Ambia Hussain

Assignment 4: Critical Essay – Interaction in the Metaverse

Interaction 1 (Verbal Communication): Explaining a Topic

Scenario 1: A physics tutor explains a complex topic to a student. The student avatar responds with either a puzzled expression or understanding expression.

The objective of this test is to analyse how fast the tutor avatar is able to adapt to the student's visible confusion on the topic and give a clear and concise answer. With this particular scenario, my focus will be on the responsive tone of the student. Whilst focusing on the responsive tone, certain aspects I will also focus on will be on turn-taking, silences, and hesitation. The success of the test can be determined based on the analysis of the responsive tone and the lesser presence of pauses, silences, and hesitation, inviting a more understand expression instead of one which confusion. The point system will show how the faster response times that avoid silences and hesitation craft as a more successful understanding of the topic, leading to a higher score such as 5 points, whilst responses with longer pauses and silences or audible hesitation will categorise as lower points such as 0.

When focusing on linguistics and conversation exchange, focusing on turn-taking plays a significant role in highlighting how the flow of the conversation is going. Faster replies tend to be viewed as the preferred responses, whilst delayed responses are usually filled with silences, thus being the dispreferred response. When in the scenario of a student and tutor's interaction with one another, if there is a delayed response from the student when questioned if they understand the topic being explained, it can come as a sign that, due to the verbal delay of confirmation in understanding the topic, there is a mutual understanding that there seems to be a gap in the student's understanding. When studying silences in conversations, it has been analysed that "A high frequency of silence in conversations often indicates trouble, as it may be triggered by conflict or a lack of shared knowledge between participants (…) It can lead to negative emotions" (Lestary, Krismanti, & Hermaniar, 2017, p. 54). On the contrary if the student was to understand the explanation of the topic discussed by the tutor, there would be a shift in the response speed and a lower frequency of silence as the response would be with a confident tone. The student would also find themselves able to answer a question of clarification without hesitating or indicating the need to think for a while with elongated vocal queues of "uhmmm" or "uuuh".

Interaction 2 (non-verbal communication): Listening in a conversation

Scenario 2: A team of three colleagues collaborate on a project, one team member is sharing their idea whilst the others show their feedback through fascial expressions.

The objective of this test is to analyse how communication is influenced by nonverbal attributes such as facial expressions, gestures, and other forms of body language. In this scenario, my focus will be on how different facial expressions impact the overall interaction between the three colleagues. The point system will track changes in facial expressions, with each correct analysis contributing to a successful test. Points will be allocated numerically, with a score of 5 representing the highest accuracy and a score of 0 indicating the least accurate analysis.

Facial expressions are a crucial component of communication. Research has shown that communication can be verbal, nonverbal, or a combination of both. Facial expressions, in particular, carry significant meaning, as they can convey words and emotions without the need

for vocalization. They can also influence the flow of conversation based on the type of expression displayed. As noted by Knapp, Hall, and Horgan (2013), “facial expressions and gestures can significantly enhance or hinder communication, particularly when they replace verbal cues” (p. 62).

In the context of avatars in a virtual environment, the ability to accurately interpret facial expressions is essential for effective communication, mirroring human interactions in group settings. If the metaverse can correctly recognize and respond to facial expressions, communication between avatars can be as effective as that between humans. For instance, detecting a confused or judgmental expression could alter the confidence of one colleague in presenting their point, potentially leading to an abrupt pause in the conversation. Such responses to facial expressions can be seen as cognitive mediation. As Erickson and Schulkin (2003) explain, “Emotional experiences are influenced by cognitive processes, including goals and social contexts. Facial expressions communicate intentions and emotional states to others” (p. 52).

Interaction 3: Conversations with interruptions

Scenario: Two business representatives in a virtual meeting negotiate a partnership, with one frequently interrupting to assert their terms, causing tension and complicating the discussion.

The objective of this test is to analyse the impact that interruptions have on verbal communication between two participants. My focus will be on how interruptions affect the structure of conversation and how they can shift the conversation to form a different meaning. The point system's success will be based on its ability to accurately depict when interruptions occur. If identified correctly, the highest score of 5 will be awarded, while a score of 3 will indicate lower accuracy, and a score of 0 will reflect no accuracy at all.

Interruptions occur during conversations, particularly in specific scenarios, and it is important that the conversation between both avatars feels natural by precisely adopting inherent language phenomena. Interruptions can be studied in different ways. For instance, there are interruptions where the speaker is happy to give up their speaking rights, such as "cooperative overlapping," which emphasizes shared understanding among participants and builds upon each other’s contributions to the conversation. As Cantrell (2013) explains, *"Interruptions can serve as cooperative devices rather than assertions of power"* (p. 75). However, there are other scenarios where this is not the case. Cantrell (2013) further discusses that interruptions have traditionally been viewed as indicators of dominance and aggression. In this scenario, when one avatar interrupts the other during their meeting, the build-up of tension involves a negative use of interruptions, causing the conversation to shift to an entirely different outcome one that may include tones of aggression or impatience.

While Goldberg (1990) argues that interruptions can also express enthusiasm and active involvement in the conversation, serving as relational acts that enhance rapport rather than asserting power, the dual nature of interruptions highlights their complex interpretations (Cantrell, 2013). Due to these varied interpretations, it is vital that interruptions are identified correctly. The success of the avatars in comprehending and identifying the correct kind of interruption and basing the continuation of their conversation on this aspect is necessary to coordinate successful communication. Such communication should follow an accurate simulation of how humans interpret and react to interruptions.

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Challenges in testing avatar systems

The incorporation of avatar systems is fairly new, and whilst technology is adapting to current standards of human communication in avatars, it is far from perfect. Avatars do have the capability of mimicking humans in dialogue, there are still features of it which are far from perfection. Certain systems can be made in order to measure the accuracy of the level of communication that avatars are capable of adopting. The first system when analysing the silence between turn taking in conversation wasn't able to identity the time accurately between the turns, nor the elongated silences, which articulated a lower score of 2 however it could identify that there was a pause between responses, which is why it doesn't find a lower score of 0. The second system wasn't able to identity a delayed response but was able to identity the puzzled expression of the avatar when analysing the non-verbal behaviour when in conversation about the confusing physics topic. The second system was also able to pick up on the judgmental and confused looks of the avatars when listening to the point of their colleague, reaching a higher point of 5. The final system didn't find success in analysing any of the three scenarios, mainly due to its inability to pick up on speeches occurring simultaneously. Dialogue outside of avatar systems also find it difficult to capture transcriptions of interruptions and overlaps, and as this is an issue amongst a lot of modern-day technology when analysing verbal interactions, it is understandable that the third and last system scored a lower point of 0.

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