female groups. To calculate the F-ratio, this research uses the ANOVA formula:

$$F = \frac{Variance\ between\ groups}{Variance\ within\ groups} \quad (1)$$

To determine the degrees of freedom, this research uses:

$$df1(Degree\ of\ freedom\ between\ groups = number\ of\ groups - 1 \quad (2)$$

$$df2(Degree\ of\ freedom\ within\ group = total\ number\ of\ observations - number\ of\ groups \quad (3)$$

The significance level (α) used for the hypothesis test (e.g., 0.05). Use the F distribution table to determine the critical value of F at the significance level chosen and the corresponding degrees of freedom.

III. Results and Discussion

This section describes the test results of digital literacy towards historical knowledge. It is equipped with standardized test results to support the results of hypothesis testing, such as testing Convergent Construct and Validity, Fornell-Larcker, Heterotrait-Monotrait (HTMT), and Hypothesis Testing and Path Coefficient. Furthermore, the data from the respondents' profiles is presented in Table 1 before entering the test results. This study's respondents were dominated by females, as much as 67.39%, and the remaining 32.61% were male. The age range of most respondents is 17 to 22 years at 83.75%; the remaining 14.20% are over 23 years old, and 2.05% are under 17. Based on this age range, the dominant occupation of the respondents in this study was students, and the rest worked as civil servants and private sector employees and were still students.

TABLE I
PROFILE OF RESPONDENTS

Demographic Aspect	Categories	Frequency	Percentage
Gender	Male	271	32.61%
	Female	560	67.39%
Age	Less than 17 years	17	2.05%
	17 to 22 years	696	83.75%
	23 years above	118	14.20%
Job	Student	18	2.17%
	Student	733	88.21%
	civil servant	53	6.4%
	Private	27	3.25%

The first step in analyzing this research model is to ensure that the instrument used is valid and reliable. The constructs' reliability, convergent, and discriminant validity were used to assess the validity of the measurement model [21], [22]. After the model is validated, the structural model is installed by calculating the path coefficients. The internal consistency of all constructs was assessed using Cronbach's alpha and composite reliability tests. Convergent validity was evaluated using the Average Variance Extracted (AVE) approach. Item loading is viewed to determine whether the index can be trusted for model measurements. To maintain index dependency, the loading of each measure must be at least 0.70. All loads meet specifications. The reliability of all reflective constructs was assessed using Cronbach's alpha and composite reliability. Cronbach's alpha and composite reliability are usually considered minimum criteria above or equal to 0.7, with values less than 0.6 indicating a lack of dependence.

TABLE II
CONVERGENT CONSTRUCT AND VALIDITY

Latent Variable	Cronbach's Alpha	Composite Reliability	Average variance Extracted (AVE)
Digital Literacy (DL)	0.857	0.903	0.699
Historical Knowledge (HK)	0.794	0.864	0.615

Based on Table 2, the reliability of Cronbach's alpha and composite both meet the required standards, then the reliability of internal consistency can be considered acceptable. The Average Variance Extracted (AVE) approach, which can be agreed upon if all constructs have an AVE value greater than 0.5, is used to determine convergent validity. Based on Table 2, the Average Variance Extracted (AVE) ranges from 0.506 to 0.676, which meets the requirements. The researcher used the Fornell-Larcker criteria and the Heterotrait-Monotrait ratio (HTMT) to assess the discriminant validity of the research instrument for this study. Table 3 shows the square root relationship with other parameters.

TABLE III
FORNELL-LARCKER

	Digital Literacy	Historical Knowledge
Digital Literacy (DL)	0.836	
Historical Knowledge (HK)	0.835	0.784

Table 3 shows that each construct's square root (correlation with other constructs) is greater than the sum of the squares derived from each construct, supporting the discriminant validity of the survey instrument. To evaluate the validity and multicollinearity of the model, it is essential to calculate the Heterotrait-Monotrait (HTMT) ratio. HTMT is the relationship between trait correlation and correlation within each trait. Table 4 states that if the projected HTMT value is less than 0.9, there will be less discriminant validity. Table 4 shows that all constructs have met the threshold value, which means that our reflective model has reached discriminant reality.

TABLE IV
HETEROTRAIT-MONOTRAIT (HTMT)

	Digital Literacy	Historical Knowledge
Digital Literacy (DL)	-	
Historical Knowledge (HK)	0.844	-

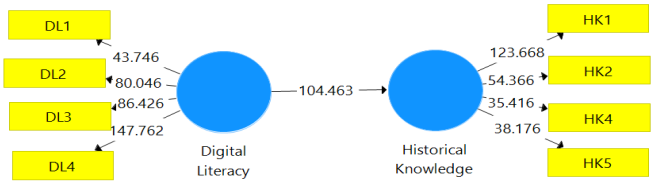

Fig. 2 Structural Model

The results of the structural model in Figure 2 show the relationship between the variables. The relationship of digital literacy to Historical Knowledge offers a direct connection complemented by the factors that influence it. The results of hypothesis testing are shown in Table 5. The effect of the relationship between digital literacy and historical knowledge can be accepted with a P-value of 0.000 and smaller than 0.05.

TABLE V
HYPOTHESIS TESTING AND PATH COEFFICIENT

	Path Analysis	Original Sample (O)	t- Statistics	p- Values	Decision of Hypothesis
Hypothesis	**Digital Literacy -> Historical Knowledge**	0.835	104.463	0.000	Received

*p<0.05, **p<0.01, ***p<0.001

So, it is interpreted that digital literacy contributes to historical understanding. Furthermore, the results of testing R2 and Q2 are shown in table 6 below:

TABLE VI
R SQUARE TEST AND Q SQUARE TEST (PREDICTIVE RELEVANCE TEST)

Variable	R Square	Q Square
Historical Knowledge (HK)	0.697	0.404

The coefficient of determination (R2) result shows a high variance in historical knowledge with a value of 0.697 with 69.7%. Furthermore, the value of Q2 is used as an indicator of the predictive relevance of the model. In particular, the predictive relevance test (Q2) was applied to determine the predictive relevance of the independent variables in the model. The Q2 value of 0.404 indicates that the exogenous construct has small, medium, or enormous predictive relevance for the selected endogenous construct. The findings in the research above show the linkage of digital literacy to historical knowledge. However, obstacles and weak historical knowledge occurred during the Industrial Revolution 4.0 era, and one of the problems was using technology [23]. Despite the rapid development of technology currently, however, it has yet to provide a significant change in knowledge and skills in digital literacy.

Most people need help finding information [24], such as those related to historical events and relics. Supposedly, with the development of the Industrial Revolution era 4.0, digital literacy skills are a fundamental need to access information widely. Generally, historical events and relics have been written as books and articles, now experiencing developments in digital formats such as websites, video documentaries, and others [25]. One of the roles of historical websites is to provide learning to the community because they function and act as learning technology. The Bukittinggi city history website is no exception. The role of technology in education is to facilitate the formation of collaborative relationships and build meaning in contexts more easily understood by the community [26].

Furthermore, learning technology also provides a variety of realistic and safe environments. Technology can be used to provide a comfortable and accessible environment [27], [28]. In addition, digital literacy also has a vital role in realizing historical knowledge because the public must be able to access and understand historical material on historical websites. After optimal community digital literacy, historical knowledge can only be realized, for example, inside the City of Bukittinggi's history and knowing how to interpret the soul of the era of historical objects after reading historical websites. So, after optimal community digital literacy, historical knowledge can only be realized, for example, knowledge of the history of the City of Bukittinggi and being able to know how to interpret the soul of the era of historical objects after reading historical websites. Implementing the historical city website has become a means of learning and increasing public knowledge, especially historical knowledge [29].

TABLE VII
ASSUMPTION CHECKS (HOMOGENEITY TEST)

Test for Equality of Variances (Levene's)			
F	**df1**	**df2**	**p**
0.754	1.000	829.000	0.385

The results of the homogeneity of variance assumption test using the Levene test showed an F value of 0.754 with degrees of freedom df1=1,000 and df2=829,000 and a significance value (p) of 0.385. This result indicates no significant difference in variance between the tested data groups of males and females in historical knowledge. In other words, the assumption of homogeneity of variance is met, so we can proceed with the appropriate statistical analysis for this data without transforming the data or taking additional correction measures related to heteroscedasticity. This allows us to use statistical methods that require homogeneity of variance, such as analysis of variance (ANOVA), with confidence that this assumption has been met.

TABLE VIII
ANOVA HISTORICAL KNOWLEDGE

ANOVA - Historical Knowledge					
Cases	**Sum of Squares**	**df**	**Mean Square**	**F**	**p**
Gender	24.166	1	24.166	1.020	0.313
Residuals	19648.313	829	23.701		

Note. Type III Sum of Squares

Gender is a factor or independent variable that has two groups or categories. The Sum of Squares (SS) for the Gender factor is 24.166, with 1 degree of freedom (df), a Mean Square (MS) of 24.166, an F test statistic of 1.020, and a significance value (p) of 0.313. Residuals are the variance that the Gender factor cannot explain. The Sum of Squares (SS) for the residuals is 19648.313, with 829 degrees of freedom (df), and the Mean Square (MS) is not explained in the output. In these

results, we used "Type III Sum of Squares," which is a method for calculating SS that is more appropriate for models with multiple factors. The F-test statistic tests whether the mean difference between the gender groups is significant. In this case, the F value was 1.020 with a p-value of 0.313.

The F test results can be interpreted as follows:

- H0: There is no significant difference between Gender groups in historical knowledge.
- H1: There is a significant difference between Gender groups in historical knowledge.

With a p-value of 0.313, which is greater than the commonly used significance level (e.g., $\alpha = 0.05$), we do not have enough evidence to reject the null hypothesis. In other words, the ANOVA results show no significant difference in the means between the genders (male and female in historical knowledge). There was no significant difference between the gender groups on historical knowledge, although the male results were higher than females on historical knowledge. So, gender does not influence the understanding of history [30, 31].

TABLE IX
DESCRIPTIVES HISTORICAL KNOWLEDGE

Descriptives - Historical Knowledge					
Gender	**N**	**Mean**	**SD**	**SE**	**Coefficient of variation**
Female	560	14.009	4.835	0.204	0.345
Male	271	14.373	4.936	0.300	0.343

In summary, this data shows that the means are close for both groups, with the second group having a slightly higher mean. The two groups also have similar coefficients of variation, indicating that the variability relative to the mean is comparable. However, the second group has a higher standard deviation and standard error, indicating that the variability is slightly more significant, and the precision is lower than the first group. The male group varied more in historical knowledge than the female.

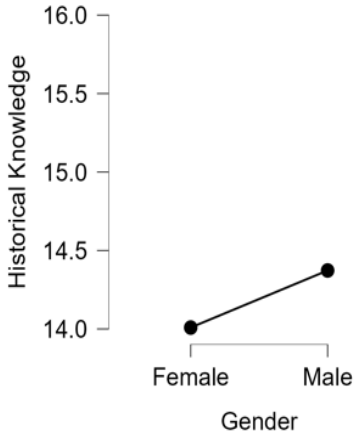

Fig. 3 Descriptives plots

Based on the table, we can see data on historical understanding based on gender. Men have a higher understanding of history compared to women. This can be seen from the data that around 0.5 percent of the historical knowledge of men is superior to the historical knowledge of women.

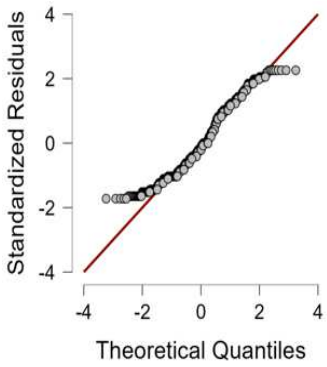

Fig. 4 Q-Q Plot

Based on the Q-Q plot, it can be seen that the distribution is around the line. This means that the assumption of normality is met. Based on historical knowledge, the data distribution between males and females tends to follow a regular distribution pattern or has characteristics similar to a normal distribution.

TABLE X
POST HOC COMPARISONS GENDER

Post Hoc Comparisons - Gender					
		Mean Difference	**SE**	**t**	**turkey**
Female	Male	-0.364	0.360	-1.010	0.313

The information provided shows statistics (mean difference, standard error, and t-value) that pertain to a comparison between two groups (presumably male and female). Let us implement this with some historical knowledge about male and female populations. This paper compares the historical understanding of males and females. The mean difference of -0.364 indicates that, on average, females are 0.364 units lower than males. The standard error (SE) of 0.360 means that the sample means used to estimate the population means to have a standard deviation of 0.360. This indicates the precision of the estimate. The t-value of -1.010 suggests that the difference between males and females regarding historical knowledge is not statistically significant at a given confidence level (since it is close to 0, and the negative sign indicates that females are shorter on average).

A critical factor in determining the statistical significance of the difference between the two groups (male and female) in terms of historical knowledge scores. Mean Difference: -0.364 (This means, on average, there is a slight advantage in historical knowledge scores for the male group over the female group, but the difference is not significant.) Standard Error (SE): 0.360 (This measures the estimate's precision.) T-value: -1.010 (This indicates that the difference is not statistically significant), P-value: 0.313 (This is the probability of getting these results or more extreme effects if the difference is due to chance alone). The difference is considered statistically insignificant if the p-value exceeds a predetermined significance level (usually 0.05). In this case, the p-value of 0.313 is more remarkable than the standard significance level of 0.05. Based on the data and statistical analysis, there is no significant difference in historical knowledge scores between males and females. In other words, the difference in mean scores cannot be statistically attributed

to differences in gender. Therefore, historical knowledge scores do not significantly vary between males and females in this study.

TABLE XI
KRUSKAL-WALLIS TEST

Kruskal-Wallis Test			
Factor	**Statistic**	**df**	**p**
Gender	1.050	1	0.306

The Kruskal-Wallis test is a non-parametric test used to determine if there is a significant difference between two or more independent groups. This test applies when the assumptions of normal distribution and equal variances are unmet. In the context of historical knowledge scores for male and female groups, the data of test statistics is 1.050, and this is the value calculated from the data. It is used to determine if there is a significant difference between the groups. In this case, the test statistic is relatively tiny. Degrees of Freedom (df) is 1. This indicates the number of groups minus 1. Since there are two groups (male and female), there is 1 degree of freedom. P-value: 0.30. This is the probability of obtaining the observed result if there is no difference between the groups. In this case, the p-value is about 0.306. Since the p-value is more significant than the standard significance level of 0.05, it suggests no significant difference in historical knowledge scores between males and females, according to the Kruskal-Wallis test. This aligns with the earlier conclusion based on the t-test, reinforcing that gender does not play a significant role in historical knowledge scores in this study. It is important to note that the t-test and Kruskal-Wallis test consistently indicate no significant difference between male and female groups in terms of historical knowledge scores.

Based on the analyzed data, this result shows no significant difference in historical knowledge scores between males and females. In other words, the difference in mean scores cannot be statistically attributed to gender differences. So, based on these results, it is not appropriate to conclude that men's historical knowledge level is higher than women's. Instead, the results show no significant difference in historical knowledge scores between the two gender groups. Previous studies have shown significant differences between men and women regarding digital literacy. Men tend to have higher technological access and skills than women. Social and economic factors can also affect digital literacy levels [32]. For example, the availability of access to devices and internet connections may differ between men and women in Bukittinggi. Digital literacy is not just about technical ability but also the ability to search, assess, and understand historical information. With limited access or limitations in digital literacy, one may need help to utilize online resources rich in Bukittinggi historical information. This may affect the level of historical knowledge between men and women. In this context, if the data shows that men's digital literacy is higher than women's in Bukittinggi, this could affect historical knowledge. Men may be better able to utilize online resources to deepen their understanding of the city's history [33]. Understanding the differences in digital literacy between men and women has essential implications for developing education and literacy programs in Bukittinggi. Efforts to improve digital literacy, particularly among women, can increase access to and understanding of the city's history.

IV. CONCLUSIONS

The results of this study reveal a significant influence of digital literacy on historical knowledge through the application of the Bukittinggi City history website. Applying the Bukittinggi City History Website as Educational Technology for the community helps optimize digital literacy toward historical knowledge. The application of the Bukittinggi City history website as an educational technology application is an effective and efficient alternative. To develop education and literacy programs in Bukittinggi, it is crucial to understand the digital literacy gap between men and women. Improving digital literacy can increase access to and understanding of the city's history, so it is essential to always be in harmony between technological developments and the community's ability to understand digital literacy, which can increase knowledge.

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