Talking Shoppers Into Buying? Experimental Evidence on LLM-Driven AI Nudges

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Definition of AI nudges

- Luo et al. (2026) defines AI nudges as nudges whose implementation and deployment are delegated to AI/ML algorithms, where the mechanism of how the nudge is generated is opaque, algorithmically driven, and not fully reconstructible by users.
  - This contrasts with non-AI nudges, whose mechanisms are transparent and easily understood (e.g., “Best Seller”).
  - This conceptualization is explicitly grounded in the article’s discussion of AI nudges as recommendation cues whose generation factors are undisclosed and unpredictable due to the black-box nature of the algorithm
  - More broadly, a nudge whose generation, timing, and deployment are delegated to AI/ML systems, such that the mechanism is opaque, dynamic, and algorithmically determined.

Luo, Y., Kumar, N., & Yazdanmehr, A. (2026). AI nudging and decision quality: Evidence from randomized experiments in online recommendation setting. Decision Support Systems, 200:114565.

Other types of AI nudges

1. AI-Driven Personalized Warning or Alert Messages
   a) “You may regret this purchase”
   b) “This product often gets returned by customers similar to you”
   c) Spending alerts triggered by behavioral predictions
   d) If an algorithm determines when such alerts appear, the nudge is delegated to AI.
2. Algorithmic Content Highlighting or Boosting
   a) “Important email” labels
   b) “Top news stories for you”
   c) Prioritized feed items on social media
   d) Because these placements are machine-determined and opaque, they come with hidden deployment mechanism.

Other types of AI nudges

1. AI-Driven Dynamic Pricing & Sale Indicators
   - If the system automatically highlights personalized discounts such as:
   - “Special price for you”
   - “Deal recommended based on your purchase patterns”
   - —these indicators serve as nudges controlled by an opaque algorithm.

LLM-Nudge vs. Traditional AI-Nudge in Online Recommendation

- Definitions
  - LLM-Nudge: LLM-based conversational nudging
  - AI-Nudge: Traditional UI-based nudging delegated to AI/ML algorithms, such as recommendation badges, rankings, or static recommendation cues

- LLM-Nudge is:
  - interactive rather than static
  - personalized through dialogue rather than generic UI placement
  - conversationally persuasive rather than visually suggestive

- They both are:
  - opaque in how recommendations are generated

Mechanisms based on IS Literature

- perceived transparency
- perceived personalization
- trust in the recommendation mechanism
- cognitive load
- choice confidence
- decision quality (objective)
- purchase likelihood
- satisfaction
- …

Nudges in conversational AI chatbot (Rufus AI)

1. Influence & Behavioral Change
   - How do conversational recommendations from an LLM shape consumers' final product choices compared to traditional UI-based nudges (e.g., recommendation badges)?
   - Are users more likely to purchase items recommended through natural conversation versus those shown through static recommendation badges?
2. Choice Architecture & Cognitive Load
   - Does conversational recommendation (LLM-generated) reduce cognitive effort more effectively than traditional recommendation badge in the search results?
   - How does cognitive load change when decisions are supported by AI conversational guidance versus self-driven search?
   - Do LLM-structured "recommended paths" (e.g., step-by-step shopping guidance) bias choices toward products NOT preferred by consumers?

Nudges in conversational AI chatbot (Rufus AI) – Extended thinking

3. Emotion, Mood, and Timing

- How do mood-sensitive nudges (e.g., empathetic suggestions when the user sounds frustrated) affect willingness to buy?
- Does timing of a chatbot's suggestion (early vs. late in conversation) influence purchase behavior?
- Can LLMs detect hesitation signals (slow response, repeated browsing) and use predictive nudges to close the sale?

Main Hypotheses

1. LLM nudges and perceived personalization
   - Relative to UI-based AI nudges, LLM conversational nudges increase perceived personalization.

2. LLM nudges and perceived transparency
   - Relative to UI-based AI nudges, LLM nudges increases perceived transparency.

3. LLM nudges and choice confidence
   - Relative to UI-based AI nudges, LLM nudges increases choice confidence.

4. LLM nudges and preference mismatch in recommendation
   - Relative to UI-based AI nudges, consumers are less likely to detect preference mismatch in product recommendations from LLM nudges.

Other Measurements

1. Trust
2. Cognitive load
3. …

Imagination of Contributions to the Field

- LLM conversational agents constitute a qualitatively different form of choice architecture because they blend recommendation, interaction, and persuasion into a dynamic and opaque conversational process.

- LLM nudges may increase persuasion, personalization based on interactions, and ease of decision making.

- but they may also further reduce transparency (compared to AI nudges like recommendation badges) and make influence harder for users to detect or evaluate..

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