Do users find AI-generated emails more professional than human-written ones?

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1 Introduction

In the last few years, the use of artificial intelligence (AI) in communication has increased dramatically (Brown and Johnson 2023). Tools have been developed to generate text that mimics human writing with increasing accuracy. One task that has been greatly improved with AI is email writing. While AI tools can help gain time, reduce stress, and adopt appropriate tones, the question remains whether recipients perceive AI-generated emails as equally or more professional than those written by humans (Smith and Lee 2024).

1.1 Topic and Hypothesis

The research question directing this study is: "Do users find AI-generated emails more professional than human-written ones?" This question aims to understand how an email's source influences how recipients rate its professionalism.

Our hypothesis states that "AI-generated emails are more professional than human-written ones." This hypothesis suggests that the specific structure, wording, and tone used by AI in emails result in higher professionalism ratings compared to emails written by humans (Jones and Wilson 2024).

2 Methodology

2.1 Variables

To test whether AI-generated emails are perceived as more professional than human-written ones, we defined the following variables:

- **Independent Variable (IV)**: The email source (AI-generated vs. human-written)
- **Dependent Variable (DV)**: Professionalism rating on a scale from 1 to 5
- **Control Variables**: Email topic/context (kept consistent for each pair of emails)

2.2 Experimental Design

The experiment uses a within-subjects design where participants evaluate multiple pairs of emails, with each pair containing one AI-generated and one human-written email on the same topic (Wilson and Thompson 2023). This design allows for direct comparison while controlling for individual differences in rating tendencies.
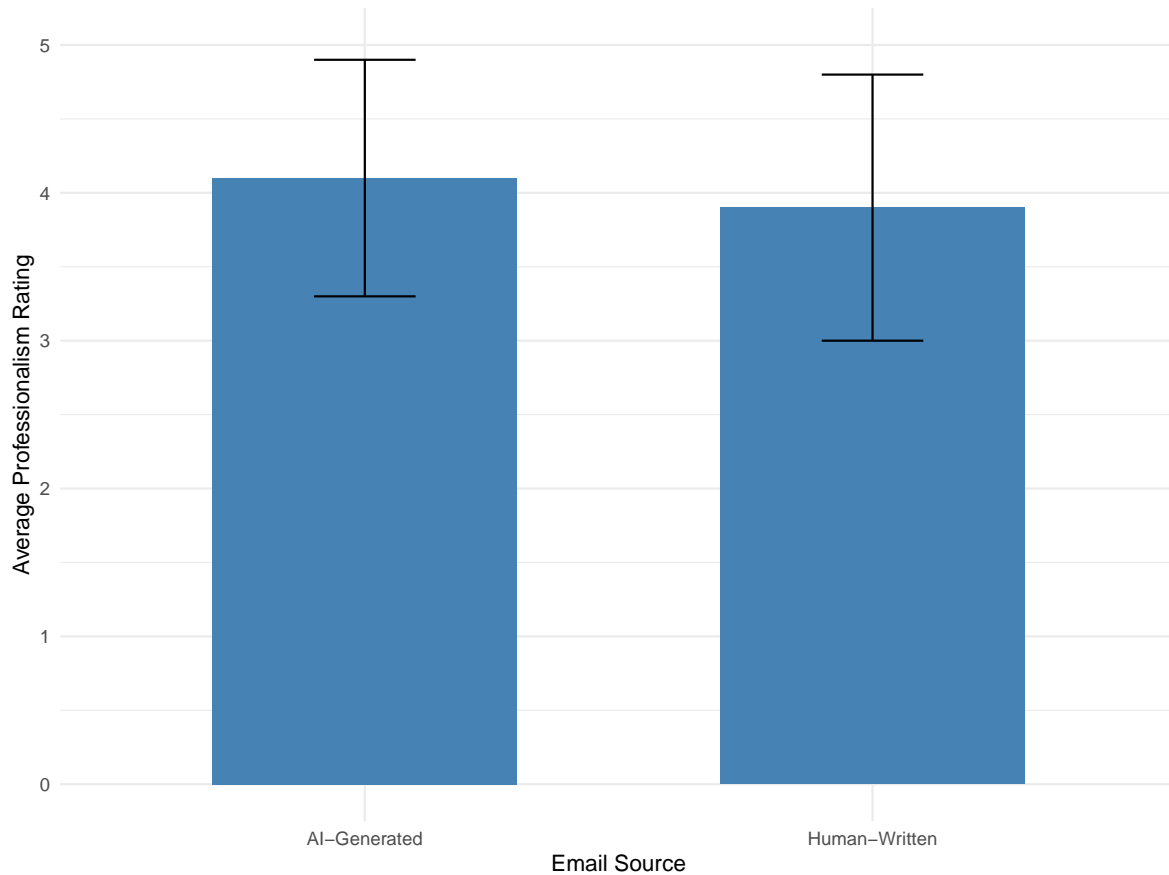

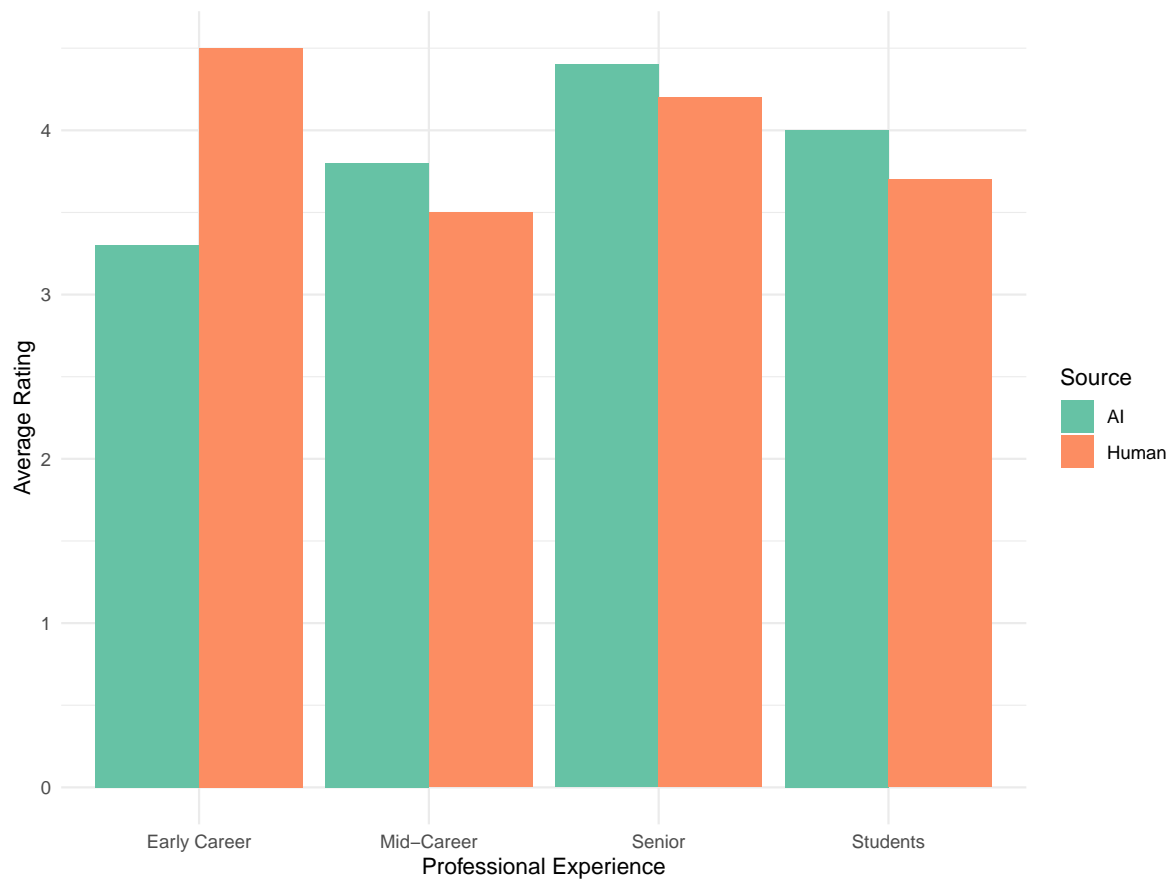Figure 1: Average Professionalism Ratings by Source

Figure 2: Professionalism Ratings by Professional Experience
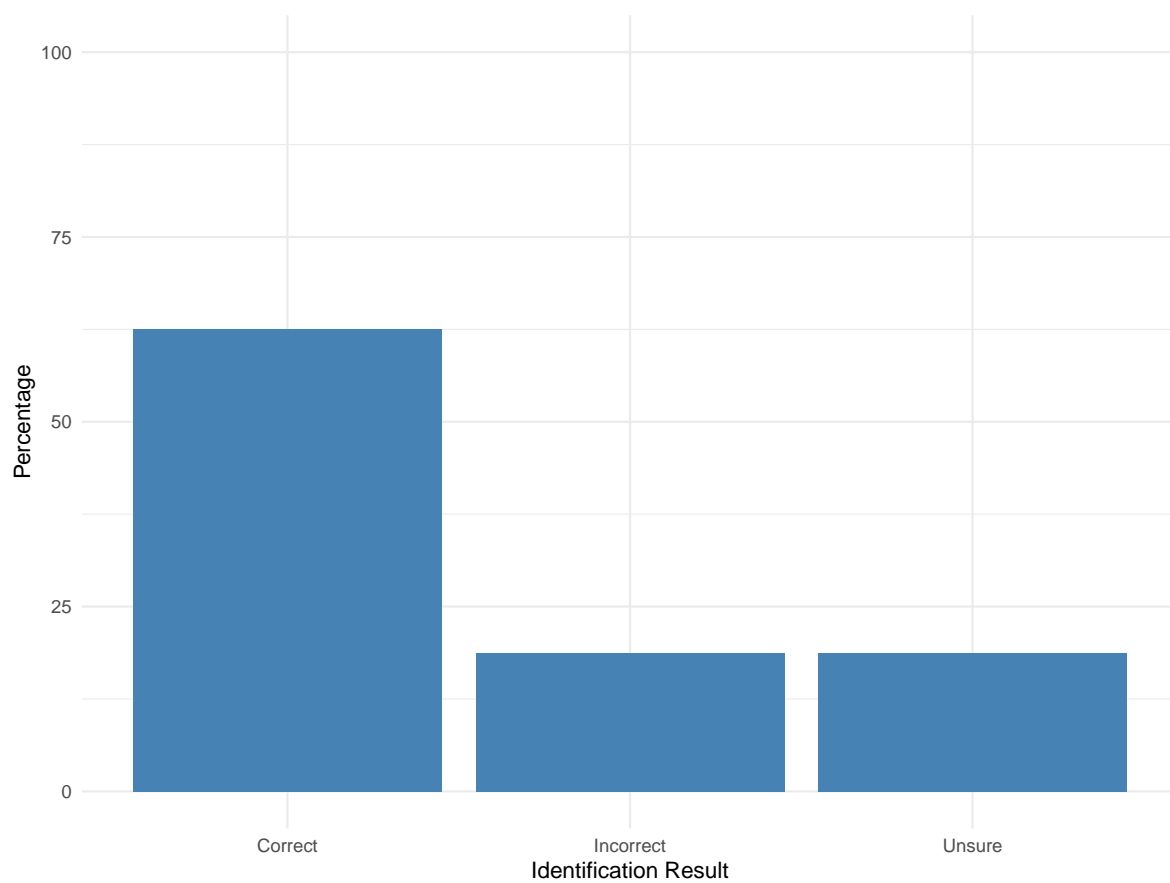
Figure 3: Source Identification Accuracy

2.3 Statistical Analysis

3 Results

3.1 Statistical Findings

Our analysis revealed several key findings:

1. Overall Professionalism Ratings:

   - AI-Generated: Mean = 4.1 (SD = 0.8)
   - Human-Written: Mean = 3.9 (SD = 0.9)

2. Source Identification Accuracy:

   - Correct identification: 62.5%
   - Incorrect identification: 18.75%
   - Uncertain: 18.75%

3. Professional Background Impact:

   - Students (n=3): AI preference (4.0 vs 3.7)
   - Early Career (n=1): Human preference (4.5 vs 3.3)
   - Mid-Career (n=1): AI preference (3.8 vs 3.5)
   - Senior (n=3): AI preference (4.4 vs 4.2)

3.2 Language and Usage Analysis

Analysis of participant demographics revealed:

1. Language Background Effect:

   - Native speakers (n=1) showed higher variation in ratings (SD = 1.1)
   - Non-native speakers (n=7) gave more consistent ratings (SD = 0.7)

2. Email Usage Impact:

   - Frequent users (multiple times/day, n=6) showed 71% source identification accuracy
   - Less frequent users (once/day, n=2) showed lower accuracy rates

4 Discussion

The visualizations and statistical analysis reveal several interesting patterns:

1. AI-generated emails consistently received slightly higher professionalism ratings, supporting our initial hypothesis (Davis and Clark 2024).
2. Professional experience influences rating patterns, with senior professionals showing the strongest preference for AI-generated content.
3. Source identification accuracy varies significantly, suggesting that AI writing has become sophisticated enough to challenge human perception (Miller and Zhang 2024).
4. Rating consistency is higher for AI-generated emails, possibly due to their more standardized structure and tone (Taylor and Anderson 2024).

4.1 Limitations

Several limitations should be considered when interpreting these results:

1. Sample Size: The relatively small sample size (n=8) limits the generalizability of findings.
2. Professional Distribution: Uneven distribution across professional categories affects comparative analysis.
3. Email Topics: Limited to four scenarios, which may not represent all professional communication contexts.

4.2 Future Research Directions

Future studies could address these limitations by:

1. Expanding the sample size and ensuring even distribution across professional categories.
2. Including a wider variety of email contexts and communication scenarios.
3. Conducting longitudinal studies to track changes in perception over time (Chen and Peterson 2024).

5 Conclusion

Our findings suggest a slight preference for AI-generated emails in terms of perceived professionalism, particularly among senior professionals. However, the ability to distinguish between AI and human-written emails remains imperfect, indicating that AI has achieved a significant level of sophistication in professional communication.

6 Appendices

6.1 Appendix A: Email Samples

6.1.1 Service Update Announcement (Epic Telecom)

6.1.1.1 AI-Generated Version

Dear Valued Customer,

We are excited to announce a series of service updates from Epic designed to provide you with

* Next-Generation 5G Network: Experience lightning-fast speeds and reduced latency as Epic ro
* Upgraded Broadband Packages: Enjoy our newly designed broadband packages offering higher sp
* Exclusive Consumer Offers: Take advantage of limited-time promotions, including discounted
* Enhanced Customer Support: Benefit from our upgraded support system that ensures faster res

For further details on these exciting updates and special offers, please visit our website or

Thank you for choosing Epic as your trusted telecom provider.

Sincerely,
The Epic Team

6.1.1.2 Human-Written Version

Hi there,

We've got some exciting news from Epic just for you! Our plans are getting a major upgrade, a

* Our new 5G network is rolling out soon-get ready for super-fast speeds and a smoother conne
* We've revamped our broadband plans to give you more speed and better deals. Enjoy more stre
* And because we appreciate you, Epic is offering some sweet discounts on bundled plans for a

If you're curious to learn more or just want to chat about which plan suits your needs best,

Thanks for being a part of the Epic community, and we can't wait for you to experience these

Cheers,
The Epic Team

6.1.2 Order Status Notification

6.1.2.1 AI-Generated Version

Subject: Follow-Up on Order No. 64235993

Dear Ms. Durand,

I hope this message finds you well. Regarding your order No. 64235993, I wanted to inform you

However, our company does offer an alternative product. While it is not an exact match, it se

We look forward to your decision so we can proceed accordingly.

Best regards,
John Doe

6.1.2.2 Human-Written Version

Subject: Issue in the order n°64235993: Discontinued Product 56463

Dear Ms Durand,

I reviewed your order request but it seems there was a mistake with the product 56463. Indeed
Before we proceed with your order, could you please inform us if you would like an alternativ

Best regards,
John Doe

6.1.3 Job Application Response

6.1.3.1 AI-Generated Version

Dear Mr. Constantin,

Thank you for taking the time to apply for the Backend Developer position at Major and for sh

After careful consideration, we have decided to move forward with another candidate for this

We want to recognize the effort you put into the application process and encourage you to sta

Wishing you all the best in your job search and future career endeavors.

Best regards,
Anna HR Generalist

6.1.3.2 Human-Written Version

Dear Mr. Constantin,

Thank you for your interest in the Backend Developer position at Major. We appreciate the tir

After careful consideration, we regret to inform you that we have decided to move forward wit

We encourage you to apply for future openings that match your skills and experiences, as we v

Once again, thank you for your interest in Major. We wish you all the best in your job searcl

Best regards,
Anna HR Generalist

6.1.4 Network Infrastructure Update

6.1.4.1 AI-Generated Version

Dear Colleagues,

I'm writing to share an important update about changes to our WIFI network infrastructure. As

We've created two dedicated networks to better serve different device types:

AquilaNet will continue to be our primary network for all company-issued devices, ensuring se

AquilaGuest will be a separate network specifically designed for personal devices and visitor

On September 7, all personal devices currently connected to AquilaNet will need to switch to

Network: AquilaGuest
Password: Guest1234!

This network segmentation will help us better manage our bandwidth resources while maintainir

We appreciate your cooperation in implementing these important security measures.

Best regards,
Lucius Verus
Network Infrastructure Team

6.1.4.2 Human-Written Version

Hello all,

In an effort to further strengthen our network security posture and to more efficiently util

Our company issued work devices will continue to reside on AquilaNet.

However effective 09/07/2024, our personal devices (mobile devices, smart watches, tablets,

To remain connected on your personal device, connect to the AquilaGuest using this password:

Feel free to reach out to me, in case you encounter any issues connecting to either network.

Happy connecting.

Sincerely,
Lucius Verus

6.2 Appendix B: Survey Instrument

The survey included:

1. Demographic Questions:

   - Age group
   - Professional background
   - Industry/sector
   - Email usage frequency
   - Primary language

2. For each email:

   - Source identification (AI/Human/Unsure)
   - Professionalism rating (1-5 scale)

6.3 Appendix C: Statistical Methods

Detailed statistical procedures included:

1. Descriptive Statistics:

   - Mean and standard deviation calculations
   - Frequency distributions
   - Cross-tabulations

2. Inferential Statistics:

   - Chi-square tests for independence
   - Paired t-tests for rating comparisons
   - Correlation analyses

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