

The Urgency of Language as a Tool for Scientific Thinking in Schools: An Approach to Communication Law

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ABSTRACT

Language as a means of scientific thinking places itself reasonably centrally. Even according to Francis Bacon, human language can gain knowledge and power. In short, language helps both scientists and society to think scientifically. This research uses a communication law approach to analyze the urgency of language as a tool of scientific thinking in schools. The research method used is descriptive research. The research results present a concept of language that acts as a medium for thought processes and that schools are the best environments for cultivating language as a tool for scientific thinking. Because language and thinking are inextricably linked. As a result, in this scenario, language growth in the function of thinking is also meant to enhance science education. As a result, the presence of language as something unique to humans is more than just a sign; it is also a medium for growing the human intellect, particularly in communicating the truth of things. Teachers play a crucial role in the growth and refinement of language as a tool for scientific thinking in schools because they must comprehend the five principles of successful communication: respect, empathy, audibility, clarity, and humility.

Keywords:

Language; Scientific Thinking; Communication Law

ABSTRAK

Bahasa sebagai sarana berpikir ilmiah menempatkan dirinya pada pisisi yang cukup sentral. Bahkan menurut Francis Bacon, dengan bahasa

manusia mampu mendapatkan pengetahuan dan kekuasaan. Ringkasnya, bahasa membantu ilmuwan maupun masyarakat untuk berpikir ilmiah. Tujuan dari penelitian ini adalah memberikan analisis terkait urgensi bahasa sebagai sarana berpikir ilmiah di sekolah dengan menggunakan pendekatan hukum komunikasi. Metode penelitian yang digunakan adalah penelitian deskriptif. Dari hasil penelitian mengetengahkan suatu konsep bahasa yang berperan sebagai media untuk melakukan proses berpikir (berpikir ilmiah), dan bahasa memperoleh tempat yang sangat penting di sekolah. Sebab bahasa dan berpikir adalah sebuah hubungan yang saling ketergantungan. Sehingga dalam hal ini pengembangan bahasa dalam fungsi penalaran juga ditujukan untuk kemajuan pendidikan keilmuan. Oleh karena itu, keberadaan bahasa sebagai sesuatu yang khas milik manusia tidak hanya merupakan simbol belaka, melainkan media pengembang pikiran manusia terutama dalam mengungkapkan realitas segala sesuatu. Adapun pengembangan dan peningkatan bahasa sebagai sarana berpikir ilmiah di sekolah menempatkan para pengajar (guru) pada posisi yang sangat penting, yakni para pengajar harus memahami 5 hukum komunikasi efektif, yakni respect, empathy, audible, clarity, dan humble.

Kata kunci:

Bahasa; Berpikir Ilmiah; Hukum Komunikasi

1. Introduction

Indonesia is a country that has significantly advanced qualities in various academic activities, especially those which are related to science, social sciences, human interaction, and technology, which result in the documentation of scientific works to widespread discoveries. Several original and translated scientific books, articles, and papers have been published and distributed. This still needs to be fulfilled to add to the treasury of knowledge for developing knowledge in Indonesia. In other words, the more research and writings published in print and online media, the more Indonesian knowledge will be enriched and enhanced. However, of course, this will never be separated from the role of spoken and written language. So clearly, the Indonesian language is a tool for disseminating information about scientific activities in various fields of science.

The correlation is that proper thinking means are needed when doing scientific activities. The availability of these means of review allows for regular and careful scientific study. Mastery of tools of scientific thought is imperative for a scientist. By mastering this, good scientific activity can be carried out. Scientific facilities are tools that assist scientific activities in the various steps that must be taken. To carry out scientific thinking activities properly means language is needed so that scientific activities can run well and orderly. Language plays an important role and is a common thing in human life. However, the prevalence, when language cannot be separated from human life, makes humans sometimes rarely notice language and regard it as a matter of course, such as breathing and walking. Even though language has extraordinary influences and includes

what distinguishes humans from others (Suaedi, 2016, p. 16), language is defined as the fact of human intellectual activity (Mulyana, 2005, p. 31). Humans will never be able to reach the peak of their maturity as rational beings that can be separated from their language skills. So humans speak by the level of knowledge and abilities of each person. Language is also a part of expertise, including interpreting the human mind. In the process, language wants to give birth to a meaning previously processed by the reason, which afterward passed. Then a thought was born that could serve as an essential reference in carrying out a rational action (Dardjowidjojo, 2003, p. 65).

However, as science progressed, the use of language as a tool for scientific thinking, such as in schools, began to wane. This is seen in the evolution of the phenomena of slang languages (*Bahasa Prokem*). Slang has an influence on poor conduct in terms of moral standards (Hamdani, Fauzia, & Putro, 2022); for example, if it is used by an older person (such as a teacher), it will be unpleasant since it is outside of the norm and etiquette (Smith-Hefner, 2008). Several earlier research, like the following ones, have also supported the numerous phenomena of slang used in schools: 1) Gunta Wirawan and Urai Nancy Andriany (2018) with the title "Fenomena Penggunaan Bahasa Gaul Di SMAN 4 Singkawang Kalimantan Barat "; 2) Auva Rif'at Azizah (2019) with the title "Penggunaan Bahasa Indonesia dan Bahasa Gaul di Kalangan Remaja"; and 3) Wuri Setya Wardhani (2020) with the title "Fenomena Bahasa Gaul dan Penuturnya di MAN 2 Banyuwangi". The results of the three studies indicate that the use of slang is increasing, which affects the use of sound and appropriate language declining, even though schools should be a place where teenagers practice using excellent and proper language, one of which is as a means of scientific thinking, as this language will be instrumental in conveying thoughts through writing or directly in society.

To solve these issues, the phenomena of Indonesian language decadence require a communication law strategy. According to Howard G. Hendricks, the law of communication is an effort to create bridges. The bridge that has to be constructed is one of unity and understanding of the difficulties facing today's youngsters (Purba, 2017, p. 118). This approach to communication law is consistent with the role of law as a tool for social control, which means that by understanding the rules of effective communication, people can use language to think scientifically and grasp the urgency, especially when they are in school, which is a very productive time.

The necessity for an approach to communication law is further justified by the fact that human knowledge might evolve as a result of two processes, namely: First, humans have a language that can communicate information and a way of thinking that is the background of the information. Secondly, humans can think according to a specific line of thought framework (Bakhtiar, 2014: 95). Therefore, the appropriate strategy is required to conduct scientific operations correctly and consistently. There are four means of scientific thinking: language, logic, mathematics, and statistics (Suriasumantri, 2010, p. 165). Therefore, language becomes an essential part of supporting scientific thinking activities. As for what is meant by thinking, thinking is an activity to obtain the proper knowledge (Laird, 1953, p. 42). Then the word "Scientific" itself, according to the Kamus Besar Bahasa Indonesia (Alwi, 2011, p. 170), refers to science, namely scientifically, or the fulfillment of the requirements (rules) of the science.

Based on the descriptions above, we can realize that science, without the presence of language, cannot develop and grow. Not only that, language has a role, use, and dual position; it is a base and a cultural product that also acts as a thinking facility and a supporting facility for the development and growth of science and technology. With such a position of language, knowledge can grow. The implication is in developing reasoning energy, making language the infrastructure for modern thinking. Therefore, in this study, the authors try to review and analyze the existence of language as a means of scientific thinking and its role in developing science and its implementation in schools.

2. Methods

2.1 Research Methods

In this research, the method used is descriptive research using a conceptual approach. This method solves the problem under investigation by describing the urgency and implementation of language as a means of scientific thinking. The authors use a conceptual method to investigate communication law's principles of effective communication. The authors also examine the concept of language and its development in human life, as well as how language is present as a medium for humankind not only to communicate but to become a much more peaceful means and not limited to communication alone but language becomes an insignificant part inseparable in the context of human life and their relationship with one human to another.

2.2 Sources of Data

This study's data came from sources found through library research, including books, the internet, e-journals, and others. At the same time, data was gathered through the library at the NTB Provincial Library and Archives Service and the Mataram University Library. Then, official websites and national and international e-journals linked to the author's study are the subjects of online literature studies.

2.3 Data Analysis Technique

The effectively gathered data were subjected to qualitative analysis. This method depends on justifications, factors, and objects underpinning the discussion topics. To put it another way, this study's qualitative data analysis method aims to discover and investigate the idea of language as a tool for scientific thinking and its importance in schools.

3. Results and Discussion

3.1 The Urgency of Language in Scientific Thinking in Schools

Based on the explanation alluded to in the background above, language is one of the essential tools to support scientific thinking activities. To gain knowledge, scientific thinking is needed,

which must be connected to the role of language. Surisumantri states, "Scientific facilities are tools that help scientific activities in the various steps that must be taken ."Scientific means is a tool using which humans carry out scientific activities. When humans carry out the stages of scientific activity, they need thinking tools for these stages. Humans can develop their knowledge because humans think according to a scientific frame of mind and use correct thinking tools, and one of the correct thinking tools is language.

Scientific thinking means in the form of language as a means of verbal communication to convey thoughts to others, logic as a means of thinking to conform to the rules of thought so that others can accept the truth, mathematics plays a role in deductive thinking patterns so that others can follow and retrace the process thinking to find the truth, and statistics play a role in inductive thinking patterns to seek truth in general. Language as a means of scientific thinking places itself fairly centrally (Fauzia et al., 2022, p. 682) in general linguistic studies of language, either as *language* or *langue*.

Language is commonly defined as a system of arbitrary sound symbols humans use for communication or social interaction. In this case, the existence of language becomes very important as an instrument of actualization of scientific thinking. Scientific thinking can be interpreted as a thought process or development of a thought that is arranged systematically based on existing scientific knowledge. Scientific thinking is also an activity that combines induction and deduction. Induction is a way of thinking in which general conclusions are drawn from specific statements or cases; Meanwhile, a deduction is a way of thinking in which specific conclusions are drawn from general statements. Deductive drawing conclusions usually uses a pattern called syllogism. A syllogism comprises two statements (a major and a minor premise) and a conclusion. A conclusion or knowledge will be correct if (Suriasumantri, 1993, p. 171):

- (1) The central premise is correct;
- (2) The minor premise is correct; and
- (3) The way of concluding is correct. Induction is related to empiricism, an understanding that views facts captured by human experience as the source of truth. Meanwhile, the deduction is related to rationalism, which is the concept that views reason as the source of truth.

Thus, scientific thinking or the scientific method combines empiricism and rationalism (Suriasumantri, 1999: 105). Induction's distinctive feature is finding a core basis (*formality*) that transcends particular data, however large they are. In the case of this core basis, according to Bacon, first of all, there is found a core basis which is still particular, the validity of which needs to be checked deduction. If this is reliable enough, then move on to find a core basis that is increasingly common and broad (Muslih, 2005: 92) . Scientific thinking, and other broader scientific activities, aim to obtain correct knowledge or scientific knowledge (Mahmudi, 2008, pp. 19-20). Humans need a tool or means of scientific thinking to achieve this goal. This means it is necessary, so scientific activity will only be maximized with such scientific thinking. Scientific thinking means a tool for scientific steps (methods) or helping scientific steps to get to the truth.

In other words, the scientific means of thinking enables us to carry out scientific studies in a proper, orderly, and careful manner. Therefore, for scientists to work well, they must master the means of scientific thinking (Suriasumantri, 1999, pp. 167-169). There are three means of scientific thinking: language, mathematics, and statistics. Language, in this context, enables humans to think abstractly, systematically, regularly, and continuously and master knowledge. With language, humans differ from animals in thinking about and talking about objects, not in front of their eyes.

Some terms are defined by scientific facts to clarify the truth (Arrieta, 2021, p. 152). Theoretically, scientific facts from a scientific perspective can think systematically and demonstrate knowledge held by society that is based on objective facts (Denice & Lawrence, 2008, p. 340). The language used gives rise to theoretical ideas that are a fundamental component of science and the foundation for science's ontology, epistemology, and axiology (Bauman & Briggs, 1990, p. 72). The language used in academic affairs can be critically analyzed using this theoretical thinking (Swigart, 2001, p. 120). Explanation of facts also requires logical reasoning in various administrative concentrations, which is backed up by deductive and inductive reasoning that is logically and logically explained, allowing one to argue in the language in a scientifically organized, systematic, and disciplined manner.

The complex world of life is reworded in simple and understandable statements. Language also allows us to communicate knowledge and express attitudes and feelings to others. Through language, too, humans arrange the joints that reveal the secrets of nature in various theories such as electronics, thermodynamics, relativity, and quantum. Even according to Francis Bacon, human language can gain knowledge and power (Suriasumantri, 1993, p. 178). In short, language helps scientists think scientifically, inductively, and deductively. In other words, language becomes a tool for them to draw inductive and deductive conclusions. Language enables scientists to carry out syllogisms and draw scientific conclusions or knowledge.

In scientific communication, the language is scientific, spoken, or written. Scientific language is different from literary language, religious language, colloquial language, and various other languages. Literary language is full of beauty or aesthetics. Meanwhile, from an oriented perspective, the language of religion is the language of the scriptures that is prescriptive and descriptive. In contrast, from an anthro-oriented perspective, it can lead to philosophical or scientific narratives. Language is needed by humans or as a function: a means of communication, a communicative function, and a cultural tool that unites humans who use the language or a cohesive function. In the communicative function, three elements in language are used to convey the following: feelings (emotive elements), attitudes (affective elements), and thoughts (reasoning elements).

These three elements of language influence language development. Scientific communication aims to convey information in the form of knowledge. The philosophy of language and psycholinguistics sees the function of language as a means of conveying thoughts, feelings, and emotions. At the same time, the sociolinguistic school argues that the function of language is for

societal change (Bakhtiar, 2004: 20). It has become common knowledge that language is inseparable from aspects of human life. This also applies to aspects of science, especially philosophical knowledge. A thinker or philosopher always relies on language to convey his ideas or thoughts to people (Ahmad, 2006: 31). Besides that, the main task of philosophy is to find the meaning behind the symbols that exist in the universe or human life. So, in this context, philosophy needs language to dismantle, understand, and convey the meaning of these symbols.

Departing from the significance of language in philosophy above, language is likened to a vein in human life. In other words, it becomes inseparable, but the language still requires an academic umbrella to be developed as a scientific discipline. With more and more scientists incorporating language into formal studies, linguistics is moving towards a higher academic establishment (Lee, Quinn, & Valdés, 2013). Functionally, language is a form of human communication. Communicating is transferring information (messages, ideas, and others.) from sender to receiver. Information can be in the form of a series of meaningful sounds or written text. What needs to be underlined here is that the communication process in this context involves humans' visual, vocal, and auditory components, not those in bodywork, facial expressions, and others. So waving hands, coughs, applause, and the like are not included in the language, even though these expressions contain a specific message.

According to Halliday (1994: 21) that the function of language is (1) Instrumental function: the use of language to achieve material things such as eating, drinking, and others, (2) regulatory: the use of language to govern and improve behavior, (3) Interactional function: the use of language to share feelings of thoughts between a person and another; 4) private function: a person uses language to express feelings and thoughts, (5) heuristic function: the use of language to reveal the veil of phenomena and the desire to learn it, (6) the imaginative function: the use of language to express one's imagination and images of someone's discovery and not by reality (real world), and (7) representational functions: the use of language to describe thoughts and insights to convey it to people.

In general, the function of language communication can be further broken down into emotive, affective, and reasoning functions. Language development is the development of these three functions to reflect the feelings, attitudes, and thoughts of people who use the language. Let us take two cultural elements of a nation, for example, art and science. Theoretically, progress in the arts is related to language development in the emotive and affective functions. At the same time, in the scientific field, it is related to language development in reasoning. The reasoning function of language also influences art; conversely, science is enriched by the development of language's emotive and affective functions.

From the arguments above, the development of the Indonesian language into a modern language must pay attention to these three elements in a balanced manner. For this reason, it is necessary to think about and study it integrally and comprehensively. We need to pay attention to the development of language in the function of reasoning to support the progress of scientific

education. However, these efforts should also remember language development in terms of emotiveness and effectiveness.

Language communicates three things, namely thoughts, feelings, and attitudes. Humans can convey something that is thought of to others using language. With language, other people can know and learn something that is being taught. With language, humans can also express something they feel to others. Other people can tell someone is sad or happy through symbolized language. Scientific work is a collection of statements that convey information about knowledge and ways of thinking in obtaining that knowledge. To communicate a statement clearly, one must master good language (Suriasumantri, 1993, p. 182). When humans have acquired knowledge through scientific activities, they must communicate the results that have been obtained so that their knowledge can be helpful for the prosperity of humankind. The things that must be communicated include the way of thinking to acquire knowledge and knowledge itself.

The communication is written in a scientific paper. To be able to compile scientific work requires the ability to master excellent and correct language. By mastering a good language, it is possible to compile scientific work. Language is a means of sharing with fellow humans. A person can tell something he knows. Language plays an important role and is a common thing in human life. This prevalence makes humans rarely pay attention to language and perceives it as something ordinary, such as breathing and walking. According to Ernest Cassirer, as quoted by Jujun, the uniqueness of humans is not in the ability to think but in language ability. Language is needed by humans or as a function: a means of communication, a communicative function, and a cultural tool that unites humans who use the language or a cohesive function.

In the communicative function, three elements in language are used to convey the following: feelings (emotive elements), attitudes (affective elements), and thoughts (reasoning elements). These three elements of language influence language development. Scientific communication aims to convey information in the form of knowledge. The weakness of language lies in the role that language is multifunctional, meaning that scientific communication only wants to convey ideas/reasoning. In contrast, verbal language must contain emotive, affective, and symbolic elements, unclear and exact meanings contained by the words that build language, and emotional connotations.

Language plays an important role and is a common thing in human life. This prevalence makes humans rarely pay attention to language and perceives it as something ordinary, such as breathing and walking. According to Ernest Cassirer, as quoted by Jujun, the uniqueness of humans is not in the ability to think but in language ability. Thinking as the process of working the mind in studying something is an essential characteristic of humans.

Moreover, the results of its works are expressed in the form of language. Language plays an important role and is a common thing in human life. Language is an arbitrary sound symbol used by a social group as a means of communication. Joseph Broam conveyed the same thing, that language

is a structured system of arbitrary sound symbols used by members of a social group to associate with one another. Meanwhile, according to John W. Santrock, language is a form of communication-based on a system of symbols, whether spoken, written, or signed.

According to the UGM Philosophy of Science Lecturer Team, language is a statement of thoughts or feelings as a means of human communication (UGM Philosophy Lecturer Team, 2010: 23). So language is a communication tool in the form of symbols used by humans to think or do inductive and deductive reasoning in scientific activities (Suriasumantri, 1999: 20). Language as a means of verbal communication is used in scientific thinking processes where language is a means of thinking and a means of communication to convey these thoughts to others. Both inductive and deductive-based thinking. In other words, scientific thinking is closely related to language. Philosophers of language and psycholinguistics see the function of language as a means of conveying thoughts, feelings, and emotions. Meanwhile, the sociolinguistic school argues that the function of language is a means of changing society. Even though there are differences, these opinions complement each other. In general, the function of language is: to coordinate activities in society; determine thoughts and disclosures; convey thoughts and feelings; be soul pleasing, and reduce mental shock.

Language is one of the means of scientific thinking as a means of communication to convey a way of thinking that aims to convey information in the form of knowledge. Moreover, thinking activities can be carried out systematically and regularly with language skills. Therefore it is crucial to cultivate language as a tool for scientific thinking in schools so that one may use language skills to address problems, both scientific and non-scientific.

3.2 Implementing the Communication Law Approach to Language Use in Schools for Scientific Thinking

What enables human knowledge to advance continuously was the famous English philosopher Thomas Hobbes's question (Hinton, 2010). He concluded that humans are unique in their capacity to symbolize every reality. An elementary example but quite surprising to us is an event as complicated as this --- there are committees, scientific speeches, distinguished guests, choirs, processions of senate members, banners, consumption, and others --- can be marked symbolized with the apparent, straightforward, and understandable phrase "confirmation." One of the language's roles is to simplify complicated things so they may be understood.

This discussion is not to position the function of language as the primary thinking tool nor the context of ignoring other language functions such as the function of artistic expression, feeling statements, or anything else. The discussion in this paper focuses on describing the relationship between language and thinking and its implications for the role of language education as one of the activities of cultural inheritance and creating students for the future. From this discussion, it is hoped that it can become material for further study for others and an illustration of how language learning should be in the current era.

Language is indeed closely related to humans, between one individual and another. Language is the only tool to unite humans in a group, society, nation, and even between nations. The language can even penetrate national borders. Language has become a medium; people can interact verbally and write through television, print, and other overgrowing technological media. Like the media, language is the same; language plays a role as a medium when people do the thinking process. Either think of a simple thing or something complicated. Language and thinking are interdependent relationships. Thinking is a process of using reason to consider and decide something (Ali, 1991). Conversely, the thinking results will be expressed again through verbal or written language.

People can think ideally because they have a language in their life. Without a language, people cannot think correctly and for real (Djunaidi, 2021, p. 32). Without language skills, structured thought will not work well in social life (Kind & Osborne, 2017, p. 11). Furthermore, language ability will only exist if humans communicate. Language is not only used as a means of communication but also as a means of natural and logical people's thinking (Halwany et al., 2021, p. 91). Every society has different abilities; some have difficulty expressing sentences to align with their thoughts. On the contrary, some people can issue sentences that align with their thoughts to communicate well and systematically.

So, no one in their daily lives misses thinking activities. A simple example is when a student is about to go to school, when he is faced with a weather forecast and the day is predicted to rain, then at that time, he will use his mind to think about what he should do. Whether to go with an umbrella or not. Another example is when a student about to finish his study is required to do research in his field; at that time, he uses his mind to think about his research plan. Then the concept of his thoughts and the results of the research he has done must also be expressed in language. Even though the two examples are both doing the thinking process, the levels of thinking are different. However, there are similarities between the two, namely, using language as a tool or means of thinking. Thinking is also needed when facing all personal and public problems in social life.

The social development of society, which is increasingly dynamic, impacts the social development of children and adolescents (Salö, 2019, p. 524). Children and adolescents who do not have the maturity of the concept of language and thinking must be directed so as not to be carried away by negative social currents (Halliday & Hasan, 1994, p. 182). If it is not adequately guarded and directed, children and adolescents these days may lose their child and adolescent phase as well as lose their identity as a nation that is thick with good cultural values because of their freedom and ease of accessing all things available on the internet and other technology-based media. Especially harmful content that hurts the development of children and adolescents. Education, as a process that seeks to pass on culture and prepare future generations of the nation, will face challenges from the times. Language confusion and confusion in the thinking of students should not be tolerated. Even though, in practice, it requires the cooperation of various parties to overcome the problems of the times; it seems that schools are the ones that are required to carry out extra tasks.

To express that language education, in particular, must work to create a learning experience that generates enthusiasm and pride while improving its pupils' language abilities (Rabiah, 2012: 9), this is where communication law comes into play because good language skills will affect the processes and ways of thinking of students who are good too. Through sound, varied, and innovative language learning, students will no longer think language learning is tedious (Hidayat, 1996, p. 75). Therefore, it becomes homework for education providers, especially educators, to think about how to use the best learning methods for language learning.

Humans cannot be separated from language. With language, humans can interact and communicate with other people. This proves that humans are social creatures always in touch with other people. Apart from using vowels, humans also often express their thoughts through writing. Language allows humans to think abstractly, transforming natural objects into abstract language symbols. This abstract language symbol allows humans to think about something continuously. Language communicates three things, namely: thoughts, feelings, and attitudes. The main difference between humans and animals lies in the ability of humans to take a circular path in achieving their goals. The whole animal's mind is filled with a need that causes them to either seek the object they want or throw away the object in the way.

Thus, we often see a monkey reaching in vain for the desired object, while even the most primitive human beings already know how to use *banding*, lasso, or throw stones. Humans are often referred to as *Hpmo Feber*: creatures that make tools, and the ability to make tools is made possible by knowledge. The development of this knowledge also requires tools. Without language, there will be no communication and knowledge transformation, so humans are always underdeveloped. Language is a central tool for conveying a message and understanding its meaning. Likewise, in conveying science, language becomes one of the scientific means of thinking to produce a logical conclusion.

The existence of language as something unique to humans is a mere symbol and a medium for developing the human mind, especially in expressing the reality of everything. A person with low thinking ability will need help to compose logical, sound, and systematic sentences. This will result in difficulty communicating. A person expresses his ideas and ideas with language and captures the ideas and ideas of others through language. Conveying and taking the meaning of ideas is an abstract thought process.

The accuracy in capturing the meaning of language will result in the accuracy and obscurity of the perception it gets. A further consequence is that the result of the thought process needs to be corrected. The inaccuracy of the results of this thought processing is due to a lack of ability in the language (Sunarto & Hartono, 2006, p. 23). The fundamental problem is how human reasoning activities can be communicated to others and represent the truth of the contents of the human mind. In this sense, the role of language in logic becomes essential. The activity of human reasoning, as described, is an activity of thinking. To think scientifically is like mastering the criteria and steps in

scientific activity. By mastering this, the goals that will be achieved will be realized. Besides mastering the steps, this activity is assisted by means, one of which is language.

Language is a verbal communication tool used in scientific thinking processes. Language is a means of thinking and communication to convey these thoughts to others based on inductive or deductive logic. In other words, scientific thinking is closely related to language. Using good language in thinking does not necessarily get the correct conclusion, especially with incorrect language. Wrong premises will lead to wrong conclusions too. All of this is inseparable from the function of language as a means of thinking.

The solution that the authors suggest for teachers about this issue is to comprehend the law of communication. It is outlined in Howard G. Hendrick's book "Teaching to Change Lives: Seven Laws of the Teacher" how teachers successfully instruct pupils in the classroom. Howard emphasized that there must be common ground for teachers and students to communicate effectively. This means that the message being communicated by the communicator (teachers) must fit the communicant's or students' frame of reference, which is their collection of experiences and meanings. A teacher must consider this because their knowledge and experience differ from the students. The value of language must thus be communicated in this context through successful communication, which always includes an emotional component or a feeling aspect. Students frequently complain that their teachers do not communicate politely. Teachers frequently use harsh language and speak out loud and aggressively. Students get terrified and feel harmed by their teacher as a result. Of course, the participants' feelings of contempt and dread would be affected. Students needed help understanding the vocabulary previously used to communicate scientific ideas.

4. Conclusion

No matter how brilliant a notion may be, without language, it cannot be communicated to or comprehended by others. Similar to how human language would not have evolved as it has now without thinking. In addition to improving their physical appearance, humans can overcome various physical constraints thanks to the interaction between language and human thought. This paves the way for the emergence of culture, specifically civilization, which is an exclusively human phenomenon so that the value of language as a tool for scientific thought can continue to be cultivated, educated, and ingrained in schools.

Language is utilized in scientific thought processes as a vocal communication tool. It serves as both a tool for cognition and for communicating these concepts to others based on inductive or deductive reasoning. In other words, language is vital to this scientific thinking exercise. Every educational institution, including schools, must adopt a communication law strategy to acclimate students to using excellent and proper language. This is because using poor language can make it more challenging to think clearly and arrive at the correct conclusions. The inaccuracy of this thought processing results in the need for more proficiency in the language.

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