In the context of the research repository, the concept and practice of mindfulness are not categorized as specific rows or columns within the **NSIR reference matrix (Table 79)** or the **Concept Mapping (Table 63)**. Instead, mindfulness functions as a foundational theoretical framework and a methodological imperative that informs how users engage with technology and how researchers conduct studies. [1]

The key parts attributed to the concept and practice of mindfulness include:

1. Awareness and Autonomous Functioning

Mindfulness is defined within the repository through **Self-Determination Theory (SDT)** as an "open awareness and interested attention to what is happening within and around oneself" (Brown & Ryan, 2003). In this context, mindfulness is attributed to the development of **integrated, autonomous functioning**. It is seen as a central element that allows for "inner exploration" and a "reflective examination of needs and feelings," which supports the user's ability to maintain an autonomous orientation when interacting with autonomous agents or robots.

2. Mindful vs. Mindless Anthropomorphism

The research distinguishes between two types of humanization in agents:

- **Mindless Anthropomorphism**: Often triggered automatically by human-like appearances or "CGI" features in virtual influencers.
- **Mindful Anthropomorphism**: Refers to a more deliberate and personal bond. While human-like appearance significantly increases "mindless" reactions, it does not necessarily impact the "mindful" personal bond, which is more closely related to the **Anthropomorphic Connection** and **Kinship** factors measured in the NSIR (e.g., naming a robot or seeing it as a peer).

3. Procedural and Ethical Mindfulness

In the practice of human-robot interaction (HRI), mindfulness is framed as a **methodological responsibility**. The **HRI Equitable Design framework (Table 16)** attributes "mindfulness" to the ethical conduct of research. Specifically, it calls for researchers to be "mindful of the relationship and perhaps dependency" that users develop with robots. This includes the implementation of **"mindful exit procedures"** to ensure that users continue to feel supported after a robotic study ends, particularly in sensitive populations where social-emotional vulnerabilities exist.

4. Contrast with "Mind Attribution"

While mindfulness is a state of user awareness, the reference matrix itself focuses on **Mind Attribution**—the technical and psychological mechanism of perceiving machine agency. [1] This is attributed to **Theory of Mind (ToM)** frameworks (Leslie, 2001) and simulated thought processes (Zelikman et al., 2024), where the agent is designed to "think before speaking." Mindfulness acts as the human cognitive counterpart that determines how these attributes

are processed and internalized by the user.