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Message Reception Analysis in Intercultural Communication during "Magnetic Resonance Imaging" Training in Hospitals

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Abstract - The utilization of Magnetic Resonance Imaging (MRI) machines is essential for accurate disease diagnoses, necessitating radiographers to undergo a ten-day training regimen. While existing studies often concentrate on interpersonal communication in healthcare, this research explores the reciprocal development of reflexive action and interpretation during MRI training in Indonesian hospitals, employing the Coordinated Management of Meaning (CMM) Theory and integrating intercultural communication obstacles. Employing participatory observation, key informant interviews, and focus group discussions, the study unveils that trainers employ both verbal and non-verbal communication, including orientation, empathy, and dynamic interactions. The results highlight reciprocal, proactive communication strategies between trainers and trainees, emphasizing mindfulness, emotional vulnerability mitigation, honest communication, and the cultivation of functional behaviors. This research contributes not only to health communication literature, particularly MRI training but also advances practical insights into intercultural communication research.
Keywords: Intercultural communication; Health communication; Magnetic Resonance Imaging; Uncertainty reduction; Coordinated Management of Meaning

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Introduction

Amidst the recent pandemic of COVID-19, hospitals have increasingly recognized the need for precise diagnostic tools, including Magnetic Resonance Imaging (MRI) (van Beek et al., 2019) which is considered one of the most accurate diagnostic tools in contemporary clinical medicine with a variety of clinical indications (Katti et al., 2011). MRI utilizes magnetic fields and radiofrequency signals to generate detailed images of anatomical structures and detect diseases and biological functions (Sprawls, 2000), making it a widely used 3D nuclear magnetic resonance diagnostic tool (Banerjee et al., 2022).

MRI machines, which do not use X-rays or radioactive materials, offer a safe imaging option, especially for young children (Jatmiko et al., 2021). With the appropriate parameters, MRI provides detailed coronal, sagittal, axial, and oblique images, allowing thorough evaluation of body tissues (Notosiswoyo & Suswati, 2004). Since its discovery in 1970 by Paul C. Lauterbur and Stony Brook, MRI has been capable of capturing images of various organs, including the brain, spinal cord, muscles and joints, chest cavity, breasts, and abdominal organs (Dawson, 2013).

The adoption of MRI in Indonesian hospitals increased in the 2000s, aligning with the Ministry of Health's 2023 program on health transformation (Kemenkes_RI, 2023). This initiative emphasizes strengthening health services, particularly for catastrophic diseases like heart disease, stroke, cancer, and kidney ailments, highlighting MRI's critical role as a diagnostic tool for these conditions (Stehling et al., 1991). Research has demonstrated that advanced MRI techniques, such as ADC value, 3D ASL, DCE MR perfusion, and DSC MR perfusion, are effective for diagnosing meningiomas. These findings, confirmed through histopathological analysis, also assist neurosurgeons in preoperative surgical planning (Utomo et al., 2022). Due to its complexity and essential role in advanced imaging, MRI must be available in type A and B hospitals (Hardy & Mcintosh, 2017; Sardjito, 2019).

Radiographers, responsible for MRI procedures, must master three essential process stages: planning, image production, and image evaluation (Almaliki et al., 2018). A radiographer's skill in identifying the organ being examined, overcoming image artifacts, and ensuring patient safety during emergencies is crucial for obtaining high-quality MRI images (Personal communication with MRI coach, September 16, 2022). The complexity of MRI imaging and its strong magnetic fields necessitate comprehensive training to mitigate risks to both patients and staff (Westbrook & Talbot, 2009), emphasizing the need for intensive 10-day training to fully comprehend the MRI process (personal communication with MRI trainer, September 16, 2022).

In accordance with the Indonesian Ministry of Health's 2008 decree (Kemenkes RI, 2008), hospitals are mandated to conduct training programs for operating MRI machines. Radiographers, including study informants, undergo training facilitated by MRI manufacturers' trainers to acquire the necessary skills (Personal communication with MRI trainer, September 16, 2022).

Even though MRI does not directly help diagnose COVID-19 disease, this device that costs billions of rupiah is increasingly being used as one of the tools to help diagnose various complicated diseases that normally cannot be examined only with ordinary diagnostic tools such as X-rays or others. MRI shows a high sensitivity for detecting white matter lesions in the central nervous system, which makes it an appropriate tool for tracking diseases, prognostic evaluations, and monitoring treatment in nerves-related diseases (Giorgio & Stefano, 2018). The presence of an MRI trainer is an important factor in this research, because the ability of an MRI trainer to communicate when managing the training course largely determines the outcome of the training (Personal communication with MRI trainer, 15 October 2022).

According to Harris & Clayton (2018), amid technological advances worldwide, every organization expects their employees to have the skills or expertise expected by the organization (also known as employability skills). Organizations that provide training to their employees understand that investing in skills development for employees can help the organization to remain competitive (Salas et al., 2012). Communication constraints become one of the barriers in the training process, which causes the training to be less effective. This is why a trainer must have the ability to create good relationships with participants and a supportive atmosphere during training (Azka & Hasib, 2020).

Likewise, MRI trainers are not only required to have high knowledge of MRI, but also must have the ability to communicate and adapt with participants, so that the training process with participants having different backgrounds can run optimally within the 10 days period (Personal communication with MRI trainer, 15 October 2022). There are two challenges faced by the MRI trainers, namely, (a) the different experiences of each trainee (such as length of work experience in a hospital and their educational background, most of whom are D3 or D4 diploma program graduates), and (b) the participant's cultural background, especially language-related.

The diversity of cultures in Indonesia in terms of ethnicity, language, religion, and customs (Fatmawati, 2021), makes the training process require effective intercultural communication. Differences in the use of language, symbols, values, or societal norms, as well as messages conveyed by the MRI trainer as a communicator, are susceptible to being understood differently by communicants or participants from various cultural backgrounds (Hernawan & Pienrasmi, 2021)

The MRI trainer as a communicator must be highly competent, effectively engaging in specific contexts. Communication competence, as defined by Rothwell and Spitzberg, involves achieving goals and desired outcomes appropriately (Assegaff, 2023). Quoting Morreale, Spitzberg & Barge, 2006, Assegaff (2023) argues that the competency model includes motivation, knowledge, and skills, influenced by audience feedback and persuasion abilities. This model emphasizes attentiveness,

composure, coordination, and expressiveness. The authors argue that it is important for communicators, such as MRI trainers, to master intercultural transactional communication with training participants.

This study aims to analyze message reception and meaning management in intercultural transactional communication during MRI machine training in Indonesian hospitals. It focuses on various aspects using the Coordinated Management of Meaning (CMM) theory.

This research aims to address three key questions. First, it investigates the process of managing agreed meaning within the hierarchical levels of Coordinated Management of Meaning (CMM) theory. Second, it explores how communication strategies are implemented to manage shared meaning in the context of intercultural relations. Finally, it examines the tactics used to receive messages and manage the meaning arising from interactions during training sessions.

Theoretical Framework

Based on the arguments above, this study uses the theory of Coordinated Management of Meaning (CMM) and Six Culture Barriers of Intercultural Communication to describe the stages of interaction and constraints when conducting intercultural communication. In this section, the author also briefly explains the process of scanning via MRI, so that readers get a more thorough understanding of this research.

Coordinated Management of Meaning (CMM) Theory

Littlejohn, Foss and Oetzel et al. (2017) explained that CMM theory, developed by Pearce and Cronen and their colleagues, is a comprehensive approach to social interaction that demonstrates how complex meanings and actions are coordinated. This theory emphasizes the development of propositions in social situations to guide appropriate actions and reactions, including conflict resolution (Hamson et al., 2021). It focuses on meaning, action, and interaction, covering various forms of communication from micro-interactions to cultural and social processes (Fisher-Yoshida, 2021). Previous research has found that CMM Theory is used to analyze and enhance communication strategies to form effective organizational communication with the public (George et al., 2023).

According to Pearce and Cronen (West & Turner, 2007), all interactions that occur in the process can be explained through an understanding of the hierarchy described as follows:
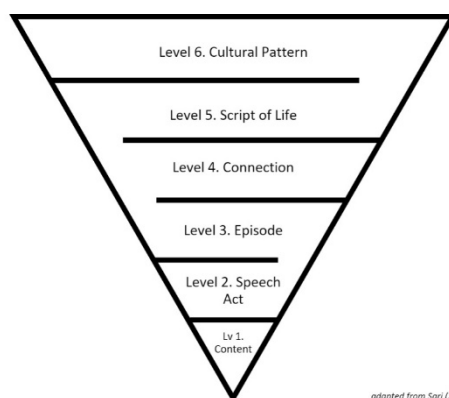

Figure 1. CMM Theory Hierarchy (Sari, 2020).

CMM theorists agreed that created meanings in an interaction is arranged hierarchically and consists of several stages. The first level, "content" is the first step in forming a meaning because of converting raw data. "Content" is also the lowest level of communication as it consists of merely words or sentences that does not have a meaning yet (Yuriawan et al., 2021).

Sari (2020) explains that the second level, "speech acts", involves actions expressed through spoken words, such as questioning, refuting, or praising. The third level "episode" encompasses the series of communication activities from beginning to end. The fourth level "relationship" emerges from the dynamic interaction and agreement of meanings among communicators.

Meanwhile, Yuriawan et al., (2021) describe this relationship as a conscious interaction influenced by potentials and limitations, akin to a "contract". Furthermore, according to Sari (2020), the fifth level, "script of life," comprises a continuous formation of past and present episodes influenced

by the management of meaning. Finally, the "cultural patterns" stage reflects the application of different cultural identities, which shapes the meaning formation process. As such, Yuriawan et al. (2021) note that individuals behave according to their respective cultural environments in this stage,

Barriers to Intercultural Communication

Differences in the cultural background between communicators and communicants become an obstacle in carrying out the communication process; beginning from language differences, and non-verbal misunderstandings, to different perceptions that everyone has which could trigger fatal misunderstandings in the communication process (Anwar, 2018).
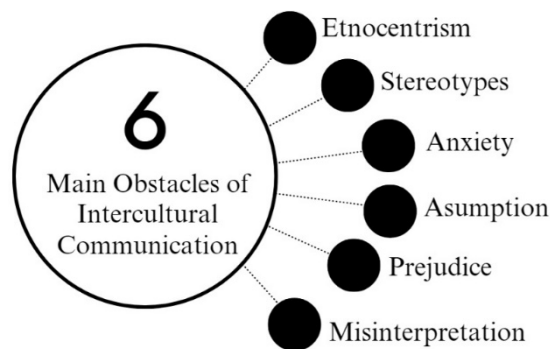
Figure 2. Six Culture Barriers of Intercultural Communication by LaRay M Barna, 1997 (Jandt, 2018).

Cited from Jandt (2018), LaRay M. Barna (1997) has developed a list of six barriers to intercultural communication (cultural barriers), namely ethnocentrism, stereotypes, anxiety, assuming similarities rather than differences, prejudice, and misinterpretation of non-verbal language, also verbal. In this section, the authors will explain each element which will be correlated with the communication that exists between the MRI trainer and the training participants.

The first barrier to intercultural communication is ethnocentrism. Ethnocentrism is an attitude of believing in the superiority of one's own culture compared to other people's cultures (Jandt, 2018). According to Jandt, everything in a culture will work consistently and make sense if an individual can understand the culture of his communicator, which logically, needs adjustments.

The second element that becomes a barrier to intercultural communication is stereotypes, which defined as the belief of individuals or groups about other individuals or groups, that tend to have a negative value (Man, 2020).

Anxiety/uncertainty avoidance is an obstacle to the establishment of the third intercultural communication from LaRay M Barna. As Jandt (2018) and Griffin et al., (2019) explained, at the beginning of an individual's encounter with a newly known or a foreign person, individuals tend to experience uncertainty and anxiety and feel unsure on how to behave (Griffin et al., 2019).

Uncertainty is defined as the act of not being sure on what other people's reactions will be, and not understanding on how to explain the various reactions that arise from that person. Brown (2015) explained that uncertainty has an impact on the emergence of emotional vulnerability, where individuals feel emotions of fear, sadness, and disappointment, which if managed properly, these emotions can turn into the feeling of love, belonging, joy, empathy, sense of innovation, to the sense of creativity.

These explanations were also confirmed in Rahardjo's Doctoral dissertation which links cultural communication with mindfulness, uncertainty, and anxiety that a person experiences when dealing with "others", namely a stranger (Rahardjo, 2010). Although feeling anxious is something that cannot be avoided, chronic anxiety and fear can have a major impact on one's physical health also happiness within an interpersonal relationship (Robichaud et al., 2018).

The fourth element from the six elements of intercultural communication barriers is the presence of assumptions. Assumptions are defined as unconscious thoughts that are thought by individuals about something (UL, 2023).

Assumptions are beliefs or ideas that are accepted as true without proof. Neuliep (2018) discusses how assumptions impact intercultural communication and provides strategies for recognizing and addressing them to improve communication effectiveness. Assumptions are foundational to reasoning

and communication but must be critically examined to avoid misunderstandings and errors. Assumptions in communication can lead to misunderstandings, especially in intercultural contexts. Assuming that others share the same cultural norms or values can result in misinterpretations and conflicts. According to Gudykunst (2022) effective intercultural communication requires recognizing and addressing these assumptions. Wrong assumptions trigger risk in communication. Even though this is common, managing emotions that get carried away when unconsciously making assumptions can help minimize incorrect assumptions.

Prejudice tends to be interpreted as insulting behavior, and not part of the emotions that occur (Bahns, 2017). Prejudice is a crucial thing that can hinder an ongoing intercultural communication, where this can form discomfort between communicators and communicants. For this reason, both communicators and communicants must understand that differences in cultural backgrounds are normal, and consciously stop prejudice.

Misinterpretation is the final element in the six elements of intercultural communication barriers from LaRay M Barna. One of the reasons for misinterpretation is the use of words or sentence structures that are difficult for the latter to understand (Smith, 2019), However, there is always a possibility that misinterpretation occurs during communication (Arqoub, 2019), as communication is a complex verbal and non-verbal activity between individuals (Bou-Franch, 2002).

Acquiring cultural knowledge and awareness before starting work helps prevent problems in cross-cultural groups (Noor & Hidayah, 2022; Tong & Yuqing, 2020). According to Noor & Hidayah (2022), dialogue is considered a dynamic transactional communication process, with a focus on the quality of the relationship between participants, in which messages are exchanged effortlessly, as seen in the dialogue between trainers and trainees in this research.

Image Scanning Process on MRI

MRI is a complex technology that can be misunderstood if the training is ineffective. Unlike X-ray and CT, MRI uses radio waves instead of radiation, making it safer (Rao et al., 2015; RSNA, 2022). It captures energy from hydrogen atoms to create detailed images, distinguishing diseased from normal tissue better than other imaging methods (RSNA, 2022). Radiologists interpret these images, but radiographers must be proficient in operating MRI machines, highlighting the importance of effective training for accurate imaging and diagnosis.
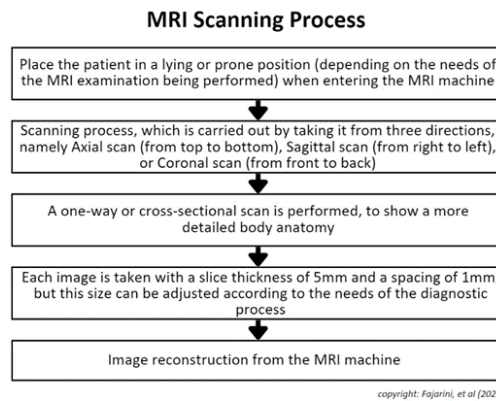
Among the several basic principles of how MRI scanners work, which are relevant to this research, the following points are essential. An MRI scanner employs strong magnets, radio waves, and a computer to generate detailed images. Given that the human body is composed of millions of hydrogen atoms (H_2)—our bodies contain 80% water (H_2O), which is magnetic—when the body is positioned on a magnetic plane, the atoms will align with the plane, akin to the points of a compass aligning towards the North Pole. The radio waves subsequently perturb the atoms and alter their polarity. These changes are then detected by sensors on the machine as the atoms revert to their original configuration. Essentially, MRI assesses the water content (or fluid characteristics) in various body tissues, which are then processed by a computer to produce highly detailed black-and-white images.

Like Computed Tomography, MRI results are provided to the doctor as thin-sliced images (in millimeters), resembling the process of slicing white bread and capturing an image of each individual slice. To enhance imaging for specific diseases, a contrast agent containing gadolinium (rich in magnetic properties) is commonly administered. This agent circulates in the blood, is absorbed by particular organ tissues, and subsequently appears prominently on the scan.

Typically, MRI images display a blend of black, white, and gray hues. Black signifies the absence of contrast agent absorption in the patient's body, such as in a healthy organ, while white indicates significant absorption of the contrast agent within the body (Lloyd-Jones, 2022). With only black, white, and gray present, the interpretation of MRI results relies on the contrast absorbed by the body's tissues or organs. Different types of organ tissue exhibit varying shades depending on the contrast weighting configuration.

MRI provides a detailed depiction of the soft tissues within the body's organs. Air and bone do not transmit signals in an MRI, causing these regions to appear black. Bone marrow, spinal fluid, blood, and other soft tissues exhibit varying degrees of black-and-white intensity, contingent upon the fat and water content within the tissue of the organ, as well as the settings of the MRI machine during scanning. The radiologist will assess the size and distribution of light and dark regions to ascertain whether the

tissue is healthy (normal) or abnormal (Mayfield Brain & Spine, 2018). The imaging of body parts can be conducted in various orientations, as outlined in the subsequent scanning process, where the MRI generates an image.

MRI Scanning Process

Place the patient in a lying or prone position (depending on the needs of the MRI examination being performed) when entering the MRI machine

↓

Scanning process, which is carried out by taking it from three directions, namely Axial scan (from top to bottom), Sagittal scan (from right to left), or Coronal scan (from front to back)

↓

A one-way or cross-sectional scan is performed, to show a more detailed body anatomy

↓

Each image is taken with a slice thickness of 5mm and a spacing of 1mm, but this size can be adjusted according to the needs of the diagnostic process

↓

Image reconstruction from the MRI machine

copyright: Fajarini, et al (2023)

Figure 3. MRI Scanning Process (Data Processed by Authors, 2022).

The initial step in MRI scanning involves placing the patient in a lying or prone position, depending on the requirements of the specific MRI examination. The second step is the body scanning process, which is performed from three directions: Axial scan (from top to bottom), Sagittal scan (from right to left), and Coronal scan (from front to back). Following this, a one-way or cross-sectional scan is conducted to provide a more detailed view of body anatomy. Each image is captured with a slice thickness of 5mm and a spacing of 1mm, although these dimensions can be adjusted as needed for the diagnostic process. The final step in the MRI scan is image reconstruction, performed by the radiographer, using various sequences and parameters to produce the necessary images.

Among the features indicating an abnormality or disease are unbalanced (asymmetrical) structures in the right and left hemispheres of an organ or the presence of a new or unusual structure in the body. For instance, a brain tumor might appear in the image as a white, glowing golf ball surrounded by a ring (Lloyd-Jones, 2022).

The basic principles of MRI technology are as follows: MRI scanners use strong magnets, radio waves, and a computer to create detailed images by detecting hydrogen atoms in the body, which are magnetic due to the body's high water content (80% water). When exposed to a magnetic field, these atoms align like compass points and are then disrupted by radio waves. Sensors detect changes in their arrangement, producing detailed images of body tissues.

MRI results are presented as thin-sliced images similar to slices of bread. To enhance imaging, contrast agents containing gadolinium are used. These agents circulate in the blood and are absorbed by specific tissues, appearing prominently on the scan. MRI images display black, white, and gray shades, where black indicates areas with no contrast agent absorption (normal tissues), and white shows high absorption. The interpretation depends on tissue contrast and weighting settings.

MRI provides detailed images of soft tissues, with air and bone appearing black as they do not transmit signals. The intensity of soft tissues varies based on their fat and water content, helping radiologists assess tissue health. MRI scans capture body parts in different directions—axial, sagittal, and coronal—providing detailed anatomical information with adjustable slice thickness. Image reconstruction involves various parameters to create diagnostic images. Abnormalities, such as asymmetrical structures or unusual formations (e.g., tumors), are identified through MRI images, aiding in disease diagnosis and treatment planning.

Material and Methodology

Although indirectly related to the pandemic, this study adopts a constructivist paradigm to analyze intercultural communication messages in MRI training, aiming to understand subjective reasons and meanings behind social actions. This interpretive research methods emphasizes cultural and historical interpretations of the social world, aligning with Max Weber's emphasis on understanding (*verstehen*) rather than explanation (*erklaren*) and focusing on processes rather than facts (Liliweri, 2018).

Interpretivists believe reality is based on subjective experiences of the external world and reject the idea of a single correct route to knowledge. They derive constructs through in-depth examination and emphasize interpretation and shared meanings. According to interpretivism, reality is accessed through social constructions and is not permanent, but context-dependent (Kumatongo & Muzata, 2021). Interpretive research aims to understand individual interpretations of social phenomena rather than seeking value-free knowledge. This methodology requires understanding social phenomena from the perspective of participants, not researchers (Dewi, 2021).

In this study, research was conducted in an impromptu manner directly on the field without a structured design. The authors themselves collected the data without relying on other representatives. The research focused on understanding the impressions and messages conveyed by MRI trainers in the context of intercultural communication during 10 consecutive days of MRI training at the hospital. The research was carried out in three stages to explore how messages were received in the transactional communication between MRI trainers and training participants in an intercultural context.

In the early stages, data was processed through the results of in-depth interviews with informants through face-to-face meetings during the period from August 2021 to February 2022. During the interviews, the authors had no control over the answers given by the informants. The goal is for the authors to obtain data as objectively as possible in the form of complete, detailed, and in-depth information. The results of interviews conducted by subsequent authors using key informant interviews were explored, reviewed, and cross-checked with relevant theories through literature studies. The data collection method, which combines the interview process and literature study, has also been carried out by Christin, et al. to analyze the social reality construction of physical distancing during the Covid-19 pandemic (Christin et al., 2021).

In the second stage, the authors reflected on the results of the initial data analysis. Then, in the third (final) stage, the authors polished the data by conducting further interviews in September and October 2022, with both trainers and trainees. Based on the results of the analysis done at the three stages, the authors concluded as presented at the end of this study.

Result and Discussion

This research was conducted through Focus Group Discussions (FGD) with five radiographers from diverse ethnic and cultural backgrounds, serving in hospitals across five cities in Indonesia. The FGD was followed up with separate interviews to gain more in-depth insights.

The profiles of the five radiographers who participated as informants are as follows: Informant 1 (R1) is a male radiographer from Bethesda Hospital in Yogyakarta. Informant 2 (R2) is a female radiographer from Palembang who works at Mayapada Hospital in Surabaya. Informant 3 (R3) is a male radiographer from dr. Wahidin Sudirohusodo Regional General Hospital (RSUD) in Makassar. Informant 4 (R4) is a male radiographer from Santosa Kopo Hospital in Bandung. Lastly, Informant 5 (R5) is a female radiographer from Jakarta who works at EMC Tangerang Hospital in Banten.

The informants with different cultural backgrounds tried to acknowledge the meaning behind the communication that was established. The authors examined the results of the interviews through the hierarchical stages in the CMM theory as follows:

Table 1. Application of the Hierarchy of CMM Theory with the MRI Training Process (obstacles, things done by the MRI trainers & responses obtained by the MRI training participants)

CMM Theory Hierarchy	Constraints (Intercultural Communication) in the MRI Training Process	The act done by the MRI Trainer to minimize the obstacles of Intercultural Communication	Responses obtained by MRI Training Participants
Cultural Patterns (Level 6)	Ethnocentrism – participants have difficulties in understanding the presentation of material done in a "foreign" language	Selected words (equivalent words/synonyms) within the cultural scope of the MRI training participants	Creating harmonization of interactions and reduced uncertainty
Script of Life (Level 5)	Stereotypes - complex English on MRI tools and doctors' requests for detailed examination needs	Communication using dynamic factors, orientation (focusing on	The emergence of co-orientation of MRI training participants

CMM Theory Hierarchy	Constraints (Intercultural Communication) in the MRI Training Process	The act done by the MRI Trainer to minimize the obstacles of Intercultural Communication	Responses obtained by MRI Training Participants
	becomes a constraint for trainees in operating the MRI tools	the similarity of backgrounds), and empathy	towards the MRI trainer
Connection (Level 4)	Anxiety - there is a sense of inferiority (insecurities) from the participants in the MRI training, which becomes an intrapersonal obstacle in learning the new technology (MRI machine)	To form dynamic interactions	Emotional attachment arises
Episode (Level 3)	Assumptions on Differences - creating a class atmosphere that tends to be boring at the beginning of the training	The MRI trainer provided motivation before starting the explanation of the MRI material	MRI trainees felt a positive "soul resonance" which made the materials easier to understand
Speech Act (Level 2)	Prejudice (bad prejudice) - there is a distance between the MRI trainer and the MRI trainee, or a phase of uncertainty, anxiety, and behavior doubt	MRI trainers used language styles and body language (gestures) as actions within the framework of spoken words	Trainees began to open more and interacted with questions
Content (Level 1)	Misinterpretation - the use of terms or terms that are difficult to understand in the MRI training process	MRI trainers used easy-to-understand words or phrases to explain the process, such as "black is beautiful", "beautiful images" and "mixing spices".	Trainees found it easier to process the formation of meaning in their minds

Source: Data Processed by Author, 2022.

Content (1st Level of CMM Theory Hierarchy)

The study found that the MRI trainer simplified the explanation of MRI material by using alternative words or phrases to enhance understanding. The trainer carefully selected these words or phrases as substitutes for complex terms found in the MRI manual. Examples of commonly used phrases by MRI trainers include "black is beautiful," "beautiful images," and "mixing spices."

Figure 4. "Black is Beautiful" in *image* MRI (Author's Document, 2022).

The phrase "black is beautiful" is used to represent the black color in MRI images, indicating a good or normal image without abnormalities. Radiologists rely on this color to easily interpret the MRI results. Black typically represents organs or tissues with minimal fluid content, such as the joint system, and signifies normal or non-abnormal soft tissue. Conversely, white color indicates abnormalities or artifacts in the imaged organs. The phrase "black is beautiful" was chosen by the trainer to simplify trainees' understanding of abnormality detection in MRI images.
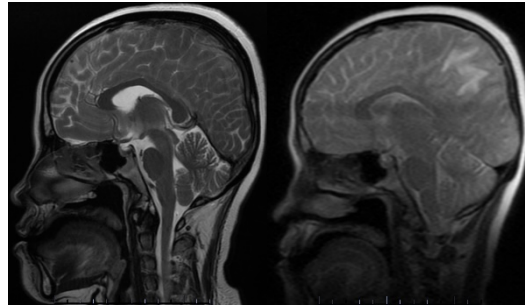
Figure 5. "Beautiful Image" (left) dan "Not a Beautiful Image" (right), (Author's Document, 2022).

The concept of a "beautiful image" in MRI refers to a scan that accurately represents the anatomy and morphology of the imaged object, providing diagnostic insights into tissue structure. Anatomy refers to internal tissue arrangement, while morphology pertains to surface appearance in the image.

When tissue anatomy or morphology deviates from the norm, it may indicate abnormalities, which radiologists interpret based on their expertise. Radiographers generate image results, and radiologists analyze abnormalities to diagnose conditions like tumors or infections.

The term "beautiful image" underscores high-quality MRI images following radiographers' protocols, including capturing body slices from different perspectives like Axial, Sagittal, and Coronal views. A well-captured sagittal slice serves as a benchmark for subsequent steps.

Figure 6. Image results from "Mixing the Spices" (Author's Document, 2022).

The trainer uses "mixing spices" as an analogy for optimizing MRI protocols with different weighting terms (T1, T2, and PD), akin to adjusting spices for desired flavors. Radiographers modify parameters to produce clear MRI scans meeting doctors' requirements.

At this first hierarchical level, the authors observed the formation of meaning through the selection of words or phrases that initially lacked clarity for the trainees. However, the trainer explained their meanings and provided prior context. These chosen words will be further explored in subsequent research at the next hierarchical level.

Speech Act (2nd Level 2 of CMM Theory Hierarchy)

At the second hierarchical level, participants' actions and responses to the MRI trainer's choice of words are discussed. The interaction between the trainer and participants at this level involves questioning, refuting, and providing suggestions. The participants rated the trainer as open and fun during the interviews, indicating a conducive interaction supporting the process of managing meaning. The trainer's speech act, adapted to the participants' language style, creates a pleasant atmosphere and is accompanied by gestures to ensure understanding.

During this level, the authors assume that trainees engage in the interaction by listening and observing the material presented by the MRI trainer to enhance their understanding of MRI machine operations. The trainer simplifies explanations using analogies and simpler words, accompanied by body language (gestures) as complementary actions to verbal communication.

Episode (3rd Level of CMM Theory Hierarchy)

The authors examined the communication activities between the MRI trainer and trainees. The MRI trainer starts by providing motivation, creating a positive atmosphere for easy absorption of complex MRI terms. The intelligence of the trainer in creating a pleasant classroom environment is crucial for managing shared meaning.

Additionally, the authors observed the process of managing meaning during the training, as indicated by the trainees' statements. The MRI trainer's communication strategies, from approach to managing impressions, were viewed as interesting and energizing. At this third level, the routine communication between the trainer and participants facilitates the process of managing agreed meanings, building on the choice of words at the first level and participants' responses at the second level.

The episode continues until the end of the training, where trainees can maintain contact with the MRI trainer. The ongoing communication after the training signifies the final episode of the training process.

Connection (4th Level of CMM Theory Hierarchy)

At this level, the authors examined the consequences of dynamic interactions in the management process and agreement on shared meaning. Trainees positively perceived the dynamic interaction and class atmosphere created by the MRI trainer through the choice of words. This led to enjoyable dialogue and favorable views of the trainer's communication strategy.

The authors believed that the harmonization of interaction dynamics by the MRI trainer was well received by the participants. The dynamic interaction in managing agreed meaning was demonstrated through continuous communication and emotional attachment, exemplified by specific phrases like "beautiful image," "black is beautiful," and "mixing spices." These phrases were used to facilitate trainees' understanding of complex English language in the MRI manual. Additionally, communication extended beyond formal training activities, fostering closer relationships between the trainer and trainees according to the informants of the research.

Script of Life (5th Level of CMM Theory Hierarchy)

At this level, the authors described communication activities across the first to fourth levels. The MRI trainer introduced new terms to the trainees (first level) and welcomed their responses (questions, objections, and suggestions) in an open and pleasant manner (second level). The trainer successfully managed impressions and built trainees' enthusiasm at the beginning of each session (third level). The dynamics of interaction in the dialogue were considered harmonious, creating a pleasant classroom atmosphere (fourth level).

At the fifth level, trainees viewed the MRI trainer as having a pleasant personality, which is related to orientation and the values represented by the trainer. The authors argued that the dynamics, orientation factors, and empathy displayed by the MRI trainer influenced the management of mutually agreed meaning, particularly in the choice of words and analogies used (first level).

Differences were observed between the episodes experienced by trainees before and after the training. The pre-training episodes influenced the trainees' management of meaning post-training. Trainees found complex English on the MRI tool difficult to understand, but the post-training episodes facilitated and expedited their operation of the MRI device.

The MRI trainer's use of an egalitarian language style and speech acts helped trainees feel comfortable, comprehend the materials, and influenced their management of meaning. The similarity in professional background between the trainers and trainees also affected the process of managing mutually agreed meanings.

Cultural Patterns (6th Level of CMM Theory Hierarchy)

At this level, the authors focused on trainees' identity formation through communication activities across the first to fifth levels. The study revealed that both the participants and MRI trainers were aware of the difficulties in understanding MRI material. The trainer made efforts to choose culturally relevant words for better comprehension. The trainer adjusted their communication to establish equal status with the trainees, building a closer relationship and effective communication.

The MRI trainer, in this case, did what Berger suggested with the self-adjustment process so that the communicator looks equal to the communicant (Griffin et al., 2019). Not only just to reduce anxiety or uncertainty, but the MRI trainer also tried to establish a closer relationship with the trainees by striving to find out or learn about the communicant, and share information about herself beforehand, as stated by Jandt (2018) to build an effective relationship and communication.

Furthermore, this situation can be illustrated when the trainer tried to translate the foreign terms in MRI into Javanese when the training took place in Yogyakarta and Surabaya, which was easy for trainers who also have a Javanese background. Examples of Javanese words used were "*pepak*", (which means complete), and the word "*nggih*" or "*leres*" (both mean 'yes' or 'true') which are popular words in the community. However, these words were not used when the trainer trained in other places, such as in Bandung or Makassar, where in there, the trainer emphasized more in using Bahasa Indonesia which is commensurate with the meaning of the words.

As the exercise progresses, the trainer sometimes undertaken to find equivalent words in Bugis or Makassar regional language, so the participants from Makassar can discover the explanations better. This, the trainer asked and discussed several equivalent words in Makassar or Bugis regional languages with one of the participants there. After learning about the words, the trainer then repeated the explanation using the regional language, so that all participants gained a better understanding.

The same thing happened when the training took place in Bandung, where the trainer also used Sundanese terms with the training participants. An example of a word in Sundanese that appeared at that time was when a participant reprimanded his friend with the word "*cicing*" (shut up), with the intention to calm the participants to avoid any disturbance. At first, the trainer did not understand the meaning of the word '*cicing*', but then asked and confirmed the meaning of the word. After understanding it, sometimes the trainer used it in a half-joking manner to get a warm atmosphere among the participants. Participants who knew that the trainer had just learned the word "*cicing*", actually took the command seriously, with a smile on their faces.

At the training in Bandung, the calling word "*Teh*" (from the word "*Teteh*") also was used by the trainees to address the trainers. At first, the trainer did not understand the word "*Teteh*" (which means "*Mbak*" in Javanese, or "Sister / female calling name"), because it was not followed by the name of the trainer. Only after receiving the explanation from one of the participants, the trainer understood that the call "*Teh*" was addressed to her, and it turned out to be a close informal address addressed to the trainer.

The trainers' patient and attentive approach in finding linguistic equivalents in participants' local languages contributed to their positive perception as open and pleasant. This approach helped minimize language-related misunderstandings and reduced uncertainty, enhancing intercultural communication.

In addition, the authors saw that the communication manner in the MRI training seemed to be in accordance with the culture adopted in Indonesia, due to the strong bond that emphasized 'good relations' (relationships). As known, in Indonesian culture (and Asian countries in general) personal approach and relationship building are very important. As Hofstede said (cited in Tuleja (2021)), a collectivist culture that is widely embraced by people in Asia such as Indonesia, will prioritize good relationships as a priority rather than tasks; and this is different from the priority on tasks that are adhered to by individualism culture (in the Western society).

The authors observed that the MRI trainers were considered open and engaging, successfully building a communication strategy that created harmonized interactions with the trainees. This aligns with the 'uncertainty reduction strategy,' which involves individuals identifying with others by adjusting their spoken words and communication manner to match. This strategy not only fosters cohesive relationships (convergence) but also plays a crucial role in gaining social approval, a key motivation for cohesiveness. Consequently, the trainees concluded that the MRI trainers were well-regarded, respected, and attractive (Griffin et al., 2019).

The trainers' personality played a role in managing mutually agreed meanings. Phrases like "black is beautiful," "beautiful images," and "mixing spices" were well received and contributed to understanding and a fun atmosphere during the training. These phrases served as common ground across different cultural backgrounds.

Trainees recognized the cultural identities of the trainers and occasionally used regional languages. However, the series of interactions between the trainers and trainees effectively built a communication strategy that fostered shared meaning, understanding, and comfort.

Conclusions

This study's findings reveal that managing agreed meaning between MRI trainers and trainees aligns with each hierarchical level of CMM theory. Communication activities are ongoing at all levels. Initially, the MRI trainer transmits messages, which are then negotiated during subsequent communication activities. The process progresses to transactional communication between trainers and participants, eventually resulting in dynamic interactions characterized by emotionally engaged and lively exchanges. Crucial factors such as dynamics, orientation, empathy, egalitarian language style, and a shared professional background support the effective management of agreed meanings, fostering a cohesive group identity among trainees. This facilitates the comprehension of MRI training materials, promoting the use of analogies over technical terms.

The study also addresses the communication strategy used to manage shared meaning in intercultural relations. The MRI trainer's strategy of impression management was key to delivering and understanding the material. Both trainers and participants focused on reducing uncertainty and enhancing comprehension through interactive discussions and questions. This proactive approach demonstrated mindfulness, avoiding emotional vulnerability and fostering sincere communication despite cultural differences (Rahardjo, 2010). Efforts to reduce uncertainty, such as clarifying local terms, were crucial in various training locations, minimizing language clashes and ensuring smooth communication.

Furthermore, the research found no evidence of ethnocentrism during training. Any discomfort the trainer experienced when local languages were used was mitigated through clarification questions, ensuring mutual comfort and understanding. Emotional attachment played significant roles in message reception and meaning management, leading to mutually agreed-upon analogies for technical MRI terms. This emotional engagement, combined with language adjustments and interactive communication, highlighted the importance of intercultural awareness in effective training.

In conclusion, the study demonstrates that effective communication in MRI training relies on language adjustments, empathy, and shared professional backgrounds. These elements are critical for managing agreed meanings, ensuring participants' understanding, and fostering a cohesive training environment.

Acknowledgements

References

Almaliki, A. A., Juni, M. H., Shahar, H. K., Noor, N. M., & Gabbad, A. A. M. (2018). A Systematic Review on Radiographers'Knowledge in Imaging. *Journal of Medical Imaging and Health Informatics*, *8*(4), 639–646. https://doi.org/10.1166/jmihi.2018.2366

Anwar, R. (2018). Hambatan Komunikasi Antarbudaya di Kalangan Pelajar Asli Papua dengan Siswa Pendatang di Kota Jayapura. *Jurnal Common*, *2*, 139–149. https://doi.org/10.34010/COMMON.V2I2.1190

Arqoub, I. A. (2019). Language Barriers to Effective Communication. *Utopía y Praxis Latinoamericana*, *24*(6), 64–77.

Assegaff, S. B. (2023). *Kompetensi Emotional Appeals Dokter sebagai Influencer Instagram pada Masa Pandemi COVID-19* [Unpublished Doctoral Dissertation]. Universitas Sahid.

Azka, Z. N., & Hasib, S. (2020). The phenomenon study of effective communication of trainers in the induction training. *Journal of Advances in Humanities and Social Sciences*, *6*(4), 147–155. https://doi.org/10.20474/jahss-6.4.4

Bahns, A. J. (2017). Prejudice is a general evaluation, not a specific emotion. *Behavioral and Brain Sciences*, *40*, e227. https://doi.org/10.1017/S0140525X16000674

Banerjee, A., Blasiak, B., Dash, A., Tomanek, B., van Veggel, F. C. J. M., & Trudel, S. (2022). High-field magnetic resonance imaging: Challenges, advantages, and opportunities for novel contrast agents. *Chemical Physics Reviews*, *3*(1), 0113041–01130424. https://doi.org/10.1063/5.0064517

Bou-Franch, P. (2002). Misunderstanding and Unofficial Knowledge in Institutional Discourse. In *Culture and Power: Ac(unofficial)knowledging Cultural Studies in Spain* (Vol. 1, pp. 323–346).

https://www.academia.edu/4152107/Misunderstandings_and_Unofficial_Knowledge_in_Institut ional_Discourse

Brown, B. (2015). *Daring Greatly: How the Courage to Be Vulnerable Transforms the Way We Live, Love, Parent, and Lead*. AVERY: An imprint of Penguin Random House.

Christin, M., Hidayat, D., & Rachmiatie, A. (2021). Konstruksi Realitas Sosial atas Physical Distancing selama Pandemi COVID-19. *JK: Jurnal Komunikasi, 13*(1), 1–19. https://doi.org/http://dx.doi.org/10.24912/jk.v13i1.9612

Dawson, M. J. (2013). Paul Lauterbur and the Invention of MRI. *Paul Lauterbur and the Invention of MRI*, 1–268.

Dewi, I. G. A. A. O. (2021). Understanding Data Collection Methods in Qualitative Research: The Perspective of Interpretive Accounting Research. *Journal of Tourism Economics and Policy*, *1*(1), 23–34.

Fatmawati, E. (2021). Strategies to grow a proud attitude towards Indonesian cultural diversity. *Linguistics and Culture Review*, *5*(S1), 810–820. https://doi.org/10.21744/lingcure.v5nS1.1465

Fisher-Yoshida, B. (2021). Case Report: Are You One of Us and Can We Trust You?: Taking a Communication Perspective in Participatory Research. *Frontiers in Communication*, *5*. https://doi.org/10.3389/fcomm.2020.599286

George, A., Utomo, A. G., Herari, N., & Rubiyanto, R. (2023). Coordination of Management Objectives: Green TMII's Marketing Plan to Advance Sustainability and Cultural Diversity. In U. Yunus, L. Nurhajati, J. M. Pinariya, X. A. Wijayanto, A. Gregory, A. R. Na'Allah, W. N. W. Noordin, & W. Zulkarnain (Eds.), *Strengthening ASEAN's Leadership in Sustainable Business and Advanced Communication* (p. 68). LSPR Publishing. https://www.researchgate.net/publication/378145755_Coordination_of_Management_Objectives _Green_TMII's_Marketing_Plan_to_Advance_Sustainability_and_Cultural_Diversity

Giorgio, A., & Stefano, N. De. (2018). Effective Utilization of MRI in the Diagnosis and Management of Multiple Sclerosis. *Journal Neurologic Clinics (Elsevier)*, *36*(1), 27–34. https://doi.org/10.1016/j.ncl.2017.08.013

Griffin, E. A., Ledbetter, A., & Sparks, G. (2019). *A First Look at Communication Theory (10th ed.)* (10th ed.). McGraw-Hill Education.

Gudykunst, W. B. (2022). *Communication Yearbook 26* (W. B. Gudykunst, Ed.; 1st ed.). Routledge. https://www.routledge.com/Communication-Yearbook-26/Gudykunst/p/book/9781032243665

Hamson, Z., Taureng, H., & Indrawati, A. (2021). Keberhasilan Vaksin Covid-19: Persfektip Komunikasi Pendekatan Teori Coordinated Management of Meaning. *Journal of Communication Sciences (JCoS)*, *3*(2), 84–91. https://doi.org/10.55638/jcos.v3i2.608

Hardy, M., & Mcintosh, B. (2017). Optimizing diagnostic imaging through skills mix: Costs and opportunities. *British Journal of Hospital Medicine*, *78*(6), 306–307. https://doi.org/10.12968/hmed.2017.78.6.306

Harris, R., & Clayton, B. (2018). Editorial: the importance of skills – but which skills? *International Journal of Training Research*, *16*(3), 195–199. https://doi.org/10.1080/14480220.2018.1576330

Hernawan, W., & Pienrasmi, H. (2021). *Komunikasi Antarbudaya (Sikap Sosial dalam Komunikasi Antaretnis)* (H. Basri, Ed.). Pusaka Media.

Jandt, F. E. (2018). *An Introduction to Intercultural Communication: Identities in a Global Community 9th Edition*. SAGE.

Katti, G., Ara, S. A., & Shireen, A. (2011). Magnetic resonance imaging (MRI) - A review. *International Journal of Dental Clinics*, *3*(1), 65–70.

Kemenkes RI. (2008). *Standar Pelayanan Radiologi DIagnostik di Sarana Pelayanan Kesehatan (1014/MENKES/SK/XI/200*)*. http://rsjiwajambi.com/wp-content/uploads/2019/09/Kepmenkes-1014-Th-2008-Standar-Pelayanan-Radiologi-Diagnostik.pdf

Kemenkes_RI. (2023, February 23). *Harmoni Transformasi Kesehatan Pusat ke Daerah*. Kemkes.Go.Id. https://www.kemkes.go.id/article/view/23022400001/menkes-budi-tekankan-pemerataan-akses-kesehatan.html

Kumatongo, B., & Muzata, K. K. (2021). Research Paradigms and Designs with Their Application in Education. *Journal of Lexicography and Terminology*, *5*(1), 16–32.

Liliweri, A. (2018). *Paradigma Penelitian Ilmu Sosial*. Pustaka Pelajar.

Littlejohn, S. W., Foss, K. A., & Oetzel, J. G. (2017). *Theories of Human Communication. Eleventh Edition* (11th ed.). Waveland Press, Inc.

Lloyd-Jones, G. (2022, July). *MRI Interpretation Systematic Approach*. Radiology Masterclass. https://www.radiologymasterclass.co.uk/tutorials/mri/mri_system

Man, G.-M. (2020). The Implications of Using Stereotypes. *Land Forces Academy Review*, *25*(4), 331–336.

Mayfield Brain & Spine. (2018). *MRI (Magnetic Resonance Imaging) and MR Angiography*. Mayfield Brain & Spine. https://mayfieldclinic.com/pe-mri.htm#:~:text=Air%20and%20hard%20bone%20do,settings%20used%20for%20the%20scan

Neuliep, J. W. (2018). *Intercultural Communication: A Contextual Approach* (7th ed.). Sage Publications, Ltd. https://search.worldcat.org/title/Intercultural-communication-:-a-contextual-approach/oclc/956584025

Noor, F., & Hidayah, D. B. (2022). Dialog Antar Budaya: Interpretasi Video Musik Wonderland Indonesia. *KOMUNIKATIF: Jurnal Ilmiah Komunikasi*, *11*(1), 38–49. http://jurnal.wima.ac.id/index.php/KOMUNIKATIF/article/view/3728

Notosiswoyo, M., & Suswati, S. (2004). Pemanfaatan Magnetic Resonance Imaging (MRI) sebagai Sarana DIagnosa Pasien. *Media Litbang Kesehatan*, *XIV*(3), 8–13. http://repository.bkpk.kemkes.go.id/1125/1/901-986-1-PB.pdf

Rahardjo, T. (2010). *Memahami Kemajemukan Masyarakat Indonesia (Perspektif Komunikasi Antarbudaya)* [PhD Thesis, Universitas Diponegoro]. http://eprints.undip.ac.id/19642/

Rao, R., Venkatesan, R., & Geethanath, S. (2015). Role of MRI in Medical Diagnostics. *Resonance: General Article*, 1003–1011.

Robichaud, M., Buhr, K., & Antony, M. M. (2018). *The Worry Workbook: CBT Skills to Overcome Worry and Anxiety by Facing the Fear of Uncertainty (A New Harbinger Self-Help Workbook)* . New Harbinger Publications, Inc.

RSNA. (2022, December 6). *Body MRI*. Radiological Society of North America, Inc. (RSNA). https://www.radiologyinfo.org/en/info/bodymr

Sardjito. (2019, July 9). *Jaminan Aspek Keamanan Pemeriksaan Magnetic Resonance Imaging (MRI)*. RSUP Dr. Sardjito. https://sardjito.co.id/2019/07/09/jaminan-aspek-keamanan-pemeriksaan-magnetic-resonance-imaging-mri/

Sari, W. P. (2020). Studi Fenomenologi Penyelarasan Makna dan Pengalaman Penikmat Warung Kopi di Ambon. *Jurnal Komunikasi*, *12*(1), 124–136.

Smith, L. (2019, June 5). *Effective Communication: How Not to Be Misunderstood*. Lifehack.Org.

Sprawls, P. (2000). *Magnetic Resonance Imaging: Principles, Methods, and Techniques*. Medical Physics Publishing. http://www.sprawls.org/resources/books/Sprawls%20Magnetic%20Resonance%20Imaging%20PMT%20%20.pdf

Tong, L., & Yuqing, T. (2020). Applying Hall's High Context and Low Context Cultures Model to Analysis the Implications of Cultural Differences on Functioning in Cross-cultural Groups. *Academic Journal of Humanities & Social Sciences*, *3*(8), 128–133.

Tuleja, E. A. (2021). *Intercultural Communication for Global Business: How Leaders Communicate for Success*. Routledge.

UL. (2023, February 8). *Critical Thinking And Academic Research: Assumptions*. University of Louisville.

Utomo, S. A., Bajamal, A. H., P.W, Y. Y., Haq, I. B. I., Fauziah, D., & Fajarini, E. S. (2022). Advanced MRI Prediction of Meningioma Histopathological Classification: A Literature Review and Case Presentations. *Bali Medical Journal (Bali MedJ)*, *11*(1), 23–27.

van Beek, E. J. R., Kuhl, C., Anzai, Y., Desmond, P., Ehman, R. L., Gong, Q., Gold, G., Gulani, V., Hall-Craggs, M., Leiner, T., Lim, C. C. T., Pipe, J. G., Reeder, S., Reinhold, C., Smits, M., Sodickson, D. K., Tempany, C., Vargas, H. A., & Wang, M. (2019). Value of MRI in medicine: More than just another test? *Journal of Magnetic Resonance Imaging : JMRI*, *49*(7), e14–e25. https://doi.org/10.1002/jmri.26211

West, R., & Turner, L. H. (2007). *Introducing Communication Theory: Analysis and Application* (3rd ed.). McGraw-Hill.

Westbrook, C., & Talbot, J. (2009). What do MRI Radiographers Really know? *European Journal of Radiography*, *1*(2), 52–60.

Yuriawan, K., Sarwoprasodjo, S., & Sugiyanto, D. R. (2021). Strategi Komunikasi Sains LIPI dalam Kegiatan Diseminasi Pupuk Organik Hayati Kepada Masyarakat. *Jurnal Komunikasi Pembangunan*, *19*(2), 97–110. https://doi.org/https://doi.org/10.46937/19202136320