

The Effect of Using Virtual Laboratory with Laboratory Reality and Learning Style on Science Process Skills of Students

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Abstract

The laboratory as a place to carry out practical activities is no longer limited to the meaning of a real room that can be seen directly, but in its development many virtual laboratories have emerged that utilize digital technology in their use. This study is intended to determine the effect of using a virtual laboratory with laboratory reality, and learning styles on students science process skills. This study is designed using a factorial design where the research sample was taken from the population with cluster random sampling technique. The research sample amounted to 144 students in SMA Negeri 2 and 4 Probolinggo. The research instrument used tests to measure science process skills and questionnaires to determine students' learning styles. The results of the students' science process skills test are research data that were analyzed using the two-way ANOVA test which had previously met the prerequisite tests for normality and homogeneity. The result of this research is that $F_{count} = 15.018$ with $Sig. = 0.000 < 0.01$ in the method used, while in the learning style section $F_{count} = 10.326$ with $Sig. = 0.000 < 0.01$. The results of the two-way ANOVA test on the third hypothesis obtained $F_{count} = 5.301$ with a Sig value. $= 0.006 < 0.01$. From these results, it can be concluded that the three hypotheses (H_0) are rejected and H_a is accepted, which means that there is an effect of using virtual laboratories and laboratory reality on science process skills. Likewise, learning styles have a significant influence on students' science process skills. Based on the results of the third hypothesis test, it is also concluded that there is an interaction effect between the use of virtual laboratories with laboratory reality and learning styles on students' science process skills.

Keywords

virtual laboratory; laboratory reality; learning style; science process skills



I. Introduction

The idea of learning in the 2013 educational program today accentuates the student focused growing experience to foster its possible to have capability in the domain of information, abilities, and mentalities. The accomplishment of this ability can be acquired through the execution of learning with fitting techniques and adjusted to the circumstance and states of the learning climate. While alluding to current circumstances, Indonesia is encountering what is going on because of the episode of the Covid since March 2019, then the execution of learning should be done on the web or from a distance. In any case, in its turn of events, the circumstance step by step improved so the public authority through a joint pronouncement of the priest of schooling and culture, the clergyman of religion, the pastor of wellbeing, and the pastor of home undertakings of the Republic of Indonesia number 03/KB/2021, number 384 of 2021, number HK.01.08/MENKES/4242/2021, and number 440-717 of 2021 concerning Guidelines for the Implementation of Learning in the

Pandemic Coronavirus Disease 2019 (Covid-19) specifies that learning is held up close and personal restricted while as yet carrying out wellbeing conventions. Education is the foundation of a successful career, financial freedom, the ability to think and reason critically and to make informed decisions. Without education we will be limited to perform tasks and we will be ignorant to the things that are happening in and around our surrounding, and according to Martin Luther King, a people without knowledge is like a tree without roots. For education to be of great value, curriculums should be implemented. (Philips, S. 2020)

In the execution of restricted eye to eye learning, instructors as teachers and educators are expected to have the option to present and bundle fascinating and viable learning to work with understudies in fostering their skills. Capabilities that should be moved by understudies which are likewise in accordance with the improvement of innovation and data in the 21st century incorporate information and abilities. There are four abilities that are supposed to be moved by understudies including decisive reasoning and critical thinking, imagination and advancement, correspondences, and cooperation (Fajar, 2018). These 21st century abilities or abilities can be created by understudies through an educational experience planned by teachers with the utilization of proper media and learning materials. One of the decisive reasoning abilities and critical thinking, for instance, teachers can utilize learning techniques by involving the assistance of learning media as per the states of the ongoing learning climate.

In restricted up close and personal learning circumstances, teachers can do blended advancing among on the web and disconnected (mixed learning). In the execution of learning, particularly material science, which is one of the subjects that are thought of as hard for understudies, teachers are expected to have the option to work with their mastering so the abilities that are the acquiring goals can be accomplished appropriately. In learning physical science which incorporates inherent sciences that expect to concentrate on regular changes, understanding and authority of the material is required. The material in physical science incorporates regular peculiarities that can be concentrated on utilizing recipes to demonstrate a characteristic occasion so in the execution of physical science learning, teachers will give clarifications about equations, and give instances of their application and use in daily existence. Learning material science isn't sufficient to advance by simply gaining from books or paying attention to the clarifications of teachers, yet it takes a learning movement in which it presents a progression of cycles in regards to the investigation of normal peculiarities to deliver an item as realities, ideas, standards, speculations, regulations, and so on. A hypothesis in material science should be confirmed through trial or down to earth exercises. Down to earth exercises in material science learning should for the most part be possible in the research center. The research center is a spot to find and demonstrate a hypothesis, idea or rule that is utilized to help the growing experience (Khoiriroh and Shofiyah, 2019).

The research center as a spot to do functional exercises is not generally restricted to the importance of a genuine room that should be visible straightforwardly, yet in its improvement numerous virtual labs have arisen that use computerized innovation in their utilization. Indeed, even the Ministry of Education and Culture through Pustekkom has additionally fostered this virtual lab to work with understudy learning. Rather than a genuine research center that requires offices or hardware that can be straightforwardly utilized by understudies utilizing their five detects, a virtual lab doesn't need such gear. As per Rosidah (2020), a virtual lab is an application or programming that can be utilized with PC media and such as a reproduction. A virtual lab is an impersonation of a genuine

research facility that can be utilized by teachers and understudies to help the growing experience to fabricate a comprehension of specific ideas and speculations.

In view of the consequences of examination directed by Sri (2018) with respect to the execution of virtual lab put together physical science learning with respect to science process abilities and understudy discernments, it is presumed that the utilization of virtual research center media can foster understudy process abilities. This is in accordance with research by Oktavina (2020) which reasons that there is a huge impact of virtual lab helped learning on mental physical science learning results. The consequences of a comparable report were likewise completed by Sari and Harjono (2016) who inferred that virtual research center helped learning meaningfully affected understudies' dominance of material science ideas. Nonetheless, rather than the consequences of this review, Maksum (2020) inferred that something else from his examination was that the utilization of the virtual lab was disappointing as the truth lab in light of the fact that the expert couldn't straightforwardly connect with the devices and materials utilized. The finish of this study is built up by Khoiriroh and Shofiyah (2019) which expresses that there is no distinction in understudies' science cycle abilities with the utilization of genuine and virtual labs. In light of the depiction above and the hole between the aftereffects of past examinations, this study was planned to decide the impact of utilizing virtual research facilities with lab reality and learning styles on understudies' science cycle abilities. The speculations to be tried incorporate 1) there are contrasts in the science cycle abilities of understudies who are treated with getting the hang of utilizing virtual research facilities and understudies who are treated with picking up utilizing reality. 2) there are contrasts in science process abilities between bunches that have clear line of sight, hear-able, and sensation learning styles. 3) there is a cooperation impact between getting the hang of utilizing virtual research centers with lab reality and learning styles on understudies' science cycle abilities.

II. Review of Literature

The examination technique utilized is a quantitative exploration strategy with a factorial plan where this plan thinks about directing factors influencing the treatment (free factor) on the outcomes (subordinate variable). The exploration configuration should be visible in the accompanying figure.

O ₁	X ₁	G ₁	O ₂
O ₃	X ₂	G ₁	O ₄
O ₅	X ₁	G ₂	O ₆
O ₇	X ₂	G ₂	O ₈
O ₉	X ₁	G ₃	O ₁₀
O ₁₁	X ₂	G ₃	O ₁₂

Figure 1. Research Design

Description:

- O₁, 3, 5, 7, 9, 11 = pretest to determine students' initial science process skills
- O₂, 4, 6, 8, 10, 12 = post test to determine students' initial science process skills
- X₁ = using a virtual laboratory (experimental group treatment)
- X₂ = using reality laboratory (control group treatment)
- G₁ = Visual learning style (moderator)
- G₂ = Auditory learning style (moderator)
- G₃ = Kinesthetic learning style (moderator)

This examination was directed at SMAN 2 and SMAN 4 Probolinggo with a complete example of 144 understudies of class XI MIPA. The examination test was then partitioned into two gatherings, hereinafter alluded to as the exploratory class and the control class. The exploratory class was given learning treatment utilizing a virtual lab, while the control class was given learning treatment utilizing a reality research facility. The exploration configuration design utilized can be depicted by the accompanying network:

Table 1. Research Design Pattern Matrix

Learning/ Learning Style	Learning (X ₁)	
	Virtual Laboratory (X ₁)	Laboratory Reality (X ₂)
Visuals (v)	YX _{1Gv1} YX _{1Gvn}	YX _{2Gv1} YX _{2Gvn}
Auditors (a)	YX _{1Ga1} YX _{1Gan}	YX _{2Ga1} YX _{2Gan}
Kinesthetic (k)	YX _{1Gk1} YX _{1Gkn}	YX _{2Gk1} YX _{2Gkn}

The factors in this study comprised of three factors including the autonomous variable, specifically the utilization of virtual and research center reality, the reliant variable, in particular science process abilities, and the mediator variable, in particular the learning style of understudies. The instruments utilized in the examination were a learning style poll and a science cycle abilities test. The learning style survey comprises of 27 inquiry things that are directed by the learning style hypothesis created by DePorter (2014). The composed trial of science process abilities comprises of 25 inquiries comprising of 7 viewpoints, in particular noticing, recognizing factors, expectations, speculations, connections between factors, planning examinations, and finishing up. The test instrument for the science cycle abilities test was tried on subjects other than the exploration test to decide the legitimacy and dependability of the test instrument utilizing SPSS variant 26. This was to decide the legitimacy and practicality of the instrument in the review.

The research raw data is in the form of posttest scores for students' science process skills. This data is then tested for prerequisites, namely normality test and homogeneity test before testing the hypothesis. The research prerequisite test used the Kolmogorov Smirnov or Shapiro Wilk test of normality technique. Homogeneity test using Levene's test technique (Levene's Test). The level of significance used in this study is 1% or a significance value of 0.01. So that the basis for decision making in research testing is based on this significance level.

The exploration information that meet the essential tests are then investigated to test the examination speculations utilizing the Two Way Anova or two-way ANOVA test. The result of the two way ANOVA test results should be visible in the Tests of Between Subjects Effect table by taking a gander at the importance worth of every variable. The reason for dynamic in the two manner ANOVA test is assuming that the importance esteem (Sig.) < 0.01 (research likelihood of 1%), it tends to be expressed that there is a contrast between the free factor and the reliant variable or the mediator variable on the reliant variable as well as the impact of the communication between the reliant variable and the reliant variable. the two of them. What's more, the other way around assuming the importance esteem (Sig.) > 0.01, it really intends that there is no distinction between the autonomous variable and the reliant variable or the arbitrator variable on the reliant variable and the impact of the association between the two. By getting the aftereffects of the two-way ANOVA test, the exploration speculation can be closed and the issue plan can be replied.

III. Result and Discussion

3.1 Finding

Based on the questionnaire filled out by the students who were the research subjects, information about the learning styles of students was obtained in the following table.

Table 2. Learning Styles of Research Subjects

Learning methods	Learning Style	Amount
Virtual Laboratory	Auditory	35
	Kinesthetic	19
	Visual	18
	Total	72
Laboratory Reality	Auditory	31
	Kinesthetic	13
	Visual	28
	Total	72
Total	Auditory	66
	Kinesthetic	32
	Visual	46
	Total	144

In the table above, data on the quantity of exploration subjects should be visible in view of the arrangement as per their learning style. The quantity of understudies with hearable learning styles overwhelmed with a sum of 66 individuals, in particular 35 individuals from the trial class who were treated with gaining utilizing a virtual research center and 31 individuals from the control class who were given learning treatment utilizing lab reality. A sum of 32 understudies has a sensation learning style, specifically 19 from the trial class and 13 from the control class. While 46 understudies have a visual learning style, in particular 18 understudies in the exploratory class and 28 others from the control class.

Legitimacy and unwavering quality testing were done on the science cycle abilities test instrument prior to being tried or given to respondents/research subjects. The KPS test instrument comprises of 25 inquiries that have been arranged and gotten approval from friends and afterward tried on 36 understudies outside the exploration subject. The consequences of this test were then tried for legitimacy and unwavering quality as a condition for involving the PPP test instrument in research. The consequences of the test instrument legitimacy are introduced in the accompanying table.

Table 3. Results of the Validity Test of Science Process Skills Test Instruments

Question Number	r count	Sig.	Informati on	Question Number	r count	Sig.	Informati on
1	0,703	0,000	Valid	14	0,836	0,000	Valid
2	0,787	0,000	Valid	15	0,590	0,000	Valid
3	0,703	0,000	Valid	16	0,598	0,000	Valid
4	0,797	0,000	Valid	17	0,549	0,001	Valid
5	0,447	0,010	Valid	18	0,797	0,000	Valid
6	0,548	0,001	Valid	19	0,865	0,000	Valid
7	0,598	0,000	Valid	20	0,836	0,000	Valid

8	0,836	0,000	Valid	21	0,836	0,000	Valid
9	0,797	0,000	Valid	22	0,590	0,000	Valid
10	0,797	0,000	Valid	23	0,598	0,000	Valid
11	0,836	0,000	Valid	24	0,598	0,000	Valid
12	0,598	0,000	Valid	25	0,797	0,000	Valid
13	0,836	0,000	Valid	$r_{table} = 0.449; N = 32; = 0.01$			

Based on the table above, information is obtained that a number of 25 test items were declared valid with a significance value < 0.01 and the acquisition value of $r_{count} > r_{table}$. The r_{table} value with the number of test participants 32 people is 0.449, while the r_{count} value obtained from the results of the validity test using SPSS is greater than the r_{table} value, so it can be said that the test items used are valid and meet the criteria for further reliability testing. The results of the test reliability test are presented in the following table.

Table 4. Reliability Test Results of Science Process Skills Test Instruments

Reliability Statistics	
Cronbach's Alpha	N of Items
,960	25

The Cronbach's Alpha worth got was 0.960 out of 25 things of the test instrument that were tried on various 32 respondents outside the exploration test. Since the Cronbach's Alpha worth is more prominent than 0.60, it tends to be inferred that every one of the inquiries on the KPS test (logical interaction abilities) are supposed to be dependable or appropriate to be utilized for research information assortment.

The science cycle abilities test instrument has been proclaimed legitimate and reasonable for use in research in light of the consequences of the legitimacy and dependability test, then the instrument is utilized as a test instrument research information assortment device. The examination information acquired from the posttest aftereffects of the understudies' science cycle abilities were then tried for requirements. Depiction of examination information should be visible in the accompanying table.

Table 5. Statistical Description of Posttest Results of Science Process Skills in Experimental and Control Classes

Descriptives				
Learning methods			Statistic	Std. Error
Science Process Skills	Virtual	Mean	67,31	1,403
		99% Confidence Interval for Mean	Lower Bound	63,59
	Laboratorium	Interval for Mean	Upper Bound	71,02
		5% Trimmed Mean		67,18
		Median		68,00
		Variance		141,652
		Std. Deviation		11,902
		Minimum		44
		Maximum		92
		Range		48
		Interquartile Range		16
		Skewness	,227	,283
		Kurtosis	-,408	,559

Reality Laboratorium	Mean		56,36	1,928
	99% Confidence	Lower Bound	51,26	
	Interval for Mean	Upper Bound	61,46	
	5% Trimmed Mean		56,33	
	Median		56,00	
	Variance		267,642	
	Std. Deviation		16,360	
	Minimum		16	
	Maximum		88	
	Range		72	
	Interquartile Range		24	
	Skewness		,071	,283
	Kurtosis		-,707	,559

In light of the table above, data is gotten about the normal worth (mean) of the posttest consequences of science process abilities in the trial class, in particular learning with a virtual research center, which is 67.31 with a standard deviation of 11.902. While in the control class, the typical worth (mean) is more modest, which is 56.36 with a standard deviation of 16.360. The posttest worth of the exploration subject's KPS has expanded when contrasted with the consequences of the pretest. The correlation of the mean (mean) pretest and posttest of science process abilities on research subjects in the trial class and control class should be visible in the accompanying table.

Table 6. Statistical Description of Posttest Results of Science Process Skills in Experimental and Control Classes

Class	Mean Score	Pretest	Mean Value
Experiment (Virtual Laboratory)	41.11		67.31
Control (Laboratory Reality)	40,19		56.36

From the table above, it can be seen that the increase in the average value of the science process skills of students in the experimental class was 26.2, while in the control class it increased by 16.17. The statistical description of the KPS data above obtained information about the average value (mean) of the posttest results of science process skills in students with auditory learning styles, namely 57.17, kinesthetic by 68.03, and visually by 64.22. From the average value (mean) of this KPS posttest, students with kinesthetic learning styles get the highest scores, while students with auditory learning styles get the lowest scores. This shows that the science process skills of students are different with different learning styles.

Before the two-way ANOVA test is carried out, the research data must meet the requirements, namely the data is normally distributed and homogeneous. The following table presents the results of the normality and homogeneity tests on the research data.

Table 7. Normality Test Results in the Learning Method
Tests of Normality

	Learning methods	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
		Statistics	df	Sig.	Statistics	df	Sig.
Science	Virtual Laboratory	,119	72	0.013	,974	72	,142
Process Skills	Laboratory Reality	,108	72	,036	,974	72	,147

a. Lilliefors Significance Correction

From the table above test of normality obtained Sig. Shapiro Wilk was 0.142 for the experimental class using a virtual laboratory and 0.147 for the control class using a reality laboratory. This Sig value is greater than 0.01 which means the standard residual value is normally distributed in the two learning treatments carried out. The normality prerequisite test was also carried out based on the grouping of the learning styles of the research subjects, and the following results were obtained.

Table 8. Normality Test Results on Learning Style

Tests of Normality							
	Learning Style	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
		Statistics	df	Sig.	Statistics	df	Sig.
Science	Auditory	,105	66	,067	,981	66	,396
Process Skills	Kinesthetic	,093	32	,200 *	,984	32	,906
	Visual	,128	46	0.057	,963	46	,151

*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

From the results of the Test of Normality above, the value of Sig. Shapiro Wilk on auditory learning style is 0.396, kinesthetic learning style is 0.906, and visual learning style is 0.151. The three results of Sig. Shapiro Wilk is greater than 0.01 which means the standard residual value is normally distributed. knowing the initial ability of students before being given treatment. Based on the results of this normality test, the residual normality requirements in the two-way ANOVA have been met. Thus the research data is then continued to determine the homogeneity of the research data.

The results of the homogeneity test of research data can be seen from Levene's Test of Equality of Error Variance which aims to determine whether each variant of the dependent variable is the same or homogeneous. The results of the homogeneity test are presented in the following table

Table 9. Results of Homogeneity Test of Research Data
Levene's Test of Equality of Error Variances ^{a,b}

		Levene			
		Statistics	df1	df2	Sig.
Science	Based on Mean	1,891	5	138	,100
Process	Based on Median	1,469	5	138	,204
Skills	Based on Median and with adjusted df	1,469	5	134,457	,204
	Based on trimmed mean	1,873	5	138	,103

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

- a. Dependent variable: Keterampilan Proses Sains
- b. Design: Intercept + Metode + GayaBelajar + Metode * GayaBelajar

The results of Levene's Test of Equality of Error Variance on the part based on the mean of science process skills obtained the value of Sig. of $0.100 > 0.01$. From this value, it can be concluded that the variance of the dependent variable of science process skills is the same or homogeneous. Thus the requirements in the two-way ANOVA test have been met.

two-way ANOVA test could then be carried out because the prerequisite tests had been met. Two-way ANOVA test or two-way ANOVA test was conducted to test the research hypothesis. The results of hypothesis testing using two-way ANOVA can be seen in the following table.

Table 10. Two Way Anova . Hypothesis Test Results
Tests of Between-Subjects Effects

Dependent Variable: Science Process Skills					
Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	9261,028 ^a	5	1852,206	10,601	,000
Intercept	514664,440	1	514664,440	2945,700	,000
Method	2623,818	1	2623,818	15,018	,000
Learning Style	3608,218	2	1804,109	10,326	,000
Method * Learning Style	1852,268	2	926,134	5,301	,006
Error	24110,972	138	174,717		
Total	583936,000	144			
Corrected Total	33372,000	143			

a. R Squared = ,278 (Adjusted R Squared = ,251)

In light of the result of Tests of Between-Subjects Effects, it very well may be seen the aftereffects of speculation testing in this review. From the worth of Sig. In the piece of the learning technique or treatment given, a worth of $0.000 < 0.01$ is gotten with $F = 15.018$, and that implies that H_0 is dismissed and H_a is acknowledged, or at least, there are contrasts in science process abilities between the exploratory class and picking up utilizing virtual research centers and the control class with getting the hang of utilizing reality. research facility. The aftereffects of the two-way ANOVA test in the learning style segment got the worth of Sig. $0.000 < 0.01$ and $F = 10.326$, so it very well may be deciphered that H_0 is dismissed and H_a is acknowledged which intends that there are contrasts in science process abilities between gatherings of understudies who have hear-able, visual, and sensation learning styles. The aftereffects of the Tests of Between-Subjects Effects on the strategy * learning style area acquired the worth of Sig. 0.006 with a F of 5.301. Worth of Sig. $0.006 < 0.01$ so one might say that H_0 is dismissed and H_a is acknowledged, and that intends that there is a cooperation impact between picking up utilizing virtual labs and lab reality and mastering styles on science process abilities.

3.2 Discussion

The utilization of virtual and reality labs in learning is done in the wake of giving the pretest of science process abilities to understudies who are tests or examination subjects. From the consequences of the pretest, the typical KPS worth of understudies in the exploratory class who will be dealt with utilizing a virtual research center is 41.11, which

is more prominent than the typical worth of KPS in the control class who will be dealt with utilizing a reality lab, which is 40.19. The pretest mean score was then t-tried for the two classes. From the aftereffects of this t-test, it very well may be expressed that there is no contrast between the two classes, both exploratory and control, in the normal KPS esteem. Subsequently it is said that understudies have equivalent or the same capacities prior to being given treatment.

Subsequent to being given an alternate learning treatment between the exploratory class and the control class, then, at that point, the understudies were given a posttest. The aftereffects of getting the normal posttest score of understudies in the trial class involving virtual research centers in their learning are 67.31, an increment of 26.20 from the pretest results. In the mean time, in the control class, which was dealt with involving research facility reality in learning, the posttest normal score was 56.36, which expanded by 16.17. The typical worth of science process abilities (KPS) of understudies in the exploratory class is higher than the control class.

In view of the consequences of the principal speculation test (H_01) got the worth of $F_{count} = 15,018$ and $Sig. = 0.000 < 0.01$ (research importance level). From this worth, it very well may be reasoned that H_01 is dismissed, and that intends that there is a huge contrast in the science cycle abilities (KPS) of understudies in the study hall that is treated with virtual research facility learning and lab reality. The presence of this tremendous distinction demonstrates that the science cycle abilities of understudies are impacted by the treatment in the applied learning.

The distinction in science process abilities (KPS) in the two trial and control classes is firmly thought in view of the various medicines, specifically the utilization of virtual labs and reality research centers. This supposition that is very sensible on the grounds that the material and test questions given to the two classes that are the exploration test are something similar or not unique. Moreover, the offices and framework that help learning are additionally same and reasonably a similar between the trial class and the control class at two different examination areas.

The discoveries of this study show that the utilization of getting the hang of utilizing virtual labs betterly affects the obtaining of understudies' science cycle abilities than the utilization of research facility reality in learning. All in all, it very well may be deciphered that the utilization of getting the hang of utilizing virtual research centers is more compelling in procuring science process abilities than lab reality.

This finding is in accordance with the consequences of studies that have been directed beforehand by a few specialists. Sri (2018) deduces in the aftereffects of his exploration that the utilization of virtual research facility media can foster understudy process abilities. Comparable outcomes were closed by Oktavina (2020) who inferred that there was a tremendous impact of virtual lab helped learning on mental physical science learning results. Sari and Harjono (2016) fortify their decision that virtual research center helped learning affects understudies' dominance of physical science ideas.

The aftereffects of past examinations that are applicable to the consequences of this study were composed by Yulasti et al. (2018) which reasons that advancing by carrying out the Learning Cycle 5E model is helped by a virtual Lab. can further develop understudies' science interaction abilities and reasonable comprehension. One more review directed by Siswono and H (2017) reasoned that there are contrasts in dominance of ideas and science process abilities between understudies who study with PBL utilizing genuine and virtual research centers. In accordance with this, Widyaningsih and Yusuf (2016) likewise finished up exactly the same thing in regards to picking up utilizing Lab-Vir media to be compelling in creating understudy process abilities.

In view of the measurable portrayal of the learning styles of understudies in the exploratory class who were given learning treatment utilizing a virtual research center and lab reality, the typical worth of science process abilities (KPS) in the sensation learning style was 68.03, higher than the other two learning styles, in particular hear-able. 57.17 and visuals 64.22. This shows that the typical worth of science process abilities with various mastering styles produces various qualities.

In view of the consequences of the subsequent speculation test (Ho2), it is shown that the Fcount in the learning style segment is 10.326 with an importance (Sig.) = $0.000 < 0.01$ (research importance level) so it tends to be reasoned that Ho2 is dismissed and Ha2 is acknowledged. This truly intends that there are huge contrasts in science process abilities between understudies who have hear-able, sensation and visual learning styles.

The exploration discoveries about the distinctions in science process abilities in these three acquiring styles are upheld by the aftereffects of past examinations remembering research for the correlation of learning styles to understudies' science cycle abilities led by Hernawati and Hardin (2019) getting research results which for the most part show that there are contrasts in process abilities. understudies' science in view of their learning style, where the sensation learning style is more predominant than the visual learning style and the hear-able learning style. One more pertinent review was led by Janah (2021) who finished up three significant focuses in the consequences of his examination, one of which expressed that there was a critical impact between mastering styles on science process abilities on material tension of class VIII at MTs Darul Falah Bendiljati Kulon Sumbergempol Tulungagung. Another comparable review inferred that there was an impact of understudies' mental acquiring styles on science process abilities at Cisaat Senior High School, Sukabumi Regency (Jamilah et al., 2021).

Data about the impact of cooperation in this review can be displayed from the consequences of the two-way ANOVA test in the source segment of learning techniques and learning styles. The outcomes got are the worth of Fcount = 5.301 with an importance (Sig.) $0.006 < 0.01$ (research importance level), so it tends to be presumed that Ho3 is dismissed and Ha3 is acknowledged, and that intends that there is a cooperation impact between the two free factors in the review. The communication impact being referred to is between the utilization of virtual and reality research centers with learning styles on understudies' science cycle abilities.

From the past conversation, it has been made sense of that independently, the free factors of the utilization of the utilization of virtual labs and research center relativity fundamentally affect science process abilities. In like manner, understudies' learning styles essentially affect science process abilities. The finish of the test consequences of these two speculations is upheld by the aftereffects of past examinations as depicted in the focuses above. The consequences of the third speculation test show that there is a communication impact between the autonomous variable and the mediator variable all the while on the reliant variable. The utilization of virtual research facilities and reality labs with learning styles together can influence understudies' science interaction abilities. This implies that the utilization of virtual research centers and reality labs is successfully utilized in getting the hang of as per the learning styles of understudies.

IV. Conclusion

In view of the consequences of information examination, speculation testing, and conversation, it very well may be portrayed that the finishes of the review incorporate 1) there are contrasts in science process abilities between gatherings of understudies with picking up utilizing virtual research centers and gatherings of understudies with getting the hang of utilizing lab reality. 2) There are contrasts in science process abilities between gatherings of understudies who have hear-able, visual, and sensation learning styles. 3) There is an association impact between getting the hang of utilizing virtual labs with research center reality and mastering styles on science process abilities.

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