Information and Knowledge in Epistemology Perspective

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Abstract. The objective of this research is to confirm the definition of knowledge and information and their relationship in epistemology perspective. In daily use, information is often wrongly perceived or even confused as knowledge. This confusion may lead people to presume that having information implies having knowledge which is incorrect. In the epistemology perspective, information and knowledge does not always refer to the same meaning. We analyzed the Plato's definition on knowledge and Dretske's view on information and discussed their relationship to confirm each concept place in epistemology. We concluded that information and knowledge exists only in the presence of human beings. In addition, we also affirmed that information can be considered as knowledge as long as the recipient succeed to acquire the meaning indicated by the information symbols.

1. Introduction

Man is known as curious being as stated by Aristotle, "All men by nature desire to know" [1]. Therefore, knowledge has become one of the most important subject in human culture and civilization. It has been discussed by many scholars in a branch of knowledge named epistemology. Epistemology discussed knowledge-related things like: what is knowledge? Is it possible for man to acquire true knowledge? How can man acquire knowledge? How is the knowledge structure? In short, epistemology is basically theory of knowledge [2].

Nowadays, internet has become vital source of knowledge as it is used in almost human activities. Therefore its avaibility is indispensable while its lackness may cause problems and adversities. Because of its significance role, the information necessities continue to grow time to time and make the business in this field has become very profitable. Forbes report in 2017 acclaimed Apple, Google, Microsoft, Facebook which are all information technology (IT) companies as the four values companies brand in the world [3].

The close relationship between knowledge and information unwittingly has led to confusion in each meaning. In practice, the use of these two terms can be exchanged each other. Both are treated like synonyms: knowledge is information, and information is knowledge. There are several attempts to differentiate knowledge and information [4-6]. However, it is rarely discussed in epistemology perspective. The following article discusses the meaning of knowledge and information in epistemology perspective to clarify their relationship. It will be shown that having information does not necessarily imply having knowledge. This clarification is important to be comprehended, since people send information and expect the recipients understand it. It also should be noted by the educators (or world of education in general) to always consider the student's ability to process the information.

The purpose of this research is to confirm the definition of knowledge and information and their relationship in epistemology perspective. In daily use, information is often wrongly perceived or even confused as knowledge.

2. Methods

This article is a literature research based on Plato and Dretske work on knowledge and information. We examined the Plato's definition on knowledge and relate it to Dretske's view on information. After that we discussed the relationship of knowledge and information in epistemology perspective.

3. Results and discussion

What is knowledge? This is the most fundamental question in epistemology. Many scholars throughout the world have proposed the definition of knowledge from different points of view. For example, in the Islamic scholarly tradition, there are at least 120 definitions of knowledge [7]. Because of the vastness of the meaning of knowledge, there is no agreement among scholars regarding its definition. There is no single definition that can completely embrace all human understanding on knowledge. However, that does not mean that all of the definitions advanced by those scholars are pointless. At least a definition may explain some aspects of knowledge.

Among the earliest and most prominent definitions of knowledge are the definitions expressed by the ancient Greek philosopher Plato (427 - 347 BC) through his writings in *Theaetetus*. The work that was supposed to be written in 369 BC contains a dialogue between Socrates, Plato's own teacher, with two of his interlocutors. They are Theaetetus, a brilliant young mathematician, and Theodorus, the Theaetetus tutor. They discussed Socrates's question to his interlocutor, "What is knowledge?" [8].

The dialog concluded that knowledge is *justified true belief*. From this definition, there are three components of knowledge. First, knowledge is belief, therefore knowing is believing. Knowing that the earth is spheroid means to believing the earth is spheroid. Second, that belief must be true. Believing wrong or invalid belief does not include knowledge. Third, the belief must be based on the reason that validates the belief.

Plato's definition is widely accepted by scholars and is often used as a reference in defining knowledge. However, in daily use the notion of knowledge is not as strict as this definition. There are things accepted as knowledge, although it does not meet Plato's requirement. For example *theory*. Theory is often associated with knowledge, especially scientific knowledge. A person who knows a theory is considered as person of knowledge, like knowledge of atomic theory or the Big Bang theory. However, sometimes theories are also perceived as something that is uncertain. The expression like, "Ah, it is just theory" indicates that it is a weak assumption that has not been proven true.

The word theory comes from the Ancient Greek word *theoria* which means contemplative and speculative understanding on natural thing. In practice, the term theory is used in two sides that almost contradictory. On one side theory means "a plausible or scientifically acceptable general principle or body of principles offered to explain phenomena", which means a solid knowledge that scientifically proven [9]. On the other hand theory is also considered as "an unproven assumption; conjecture ", which does not based on solid evidence [10]. Theory in second sense obviously does not meet Plato's requirement as knowledge because it is not a belief and has no justification. Nevertheless, in daily use, theory is still recognized as knowledge.

In addition, Plato's definition does not include all the meanings of knowledge. In daily use, Plato's definition of knowledge is too narrow because it only covers the cognitive aspect. According to Keith Lehrer, when someone says "know something", there are three possible meanings. The first is to have certain skills. For example, "Ridwan knows to play the guitar" means Ridwan is good at playing the guitar. The second, is to be acquainted with someone. For example, "Susan knows Susie" means Susan is be acquainted with Susie. The third meaning is to know something as information. For example, "Hasan knows electrons are negatively charged" [2].

In the present day, the words information and knowledge have very close meaning, yet sometimes used interchangeably. The word information is basically a technical term in Greek Philosophy on

existence issue which is originated from the word *form*. According to Plato, every physical object in the material world like mountain, horse, tree, chair, including human being itself has its own form. Form is the world of idea which is the perfect version of each physical objects. On the contrary, the material world is not the genuine world since it is always imperfect and continuously changes.

Afterward, the form is transformed by Rome philosopher Cicero (106-43 BC) and Christian theologian Augustine (354-430 AD) into Latin become informare and informatio. These two words were commonly used as the translation of technical term in Greek philosophy like *eidos* (essence), *idea* (idea), *typo* (type), and *morphe* (form). Later on, the words absorbed into English become information which means a forming of the mind or teaching or instruction [11]. These three significance indicate the close relationship between information and knowledge.

Now, how can we describe the relationship between information and knowledge? Dretske address the definition of knowledge in its relationship with information as the belief that caused by information [12]. It indicates that Dretske affirms Plato's view that the essence of knowledge is the belief. This belief occurs when true and accurate information available since false and inaccurate information will lead to false knowledge and false knowledge is not knowledge.

Dretske described that if K (the knower) knows that S is F, then K believe that S is F caused by the information that S is F [12]. Thus, in this case, information is must be a kind of sensible object which is related to something else that make it (the something else) known able. Shortly speaking, information may take form one of these: sign, signal, symbol, indication, evidence, sympton, mark, hint, alert, etc. For instance: cloudy informs us that it is going to be rain; abdominal pain indicates a diseases; stars position hints directions; flag symbolizes country; and so on.

Hence, the knowledge of every sensible object can be considered in two contexts. First, the empirical circumstances of the object that signify the object itself which is usually called as fact, while the belief in accordance with the fact is called factual knowledge. For example: The stone is hard; the fire is hot; the water flows to the lower place; a horse has four legs; the light spreads to all direction; etc. Second, the factual circumstances that signify to something else. In this context, the object is not the main concern, but the other thing that signified by the fact. In this case, the fact has become information that bring a new knowledge.

To clarify the relationship between fact, information, and knowledge, consider Figure 1. When no one aware its existence, the trunk has already become fact. Let say a person perceives the trunk carefully. He then knows that the trunk is hard; the colour is brownish; its surface is rough; the diameter is about 50 centimeters long; it has circle line in its cross section, etc. At this stage his knowledge on the trunk is limited to factual knowledge which is stored in his memory. However, scientific research discovered that the pattern and number of circle line in the trunk cross section have correlation with the age of the tree and the climate of the tree vicinity. So, when this person observes empirical fact of the tree and then relate it with the tree age and the climate, then there arise a meaning. (See Figure 1).
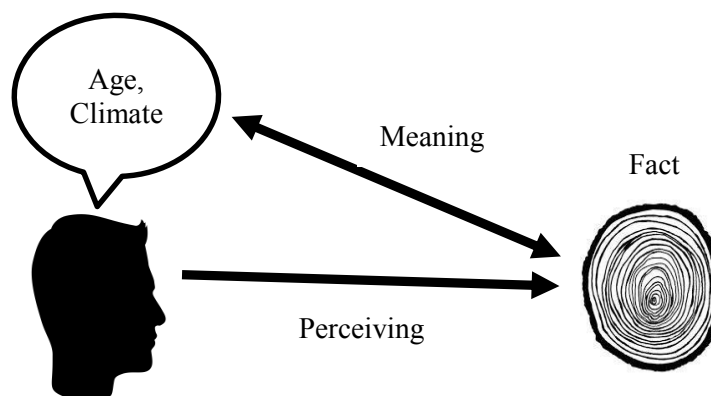

Figure1. Meaning acquiring process.

Therefore it can be concluded that the existence of an object as a fact does not depend on human attendance. On the other hand, the object existence as an information can be actualized when there is human that can construe the fact and gain its meaning. Therefore information and knowledge can not be separated from human being and there is nothing can be said as knowledge or information without human being.

The invention of electronic data processing in 1970's marked the birth of computer technology and the arrival of information age. The ability of this technology in the beginning is limited to processing data electronically which was known as computer. Later on, its collaboration with communication technology has improved its ability from storing and processing data to distributing it all over the world. The term computer technology was gradually become information and communication technology (ICT) or information technology (IT). Now, the appearance internet, the most important product of ICT has created environment that enable people to exchange information fastly and easily.

There are four elements of information exchange. They are the sender, message, media transmission, and recipient. By using internet the sender sends message in multimedia symbols like texts, pictures, sounds, and videos. Those symbols contain the message which the sender wants it to be comprehended by the recipient. It is not about the texts, pictures, sounds, or videos that all matters, but the meaning behind them. Therefore, the recipient must be able to read the meaning behind it. Communication is successful when the recipient comprehends the message as the sender desires.

Let consider a person P received email sent through internet. The email was written using symbols (alphabet, numbers, etc.) and arranged in such away. When P opened the message, he instantly realized that it was written in black Latin letters with white background. However, this fact was not noteworthy since he focused on the meaning behind. In other words, what P wanted is the semantic aspect of the message. That is why the right term for P action is not seeing the symbols but reading it.

It may took few seconds for P to read the email. When the meaning has apprehended by P, we said that P has understood the message. If the message is valid and correct, came from trustworthy source, and P believed the message the way he should be, then we call P acquired a knowledge.

However, it is possible that P failed to understand the message for some reasons. For instance, if P didn't understand the language or the message was poorly written. It is also possible that P has no interest or has no time to read the email. These circumstances are very common in the world of information technology. When P failed to acquire the meaning, then P wouldn't believe it. If this is the case, then practically the email can not be considered as information for P. In short, as Fetzer addressed, it should not be ignored the difference between information, disinformation, and misinformation [13].

Based on the description above it can be concluded that the information in relation to the meaning for the recipient can be divided into two categories. First, meaningful information which is information that succeed to deliver knowledge to the recipient. Second, meaningless information which is information that fail to deliver knowledge to the recipient. It means that having information does not necessarily mean having knowledge. This categorization finds its relevance particularly in the complex information type. Bulmer et al. reported that there are many highly imagistic advertisements in television failed as they unsuccessfully provided basic information to the audience [13].

4. Conclusion
We have shown the meaning of information and knowledge and their relationship. Knowledge in Plato's definition is justified true belief which explain three aspect of knowledge: knowledge is belief, the belief must be true, and the belief must be justified. On the other hand, Dretske describes the notion of knowledge in relation to information as belief that caused by information. From both definitions it can be concluded that information is a justification for that belief or knowledge. To be able to justify a belief, the recipient must be able to acquire the meaning of the information. Conversely, if recipient fails to process the information and acquire the meaning then the information will not result in a belief or knowledge. We conclude that information can be divided into two categories. They are meaningful information which yields knowledge and meaningless information which yields no knowledge. Based on the later category we confirm that not all information deliver knowledge.

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