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THE RELATIONSHIP BETWEEN EXTRAVERSION AND COMMUNICATION APPREHENSION BASED ON THE COMMUNIBIOLOGY APPROACH

Ermadela Benedicta Ika, Kriyantono Rachmat*

Department of Communication Science, Faculty of Social and Political Sciences,
University of Brawijaya, Malang, Indonesia

Airlangga Muhammad Hafidz Daros

Department of English, Faculty of Culture Studies, University of Brawijaya,
Malang, Indonesia

*E-mail: rachmat_kr@ub.ac.id

ABSTRACT

This study demonstrates the correlation between extraversion—personality dimensions proposed by Hans Eysenck—and communication apprehension, as defined by James McCroskey. These variables are closely linked to the paradigm of communibiology, a theory developed by communication scholars that argues biological processes within the human body influence communication behavior, rather than just social learning. This research was conducted using a cross-sectional study method. The results indicate that the personality tendency of extraversion does not correlate with communication apprehension. Processes occurring in the human nervous system and brain influence how certain personality tendencies affect individual behavior—in this case, communication apprehension. This study is expected to pave the way for more in-depth exploration of communibiology studies.

KEY WORDS

Communibiology, communication apprehension, extraversion, neuroticism.

So far, we know that the study of communication science is a social science study that cannot be separated from the rules in social science, such as that human behavior is the result of the surrounding environment (Kriyantono, 2017). There is a debate among academics about whether nature or nurture plays a role in shaping individual behavior. (Beatty & McCroskey, 2000). The development of science raises the opportunity to study communication science through new perspectives, such as biology which later gave birth to the paradigm of communibiology. Communibiology departs from the thoughts of Michael Beatty and James McCroskey that human behavior is largely determined by biological or innate traits that are formed consistently in various communication situations. (L. L. McCroskey et al., 2014).

Research conducted within the communibiology paradigm is mostly within the scope of communication education and instructional communication studies. The concept of communication apprehension, namely anxiety related to interpersonal communication, is one of the focuses of studies using the communibiology paradigm. In Beatty et al. (1998), certain traits such as shyness, anxiety and sensitivity will lead to communication apprehension. Individuals who are genetically shy or anxious will more easily feel anxious in various communication situations. In addition, sensitivity in certain parts of the brain that play a role in processing emotions such as the amygdala and prefrontal cortex also affects communication apprehension.

Meanwhile, McCroskey who also studied communication apprehension in the context of instructional communication, his initial study was still in the social learning paradigm. In his initial writing about communication apprehension, McCroskey mentioned that communication apprehension is characterized by fear or anxiety associated with interpersonal communication (McCroskey & Richmond, 1982). In his other writings (McCroskey, 1977), it is mentioned that communication apprehension can be influenced by several factors such as



certain personality traits, biological factors, and social factors. McCroskey initially believed that communication apprehension was learned and unlearnable, but later realized that this approach had limited effectiveness in treatment studies. As a result, he shifted his focus to a new paradigm that emphasized biological factors as the main cause of communication apprehension (McCroskey et al., 2014).

There has been a shift in perspective to see the concept of communication apprehension. Biological factors, which were previously one of the factors forming communication apprehension, are then assumed to be a factor that plays a greater role in communication apprehension. When talking about biological factors, we will discuss the performance of biological systems in the body, such as the nervous system and the hormone system that affect human behavior.

Beatty et al., (1998) elaborated communication apprehension based on the principles of psychobiology. Psychobiology includes the science of neurology, neuroanatomy, and the endocrine system. The difference in the presence of communication anxiety in each individual is due to differences in biological function. Given the growing body of evidence suggesting biological origins for social traits, it makes sense to consider communication apprehension from this perspective. Beatty and McCroskey's concept of communication apprehension from the communibiology paradigm is in line with the personality dimensions developed by Hans Eysenck.

The three-factor model of the structure of personality developed by Eysenck, namely psychoticism, neuroticism, and extraversion, is based on differences in the function of neuroanatomical systems or systems in the human brain that make different personality tendencies. From a neuropsychological perspective, according to Eysenck (1983), extraversion personality occurs due to differences in the cortical areas of the brain. Individuals with extraversion personality have a low level of arousal in the cortical area of the brain so they will tend to seek external stimuli. Eysenck's view is in line with the concept of communication apprehension with the paradigm of communibiology which views that communication anxiety is influenced by biological factors in the human body.

In the three-factor personality structure model developed by Eysenck, the extraversion dimension is said to have a negative correlation with communication apprehension. The study conducted by Beatty et al. (1998) showed an association between communication apprehension and traits that have elements of extraversion, such as emotional maturity and self-esteem. McCroskey et al., (2001) have tested the relationship between Eysenck's personality dimensions including extraversion and communication variables, including communication apprehension. As a result, extraversion is negatively correlated with communication apprehension. The negative correlation also proven in Jung and McCroskey's research (2004). Similar results were also obtained from a study conducted by Neuliep et al., (2003) which examined the relationship between personality dimensions (called 'temperament') and communication apprehension.

The object used in this research is the Family Planning Counselor under the auspices of the National Population and Family Planning Agency. The main tasks and functions of Family Planning Counselors are to communicate, inform, advocate and educate the community and related stakeholders. An extension worker must be able to communicate well in various communication contexts, whether in groups, meetings, interpersonal, or in public. Therefore, this study will measure the personality tendencies of each extension worker and measure the correlation with their level of communication anxiety.

So far, studies using the communibiology paradigm have rarely been conducted in Indonesia. From the researcher's search on Google Scholar, studies in the paradigm of communibiology in Indonesia mostly still use literature reviews on physiological mechanisms in the brain. One of the early publications in Indonesia that discussed from the point of view of communication biology was conducted by Darmawan (2006), namely regarding the behavior of communication biology, namely activities in parts of the human brain in explaining intrapersonal and interpersonal communication based on information processing. Other research related to human brain activity in determining communication behavior examines verbal aggressiveness on social media (Fajar, 2020), the process of forming



audience perceptions (Fajar et al., 2021).

THEORETICAL FRAMEWORK

Hans Eysenck developed a personality theory that takes a biosocial approach, highlighting how both genetic/biological and environmental influences shape human behavior (Engler, 2013). He described personality as a set of traits, temperament, intelligence, and physical attributes that affect how individuals adjust to their environment (Engler, 2013). Eysenck suggested that personality is made up of a series of traits or factors (Schultz and Schultz, 2017). These traits are unique qualities or characteristics that consistently influence a person's thoughts, emotions, and behaviors across different situations (Littlejohn et al., 2017). In communication studies, this theory was among the first to explain the nature of communicators.

Eysenck (1983) identified two primary personality dimensions: extraversion-introversion and neuroticism-emotional stability. In his model, extraversion and introversion are seen as opposite ends of a spectrum. Extraverted individuals tend to have lower natural levels of arousal compared to introverts, which makes them more likely to seek stimulating, adrenaline-inducing activities (Sato, 2005). From a neuropsychological standpoint, Eysenck (1983) suggested that these personality differences stem from variations in the brain's cortical regions, leading introverts to generally exhibit a calmer disposition.

Communication apprehension, as shown both in theory and research, is an internal emotional response that visibly influences communication behaviors (McCroskey & Richmond, 1982). This anxiety arises when individuals face communication situations, often leading to behaviors like hesitancy to share their thoughts. Those with high levels of communication apprehension typically choose to speak less in social settings (McCroskey, 1977).

In this study, apprehension or anxiety is understood as a 'trait' rather than a 'state.' A 'trait' is a stable characteristic, whereas a 'state' is a temporary feeling experienced in specific moments. According to McCroskey (as cited in Shimotsu & Mottet, 2009), communication apprehension is a personality characteristic that influences how individuals communicate across various contexts. Therefore, communication apprehension reflects a consistent individual tendency in situations involving group communication, interpersonal interactions, and public speaking.

METHODS OF RESEARCH

This study is a replication study that will examine the correlation between the dimensions of extraversion and neuroticism with communication apprehension. The research used survey by relaying questionnaires (Kriyantono, 2024). The study was conducted on 119 Family Planning Counselors in East Java who have been identified as having extraversion personality tendencies based on a survey conducted using the Eysenck Personality Questionnaire Short Form instrument. The hypothesis proposed is that extraversion personality tendency will be negatively correlated with communication apprehension. To measure the level of communication apprehension in respondents, researchers used the Personal Report Communication Apprehension instrument created by McCroskey (1985).

RESULTS AND DISCUSSION

A total of 191 family planning counselors in East Java filled out a questionnaire to map their personality type tendencies based on the Eysenck Personality Questionnaire Short Form. Of the 191 respondents, 119 respondents had extraversion personality type tendencies. After mapping personality type tendencies, respondents were asked to fill out a questionnaire based on McCroskey's Personal Report Communication Apprehension. There are 24 questions in McCroskey's instrument to measure the level of communication apprehension.



The Personal Report Communication Apprehension instrument is used to measure communication apprehension in four communication contexts, namely groups, meetings, interpersonal communication, and public speaking. The statements contained in the PRCA instrument are related to the anxiety felt by individuals when they have to communicate. For example, in the group dimension, the statement is 'I don't like to be involved in small group discussions'. On the meetings dimension, examples of statements such as 'I am afraid to express my opinion in meetings'. On the interpersonal dimension, an example statement is 'When talking to new people, I feel very nervous'. While the public speaking dimension includes statements such as 'I am not afraid when speaking in front of many people'. A bivariate correlation analysis was conducted to see the relationship between extraversion personality dimensions and each communication context.

Table 1 – Relationship between Extraversion and Communication Apprehension

	Communication Apprehension
Correlation Coefficient	0.156
Sig	0.90

In the communication apprehension variable, the correlation analysis was carried out using Spearman rho because the data obtained was ordinal data. After the analysis, the significance value is 0.90 with a correlation coefficient of 0.156. From this value, there are two conclusions obtained. First, the relationship between the two variables is weak because $r=0.56$. Secondly, this relationship is not statistically significant as the p-value is >0.05 . This means that although there is a slight indication that the relationship between the two variables is positive, it cannot be concluded that the relationship is real or not just by chance. Overall, the relationship between the two variables tends to be weak and insignificant, so there is no strong evidence to suggest a statistically meaningful relationship.

The results of this study differ from previous studies, which showed a negative correlation between extraversion and communication apprehension. This study is a replication of previous studies (J. C. McCroskey et al., 2001; Neuliep et al., 2003), so the measurement methods and statistical analysis are the same. The absence of correlation shown in this study may be due to several factors.

Differences in the characteristics of the respondents, as well as differences in the context and situation of the research, may be the reason for the absence of such correlation. The subjects in the previous study were students who took basic communication courses, while in this study, the subjects were Family Planning Extension Workers who already have work experience. The communication paradigm assumes that anxiety is influenced by genetic factors, but this could not be proven in this study, especially for the extraversion personality type. It is likely that other variables can influence or moderate a person's personality type, especially the relationship between extraversion and communication apprehension. For example, length of service. Family planning extension workers need good communication skills because their main task is to provide counseling, which requires daily communication in various contexts. Based on existing research in personality psychology, communication skills should not be considered to depend solely on extraversion. Rather, communication skills function specifically and may influence how and when extraversion is relevant to the emergence of certain behaviors or outcomes (Mitchell et al., 2022).

Biologically, extraversion can be said to be uncorrelated with fear because the biological tendencies of extroverted individuals are different from those of individuals predisposed to fear. A large body of evidence suggests that extroverts tend to experience positive emotions more frequently and with greater intensity. Behaviorally, extroverts are more likely to experience and recognize positive emotional states. Neurologically, there is a positive correlation between extraversion and brain areas associated with emotion processing when positive emotional stimuli are present (Hassan et al., 2021). This is in contrast to individuals who have communication apprehension, where communication apprehension is defined as "fear or anxiety associated with real or anticipated communication with others" (McCroskey & Richmond, 1982). Fear and anxiety are absent in



extraversion personality tendencies, which are characterized by positive affect.

Positive affect, which is a combination of positive emotions and motivation, is strongly associated with extraversion. Therefore, extraversion is essentially rooted in positive incentive motivation. The similarities between extraversion and the behavioral approach system in mammals, which is centered on positive incentive motivation, suggest the involvement of neuroanatomical networks and neurotransmitters that modulate the processing of this motivation (Depue & Collins, 1999). Dimension E is strongly associated with the experience of positive affect (Ball & Zuckerman, 1990). Early studies suggested that the strong relationship between extraversion and positive affect may be due in part to higher social engagement in extroverted individuals (Argyle & Lu, 1990).

From another neuroanatomical perspective, extraversion was identified as a major predictor of regional brain volume in areas related to affective processing. The volumes of the orbitofrontal cortex and right amygdala were positively associated with extraversion. As extraversion is considered a protective factor against the development of anxiety and depressive disorders, as well as associated with the creation of positive affect, the current findings suggest that the lower risk of affective disorders in individuals with high extraversion is related to modifications of emotion processing through the orbitofrontal cortex and amygdala (Cremers et al., 2011).

CONCLUSION

In this study, no correlation was found between extraversion and communication apprehension. Differences in respondent characteristics compared to previous studies may be one of the contributing factors. Family planning counselors are required to communicate effectively in various contexts, and the personality trait of extroversion that does not have a tendency to be anxious may prevent communication apprehension. Communication anxiety in extroverted individuals may also be influenced by other social factors. Therefore, the communibiology paradigm, which assumes that biological and innate factors influence communication behavior, is not strongly supported in this study.

This study has limitations because in communibiology research that has developed, research is carried out using tools to see the activity of the nervous system and endocrine system, such as heart rate, blood pressure, pupil reaction, and hormones in the body (Floyd, 2004). In addition, other personality dimensions proposed by personality theorists can be further investigated, such as Gray's personality theory that discusses personality dimensions based on the Behavioral Inhibition System (BIS) and Behavioral Activation System (BAS). In various literatures, comparisons between Eysenck's and Gray's personality dimensions are often made, so this topic is interesting to explore further.

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