

Mitigating Factual & Subjective Nanotechnology Knowledge Gaps: The Roles of Information Seeking, Avoidance & Processing

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Study Overview

This study examines the predictors of consumers' knowledge about the environmental risks posed by sunscreens formulated with non-biodegradable nano-materials (i.e., nanotechnology knowledge).

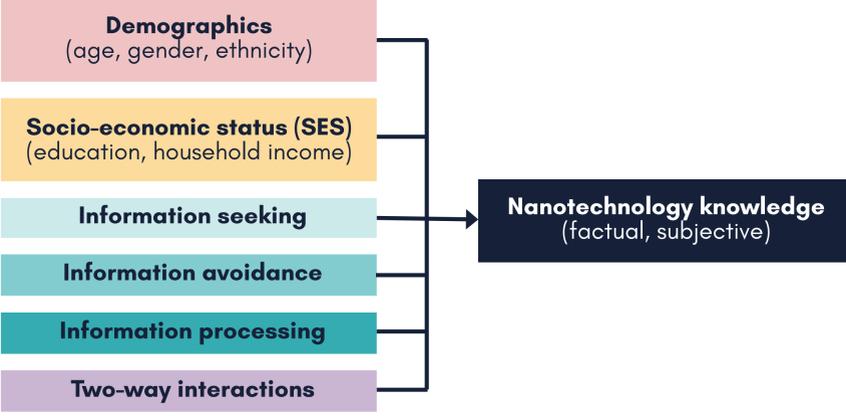


Figure 1: Hypothesized predictors of nanotechnology knowledge

Guided by the knowledge gap hypothesis (KGH), this study addressed the following research gaps:

- Research investigating consumers' awareness & familiarity of the **environmental implications** of nanotechnology applications have remained scarce.
- Limited research has determined whether consumers' nanotechnology knowledge is **equitably distributed**.
- Prior KGH studies exclusively analyzed media attention as predictors of knowledge, yet **information behaviors** play a **greater** role in determining knowledge acquisition.
- Extant literature primarily assessed factual knowledge (i.e., what people **actually** know), with far fewer studies examining subjective knowledge (i.e., what people **think** they know).

Key Findings

In total, N = 408 consumers residing in the United States participated in an online survey questionnaire.

The regression models accounted for **11.08%** of variance for **factual** nanotechnology knowledge and **23.20%** of variance for **subjective** nanotechnology knowledge.

Demographics & SES failed to significantly predict consumers' factual & subjective nanotechnology knowledge.

Instead, **information behaviors** (seeking, avoidance & processing) played a **greater** role in predicting consumers' factual & subjective nanotechnology knowledge.

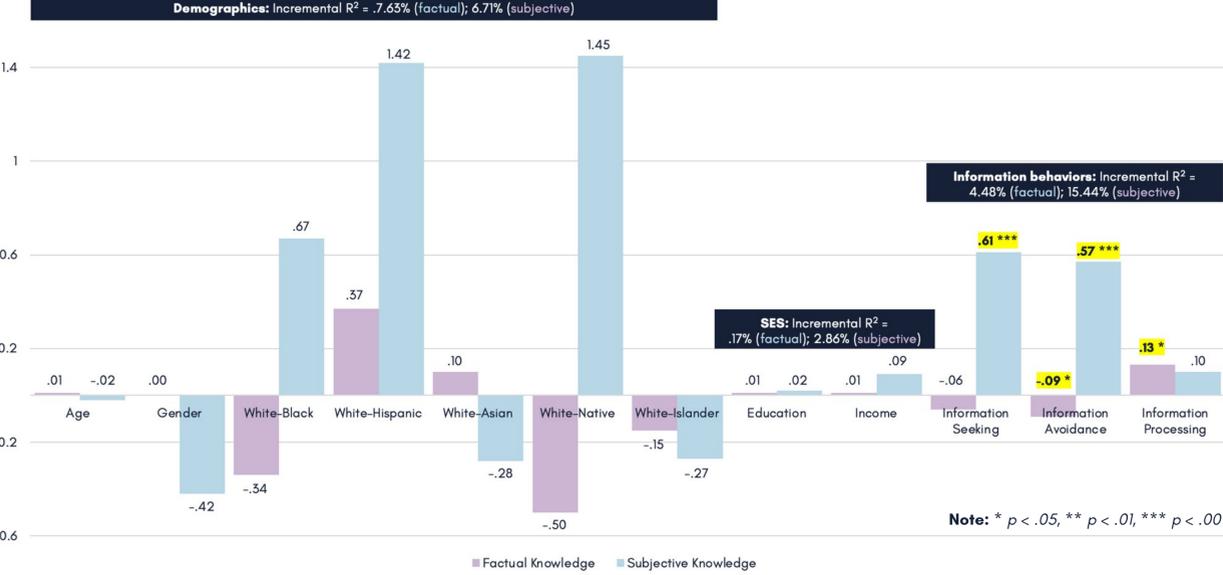
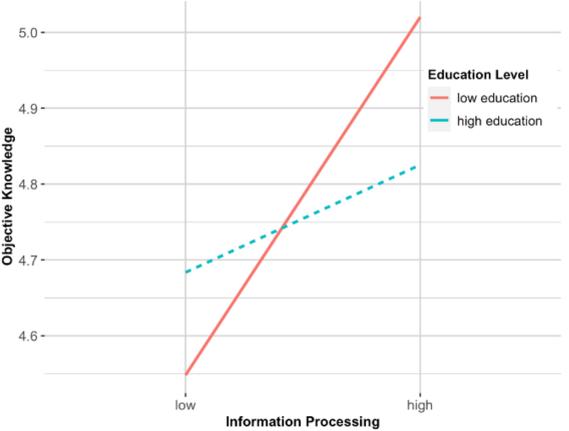
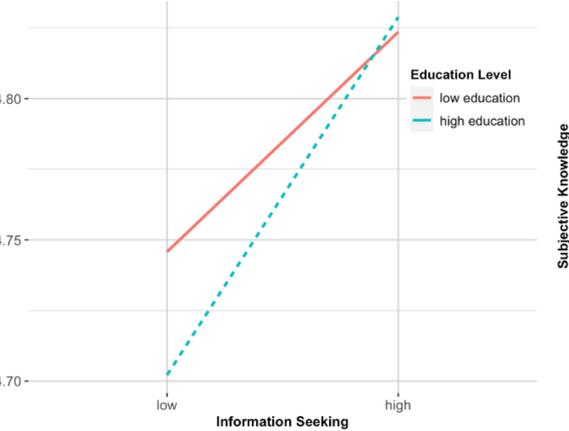


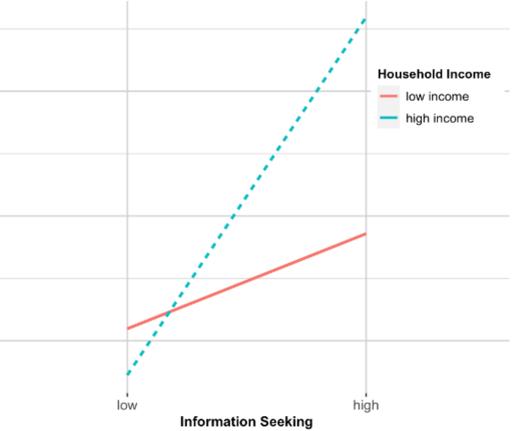
Figure 2: Hypothesized predictors of nanotechnology knowledge



Increased information processing **widened** factual knowledge gaps among consumers with varying education



Increased information seeking **reduced** factual knowledge gaps among consumers with varying education



Increased information seeking **widened** subjective knowledge gaps among consumers with varying household income

Study Implications

Overall, the findings from this study provided the following conceptual, theoretical & practical implications:

- This study **enhanced** existing **conceptual definitions** of nanotechnology knowledge by incorporating the environmental implications of nanotechnology applications.
- This study provided **theoretical extensions** by **incorporating information behaviors** (seeking, avoidance & processing) within the KGH.
- The findings contributed to the growing body of science communication literature that **juxtaposes factual & subjective knowledge**, particularly for nanotechnology.
- The findings informed policymakers on the importance of **emphasizing information insufficiency** to encourage consumers' information seeking & processing.
- The findings also contributed to **consumers' awareness & familiarity** about the environmental threats of sunscreens that contain non-biodegradable nano-materials, which may guide their subsequent purchases intentions.

Learn more about our research at **SEI@TNF**
<https://sites.utexas.edu/nnci-sei/>

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