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**The results of a Qualitative Study can offer “*Scientific Evidences*”  
generalized theoretically by the Structural Constructivism perspective**

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[Slide 1]

Thank you, chair-person, for your kind introducing me.

Last year, I introduced the concept of the Structural Constructivism briefly.

This hyper-meta theory was originally proposed by Dr. Saijyo in 2005.

Amazingly, from the structural constructivist perspective, so many new theories have been rapidly developed in the various fields in Japan.

Even though Dr. Saijyo developed this theory for solving the antagonism between the different epistemologies such as the subject-object issue, we can use the concepts constructed his theory in order to explain the generalization of the results obtained by a qualitative study.

[Slide 2]

We have two main issues in this presentation.

First of all, we will discuss the definition of “Science”.

Because “Scientific evidence” depends on the definition; that is, we think what “Science” is, therefore we should consider the “structuralist philosophy of science” proposed by Prof. Ikeda in 1990.

Secondly, we will discuss the issue about the text interpretation.

Frequently subjective interpretation must be criticized by the quantitative researchers.

We will argue against this criticism by the use of concepts derived from Saussure's theory of general linguistics.

[Slide 3]

First, I should explain the Structural Constructivism in brief.

In 2005, Dr. Saijo published a book.

The title is "What is the Structural Constructivism?"

In this book, he proposed a new hyper-meta theory in order to dissolve the antagonism between the different epistemologies such as the subject-object issue.

His book has affected many scientists in the various fields in Japan.

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The Structural Constructivism consists of three major core concepts.

First is the concept of the later-half Husserlian Phenomenology described by Prof. Takeda in Japan.

Dr. Saijyo uses the modern meaning of the Transcendental Phenomenology as principles of thinking, and use the concept of Interest-Correlativity as one of core concepts of his developing the Structural Constructivism.

Second is the concept of the Structuralist philosophy of science proposed by Prof. Ikeda in Japan.

He pointed out that science doesn't need the reality of the world, and science is an attempt to pursue the identity.

I will explain the meanings of these words after a while.

Final one is the Saussure's Theory of General Linguistics.

We can use the concepts such as social construction of language through parole, and individual structure of language as well as its Arbitrariness.

[Slide 5]

This slide shows the concept of “Interest-Correlativity”.

It is a main core concept of the structural constructivism.

Prof. Takeda suggested that the existence, meaning, and value of some phenomenon depend on our own body, desire, interest, and purpose in his specific situation at that time.

Dr. Saijyo use this concept into his theory, that is the structural-constructivism as a core concept.

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For our studies, according to the concepts of the structural constructivism, we decide or select Research question, Phenomenon of interest, and Purpose of the study.

Moreover, we can interpret the Results of the study, and also generalize the Results rationally and reasonably.

And finally we could make some scientific theory according to the concept of the structural constructivism,

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From the viewpoint of structuralist philosophy of science, Prof. Ikeda suggested that the assumption of the external world is unnecessary for science.

At least, the reality of the external world is non-self-evident.

He also defined that science is an attempt to explain a phenomenon with words and their relationship.

The phenomenon is always variant, but the words and relationships are invariant.

Hence, we can say that science is an attempt to decipher the variant in terms of the invariant.

Alternatively, science is a game to decipher what is visible in terms of what is invisible.

If the word and formalism that construct scientific theories do not really exist in the external world, they must reflect patterns of human cognition and thinking.

That means, there can be many different scientific theories proposed for the same phenomenon.

We should think that the usefulness and value of the scientific theory must depend on the degree of fitness to the phenomenon in question, rather than the ultimate truthfulness or correctness of the theory.

[Slide 8]

This slide shows what “Identity” is.

If we ask other people, “Does a cat exist?” or “Is there a cat?”, they must answer “Yes, there is”.

But in the strict sense of the word, there is no cat in the world.

Of course, there are so many cats around us, for example, this black cat, that white cat, and so on.

However, that cat is not a cat in the truest sense.

The word “cat” indicates some set of small animals that are not dogs, not mice, not horse, and so on.

We call “cat” by the use of similarities or physical common points in specific small animals.

In the case of the word “water”, the situation is also same.

If “H” indicates “hydrogen” and “O” indicates “Oxygen”, usually “H<sub>2</sub>O” is water.

However, if we can see one molecule of H<sub>2</sub>O, we don’t think it is water.

If we can see ten molecules of H<sub>2</sub>O, or one hundred, we never think it is water.

Actually how many molecules can we see, we think it is water?

In the strict sense of the word, H<sub>2</sub>O is not water.

But using these kinds of symbols as the identity of some common character, we can easily understand some chemical theories.

[Slide 9]

Now, we should consider the reality of the scientific objects.

Usually the reality of the objects in the external world must be evident presumably.

However, from the viewpoint of structuralist philosophy of science, we should think that the reality of this world is non-self-evident as Prof. Ikeda pointed out.

Actually we don't need the assumption of the reality of the world for scientific study.

However, some phenomenon, appears before us, is real and undoubted.

About things in the external world, we can see together and touch them, and talk about them.

Therefore we can easily reach the common understanding, and then we tend to enhance thinking of the existence as real things.

Reversely, about things in the mind, it must be difficult to reach the common understanding, because we cannot see others' internal world.

Thus, from the viewpoint of structuralist philosophy of science, the difference between the internal world and the external world must depend only on the degree of common understanding.

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From the viewpoint of structuralist philosophy of science, there must be many different theories for the explanation about one phenomenon.

Because we don't think that there is the only one true theory.

Actually it is true that we can never find the truth about the causality of phenomena fundamentally.

Like physics, we use the mathematical equations for the relationships among things.

For example,  $E$  equals  $MC^2$ .

By using the numerical expressions, that equation looks like very concrete and quite certain.

However, if another theory can fit the phenomenon more than it, old one will be replaced.

We can also use qualitative theories for the internal phenomena.

For example, “Meditation may reduce own stress.”

We use the words for the assumption to express the relationships among concepts.

Even in this case, we can also use the degree of fitness to the phenomenon as the goodness of the theory.

Of course, the degree of fitness may be evaluated in terms of words that indicate how to explain the phenomenon.

[Slide 11]

Now I think we can obtain the scientific results by a qualitative study, even from the viewpoint of structuralist philosophy of science.

But it is not clear whether the results have rich “Evidence” scientifically.

That is, because even quantitative studies have some levels of “Evidence” for such as “Evidence Based Medicine”.

I think we need some rational explanation for the evidence of results by a qualitative study.

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I think the meaning of “Evidence” depends on the degree of the generalization of the result.

So, first we should discuss what the generalization is.

About the generalization of the results, Yin already indicated the importance of the distinctive use of the word “Generalization”, such as “Statistical Generalization” and “Analytical Generalization”.

In general, most of scientists use the word “Generalization” as the meaning of Statistical Generalization, and it is also used for the results of Quantitative Study.

Statistical Generalization indicates the estimation of some population parameters what we calculate, such as mean value, standard deviation, correlation coefficient and so on.

Frequently we also try to use the statistical hypothesis tests.

These procedures are the methods to get information about population from small samples.

However, for qualitative study, instead of statistical methods, we can use the “Analytical Generalization”.

It is the method of the generalization and development of our own theories.

Dr. Saijyo proposed the similar concept of “Succession and Analogy” as the generalization of the study results.

[Slide 13]

Now, we would like to discuss the criticism to the qualitative studies by the quantitative researchers.

From the viewpoints of statistical generalization, they reject the results of qualitative study.

We point out two major reasons: that is, first of all, the number of cases is a few and not randomized.

Secondly, the method of data analysis, that is, the interpretation of the text is subjective.

These criticisms are actually misleading.

We should correct their misunderstanding.

[Slide 14]

First, we should understand the different epistemologies such as the subject-object issue as well as those of qualitative and quantitative studies.

I think the structural constructivism can offer one of the answers.

However, even though the concept of the interest-correlativity will be able to strengthen the validity of research methodology when the researcher decides the purpose, method, informants, data analysis, and so on, I think, it is not enough.

We need something more.

We have to answer the following questions logically.

That is, “What meanings does the subjective interpretation have?”

“Can we have the basis for text interpretation?”

And, “Can we generalize the results obtained?”

[Slide 15]

First, I would like to discuss the issue of discourse interpretation.

If we interview an informant about something, we get some text data.

And we try to interpret the text by the use of some method such as Grounded theory approach, and build some model to explain the phenomenon of interest.

In this case, we should consider two major issues; that is, the recognition issue and the issue about understanding the meaning.

The recognition issue is a issue whether the informant can utter her/his thinking exactly.

For example, if a male patient with stomach cancer will be operated tomorrow, he can tell his anxiety to the nurse in charge, or he may not explain his fear of his operation absolutely.

The issue about understanding the meaning is a issue whether we can exactly understand what the informant tell us.

Text interpretation is mainly related to this issue.

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Next, we should consider the issue of the subjective interpretation of the text.

This slide shows the situation that two persons use the same word as the different meanings.

Ms. A is afraid of her death in the near future.

But Mr. B is anxious about the social prejudice against his family.

How can we dissolve this issue?



[Slide 17]

This slide shows the credibility structure of langue proposed by Takeda in 2001.

When we face some phenomenon and want to tell others it, we should select some words and tell others them.

After we told some words to others, if we may think we could not exactly express what we want to communicate, we must correct our utterance.

At the same time, if we heard what other people told us, we must try to understand what they said.

If we cannot understand the meaning, we must ask the meaning ordinarily.

After the first utterer must try to communicate the exact meaning of which he or she want to tell us.

This slide shows the system about our conversation from the view point of the credibility of langue.

Our certainty is generally coming itself naturally.

However, this model cannot give us the reason why we can reach to the credibility of the meaning naturally.

[Slide 18]

Now we should consider the “General Linguistics” by Saussure.

Saussure was a famous linguist in Switzerland, born in 1857, and dead in 1913.

He is well known as the patriarch of structuralism.

By his theory, there are many useful concepts about our language.

For example, a word consists of two sides which are not divided, namely, “signifiant” and “signifie”.

Signifian is an expression by sign, and signifie is a meaning of the word.

Moreover, I should indicate other useful concepts.

Even though it is well known that “Langue is arbitrary”, “Langue is discriminative”, and that “Langue is negative”, I think following two assumptions are the most important; that is, firstly,

“Langue is structured socially by Parole”, and secondly, “Langue is structured in a brain by the repetition of parole”.

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Saussure’s general linguistics theory is very useful to discuss the issue about the subjective interpretation of the text.

I think the subjective interpretation of the text may not be subjective, because our langue system in the brain must be structured socially through the common process by using “Parole”.

That means, we have almost same systems of the langue in our brains respectively.

Therefore, our recognition about specific phenomenon may be very similar each other instead of subjective or unique.

Moreover, Prof. Ikeda indicated that we could think “Individuals with the same langue must have the same internal structure as well as the langue”.

Now, I think we could interpret some text objectively by the use of our common langue system in our brains.

[Slide 20]

Actually, we have some problems about our basic assumptions for the text interpretation.

Because we cannot check our brains directly, we cannot prove it fundamentally.

But basically, we can have a conversation about something.

And we think our senses of value about the truth, goodness, and beauty must be similar usually.

Moreover, our emotions about love, hate, sorrow, happiness, and so on, are not so different among people.

[Slide 21]

I think we have another evidence for supporting our assumptions.

That is, criticism to the results of qualitative study.

“What’s new?”

“I knew such a thing already.” and so on.

I think these criticisms must indicate that we have similar structures of the recognition about specific phenomenon.

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For example, in Thailand, we have interviewed some people living with HIV/AIDS.

At that time, we asked their first feelings when they knew their infection to HIV/AIDS.

We could extract their feelings such as concepts shown in this slide.

However, if we try to predict their feelings without interview, we can expect the results to some extent.

Why can we tell their emotions?

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I think the criticism like “I knew it already” is a evidence that indicates that the concept exists as a common sense in the society.

If we have similar language structures in our brains, we can explain the phenomena by the use of common concepts in general.

However, I should indicate that not all concepts are structured identically or parallel because our experiences are different each other.

[Slide 24]

Until now, I have explained that the subjective interpretation of the text is objective, if the structure of language is almost common in each brain.

If we agree the basic assumptions proposed now, we can suggest that only one case study could offer the representative results for the population.

[Slide 25]

I almost finish the discussion of the issues about the generalization of the results obtained by a qualitative study as scientific evidences.

I should add some useful statement by Prof. Ikeda.

That is, “Even distinctive phenomena must have some common facts.”

For example, If we find a white crow, we can understand it is a crow even though the color is not black.

That means we judge it on other characteristics as communality in the genus “Crow”.

From the viewpoint of structuralist philosophy of science, every model is equivalently scientific, but we should evaluate the model proposed by the degree of the explanation or the fitness to the phenomenon of interest.

[Slide 26]

This slide shows the summary of this presentation.

I tried to dissolve the issues about the generalization of the results obtained by a qualitative study.

Mainly by the use of the core concepts of the structural constructivism proposed by Dr. Saijyo, and also the structuralist philosophy of science by Prof. Ikeda, I suggested that modeling in a qualitative study is equivalent to that of a quantitative study, and that the text interpretation seems to be based on the common system of language in our brains.

Therefore, the results can be always “scientific evidences” from the view point of the structural philosophy of science.

[Slide 27]

I really appreciate Dr. Takeo Saijyo (Research Fellow, Japan Society for the Promotion of Science, Waseda University) for his helpful suggestions and his useful slides about Structural-Constructivism,

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