The Influence of Students' Perceptions of Teachers' Instructional Practices and Students' Academic Attitudes on Higher-Order Thinking Skills (Hots) Practices in History Among Form Four Students in Lawas District, Sarawak Malaysia.

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DOI: https://doi.org/10.47772/IJRISS.2026.101000773

Received: 29 October 2026; Accepted: 03 November 2026; Published: 17 November 2026

ABSTRACT

Higher-order thinking skills (HOTS) are central to meaningful History education, yet students' reported use of these skills may depend on both their classroom experiences and their academic attitudes. This study examined the levels of students' perceptions of teachers' instructional practices, academic attitudes and HOTS practices; their bivariate relationships with HOTS practices and their combined statistical contribution among Form Four students in Lawas District, Sarawak. A quantitative, cross-sectional survey was conducted with 214 students from four secondary schools. A five-point Likert questionnaire, adapted from an earlier History education study, measured perceived teachers' instructional practices (38 items), academic attitudes (39 items) and HOTS practices (24 items). Data were analysed using descriptive statistics, Pearson correlations and stepwise multiple regression in IBM SPSS Statistics 29. All three constructs were at a moderately high level; perceived teachers' instructional practices ($M = 3.79$, $SD = 0.58$), academic attitudes ($M = 3.75$, $SD = 0.55$) and HOTS practices ($M = 3.75$, $SD = 0.53$). Perceived teachers' instructional practices was positively associated with HOTS practices ($r = .668$, $p < .001$), while academic attitudes exhibited a stronger association ($r = .860$, $p < .001$). Academic attitudes alone accounted for 73.9% of the variance in HOTS practices; adding perceived teachers' instructional practices increased explained variance to 76.0% (adjusted $R^2 = .757$). Both predictors remained statistically significant in the final model. The findings highlight the prominent role of students' academic dispositions alongside the additional contribution of perceived instructional experiences. Practical implications include cultivating sustained intellectual engagement, strengthening evidence-based historical inquiry and providing teacher development focused on opportunities for authentic thinking.

Keywords: Higher-order thinking skills, History education, academic attitudes, perceived teachers' instructional practices, Lawas

INTRODUCTION

History education in Malaysia serves purposes extending beyond the recall of historical dates and events. It contributes to civic understanding, the interpretation of historical evidence and the ability to reason about continuity, change and causation. As a compulsory pass subject in the Sijil Pelajaran Malaysia (SPM) examination, History has substantial academic importance. Nevertheless, its educational value cannot be reduced to examination attainment. Learners also need opportunities to examine competing claims, formulate explanations and relate historical understanding to present-day concerns (Ofianto et al., 2022; Noorhawani Abd Wahid & Anuar Ahmad, 2023).

Higher-order thinking skills (HOTS), described in this study through applying, analysing, evaluating and creating, provide one way to conceptualise these learning demands (Anderson & Krathwohl, 2001). The wider educational context gives added urgency to this agenda. The Organisation for Economic Co-operation and

Development (OECD, 2024) reported that 12% of Malaysian participants in the PISA 2022 creative-thinking assessment reached its highest proficiency levels, compared with the OECD average of 27%. PISA creative thinking is not a direct test of historical HOTS, but it provides background evidence of the importance of developing higher-level reasoning in Malaysian classrooms.

There are at least two distinct influences worthy of attention. The first is students' experience of teaching: how they perceive questioning practices, access to thinking time, feedback, classroom participation and opportunities to relate historical ideas to meaningful situations. The second is students' academic attitudes, which encompass their beliefs about the subject, interest, confidence, persistence and willingness to engage in demanding tasks. These constructs concern different aspects of learning, even though teaching experiences and learner dispositions may be interrelated.

Evidence about History-related HOTS has often been generated through teachers' reported readiness, students' ability to answer higher-order examination questions, or assessments of historical thinking. These approaches are useful but do not answer precisely how students' own perceptions of instruction and academic attitudes relate to their reported HOTS practices. Moreover, the results of previous research conducted in rural Sabah (Tika Ali Ashmad, 2018) cannot automatically be generalised to Lawas, Sarawak. The study therefore addresses a context-specific empirical gap without treating locality itself as an established causal explanation.

The objectives of this study are as follows:

1. To identify the levels of students' perceptions of teachers' instructional practices, students' academic attitudes, and students' Higher-Order Thinking Skills (HOTS) practices in History among Form Four students in Lawas District.
2. To examine the relationship between students' perceptions of teachers' instructional practices and their HOTS practices in History among Form Four students in Lawas District.
3. To examine the relationship between students' academic attitudes and their HOTS practices in History among Form Four students in Lawas District.
4. To determine the influence of students' perceptions of teachers' instructional practices and students' academic attitudes on their HOTS practices in History among Form Four students in Lawas District.

This study seeks to address the following research questions:

1. What are the levels of students' perceptions of teachers' instructional practices, students' academic attitudes, and students' HOTS practices in History among Form Four students in Lawas District?
2. Is there a significant relationship between students' perceptions of teachers' instructional practices and their HOTS practices in History among Form Four students in Lawas District?
3. Is there a significant relationship between students' academic attitudes and their HOTS practices in History among Form Four students in Lawas District?
4. Do students' perceptions of teachers' instructional practices and students' academic attitudes have a significant influence on their HOTS practices in History among Form Four students in Lawas District?

Three null hypotheses are formulated and tested in this study:

H_{01}: There is no significant relationship between students' perceptions of teachers' instructional practices and their HOTS practices in History among Form Four students in Lawas District.

H_{02}: There is no significant relationship between students' academic attitudes and their HOTS practices in History among Form Four students in Lawas District.

H_{03}: Students' perceptions of teachers' instructional practices and students' academic attitudes do not significantly influence their HOTS practices in History among Form Four students in Lawas District.

LITERATURE REVIEW

HOTS and historical thinking in History education

Higher-order learning in History is not interchangeable with memorising more historical information. Instead, it is demonstrated when learners apply knowledge to unfamiliar situations, explain causes and consequences, evaluate evidence and develop reasoned interpretations. Historical thinking also encompasses chronology, source criticism, contextualisation and the comparison of perspectives. In a study of historical causation, Ofianto et al. (2022) showed how skills involving cause-and-effect reasoning can be articulated through assessable indicators. Their work highlights the importance of authentic evidence-based tasks rather than an exclusive reliance on general assertions about thinking skills.

The present study, however, does not assess students through an externally scored historical-reasoning test. Its dependent variable, HOTS practices, refers to students' self-reported tendency to engage in learning behaviours such as preparing information for group discussion, explaining facts, proposing ideas, analysing cases and using historical knowledge in everyday contexts. This operational distinction is essential. A positive questionnaire response reflects a perceived pattern of practice; it does not independently establish performance proficiency or quality of historical arguments.

Students' perceptions of teachers' instructional practices

Teachers' instructional practices can create or constrain opportunities for higher-order reasoning by influencing the difficulty of questions, the availability of wait time, the nature of feedback and the extent to which learners participate in discussion. Resnick (2023) found that introducing higher-order thinking questions did not consistently translate into sustained opportunities for student thinking, but the quality of follow-up and interactions mattered. For History education, this finding suggests that the visible presence of a challenging question may be insufficient unless the lesson also invites students to construct and defend their reasoning.

Malaysian research also describes practical challenges associated with instructional resources and classroom implementation. For example, Fatin Imanina Abd. Rahman and Anuar Ahmad (2024) examined teachers' challenges in using electronic materials in History lessons. Such studies underscore the need to understand pedagogical practice as it is experienced by learners, rather than equating a teacher's intention or readiness with effective learning. In the present study, perceived instruction includes motivational practices, questioning, collaborative participation, instructional aids, teacher-student interaction, feedback and opportunities to extend historical knowledge.

Academic attitudes and student engagement

Academic attitudes are broader than interest in a subject. They include cognitive beliefs about the value of learning, affective responses such as enjoyment and confidence, and behavioural orientations such as persistence and willingness to undertake difficult assignments (Eagly & Chaiken, 1993). In History, these dispositions may shape whether a learner actively seeks evidence, persists with an unfamiliar interpretation and makes the effort to revise an initial explanation. Whereas teachers can offer opportunities for critical thinking, learners must still choose to participate in them.

Alorsamy and Awang (2023) examined Form Five students' readiness to answer HOTS questions in History, drawing attention to learner-related dimensions that cannot be addressed solely through question design. These findings support the inclusion of students' academic attitudes as an analytically distinct predictor. Nevertheless, attitudes and reported HOTS practices may overlap at the level of questionnaire content; an apparent strong association must therefore be interpreted with attention to measurement validity and possible common-method bias.

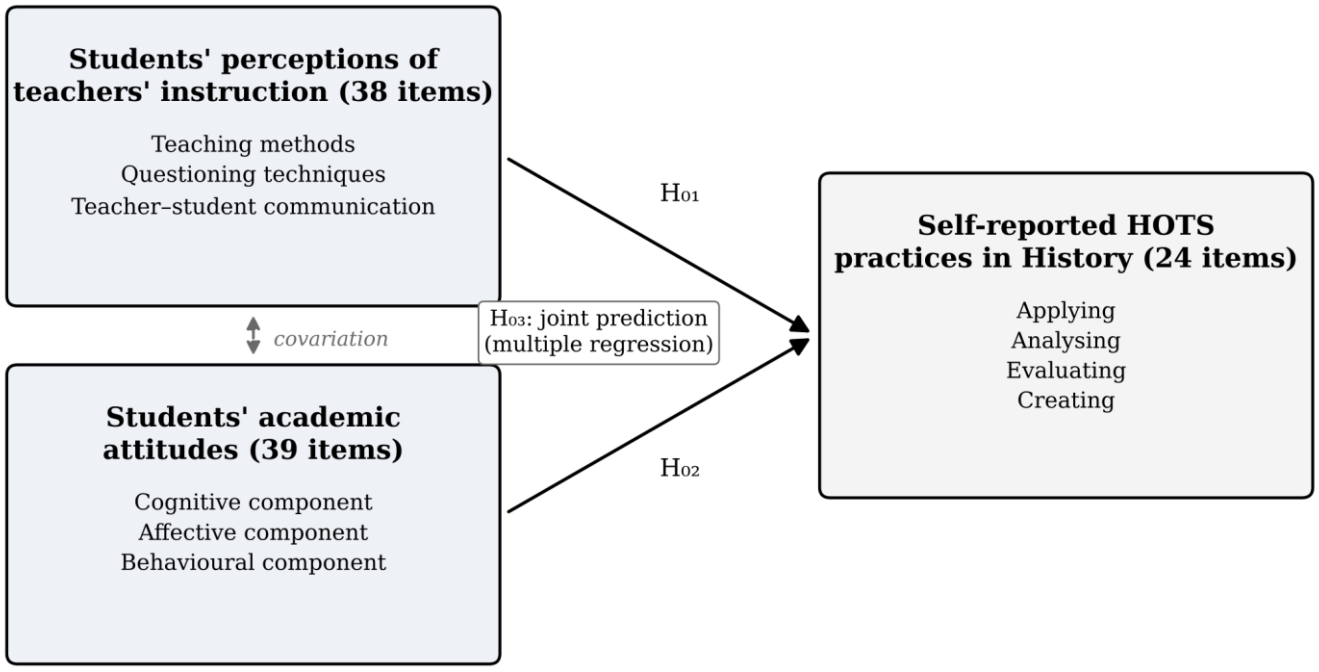
THEORETICAL AND CONCEPTUAL FRAMEWORK

The framework integrates three complementary perspectives. First, revised Bloom's taxonomy specifies higher-level cognitive processes, including application, analysis, evaluation and creation (Anderson & Krathwohl,

2001). Second, constructivist accounts of learning emphasise the development of understanding through active interpretation and interaction, rather than passive transmission of factual information (Piaget, 1952; Vygotsky, 1978). Third, the cognitive, affective and behavioural dimensions of attitudes help to explain why learners vary in their willingness to engage with cognitively demanding opportunities (Eagly & Chaiken, 1993).

The resulting model specifies students' perceptions of teachers' instructional practices and academic attitudes as independent variables and self-reported HOTS practices in History as the dependent variable.

Figure 1: Conceptual Framework of the Influence of Students' Perceptions of Teachers' instructional practices and Students' Academic Attitudes on Higher-Order Thinking Skills (HOTS) Practices in History among FormFour Students in Lawas District.



Theoretical bases: revised Bloom's taxonomy; constructivism (Piaget, Vygotsky); tripartite model of attitudes (Eagly & Chaiken). Arrows denote hypothesised statistical associations, not causal effects.

METHODOLOGY

Research Design

The study employed a quantitative, cross-sectional correlational survey design, replicating the design of Tika Ali Ashmad (2018) in a different district, with a different set of schools and sample size. No variable was manipulated and all data were collected at a single time point. Accordingly, terms such as *predictor* and *contribution* are used in their statistical sense only and do not imply causal influence.

Population, Sampling and Participants

The population comprised Form Four students taking History in the four government secondary schools in Lawas District, Sarawak, in 2026 (N = 477). Following the original design, a multistage sampling procedure was used. In the first stage, four schools were selected from the list of secondary schools in the district (cluster sampling). In the second stage, Form Four students in each selected school were drawn by simple random sampling from class name lists. The minimum sample size was determined using the table of Krejcie and Morgan (1970), which recommends a sample of 214 for a population of 477. An a priori power analysis for multiple regression with two predictors, a medium effect size ($f^2 = .15$; Cohen, 1988), $\alpha = .05$ and power = .95 indicated a minimum of 107 respondents (Faul et al., 2009). The achieved sample of 214 respondents therefore exceeded both requirements. All 214 returned questionnaires were complete and retained for analysis.

Table 1 summarises the achieved sample. The respondents comprised 87 male (40.7%) and 127 female (59.3%) students; 48 (22.4%) were in the Science stream and 166 (77.6%) in the Humanities stream.

Table 1: Demographic profile of respondents (n = 214)

Characteristic	Category	n	%
Gender	Male	87	40.7
	Female	127	59.3
Academic stream	Science	48	22.4
	Humanities	166	77.6

Instrument

Data were collected using a four-part structured questionnaire adapted from Tika Ali Ashmad (2018). Section A recorded gender and academic stream. Section B contained 38 items on students' perceptions of teachers' instruction, covering teaching methods, questioning techniques and teacher–student communication; in the original study these items were adapted from earlier Malaysian instruments and aligned with Ministry of Education guidelines on HOTS-oriented teaching. Section C contained 39 items on academic attitudes towards History, covering cognitive, affective and behavioural components. Section D contained 24 items on self-reported HOTS practices in History, covering applying, analysing, evaluating and creating. Sections B–D used a five-point scale from 1 (*strongly disagree*) to 5 (*strongly agree*). In adapting the instrument for Lawas, only the school and district references in Section A were changed; item wording in Sections B–D was retained. Table 2 summarises the operationalisation of each construct.

Table 2: Operationalisation of study constructs

Construct	Items	Dimensions	Operational focus
Perceived teachers' instruction	38	Teaching methods; questioning; communication	Students' evaluation of the instruction they experience, not external observation
Academic attitudes	39	Cognitive; affective; behavioural	Beliefs, interest, confidence, effort and persistence in History
Self-reported HOTS practices	24	Applying; analysing; evaluating; creating	Reported frequency of HOTS-related learning behaviours, not assessed proficiency

Validity and Reliability

The instrument was face-validated by two lecturers with expertise in History education, who reviewed item clarity for Form Four students, alignment with the constructs and consistency with Ministry of Education HOTS guidelines. A pilot study with 100 Form Four students examined construct validity through exploratory factor analysis and internal consistency through Cronbach's alpha. Sampling adequacy was satisfactory for all three scales (Kaiser–Meyer–Olkin = .829, .869 and .905; Bartlett's tests $p < .001$), all items loaded at .40 or above and were retained, and reliability was high (α = .944, .957 and .948 for perceived instruction, academic attitudes and HOTS practices, respectively).

An item-level review of the questionnaire, prompted by the very strong correlation between academic attitudes and HOTS practices, identified several items in Sections C and D that describe similar behaviours (Table 4). For example, generating ideas, participating in group discussion and connecting History with daily life appear in both scales, while some HOTS items describe classroom conditions (e.g., discussion topics based on high-level questions) that overlap with perceived instruction. Using the pilot reliabilities, the correlation between academic attitudes and HOTS practices corrected for attenuation is approximately .90, which exceeds the conventional .85 threshold for discriminant validity (Henseler et al., 2015). The two scales should therefore be regarded as closely related rather than fully distinct measures, and this is taken into account in interpreting the results.

Table 3: Internal consistency reliability of the scales

Scale	Items	α (pilot, n = 100)[a]
Perceived teachers' instruction	38	.944
Academic attitudes	39	.957
Self-reported HOTS practices	24	.948

[a] Tika Ali Ashmad (2018).

Table 4: Examples of conceptually overlapping items across scales

Shared content	Academic attitudes (Section C)	Self-reported HOTS practices (Section D)
Generating ideas	C15: I always try to generate ideas; C35: I am able to generate ideas in class	D11: I create ideas before explaining in group work; D15: I always have interesting ideas about this subject
Group discussion	C7: I discuss ideas about this subject with my friends	D1: I like to take part in group discussions; D14: I like to give ideas during group activities
Linking History to daily life	C31: I can apply this subject to my daily life	D13: I can relate information from History topics to daily life
Developing thinking	C27: I work hard to develop my thinking skills	D23: This subject helps me improve my thinking skills

Note. Items are English translations of the Malay originals in Tika Ali Ashmad (2018).

Data Collection and Ethical Considerations

Approval to conduct the study was obtained from the Educational Planning and Research Division (EPRD), Ministry of Education Malaysia (KPM.600-3/2/3-eras(30471)), the Sarawak State Education Department (JPNSW (SPPD.600-11/1/2 Jld.44(44)) and the principals of the participating schools. Students were informed of the purpose of the study, that participation was voluntary and that they could withdraw without consequence, and consent procedure as required by the approving bodies. The questionnaire was anonymous, no names were recorded and schools are not identified in this report. Questionnaires were administered in class under the supervision of the researcher in September 2026 and took approximately 45 minutes to complete.

Data analysis

Questionnaire responses were analysed using IBM SPSS Statistics 29. Frequencies and percentages described respondents' gender and academic stream. Means and standard deviations summarised the three constructs on a five-point scale. The study's mean interpretation bands classified values from 3.01 to 4.00 as moderately high. Pearson product–moment correlations examined the two bivariate relationships with HOTS practices, and stepwise multiple regression was used to examine their joint statistical prediction. Significance was assessed at the .05 level, and values displayed by SPSS as .000 are reported as $p < .001$ rather than as zero probabilities.

RESULTS

Descriptive results

Data were analyses using five response categories, namely "Strongly Agree", "Agree", "Uncertain", "Disagree", and "Strongly Disagree". These five categories were based on the response frequencies of a five-point Likert scale. The findings obtained through the questionnaire-based survey were analyzed using frequencies,

percentages, and mean values for each question item in this study. The following presents the distribution of mean scores according to the interpretation level for each research finding.

Table 4: Distribution of Mean Score Interpretations by Level

Mean Score	Interpretation
1.00 – 2.00	Low
2.01 – 3.00	Moderately Low
3.01 – 4.00	Moderately High
4.01 – 5.00	High

Source: Nunnally (1994); Mohamed Najib et al., (2011); Lendal (1977); Mohd Noor et al., (2016)

Statistical analyses were conducted to identify students' mean scores for the three variables, namely students' perceptions of teachers' instructional practices, students' academic attitudes, and students' HOTS practices, using means and standard deviations. Meanwhile, the standard deviation indicates the average extent to which an individual value or score deviates from the mean of a distribution.

The overall study findings were based on a total of 214 respondents (n=214). Based on the analysis, the mean score and standard deviation for the variable of students' perceptions of teachers' instructional practices were (M=3.79, SD=0.58, n=214). This value indicates that students' perceptions of teachers' instructional practices were at a moderately high level. For the variable of students' academic attitudes, the mean score was also at a moderately high level, namely (M=3.75, SD=0.55, n=214), while the mean score for HOTS practices among students was (M=3.75, SD=0.53, n=214).

These three findings indicate that students have a moderately high level of perception of their History teachers' teaching and that their academic attitudes and HOTS practices are at a moderately high level. Table 5 summarises the minimum scores, maximum scores, means, and standard deviations for all three variables in this study.

Table 5: Test of Mean Scores and Standard Deviations for Each Variable

Variable	N	Mean	SD
Students' perceptions of teachers' instructional practices	214	3.79	0.58
Students' Academic Attitudes towards HOTS	214	3.75	0.55
Students' HOTS Practices	214	3.75	0.53

Correlation Analysis of the Relationship Between Students' perceptions of teachers' instructional practices and Their HOTS Practices

$H0_1$: There is no significant relationship between students' perceptions of teachers' instructional practices and students' HOTS practices in History among Form Four students in Lawas.

Based on the findings obtained and the guidelines for interpreting correlation coefficients, the relationship between students' perceptions of teachers' instructional practices and students' HOTS practices was strong, with a value of $r = 0.668$. The study also found a significant relationship between students' perceptions of teachers' instructional practices and students' HOTS practices, with a value of $p > 0.000$, which is less than 0.05. These findings indicate that there is a significant relationship between students' perceptions of teachers' instructional practices and students' HOTS practices. Accordingly, the null hypothesis ($H0_1$), which states that there is no significant relationship between students' perceptions of teachers' instructional practices and students' HOTS practices, was rejected. Table 6 presents the results of the analysis:

Table 6: Pearson Correlation Test Between Students' perceptions of teachers' instructional practices and Students' HOTS Practices

Correlation		
		Students' HOTS Practices
Students' perceptions of teachers' instructional practices	Pearson Correlation	.668**
	Sig. (2-tailed)	.000
	N	214

**. The correlation is significant at the 0.01 level (2-tailed)

Analysis of the Relationship Between Students' Academic Attitudes and Their HOTS Practices

$H0_2$: There is no significant relationship between students' academic attitudes and students' HOTS practices in History among Form Four students in Lawas.

The correlation analysis findings show that the relationship between students' academic attitudes and students' HOTS practices was a very strong positive correlation, with a value of r = 0.860. As the value of p = 0.000 < 0.005, the null hypothesis ($H0_2$), which states that there is no significant relationship between students' academic attitudes and students' HOTS practices, was rejected. This result indicates that students' academic attitudes have a positive relationship with students' HOTS practices. The following table presents the findings from the correlation analysis conducted:

Table 7: Pearson Correlation Test Between Students' Academic Attitudes and Students' HOTS Practices

Correlation		
		Students' HOTS Practices
Students' Academic Attitudes	Pearson Correlation	.860**
	Sig. (2-tailed)	.000
	N	214

**. The correlation is significant at the 0.01 level (2-tailed)

Regression Analysis of the Influence of Students' perceptions of teachers' instructional practices and Students' Academic Attitudes on Students' HOTS Practices

The analysis was conducted to address the following null hypothesis:

$H0_3$: Students' perceptions of teachers' instructional practices and students' academic attitudes do not have a significant influence on students' HOTS practices in History among Form Four students in Lawas.

The multiple regression analysis showed that the variable of students' academic attitudes (R = .860, p < .05) made a significant contribution of 73.9% (R^2 = .739) to the change in the variance of HOTS [F (1,600.432) = 212, p < .05]. Meanwhile, the combination of the two variables, academic attitudes (β = .737, p < 0.5) and perceptions of teachers' teaching (β = .188, p < 0.5), contributed 76% (R^2 = .760) to the change in the variance of HOTS [F (1,17967 = 211, p < .05].

Meanwhile, the results of the stepwise multiple regression analysis showed that teachers' teaching and academic attitudes contributed 76% (R^2 = .760) to the change in the variance of HOTS [F (1,17967) = 211, p < .05]. The influence of academic attitudes (β = .714, p < .05) was the highest, followed by teachers' teaching (β = .173, p < .05). Academic attitudes and teachers' teaching therefore contributed to students' HOTS practices. The following presents the results of the regression analysis:

Table 8: Regression Analysis Results for Perceptions of Teachers' Teaching and Students' Academic Attitudes on Students' HOTS Practices

Coefisien[a]								
Model	R	R^2	Adjusted R^2	Changed Statistics				
				R^2	F change	df1	df2	Sig. F change
1	.860[a]	.739	.738	.739	600.432	1	212	.000
2	.872[b]	.760	.757	.020	17.967	1	211	.000

a. Predictors: (Constant), Students' Academic Attitudes

b. Predictors: (Constant), Students' Academic Attitudes, Students' Perceptions

Table 9: Coefficient Analysis Results

Coefisien[a]						
Model		Coefisien		Std. Coefisien	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.626	.129		4.862	.000
	Academic Attitudes	.832	.034	.860	24.504	.000
2	(Constant)	.413	.134		3.094	.002
	Academic Attitudes	.714	.043	.737	16.595	.000
	Students' Perceptions	.173	.041	.188	4.239	.000

a. Dependent variable: Students' HOTS Practices

These results supported rejection of the third null hypothesis of no statistical contribution from the two predictors. They also showed that teachers' instructional practices was not redundant: its perceived quality was associated with additional variation in HOTS practices after academic attitudes had been entered. At the same time, academic attitudes accounted for most of the variance explained by the fitted model, and the stepwise procedure should not be treated as definitive evidence of predictor importance in other populations.

DISCUSSION

Discussion of Research Findings

The findings of this study provide empirical insights into the relationships between students' perceptions of teachers' instructional practices, academic attitudes, and Higher-Order Thinking Skills (HOTS) practices in History among Form Four students in Lawas, Sarawak. Based on the descriptive analysis, students' perceptions of teachers' instructional practices and their academic attitudes were examined in relation to their engagement in HOTS practices during History lessons. The findings highlight the relevance of instructional approaches, classroom questioning techniques, teacher–student interactions, and students' academic attitudes in understanding the development and application of higher-order thinking skills in History education.

The Pearson correlation analysis revealed a statistically significant positive relationship between students' perceptions of teachers' instructional practices and their HOTS practices in History ($r = .668$), indicating a strong positive association between the two variables. This finding suggests that students who perceive their teachers' instructional practices more positively also tend to report higher levels of engagement in HOTS-related learning activities. Furthermore, the analysis demonstrated a statistically significant and very strong positive relationship between students' academic attitudes and HOTS practices ($r = .860$). This finding indicates that students with more positive academic attitudes are generally more likely to report engaging in activities involving critical thinking, analytical reasoning, evaluation, and the application of historical knowledge.

Additionally, multiple regression analysis was employed to examine the combined influence of students' perceptions of teachers' instructional practices and academic attitudes on their HOTS practices in History. The

analysis was intended to determine the extent to which these two independent variables collectively explain variations in students' HOTS practices. The findings provide a basis for understanding the relative contributions of instructional practices and students' academic attitudes in predicting their engagement in higher-order thinking activities. Collectively, the results underscore the importance of considering both teacher-related and student-related factors when examining HOTS practices in History education.

Overall, the findings suggest that students' perceptions of teachers' instructional practices and their academic attitudes are important factors associated with HOTS practices among Form Four students in Lawas, Sarawak. Nevertheless, given the cross-sectional nature of the study, these relationships should be interpreted as statistical associations rather than definitive evidence of causality. The findings offer practical implications for History teachers, particularly in strengthening instructional strategies that encourage critical inquiry, historical interpretation, analytical reasoning, and active student participation. At the same time, fostering positive academic attitudes may contribute to a classroom learning environment that supports students' engagement in higher-order thinking activities.

Moderately High Ratings Across All Three Constructs

The first objective showed moderately high mean scores for perceived teachers' instructional practices, academic attitudes and HOTS practices. This is not evidence that all students consistently demonstrate sophisticated historical reasoning; rather, it indicates that participants generally evaluated their learning experiences and reported engagement positively on the questionnaire. The distinction is particularly important because the instrument measures practice as students understand and describe it. A learner may report discussing a historical issue or constructing an idea without necessarily demonstrating accurate sourcing, credible inference or nuanced contextual judgement. Objective performance tasks would therefore be needed to determine whether the positive self-reports translate into quality historical thinking.

Nevertheless, the descriptive pattern is educationally useful. The closeness of the academic-attitude and HOTS-practice means suggests that students' motivational and behavioural orientations merit attention alongside the learning opportunities offered by teachers. For schools, a moderately high average should prompt refinement rather than complacency: the aim is to deepen the intellectual quality and consistency of practices that students already report undertaking.

Students' Perceptions of Teachers' Instructional Practices and Academic Attitudes

The findings of this study highlight the importance of students' perceptions of teachers' instructional practices and academic attitudes in relation to Higher-Order Thinking Skills (HOTS) practices in History among Form Four students in Lawas, Sarawak. Students' perceptions of teachers' instructional practices reflect their evaluations of instructional approaches, questioning techniques, classroom communication, and the extent to which teachers facilitate meaningful learning experiences. These instructional dimensions are particularly relevant to History education, where students are expected to move beyond memorising historical facts towards analysing historical events, evaluating evidence, interpreting different perspectives, and constructing reasoned arguments. Similarly, students' academic attitudes represent an important dimension of their learning experiences, particularly in terms of motivation, interest, participation, and willingness to engage in intellectually challenging activities.

The findings concerning students' perceptions of teachers' instructional practices suggest that instructional practices are relevant to students' engagement in HOTS-related learning activities. In particular, the Pearson correlation analysis revealed a strong positive relationship between students' perceptions of teachers' instructional practices and HOTS practices in History ($r = .668$). This finding indicates that students who evaluated their teachers' instructional practices more positively also tended to report higher levels of HOTS practices. Such a relationship highlights the potential importance of effective instructional strategies, particularly those involving purposeful questioning, interactive communication, and opportunities for students to express and justify their ideas. In the context of History education, these approaches may encourage students to examine

historical information critically, establish relationships between historical events, and formulate evidence-based interpretations rather than relying exclusively on factual recall.

This finding is consistent with the arguments presented by Chew Eng Sun and Ahmad Rizal Madar (2016), who emphasised the importance of creative thinking as an essential competency in twenty-first-century education. The integration of thinking-oriented instructional strategies provides opportunities for students to develop analytical and creative reasoning skills through active participation in classroom activities. Similarly, Normah (2013) highlighted the importance of developing students' independent thinking abilities, particularly in enabling them to approach learning tasks and problems without excessive dependence on teachers. Within the context of the present study, these perspectives suggest that effective History teaching should provide opportunities for students to independently examine historical issues while receiving appropriate instructional guidance. Nevertheless, the observed correlation should not be interpreted as direct evidence that particular teaching strategies caused improvements in students' HOTS practices.

Furthermore, questioning techniques represent an important instructional component in promoting higher-order thinking during History lessons. Teachers who incorporate questions of varying cognitive complexity may encourage students to progress from understanding historical facts towards applying, analysing, evaluating, and creating knowledge. Shamsazila, Muhammad Faizal and Ghazali (2017) similarly emphasised the role of questioning techniques in encouraging HOTS among students. In History education, questions requiring students to explain the causes and consequences of historical events, compare different historical perspectives, evaluate the significance of historical developments, and justify their interpretations may provide opportunities for deeper cognitive engagement. Such practices also enable teachers to assess students' reasoning processes and identify areas requiring further instructional support. Accordingly, the positive relationship identified in this study is compatible with the view that students' favourable perceptions of teachers' instructional practices are associated with greater engagement in higher-order thinking activities.

Apart from instructional approaches, effective teacher–student communication is also relevant to creating a classroom environment that encourages active learning. Constructive interactions may provide students with opportunities to communicate their interpretations, ask meaningful questions, challenge assumptions, and participate in discussions concerning historical issues. Student-centred learning approaches can provide opportunities for learners to take greater responsibility for their learning while developing confidence in expressing and defending their viewpoints. For students in rural secondary schools in Lawas, such instructional opportunities are especially relevant to ensuring that History lessons extend beyond textbook-based learning and provide meaningful opportunities for critical inquiry.

In relation to students' academic attitudes, the findings revealed a very strong positive relationship between academic attitudes and HOTS practices in History ($r = .860$). This result suggests that students who reported more positive academic attitudes also tended to demonstrate higher self-reported engagement in HOTS practices. Academic attitudes encompass students' dispositions towards learning, including their interest in academic activities, motivation to acquire knowledge, willingness to participate in classroom discussions, and readiness to engage with challenging learning tasks. In History education, these characteristics may be particularly important because higher-order thinking requires students to examine complex historical information, consider alternative interpretations, and develop reasoned conclusions. Students who demonstrate positive academic attitudes may therefore be more inclined to participate actively in learning activities that demand sustained cognitive engagement.

The importance of positive academic attitudes is consistent with the perspective of Prashant Ramaro (2017), who emphasised the relevance of students' positive academic perceptions in supporting active learning. Students who approach academic activities with interest and commitment may be more willing to participate in discussions, complete challenging tasks, and explore different approaches to problem-solving. In the context of History education, these attitudes may be reflected in students' willingness to investigate historical

Relationship Between Students' Perceptions of Teachers' Instructional Practices and HOTS Practices in History

The findings of this study revealed a statistically significant and strong positive relationship between students' perceptions of teachers' instructional practices and their Higher-Order Thinking Skills (HOTS) practices in History ($r = .668$, $p < .05$). This finding suggests that students who perceived their History teachers' instructional practices more positively also tended to report higher levels of engagement in HOTS-related learning activities. Instructional approaches that incorporate student-centred learning, purposeful questioning techniques, and effective teacher–student communication may provide opportunities for students to engage in critical thinking, analytical reasoning, and problem-solving activities. Within the context of History education, such instructional practices are particularly relevant because students are expected not only to acquire historical knowledge but also to analyse historical events, evaluate evidence, interpret different perspectives, and formulate reasoned conclusions.

The findings are consistent with the study conducted by Ebenzer, Daniel, Sophia, Comfort and Margaret (2015), which reported a positive relationship between teachers' instructional approaches and students' application of thinking skills. Their findings highlighted the importance of incorporating thinking-oriented activities into classroom instruction to support students' cognitive development. Similarly, D. Saribas (2015) emphasised the relationship between teachers' instructional approaches and the development of higher-order thinking abilities among students. These findings suggest that teachers' instructional practices may play an important role in providing learning opportunities that encourage students to move beyond factual memorisation towards more complex cognitive processes. In the present study, the positive association between students' perceptions of teachers' instructional practices and HOTS practices reinforces the relevance of instructional approaches that promote active participation and independent thinking in History lessons.

Furthermore, Tajularipin, Vickneswary, Diwiyah, Raidah and Suzlieez (2017) highlighted the importance of teachers' awareness and understanding of HOTS in facilitating thinking-oriented classroom instruction. Similarly, Sivapakkam, Fadzilah, Habsah, Umi Kalthom and Rozita (2016) emphasised the relevance of teachers' knowledge of HOTS to its integration into teaching and learning activities. These perspectives suggest that teachers who understand the cognitive demands of higher-order thinking may be better positioned to design instructional activities that challenge students intellectually. In History education, this may involve encouraging students to examine the causes and consequences of historical events, compare conflicting historical interpretations, evaluate the reliability of historical sources, and justify their arguments using relevant evidence. Nevertheless, the present study measured students' perceptions of instructional practices rather than teachers' actual pedagogical knowledge or classroom performance. Therefore, the findings should be interpreted as evidence of an association between students' perceived instructional experiences and their self-reported HOTS practices, rather than direct evidence of teachers' instructional effectiveness.

The findings also highlight the relevance of teacher–student interaction in supporting students' engagement in higher-order thinking activities. Through meaningful classroom discussions, guided inquiry, and collaborative problem-solving, students may be provided with opportunities to articulate their ideas, question assumptions, and develop independent interpretations of historical issues. Such interactions are particularly relevant to History education because historical understanding requires students to consider multiple perspectives and construct explanations supported by evidence. Accordingly, instructional practices that encourage active student participation may contribute to a learning environment that supports critical inquiry and intellectual engagement. However, given the cross-sectional nature of the present study, the observed relationship does not establish a causal influence of teachers' instructional practices on students' HOTS development.

In the context of rural secondary schools in Lawas, Sarawak, the findings provide valuable insights into the relationship between students' perceptions of instructional practices and their engagement in HOTS activities. The strong positive correlation suggests that students' perceptions of their History teachers' instructional approaches represent an important factor associated with their reported HOTS practices. This finding underscores the potential value of incorporating student-centred instructional strategies, cognitively challenging questioning techniques, and meaningful classroom communication into History lessons. Overall, the findings

support the importance of considering students' perceptions of teachers' instructional practices when examining HOTS practices in History education. Strengthening instructional approaches that encourage historical inquiry, critical evaluation, and evidence-based reasoning may provide meaningful opportunities for students to engage in higher-order thinking activities.

Influence of Students' Perceptions of Teachers' Instructional Practices and Academic Attitudes on HOTS Practices in History

Based on the findings of this study, students' perceptions of teachers' instructional practices and students' academic attitudes were found to influence students' Higher-Order Thinking Skills (HOTS) practices in History among Form Four students in Lawas, Sarawak. Multiple regression analysis was employed to examine the combined predictive contribution of these two independent variables to students' HOTS practices. The findings highlight the importance of considering both instructional and student-related factors in understanding students' engagement in higher-order thinking activities. Teachers' instructional practices, particularly those involving student-centred learning, questioning techniques, and effective classroom communication, may provide opportunities for students to participate actively in learning activities that require critical thinking, analytical reasoning, and problem-solving. Meanwhile, students' academic attitudes, encompassing their cognitive, affective, and behavioural dispositions towards learning, may be associated with their willingness to engage in intellectually challenging tasks and develop independent interpretations of historical information.

These findings are consistent with the study conducted by Divya (2016), which highlighted the positive influence of students' academic attitudes on higher-order thinking components, including analysis, problem-solving, and inquiry-based learning. Positive academic attitudes may encourage students to demonstrate greater motivation, intellectual curiosity, and persistence when engaging with complex historical issues. Similarly, Seyithan (2015) reported a positive relationship between teachers' instructional approaches, students' attitudes, and critical thinking. These perspectives suggest that instructional practices and students' academic dispositions represent interconnected dimensions of the learning process. In History education, students who demonstrate positive academic attitudes may be more inclined to participate in discussions, evaluate historical evidence, and construct reasoned arguments, particularly when teachers provide meaningful opportunities for active learning.

Furthermore, Mohd Aliakbari and Rafrin (2015) emphasised the importance of instructional strategies and students' academic attitudes in supporting creativity and active learning. Their findings suggest that teaching approaches that encourage student participation and independent thinking may provide opportunities for learners to develop higher-order cognitive processes.

However, the findings should also be considered alongside the observations reported by Mohd Nazri, Ramlee, Nik Azmah and Rosnidar (2017), who identified challenges associated with implementing HOTS-oriented teaching and learning activities. Their study highlighted difficulties experienced by teachers and students in integrating higher-order thinking into classroom instruction, particularly when such practices were insufficiently emphasised during teaching and learning sessions. These observations suggest that the successful integration of HOTS into History education may depend not only on students' academic attitudes but also on the opportunities provided through instructional activities. Although the present study identified positive associations between the examined variables, these findings do not necessarily indicate that students consistently experience effective HOTS-oriented instruction or that all students possess adequate higher-order thinking competencies.

In addition, the findings highlight the potential importance of collaborative teacher–student interactions in supporting HOTS practices. Teachers who function as facilitators may create opportunities for students to explore historical issues, exchange perspectives, formulate arguments, and evaluate alternative explanations. Such instructional experiences may be particularly relevant to History education, where students are required to interpret historical developments, establish connections between events, and justify conclusions using appropriate evidence. At the same time, positive academic attitudes may encourage students to participate more actively in these learning experiences. This suggests that instructional practices and academic attitudes should be considered complementary dimensions of the learning environment rather than isolated factors.

In the context of rural secondary schools in Lawas, Sarawak, the findings contribute to understanding the factors associated with students' HOTS practices in History. The inclusion of both students' perceptions of teachers' instructional practices and academic attitudes in the regression model provides a basis for examining their combined predictive contribution to variations in HOTS practices. However, because the study employed a cross-sectional survey design, the regression findings should be interpreted as statistical prediction rather than evidence of causal influence. Furthermore, as the variables were measured through students' self-reported responses, the possibility of shared method variance should be acknowledged when interpreting the strength of the observed relationships.

Overall, the findings underscore the relevance of both teacher-related and student-related factors in understanding HOTS practices among Form Four students in Lawas. The integration of student-centred instructional approaches, cognitively challenging questioning techniques, and meaningful classroom communication may provide opportunities for students to engage in historical inquiry and critical reasoning. Similarly, fostering positive academic attitudes may support students' motivation and willingness to participate in higher-order thinking activities. Therefore, strengthening both instructional practices and students' academic engagement represents a potentially valuable approach to supporting HOTS-oriented learning in History education, particularly within rural secondary school contexts.

Teachers' Instructional Practices as a Meaningful Contextual Correlate

The positive relationship between perceived teachers' instructional practices and HOTS practices ($r = .668$) is consistent with a classroom account in which scaffolding, questioning, interaction and feedback create opportunities for thinking. The result also accords with Resnick's (2023) observation that authentic engagement depends not simply on asking higher-order questions but on allowing students time and support to work through them. Within History lessons, this may involve analysing contrasting sources, asking students to justify interpretations, staging evidence-based discussion and responding to ideas with probing follow-up questions.

Crucially, the predictor was students' perception of instruction, not an independent observation of teaching quality. Thus, the coefficient should not be used to rank teachers or establish the effectiveness of a particular instructional method. Positive ratings may partly reflect students' general engagement, their relationships with teachers or their confidence in History. Even so, the statistically significant incremental contribution of perceived instruction suggests that the classroom experiences students recognise retain relevance when their academic attitudes are considered.

The comparatively stronger role of academic attitudes

The strongest result was the positive relationship between academic attitudes and HOTS practices ($r = .860$). In the regression analysis, academic attitudes entered first and accounted for 73.9% of the variance in the dependent measure. This pattern supports the theoretical view that the willingness to persevere, ask questions, examine evidence and attempt demanding tasks is central to reported HOTS-related engagement. The finding is compatible with the concerns raised by Alorsamy and Awang (2023) regarding learner readiness for higher-order History questions: exposure to demanding questions alone is insufficient when students have limited confidence or commitment to meaningful engagement.

At the same time, the magnitude of the association requires restraint in interpretation. The academic-attitude scale includes items concerning effort, problem-solving, thinking and engagement, while the HOTS-practice scale also includes active academic behaviours. Conceptual and item-level overlap could inflate the statistical association even if the constructs were labelled differently. Because both were measured using a student-completed questionnaire at one time point, shared response tendencies and common-method variance may also contribute.

Implications Instructional Practice and Professional Learning

For History teachers, the evidence favours creating sustained opportunities for reasoning rather than relying on higher-order question labels alone. Lessons could routinely require students to corroborate claims using sources, articulate cause-and-consequence chains, justify competing interpretations and revise explanations after

feedback. Formative assessment should focus on the quality of reasoning, relevance of evidence, coherence of arguments and recognition of historical context and alongside factual accuracy. Professional development can support teachers in designing these tasks, using purposeful wait time and asking follow-up questions that can make thinking visible. These are practical applications consistent with the constructs measured, where their effectiveness should be evaluated rather than assumed.

Strengthening Students' Academic Attitudes

The prominent association of academic attitudes with HOTS practices suggests that interventions should also address students' confidence, interest and perseverance. Low-stakes discussions, structured collaborative enquiry, achievable inquiry milestones and constructive feedback can lower the perceived risk of offering an unfamiliar interpretation. Students can be encouraged to set personal learning goals, explain how they reached a conclusion and reflect on how new evidence changes their thinking. Supporting attitudes should not mean replacing rigorous historical content with generic motivation activities rather, positive dispositions should be cultivated through meaningful engagement with History itself.

School and District-Level Decision Making

Schools in Lawas and the relevant education offices may use these findings as preliminary local evidence when planning History enrichment, teacher learning communities and targeted academic support. A needs assessment combining student questionnaires, lesson observations and review of actual student work would help identify whether gaps relate mainly to opportunity, engagement or demonstrated reasoning quality. Local interventions should be piloted and evaluated using both self-report and performance indicators.

Research and Measurement

Future work should examine the structure and distinctiveness of the attitude and HOTS scales, report internal-consistency and content-validity evidence, and consider school-level clustering. Mixed-method studies could combine questionnaire data with classroom observation, interviews and rubric-scored historical source analysis. Longitudinal or intervention designs are needed before claims can be made about whether improvements in teacher practice or academic attitudes produce changes in HOTS performance. These steps would allow a stronger distinction between the reported frequency of HOTS practices and actual mastery of higher-order historical thinking.

CONCLUSION

This study provides locally grounded evidence of how students' perceptions of History instruction and their academic attitudes are associated with self-reported HOTS practices among Form Four learners in Lawas District. All three constructs were rated at a moderately high level. Both perceived instruction and academic attitudes exhibited positive and statistically significant bivariate relationships with HOTS practices, with the latter displaying the stronger association. The final regression model accounted for 76.0% of the variance, and perceived teachers' instructional practices contributed a statistically significant increment after academic attitudes were considered.

The findings indicate that cultivating meaningful HOTS-related learning in History entails attention to both the opportunities provided through teaching and students' willingness to engage intellectually with those opportunities. They do not demonstrate that the observed relationships are causal or that questionnaire scores establish objective HOTS mastery. A productive response for teachers, school leaders and district planners is to integrate evidence-based historical inquiry with supportive academic dispositions, while using direct assessments and rigorous follow-up research to evaluate the resulting quality of historical thinking.

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