

Appendix A: Statistical analysis

To examine the relationships between young adults’ algorithmic awareness and knowledge, attitudes toward social media content, and intentions to engage in critical media consumption behaviors, we developed a structural equation model (SEM) based on the theoretical framework shown in Figure 1 and conducted SEM analyses using SPSS AMOS 28. Given significant correlations among mediators and dependent variables (see Table 1), an integrated SEM approach was employed to account for direct, indirect, and cross-path effects simultaneously. SEM also allows the use of multiple observed indicators for each latent construct, enabling more robust and valid inferences at the construct level. In contrast, alternative methods often require multiple separate analyses or yield less coherent conclusions.

To ensure acceptable model fit, we followed conventional thresholds: a Comparative Fit Index (CFI) of $\geq .95$ and a Root Mean Square Error of Approximation (RMSEA) of $\leq .06$. The model met these criteria: $\chi^2(40) = 1.928, p < .001$; CFI = .977; RMSEA = .052 (90% CI: .034, .069).

Table A1. Correlation among variables ($N = 348$).

Measure	1	2	3	4	5
1. Algorithmic Awareness/Knowledge	-				
2. Content Reliability	-.40**	-			
3. Exposure to Diverse Views	-.20**	.46**	-		
4. Corrective Action	-.23**	.28**	.31**	-	
5. Perspective Taking	-.08	.18**	.40**	.49**	-

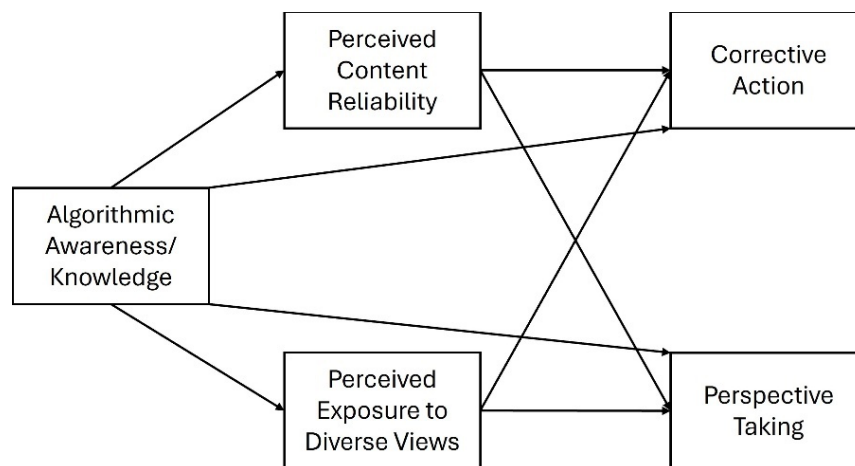


Figure A1. Theoretical model for three dimensions of algorithmic literacy.

Nevertheless, as highlighted by methodologists such as Rohrer et al. (2022), correlational path models reveal patterns of association rather than definitive causal pathways. Consequently, these SEM findings should be interpreted as providing insight into the complex relationships among the variables, rather than proving a causal link. To address the methodological critique, we conducted both Ordinary Least Squares (OLS) regression along with SEM. The results are:

Table A2. Results of ordinary least squares regression predicting perceived content reliability.

Variable	<i>B</i>	<i>SE</i>
Algorithmic awareness/knowledge	-.438	.073***
Age	-.014	.021
Gender	.021	.087
Income	.055	.029
Education	-.012	.025
Ethnicity	.100	.038**
Political ideology	-.040	.023
Social media use	.364	.069***
Total <i>R</i> ² (%)		.258***
Adjusted <i>R</i> ² (%)		.241***

Note: **p* < .05; ***p* < .01; ****p* < .001.

Table A3. Results of ordinary least squares regression predicting perceived exposure to diverse views.

Variable	<i>B</i>	<i>SE</i>
Algorithmic awareness/knowledge	-.114	.076
Age	-.021	.022
Gender	.034	.090
Income	-.024	.030
Education	.029	.026
Ethnicity	-.010	.039
Political ideology	-.027	.024
Social media use	.408	.071***
Total <i>R</i> ² (%)		.397***
Adjusted <i>R</i> ² (%)		.138***

Note: **p* < .05; ***p* < .01; ****p* < .001.

Table A4. Results of ordinary least squares regression predicting corrective action.

Variable	<i>B</i>	<i>SE</i>
Algorithmic awareness/knowledge	-.172	.081*
Age	.005	.023
Gender	.057	.095
Income	-.026	.032
Education	.060	.027*
Ethnicity	.036	.041
Political ideology	.001	.025
Social media use	.504	.076***
Total <i>R</i> ² (%)		.457***
Adjusted <i>R</i> ² (%)		.190***

Note: **p* < .05; ***p* < .01; ****p* < .001.

Table A5. Results of ordinary least squares regression predicting perspective taking.

Variable	<i>B</i>	<i>SE</i>
Algorithmic awareness/knowledge	.062	.069
Age	-.004	.020
Gender	-.118	.082
Income	-.040	.027
Education	.032	.024
Ethnicity	.031	.036
Political ideology	-.041	.022
Social media use	.391	.065***
Total <i>R</i> ² (%)		.382***
Adjusted <i>R</i> ² (%)		.125***

Note: **p* < .05; ***p* < .01; ****p* < .001.

These two methods, while complementary, differ in their underlying assumptions. OLS regression assumes that observed variables are measured without error and analyzes relationships within a single equation. In contrast, SEM is a more advanced technique that accounts for measurement error through the use of latent variables and simultaneously estimates a system of equations. Therefore, while the OLS results provide a foundational view of the relationships, the SEM findings offer a more robust and methodologically sound representation of the relationships within my theoretical model. We consider the SEM results the primary source for interpreting the model's relationships, as they provide a more precise and unbiased estimation of the constructs.