Task #21 — Context Impact on Response Quality

US #17 — Identify Essential Contextual Elements

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1. Note

The analysis behind this document was performed in Task #19 (individual element removal, Aniket Patil) and Task #20 (combination testing, Aniket Patil). This document consolidates those findings into a single reference so that the impact of each contextual element on response quality can be viewed in one place.

2. Impact Summary

The table below ranks each contextual element by its observed impact on auto-response quality, with the evidence source noted.

Element	Impact	Source	Evidence
Activity	**Critical**	Task #19 T1	Removing activity made the response vague and unjustified. Environmental context alone could not compensate (Task #20 Combo 4).
Sender Role	**High**	Task #19 T2	Tone became generic without it. Combo 8 (Task #20) confirmed dramatic tone shift between manager and friend.
Message Urgency	**High**	Task #19 T3	Without urgency, response timing became unclear. Follow-up phrasing lost specificity.
Expected Response Time	**Moderate**	Task #19 T4	Slight precision loss but still socially acceptable. Combo 6 (Task #20) showed it pairs well with activity alone.
Current Time	**Moderate**	Task #20 C1	Part of minimal core in Combo 1. Enables temporal grounding (“morning” vs “afternoon”).
Location (semantic)	**Minimal**	Task #19 T5	No meaningful loss when removed. Redundant when activity context is present.
Device State	**Minimal**	Task #19 T6	No quality drop observed. Phone lock/silent status does not improve response content.
Noise Level	**None**	Task #19 T7	Zero impact on response clarity. Should be used for activity inference only, not passed to LLM.

3. Key Takeaway

Five elements drive the vast majority of response quality. Adding elements beyond this set produces diminishing returns:

Prompt Composition	Quality	Elements Used
Activity + Time only	Acceptable	2 of 9

+ Sender Role + Urgency	Good	4 of 9
+ Expected Response Time (Optimal)	**Excellent**	**5 of 9**
All elements	Excellent	9 of 9

The jump from 2 to 5 elements produces a significant quality improvement. The jump from 5 to 9 elements produces almost none. This confirms that context selection should focus on the right elements, not more elements.

4. References

- Task #19 — Testing Prompt Robustness by Removing Individual Contextual Elements (Aniket Patil)
- Task #20 — Testing Prompt Robustness with Combinations of Contextual Elements (Aniket Patil)
- Task #22 — Priority Ranking of Contextual Elements (Satyam Shekhar)
- Task #23 — Context Selection Guidelines (Satyam Shekhar)