Shuttle Voice Loop Commentary

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The shuttle voice loop system highlights the importance of the flexibility and customizability of a system, not just as a feature to increase aesthetic value or drive engagement but to increase productivity and safety. The modularity of the voice loop system combined with communication protocols ensures that, in a mission-critical context, everyone always has access to the necessary information. Furthermore, by listening in on multiple conversations at once, shuttle operators and coordinators are primed with information and contexts that will involve them at some point given the complexity and interconnectedness of a system such as a space shuttle.

High configurability tends to reduce user error by allowing a system to conform to "an operator's mental model of the system," all while "enhancing situation awareness and decreasing mental workload" [1]. In the shuttle context, user error can lead to death or massive monetary loss[2], so a user interface that helps to avoid this is a necessity.

The vocal protocols dictating communications on specific voice loops are not directly expressed, but the underlying system design allows users to apply these intuitively. On the most mission-critical channels, effective communication is a necessity to keep the loop clear and react to events quickly, and "task success is correlated with the syntactic alignment of the two dialogue partners."[3] Having informal channels as well allows for different communication styles, which users report provide higher "effect salience" and "utility" than formal channels[4].

Hearing multiple people speak at once allows for unconscious priming that would not otherwise occur unless the user was shifting their attention from another task[5]. Instead of distracting and requiring users to shift their focus each time a new message appears, the system takes advantage of subliminal lexical cognition[6] and allows the subconscious filtration to reduce short-term memory load for the user[7].

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