be difficult to apply where between teachers and students there are still many who experience obstacles in the learning process carried out. Between teachers and students both experience obstacles in its implementation, where not all teachers have the skills to operate technology, as well as students who do not have adequate technological facilities. This had made learning activities not run effectively and efficiently when the learning process was carried out offline which had an impact on the decline in learning outcomes obtained by students.

According to Aisyah et al. (2021), there are two factors that can be used to identify the causes of the decline in learning outcomes obtained by students, namely internal factors and external factors. Various learning media are used in the learning process, starting from zoom meetings, google meet, Whatsapp Group Chat Applications, Google Classroom, Moodle, Quizizz Applications and other media that are strived to facilitate the process of learning activities carried out.

E-Learning is defined as an instruction process which consists of the use of electronic equipment that is sought to be able to give birth, assist the development of learning, as well as deliver, assess and facilitate teaching and learning activities in which students are the center which can be done interactively without limits and time. Setiawan et al, 2019). One method that can be pursued is by utilizing online application-based learning media or by utilizing games-based learning methods, one of which is the Quizizz application (Muhtadim Amri, 2020). According to Dionisius (2020), Quizizz is a game-based educational application, which in its application brings multiplayer activities, which will make the class more interactive and interesting for students.

Research conducted by Tatas Ridho Nugroho and Hari Setiono (2021), based on research that has been done which shows the results that online learning activities are then carried out an innovation in the learning process by combining the use E-Learning based Moodle , and the use Quizizz in The learning process carried out shows that the use of the combination of the two applications has a positive influence on the learning outcomes obtained by students.

Based on the explanation that has been described above, therefore, it encourages the author to conduct research on variables that affect learning outcomes, with a research entitled **"The Effect of E-Learning and Quizizz Learning Outcomes of Class X Students OTKP SMK Negeri 2 Cikarang Barat"**

LITERATURE REVIEW

LEARNING OUTCOMES (Y)

The success of the educational process can be seen from the ability of students to understand the concept of learning, mastery of the material, and learning achievement. In the learning process, of course, students are expected to produce good learning outcomes. According to Hamalik (2017), Learning Outcomes are a form of behavior change in students that can be observed and measured based on knowledge, attitudes, and skills. The changes that occur can be interpreted as a change due to an increase and development in students who are much better than before, those who do not understand become understand, those who do not know become know.

Learning outcomes are measures of success or failure of students after taking teaching and learning activities both in terms of effective, psychomotor, and cognitive which includes knowledge (memory, understanding, application (application) (Dwidayani, 2019).The selection of appropriate learning strategies, of course, is intended to arouse students' interest in the learning process. Learning activities that are interactive and not monotonous will attract students' focus in the learning activities carried out, the determination of appropriate learning strategies is expected to improve the learning outcomes obtained by students. Printing a generation that excels is of course the goal of the educational process, by giving birth to students who excel is certainly a success for teachers in the learning process and the achievement of educational goals that have been previously arranged.

Based on the results of the definitions from several experts above, it can be concluded that learning outcomes can be interpreted as a form of behavior change that is experienced after teaching and learning activities, where the change is intended as a form of positive change. Changes in student behavior can be reviewed through the psychomotor, cognitive, and affective fields. The changes that occur can be intended as a change due to an increase and development in students which is much better than before.

E-LEARNING (X1)

In the world of education, there have been many changes in the process. The more the times, the more changes that occur in the learning activities carried out, at this time technological advances have penetrated in the educational aspect. The learning process carried out at this time has partially taken advantage of current technological advances. One of the products of the integration of information technology in the world of education is the birth of *E-Learning* or *Electronic Learning*.

According to Rusman (2017), said that *E-Learning* is a teaching and learning activity that involves advances in technology and communication, as well as the main devices that support learning activities in the form of electronics such as films, videos, cassettes, *LCD projectors* , PCs, and other electronic devices. Meanwhile, according to D.Jati (2020), *E-Learning* is a renewal in the learning process that makes a major contribution to learning activities carried out in the classroom. The use *of E-Learning* in learning activities provides opportunities for students to be more active in the learning process such as observing, conduct, and demonstrate where the learning process is no longer centered on the teacher *(Teacher Center)* but on students *(Student Center).*

E-learning can support active learning without time and space barriers. With e-learning, content can be managed through various learning activities and the quality of teaching can be

improved, for examples, learning management system (LMS) can influence students' engagement with the environment, change collaboration and communication, and help access learning materials (Ergun and Adibatmaz, 2020).

Based on the exposure of several experts above, it can be concluded that E-Learning is a result of advances in information technology in the world of education where the results of these advances can provide a major change in the world of education, with the birth of E-Learning it provides a new experience in the system. existing education. As well as providing a new experience for teachers and students, students can be much more independent in exploring the learning resources needed so that the learning process focuses on students (Student Center) and the teacher's role is only as a facilitator, this certainly creates an attitude of independence in students and student sensitivity. in applying existing technological advances.

USE OF QUIZIZZ APP (X2)

Based on the exposure of several experts above, it can be concluded that E-Learning is a result of advances in information technology in the world of education where the results of these advances can provide a major change in the world of education, with the birth of E-Learning it provides a new experience in the system. existing education. As well as providing a new experience for teachers and students, students can be much more independent in exploring the learning resources needed so that the learning process focuses on students (Student Center) and the teacher's role is only as a facilitator, this certainly creates an attitude of independence in students and student sensitivity. in applying existing technological advances.

According to Aini (2021), the use of the Quizizz Application in learning activities becomes an alternative learning media that can create a creative, innovative, and fun learning method where it will raise the motivation in students in learning activities to be higher which has a positive impact. on increasing learning outcomes obtained by students. Meanwhile, according to Wijayanti and Hermanto (2021) The use of the Quizizz Application as a learning medium provides convenience and simplicity in the learning process, for a teacher this Quizizz application greatly facilitates the process of providing learning evaluation, a teacher can directly see the results of the scores obtained by students so that the process of taking value in evaluation activities can be done quickly.

Fang Zhao (2019), "Using Quizizz, students can do in-class exercises on their electronic devices. Unlike other educational apps, Quizizz has game characteristics like avatars, themes, memes and music, which are entertaining in the learning process. Quizizz also allows students to compete with each other and motivates them to study. Students take the quiz at the same time in class and see their live ranking on the leaderboard. Using this app in the classroom helps stimulate students' interest and improve students' engagement."

Based on the definition *Quizizz* that has been described by several experts above, it can be concluded that the *Quizizz* application is *web tool game* , where the use of this application can be used to facilitate teachers in conducting learning evaluations, the availability of features The variety of learning materials makes it easier for students to be able to access learning resources much more easily. The completeness of music and picture features as well as a *colorful* makes the learning activities carried out much more enjoyable so that they can stimulate students' interest in learning which has a positive impact on increasing student learning outcomes.

RESEARCH HYPOTHESIS

Based on the formulation of the problem, theoretical studies and previous research that has

been described above, the researchers formulate several hypotheses that will be tested for truth, namely:

H1   = E-Learning Significant effect between E-Learning on Student Learning Outcomes Class

H2   = Use of the Quizizz Application Has a Significant Influence on Student Learning Outcomes

METHODELOGY

In this research, the type of research used is survey method. Survey methods are used to determine the effect *treatments* , survey methods are used to obtain data from a certain place naturally, with researchers carrying out an activity in the data collection process, including by distributing questionnaires, tests, interviews, and so on (Nuraeni 2017). The measurement process of the research instrument was carried out using a Likert scale in the selection of answers to the research questionnaire. The following is a description of the Likert scale in this study, namely:

No.	Scale	Score
1.	Strongly Disagree	1
2.	Disagree	2
3.	Doubtful - Doubtful	3
4.	Agree	4
5.	Strongly Agree	5

Table 1. Measurements of the Likert Scale
Source: Aditia (2019)

Population and Sample

The population in this study were students of class X majoring in Office Administration Automation at SMK Negeri 2 Cikarang Barat with the academic year 2021/2022 with a population of 105 students. In this study using the *sampling* saturated, Saturated sampling is a technique for determining research samples taken from the entire population, this is done if the available population is relatively small, or for other purposes, the researcher wants to create a generalization with very small errors. In this study, researchers combined primary data and secondary data in an effort to complete the data needed in conducting this research.

Data Collection Technique

Data collection techniques carried out by researchers using a questionnaire survey or questionnaire. The type of questionnaire used in this study was a closed questionnaire. The data analysis technique used in this research is descriptive analysis and multiple linear analysis.

Scor Criteria	E-Learning	Aplikasi Quizizz
	S+SS	S+SS
0% - 25%	Very Low	Very Low
26% - 50%	Low	Low
51%%- 75%	High	High
76% - 100%	Very High	Very High

Table 2. Criteria Score Interpretation
Source: Data Processed by researchers (2022)

RESULTS AND DISCUSSION

One-Sample Kolmogorov-Smirnov Test

		Unstandardized Residual
N		101
Normal Parameters[a,b]	Mean	.0000000
	Std. Deviation	8.52603824
Most Extreme Differences	Absolute	.053
	Positive	.053
	Negative	-.044
Test Statistic		.053
Asymp. Sig. (2-tailed)		.200[c,d]

a. Test distribution is Normal.
b. Calculated from data.
c. Lilliefors Significance Correction.
d. This is a lower bound of the true significance.

Tabel 3. Normality Test Kolmogorov – Smirnov Result
Source: Data Processed by researchers (2022)

Based on the results of the Kolmogorv-Smirnov normality calculation test which is presented in the form of the table above, it can be seen that the resulting significance value is 0.200. It shows that the value of sig. 0.200 > 0.05. So it can be concluded that the data on the three variables have a normal distribution.
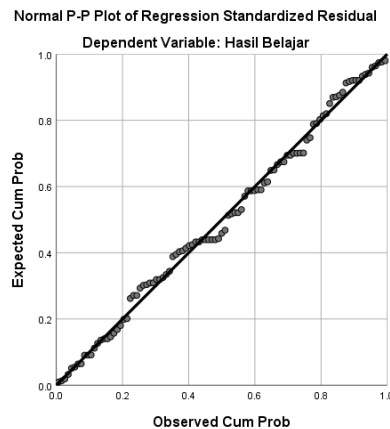

Figure 1. Normality Test Probability Plot Result
Source: Data Processed by researchers (2022)

Based on the Normal Probability Plot picture presented above, it can be seen that the distribution is around the diagonal line and follows the direction of the diagonal line. So it can be concluded that the data on the three variables are normally distributed and the regression model has met the normality assumption test so that further analysis tests can be carried out.

Linearity Test

ANOVA Table

	Sum of Squares	df	Mean Square	F	Sig.

Hasil Belajar * E-Learning	Betweens Groups	(Combined)	3306.156	27	122.450	1.799	.025
		Linearity	730.746	1	730.746	10.736	.002
		Deviation from Linearity	2575.410	26	99.054	1.455	.108
	Within Groups		4968.617	73	68.063		
	Total		8274.772	100			

Tabel 4. Linearity Test Result for Variable X1 Against Y
Source: Data Processed by researchers (2022)

Based on the table of linearity test results presented above, it can be seen that the Deviation from Linearity result is 0.108 > 0.05. So it can be concluded that the E-Learning variable has a linear relationship with the learning outcomes variable.

ANOVA Table

			Sum of Squares	Df	Mean Square	F	Sig.
Hasil Belajar * Penggunaan Aplikasi Quizizz	Between Groups	(Combined)	2266.738	28	80.955	.970	.520
		Linearity	90.848	1	90.848	1.089	.300
		Deviation from Linearity	2175.890	27	80.589	.966	.524
	Within Groups		6008.034	72	83.445		
	Total		8274.772	100			

Tabel 5. Linearity Test Result for Variable X2 Against Y
Source: Data Processed by researchers (2022)

Based on the table of linearity test results on the Quizizz Application Usage variable on the Learning Outcomes variable, it is known that the Deviation from Linearity value is 0.524 > 0.05. Thus, it can be concluded that the Quizizz Application Usage variable has a linear relationship with the Learning Outcomes variable.

Multiple Linear Regression Analysis

Coefficients^a

		Unstandardized Coefficients		Standardized Coefficients		
Model		B	Std. Error	Beta	t	Sig.
1	(Constant)	86.643	5.439		15.929	.000
	E-Learning	-.399	.114	-.507	-3.511	.001

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		.197	.102	.278	1.924	.057
Penggunaan Aplikasi Quizizz						

a. Dependent Variable: Hasil Belajar

Tabel 6. Multiple Regression Test Result
Source: Data Processed by researchers (2022)

Based on the table above, it can be seen that the constant value is 86,664 which means that if the E-Learning Application Quizizz are 0, then the Learning Outcomes are 86,643. In the table above, it is known that the regression coefficient value of the E-Learning (X1) is -0.399, which means that if the use of E-Learning has increased by 1, it can actually reduce the learning outcomes obtained by students by -0.399. This shows that the X1 coefficient is negative, which means the curve goes up towards the left so it can be concluded that there is a significant effect between E-Learning (X1) and Learning Outcomes (Y). The value of the coefficient on the Quizizz is 0.197, which means that if the Quizizz increases by 1, the learning outcomes obtained will increase by 0.197. The X2 coefficient is positive, meaning that there is a positive influence between the Quizizz (X2) on the Learning Outcome variable (Y). This shows that the higher the use of Quizizz, the higher the Learning Outcomes obtained by class X OTKP SMKN 2 Cikarang Barat.

Hypothesis Test
Partial Regression Coefficient Test (T-test)

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	86.643	5.439		15.929	.000
	E-Learning	-.399	.114	-.507	-3.511	.001
	Quizizz Application	.197	.102	.278	1.924	.057

a. Dependent Variable: Learning Outcomes

Table 7. T-test Result
Source: Data Processed by researchers (2022)

In the E-Learning variable (X1) it is known that the t-count value is -1.513. Based on the output obtained by t-table which can be known at a significance level of 0.05, df = n-k-1 (n is the number of data, and k is the number of independent variables) then df = 101-2-1 = 98, then obtained t-table is 1,98447. It is known that the value of t-count < t-table is -3.522 > 1.98447, which means that the hypothesis is accepted. Thus, it can be concluded that the E-Learning variable (X1) has a partially significant effect on the Learning Outcome variable (Y).

The Quizizz Application Usage variable (X2) is known to have a t-count value of 1.924. Based on aout[ut, the obtained t-table can be seen with a significance level of 0.05, df= n-k-1 (n is the amount of data, and k is the number of independent variables) then df= 101-2-1 = 98 , then the obtained t-table is 1,98447. Therefore, it is known that the t-count < t-table is 1.924 < 1.98447, which means that the hypothesis is rejected. Thus, it can be concluded that there is no

partial significant effect between the Quizizz Application Usage variable (X2) on the Learning Outcome variable (Y). However, if using a significance level of 0.10, df = n-k-1 (n is the number of data, and k is the number of independent variables) then df = 101-2-1 = 98, then the t-table is 1.66055. Therefore, it is known that the t-count > t-table is 1.924 > 1.66055 which means that the hypothesis is accepted, so it can be concluded that there is a partially significant effect between the variables of using the Quzizz Application (X2) on Learning Outcomes Variables (Y) when using a significance level of 10% (0.10).

Simultaneous Regression Coefficient Test (F-test)

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.349[a]	.122	.104	8.613

a. Predictors: (Constant), Quizizz Application, E-Learning

b. Dependent Variable: Learning Outcomes

Table 8. Coefficient of Determination Test
Source: Data Processed by researchers (2022)

Based on the table of determination coefficient test results presented above, it can be seen that the value of R2 (R Square) obtained is 0.122. Thus, it can be concluded that the E-Learning variable (X1) and the Quizizz Application Usage variable (X2) simultaneously the magnitude of the two variables is known to be 12.2% while the remaining 87.8% is influenced by other factors that are not controlled. do research by researchers.

DISCUSSION
1. The Effect of E-Learning on Learning Outcomes
Based on the results of the calculations that have been carried out, it is known that the E-Learning has a significant effect on the variable Learning Outcomes of students of class X OTKP SMKN 2 Cikarang Barat. This is evidenced based on the results of multiple regression test calculations obtained by the value of Y = 86,643 - 0.399 X1 + 0.197 X2. From the results of the multiple regression calculation, it is known that the constant value is 86,643, it means that if the E-Learning (X1) and Quizizz (X2) has a value of 0, then the value of learning outcomes (Y) is 86,643.

In addition, it is known that the results of the regression coefficient values obtained have a positive direction on the E-Learning (X1) of 0.399, which means that if there is an increase in the use of E-Learning by 1, it will increase the learning outcomes obtained by students. The coefficient of the E-Learning (X1) is positive on the Learning Outcome variable (Y). In other words, the use of E-Learning in the learning process has a positive influence partially and simultaneously on the learning outcomes obtained by class X OTKP students of SMKN 2 Cikarang Barat.

The above statement is in line with research conducted by (M. Miftach Fakhri, Della Fadhilatunisa, Rosidah, Muhammad Fajar B, Muhammad Alham Satnur, 2022) based on the results of research conducted stating that E-Learning based Moodle in learning can improve student learning outcomes. , increasing the use of E-Learning in the learning process will increase the resulting Learning Outcomes.

2. The Effect of Using Quizizz Applications on Learning Outcomes

Based on the results of the calculations that have been carried out, it is known that the *Quizizz* no significant effect on the variable Learning Outcomes of students of class X OTKP SMKN 2 Cikarang Barat. This is evidenced based on the results of multiple regression test calculations obtained by the value of Y = 86.643 − 0.399 X1 + 0.197 X2. From the results of the multiple regression calculation, it is known that the constant value is 86,643, it means that if the E-Learning variable (X1) and Quizizz Application Use (X2) has a value of 0, then the value of Learning Outcomes

(Y) is 80,643. using a significance level of 0.10, df = nk-1 (n is the number of data, and k is the number of independent variables) then df = 101-2-1 = 98, then we get a t-table of 1.66055.

Therefore, it is known that the t-count > t-table is 1.924 > 1.66055 which means that the hypothesis is accepted, so it can be concluded that there is a partially significant effect between the variables of *Quzizz* (X2) on Learning Outcomes Variables (Y) when using a significance level of 10% (0.10). The statement above is in line with research conducted by (Octorina, 2021) based on the results of his research stating that one of the efforts to improve student learning outcomes is the use of the *Quizizz Application*. After the use *Quizizz* the student's attendance rate increased to 84%, this had a positive impact on the learning outcomes obtained by students increasing up to 22%.

3. **The Effect of E-Learning and the Use of Quizizz Applications on Learning Outcomes**

Based on the results of calculations on the F-test, the results of the F-count test value are 6.777 and it is known that the F-table is 2.03, then the F-count value > F-table is then H0 isrejected and Hey accepted. Thus, it can be concluded that the variables of E-Learning and the Use Quizizz have a simultaneous effect on Learning Outcomes. This is in line with research conducted by (Tatas Ridho Nugroho and Hari Setiono, 2021), based on research that has been carried out which shows the results that online learning activities are then carried out an innovation in the learning process by combining the use E -Learning based Moodle , and the use Quizizz in the learning process that is carried out shows that the use of the combination of the two applications has a positive influence on the learning outcomes obtained by students.

CONCLUSIONS AND SUGGESTION

Based on the results of the research that has been described above, empirical conclusions can be drawn based on the results of statistical data processing, descriptions, and discussions that have been described in previous chapters. Then the following conclusions are obtained:

1. Description of E-LearningApplication Quizizzand Learning Outcomes are as follows:
   a. The use of E-Learning in learning activities on Correspondence subjects for class X OTKP at SMK Negeri 2 Cikarang Barat is relatively high. This shows that the use of E-Learning appropriate to be applied in learning activities, making students gain new learning experiences by involving technological advances. Furthermore, another major influence is the use of E-Learning as an appropriate alternative as a substitute for face-to-face learning activities, and become an alternative to online-based learning media such as Google Classroom, Edmodo, Whatsapp Group and so on.

   b. Application Quizizz as a medium in learning activities on Correspondence subjects for class X OTKP SMK Negeri 2 Cikarang Barat is relatively high. This is supported by the existence of the Transparent Score Feature, a feature that generates real grades based on the results of correct answers to questions done by students, so that students can identify the results of the scores they get. Another big influence also comes from the Competition between Students, in the Quizizz application there is a feature that displays a leaderboard. The availability of this feature encourages students to get the highest score in order to reach the first rank on the ranking that is displayed.

2. It is empirically proven that there is a partially significant effect between the E-Learning (X1) on Learning Outcomes (Y) as evidenced by the results of the t-count > t-table of 3.511 > 1.984, and the result of a significance value of 0.001 < 0.05. Thus, it can be concluded that there is a partially significant effect between the E-Learning (X1) on Learning Outcomes (Y).

3. Empirically proven if the significance value is 5% or 0.05 it is stated that There is no partially significant effect between the Quizizz (X2) on the Learning Outcome variable (Y) as evidenced by the results of the calculation of t-count 1.924 < t-table 1.98447, and the results of the significance value obtained are 0.05 = 0 ,05. Thus, it can be concluded that the opposite direction occurs where if there is an increase in the use Quizizz in learning, it will decrease learning outcomes.

   However, if we use a significance level of 0.10, we get a t-table of 1.66055. Therefore, it is known that the t-count > t-table is 1.924 > 1.66055 which means that the hypothesis is accepted, so it can be concluded that there is a partially significant effect between the variables of using the Quzizz Application (X2) on Learning Outcomes Variables (Y) when using a significance level of 10% (0.10).

4. Empirically proven that there is a significant effect simultaneously or jointly between the E-Learning (X1) Application Quizizz (X2) on Learning Outcomes (Y). This is evidenced by the results of the F-count value of 6.777 > F-table 2.03, and the results of the significance value obtained 0.002 <0.05 which means that the use of E-Learning and the use of Quizizz in the learning process affects the learning outcomes obtained. by students of class X OTKP SMKN 2 Cikarang Barat.

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