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〈論文〉

The Effect of Concept Formation on Foreign Language Learning Objectives and Methodologies

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Abstract: The objectives and methodologies of foreign language learning are profoundly affected by cognitive development of knowledge concepts in the human mind. For many individuals, the ultimate goal in learning a second language is near-native fluency. However, to specifically define what stages of learning lead to and constitute fluency, we must investigate the process of concept formation — the internal process within the brain as a person develops his or her understanding of the world during the period from childhood to adult life. Concept formation implies that a second language learning methodology should progressively connect abstract concepts that had been acquired through L1 into the newly learned L2. This also means teaching materials operating from this perspective should seek to integrate the new language into the total concept formation of the first language. This research compares various methodologies' ability to achieve L2 concept integration and offers examples of an alternative approach termed "concept attainment learning".

1. INTRODUCTION.

The process of setting language learning objectives for teaching materials is meaningless without first determining the ultimate objective for students. In spite of this and inasmuch as the aims of each individual student differ in various ways, the ultimate objective of learning a second language (L2) is invariably neglected and rarely discussed in L2 learning theory. Therefore, the aim of this paper is to discuss the

ultimate objective of English as a second language (EL2) in relation to the formation of concepts through the mother tongue (L1). By "concept formation", we mean the general categories that a person unconsciously creates to store specific information in the brain. In this paper, we will argue that the concept formation is created initially through L1 and is completed by the age of puberty. Furthermore, to achieve acquisition of a second language after the age of puberty, a pedagogical model is hypothesized for connecting the specific L2 information with the learner's concept formation. The subjects in this discussion are EL2 students in the post-puberty stage who have fully completed their concept formation of the world. Finally, this model will be compared with some current learning theories and an alternative method will be proposed.

2. THE ULTIMATE OBJECTIVE OF STUDYING EL2

2.2. FLUENCY IN EL2 AND ITS RELATIONSHIP TO PUBERTY.

The present discussion will concern EL2 learners who have already formed a basic concept of the world in L1, that is, they have developed skills of thinking such as understanding complex concepts, gathering and structuring information, memorizing relevant facts, negotiating meaning in conversation, and expressing one's thoughts. The final objective of studying EL2 shall be defined as the acquisition of fluent performance of EL2. This 'fluent performance' means being able to convey all basic concepts of the world in EL2 as well as L1. In this case, we consider learners whose concept formation of the world and the completion of fluency in L1 coincide. This can be said because concept formation is achieved through L1, and the formation of L1 is based on the development of a conceptual framework of the world. Therefore, the formation of the concept is intimately tied to the learning of language.

According to Collier (1989), if the acquisition of L1 is stopped in the developing stages of L1, then this will affect both concept formation and the acquisition of EL2. With regards to EL2 acquisition, those who have learned continuously from the infancy period to the stage of puberty would have no developmental problems. In other words those who simultaneously learn through L1 and EL2 will not experience significant problems. Regarding Colliers' (1989) investigations, results indicate that from age 0 to 12, all major development of language and concept formation will have been completed

with puberty marking the end of a critical period. Young adults who have learned to think, reason and understand and acquire knowledge through their respective mother tongues, will have no problem in learning a second language. However, if the learning in the mother tongue is terminated sometime during the pre-puberty period without completely mastering the L1, an adverse influence may affect acquisition of the second language.

Young adults learning a second language will initially learn when compared to younger children because their mother tongue fluency is complete and they have the advantage of well developed skills of expression. However, within two or three years, a child in pre-puberty will have developed their conversation ability at a faster rate to the point of becoming equal to adults. Post-puberty youth, however, will learn conversation at a relatively slower pace and retain some accent differences.

In the period between ages eight and twelve when children receive several years of school education, children have an opportunity to efficiently learn a second language. Based on the findings of McLaughlin (1984) and de Villers & des Villers (1978), children from age of 0 to 5 acquire a tremendous volume of linguistic knowledge, such as phonology, vocabulary, grammar, semantics, and pragmatics. However at this stage their acquisition of L1 has not been completed. From the age of 6 to 12, children will learn more complicated knowledge and skills while further developing L1. Therefore, from this investigation it may be surmised that it takes about twelve years to complete concept formation and learn a mother tongue. In other words, if some obstruction hinders the natural growth of the language, basic human concept formation may be delayed.

Therefore, when language learning theory is discussed, we cannot ignore concept formation of the world. Likewise, the methodology for learning a second language should not neglect concept formation.

2.2. THE RELATION OF CONCEPT FORMATION AND EL2 LEARNING.

As has been shown by various researchers such as Hatch (1978), Brown (1980), McLaughlin (1984), and Hakuta (1986), the course of learning L1 and L2 are very much the same. However, it must be noted that L2 learning after puberty occurs when concept formation has been completed and comprehension of the outer world can be

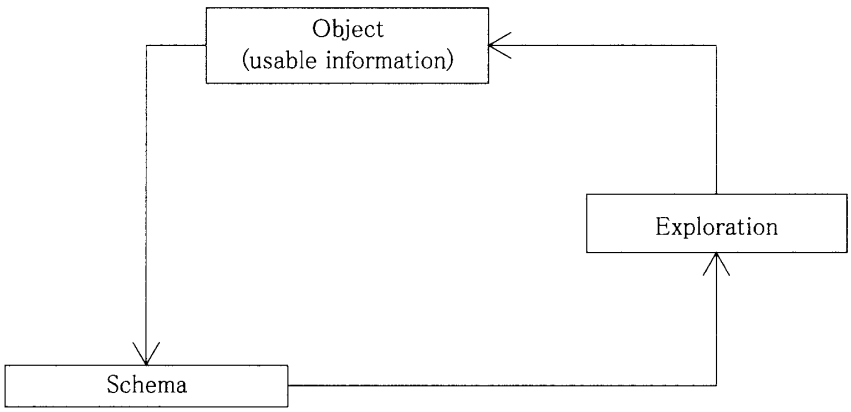


FIGURE 1. Neisser's Circulatory Perception

expressed by the L1 concepts. As both L1 and L2 language learning is intimately related with concept formation, when concepts are formed and finalized in connection with L2, we must also consider concept formation within L2. Neisser (1967) declares that reading, hearing, and feeling are sensory actions that depend on the mental structure which already exists. This pre-existing mental structure is referred to as a "schema". In other words, a perception depends on the experience and expertise of the person who perceives, and largely depends on the framework that is used to receive the information from the outer world. Schema is the contact point between the "objects" or usable information of the world in which the learner lives and the process of "exploration" by the learner. A diagram of this activity is shown in Fig. 1. Here we can see that schema commands the direction of this perceptive activity and is in turn corrected by it.

Neisser calls this process of activation and correction, "perception circulation". Neisser also states that perception circulation has a large influence on language acquisition. The learner attempts to reconcile new information by integrating or modifying his or her schema. The learner explores the incongruities between the problematic information and the schema until he or she can find a fit between the two. In so doing, the learner modifies his or her schema and invokes Neisser's perception circulation process. As a result, the extraction is done by selectively extracting the information, and by this process, the schema is modified. As this perception circula-

tion occurs, at times it may develop into the formation of a concept, or the opposite may occur. This may be seen in Figure 2. Non-formation of a concept sometimes occurs when knowledge is integrated into a schema but not integrated into the concept or is simply ignored or forgotten. Note that concept formation is different than schema in that schema is the abstract structure of a speaker's specific information and experiences. Conceptual structure, however, is the general structure upon which schema depend; that is, those notions formed and stabilized in childhood which do not change after puberty.

For this concept formation to develop, Neisser states that the stages of perception circulation may occur as follows: (1) prediction from the schema, (2) extraction, (3) correction of schema, (4) corrected schema and prediction, (5) extraction, and (6) recorrection of the schema. This is the course that concept formation follows such that the schema gives rise to perception circulation which then leads to the formation or reformation of the concept.

To reach the stage of concept formation means reaching both the stage of cognition and the stage of language acquisition. When this stage is attained it leads to greater thinking ability of the learner. This is illustrated in Fig. 2. Concept formation has been successful due to perception circulation. Then for acquisition of a second language such as English to occur after puberty, the content of the new language must be connected to the previously formed concept. If the teaching of

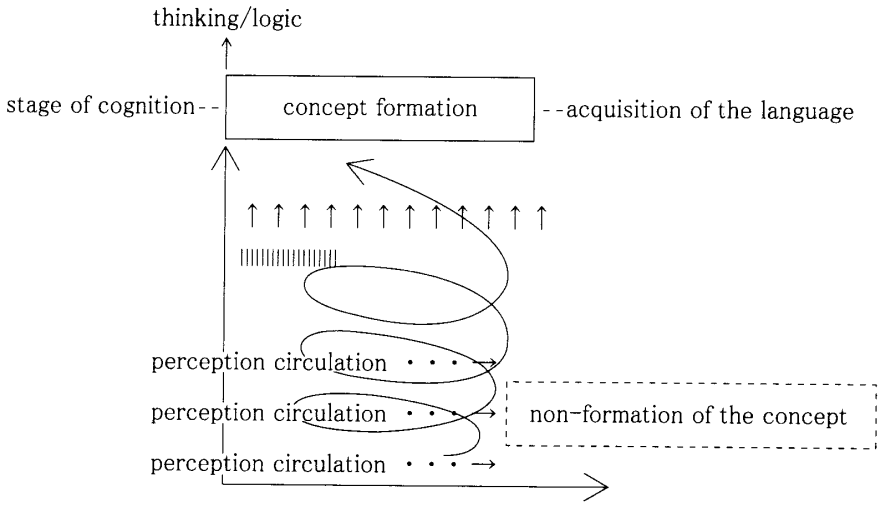


FIGURE 2. Thinking and Logic

English fails to make this connection, then the study of EL2 would be fruitless.

Regardless of the method used in acquiring English, perception circulation as described in Figure 1 will occur. Whether or not the EL2 teaching methodology supports this process, perception circulation will still take place among students who learn EL2. Even if the teaching method has absolutely no effect, these young adults will activate their schemata which will cause some perception circulation. This means that there will be some circumstances that initiate perception circulation in which leads to a concept formation while at other times there are circumstances in which perception circulation may not lead to concept formation. Thus we must seek a learning method that will lead to circumstances which will lead to perception circulation that will connect perception in EL2 to the concept formation.

In the stage where this concept formation is completed (hereafter this will be referred to as the completed concept state), the development of language may follow the language model set forth by Chomsky (1982). In this model, Chomsky takes for granted the formation of the fundamental grammatical concepts whose behavior he endeavors to describe. However, we can surmise a process such as the following. First, one schema classifies and constructs a shared set of characteristics as forming a particular notion or belonging to a specific category. This categorization, in tern, influences concept formation itself. Therefore, it can be surmised that concept formation naturally extends to the categorization of the language and that concept formation itself becomes categorized. This categorization may be called a "collection of functional identity". The perceptions that come in from the external world become categorized and connected with concept formation. Therefore in order to increase the possibility of EL2 connection with concept formation, it becomes necessary to increase the level of high frequency functional identity of the EL2 teaching materials.

The actions of imagining, thinking, feeling, talking, and reading will eventually lead to a particular concept formation, after which such concept becomes a basic element of cognition. The action by which we can utilize the second language, can only be achieved when the learning of English has been completely tied up with the concepts that have been formed and elaborated since birth. When this stage has been attained, it can be said that we have reached fluency in EL2. Therefore, if a learner remains in a stage where he or she is unable to operate fluently, then it indicates that

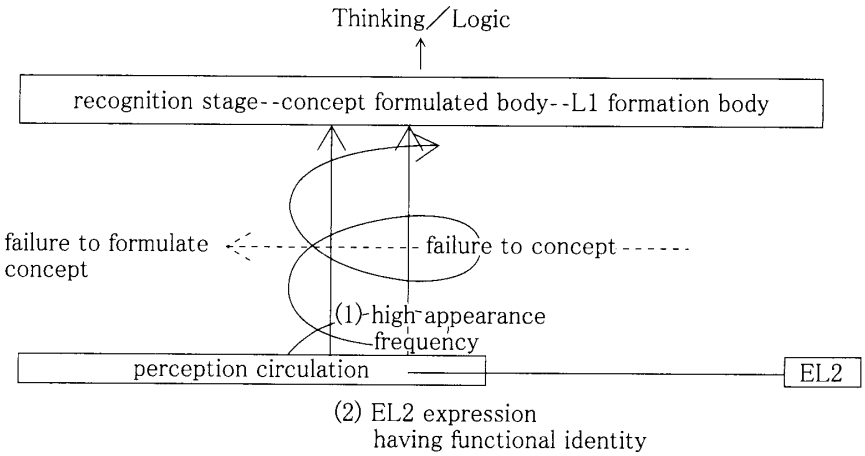


FIGURE 3. EL2 Acquisition Model

he or she has been unable to connect a new grammatical category to the already formed concept.

Therefore, learners who have previously learned L1, might process EL2 through the schema of their mother tongue. This means the influence of L1 on L2 is the same as the interference which arises when the learner of L2 has an incomplete concept of L2. Figure 3 shows a schematic diagram of the discussion made hitherto on EL2 acquisition.

This process of EL2 acquisition contains six aspects: i) prediction based on the schematic diagram, ii) extraction, iii) amended schema, iv) prediction based on the amended schematic diagram, v) extraction, and vi) re-amended schema. This indicates the course of perception circulation and concept formation. At the stage of concept formation, the point may be referred to as a completed concept state. Therefore, at this stage L1 is also completed and may be referred to as the L1 completed state. What this suggests is that, when learners who have already completed their L1 acquisition begin learning EL2, they must find the course of cognition from EL2 that leads to connection to the completed concept formation. First of all, with enough EL2 input, a learner may create a schema of EL2. However, having formed this new schema, the learner is likely to not only evaluate EL2 through it, but L1 as well. As a result of this kind of perception circulation, the learner makes profound connections which are likely to affect his or her fundamental concepts of grammar. In this case EL2 expressions that are perceived at a high frequency will form a

collective body that leads to connection to fundamental concepts.

3. EL2 LEARNING STAGES THAT EVENTUALLY CONNECT WITH CONCEPT FORMATION.

Roughly dividing the course of second language acquisition on the way to complete fluency, we can visualize three stages. The first stage is the survival level, the second stage may be referred to as the social communication level, and the third stage may be called the academic level. In the first stage, survival level knowledge of English is required temporarily. For instance, when a short period of limited travel abroad is required, very simplistic rudimentary patterns will suffice. This, however, does not require a basic knowledge of EL2, just memorized phrases. Later, where the performance of English is required for social communication, the second stage is reached. Of course, even at a bare survival level, there are levels at which social communication with your neighbor are necessary. However, at this second stage, the learner is trying to go beyond temporary mimicry and more permanently connect EL2 to concept formation through EL2.

In the present discussion, the learner's English performance is aimed toward the second stage. Therefore, it is vitally important to attain this stage. However, even at this stage EL2 learning of social communication is not the final objective. This is because our life style is completely developed and thus the role of social communication has been more or less completed within one's concept formation. Although EL2 must be connected to the concept formation in order to cope with this, it is not enough to just communicate socially. When we wish to discuss a situation such as the education of school children, it will be necessary to use technical terms used in professional literature or the media. When one wishes to discuss subjects in any specialty, appropriate terms must be used to make oneself understood. Thus a third step becomes necessary. This is where the concept formation connects with EL2 because it is necessary to cope with the complicated world that surrounds the learner, and this then becomes the final objective of the EL2 learner. However, attaining the second step is a pre-condition to reach the third step, so for most learners, it has the utmost importance toward living in the real world.

In almost all second language learning, attention is concentrated on the second step. For instance, we have the communicative competence approach which has been proposed by Savignon (1983). This brought a new wave to all ESL/EFL all over the world, and seemed to provide a panacea replacing rote learning and the hitherto mechanical grammar-translation approach. It set forth a new approach which emphasized what should be said and how it should be said according to the situation. In other words, this method stresses the importance of being competent in skills of meaningful communication. We also learned from successive learning theories, that meaningless memorization of arbitrary knowledge or pattern practice did not connect with language learning which leads to thinking and understanding. In this sense, communicative competence forms the mainstream thinking at present. However, the reason why this learning theory is successful only under a limited number of conditions is unclear and has led to confusion in EL2 learning theory. For example, this theory is only applicable in classes of a limited number of students, and it is usually applied to familiar greetings and customary expressions. Although the aim of this theory is to replace rote practice with cognitive learning, the result is simplistic cognition. Therefore, communicative competence theories have succeeded to a certain stage but not to the point of automatic, voluntary speech or abstract expressions. In addition, there are cases in which a teacher or book seemingly casts aside rote learning yet still maintain mechanical examples in place of truly communicative learning. Far from a true cognitive approach, these methods are largely trial and error. In other words, when a simple or easy to understand act is to be completed with EL2, the theory may be successful in application but when a sophisticated and abstract concept is to be introduced in EL2, the theory proves to be ineffective. This is because of the assumption that learning can only happen in a meaningful situation, that the de-contextualized structure of conversation flow cannot be used for language learning. However, this does not explain why pattern practice, memorization, and other traditional tools are useful aids to the learning process.

Despite the apparent success of current EL2 learning theories, there have been three failures which must be examined. The first failure arises from the fact that in the course of processing new information, teachers have ignored and students have forgotten the presence of schema. This is because previous learning theories are

invariably aimed at learning specific expressions. The second failure is that EL2 teachers and learners ignore the conceptualized schema which is already completed in L1. Some EL2 classes operate entirely in L2. This stipulates that the learner must not use the schema of L1 as a means to acquire L2. The third failure then arises despite the circulation that arises from the perception, concrete schema is stimulated yet the method is unable to connect EL2 with the conceptualized schema already formed. In other words, by grasping the gist of the flow of conversation or imagining the setting, it is too specific and too infrequent to create conceptualized schema in English. In attempt to deny "learning by rote," it can be said that communicative teaching advocates have forgotten to determine at what stage, that information should be "input" or learned so that the conceptualized schema of English can be formed. The final mistake by teachers is that they believe only one method or theory of EL2 learning can be effective for all kinds of classes in the learning of English.

According to EL2 learning theory, it is already known that the final results of present teaching are completely inadequate for meeting the demands of real society. This is because EL2 learning objectives have not been able to reach the second or third stage as demanded by the changes in the real world that come from advancement and development. Non-native English speakers are often expected to operate at the level of English of native speakers, where mere stereotyped patterns of English conversation are not adequate. In all English speaking countries, the level of English must be raised among the immigrants as quickly as possible. In non-English speaking countries, the demand for internationalization is advancing, and the objective of English speaking has been raised to the third stage — academic or technical use of the language.

For example, many non-native speaking students are being exposed to situations that require them to communicate at the level of native students who are receiving an education in their native English. This includes those who study abroad on exchange programs at junior high schools, senior high schools, or universities, where they must operate in English as a second language. Here it becomes a matter of very serious degree. Namely, if a learner wishes to learn English through segregated ESL classes alone, it is completely inadequate for keeping up an academic level of English in a native-speaking country. ESL students need to learn English within regular academic

subjects using EL2.

As the course of learning L2 resembles that of learning L1, reports on L1 acquisition have become more numerous than L2 acquisition. Within the L1 studies, the majority of the subjects appear to be concentrated in the pre-school age group. However, as reported previously, language acquisition requires a minimum of twelve years of learning because the concept formation is not completed in just 4-5 years, but continues to develop throughout the elementary school years. In the course of learning L1, the influence of school education is of considerable importance and must not be forgotten. Learning of the mother tongue is considerable because in addition to the course of learning in our every day life, we also learn mathematics, social science, science, music, and other school subjects. In other words, ordinary education allows a more complicated abstract concept formation to be completed. To support this complicated abstract concept formation, the adaptability of L1 appears to be heightened. While this is going on, the functionality of the learner's schema is heightened considerably. However, in the research in this direction, the focus of attention has been mostly aimed at a comparatively short period of infant language development, hence the studies on this period are insufficient. In the learning of a language, we must not ignore the role of school education.

In addition, from our previous discussion of language learning theory, in which communicative competence has been the primary goal, we must realize that EL2 learning theory was lacking entirely in a methodology that considered concept formation. As a second language is learned, new concepts are formed in the learners which need to be connected with the preconceived concepts, thus a theory in EL2 concept formation must be set forth.

From the above, we can summarize the following conclusions:

1. New language input is perceived by the schema and basic concept formation is completed during the twelve years up until the time of puberty which is the stage of primary cognitive development. For EL2 learners after puberty, when they connect the new language with the concept previously acquired, there are often cases where connection to the concept formation is not completed. When concept formation has not been completed, we can only say that the learning theory or the method is wrong. When we discuss EL2 learning theories or

methods, it becomes necessary for us to find a way to process EL2 in such a way that it connects with the learners' concept formation body. For example, one method might be to group together EL2 expressions that have a high frequency of usage and EL2 expressions that have a similar function. By learning these clusters of language expressions, it may be easier to connect the EL2 concept with the L1 concept.

2. Both the learning of L1 and L2 have an intimate relationship with the concept formation of the learner. In the case where concept formation is accomplished by L1 alone but not completed before L1 learning is terminated, L2 learning will be greatly affected.
3. Before puberty in order to develop a perception mode in imagination, thinking, feeling, talking, and reading, the contribution of school education is considerable. Therefore, the development of L1 cannot be overlooked in school education research.

4. CONCEPT ATTAINMENT LEARNING —THE LEARNER AFTER PUBERTY.

4.1. COMMON SCHOOL EDUCATION THAT IS UTILIZED IN EL2 LEARNING.

From the conclusions of section 2, we can see that an appropriate learning theory must be based on the idea that information obtained by the learner from his/her schema becomes tied up with the learners completed concept formation body. Thus concept formation is connected to both L1 and L2. To accomplish this, the perception circulation that arises from EL2 learning first needs to tie up with the concept formation via "high frequency EL2 expressions." In other words, general standardized forms are offered to learners. Here, a general standardized form, does not mean a specific expression with a specific meaning, but rather a group of expressions with the same function. Secondly, the learner should be exposed to English that is widely used in the curriculum of school education. This kind of learning completes and strengthens the second stage (social communicative level) and leads to the third stage (pre-academic/academic level).

Since the '70s, traditional second language learning models have been improved

and new EL2 learning models were refined by Stevick (1982), Krashen & Terrell (1983), Richard-Amato (1983), and Savignon (1983) successively. In previous ESL/EFL approaches, teachers were exposed to the Berlitz methods, Army methods, the Direct method, Total Physical Response, the Natural Approach, Community Language Learning. Suggestopedia, etc. Thus changes in methodology underwent further changes and practical teaching in turn changed and adapted these methods.. However, these learning theories or practical methods are not necessarily successful as stated in chapter II. This is because any ESL/EFL learning class cannot be run by a single method or approach. At any respective teaching site, under ordinary settings, highly complicated conditions arise in which a variety of approaches are interwoven. A setting where a sole method or approach can be applied does not exist. In addition, in an attempt to reproduce an actual conversation, artificial situations cannot be reproduced. By producing a limited environment with a limited number of expressions, it cannot be expected to deeply established a connection with the concept formation. A more complete learning theory is needed where the EL2 information that is perceived by the learner can connect with the concept formation. However, we must not forget the extent of the benefit that these current theories may give. From 1970 and thereafter, the progression of theories has had considerable significance. In addition, we may be able to determine under what conditions that these separate theories were effective or not effective. These successive methods, models, and approaches may have been correct under certain conditions but inappropriate under other conditions. It may also be that the problem may be on the side of ESL/EFL teachers who took a single approach as an all-inclusive panacea, blindly accepting it without examining its assumptions or limitations. Teachers also seem to have forgotten why the learners wished to follow these respective approaches. Thus EL2 theorists became absorbed in concentrating on the improvement of technique of conveying an idea or ideas. In the end teachers may have attempted to teach the cognitive learning approach in their classes, while they failed completely to acquire or to reach the perception stage. These teachers and learners did not realize that meaningless rote learning and communicative learning produced results that were not so different, thus succeeding only in leaving students in a quandary and unable to achieve the level that an EL2 learner may need to succeed in academic classes in an English speaking

country. Attaining the level of the native students who reside there is difficult through these present L2 learning methodologies.

Chamot & Stewner-Manzanares (1985) conducted an investigation of ESL teaching methods used in U.S. public schools. They found the following were most common:

-the audiolingual method
-the Natural Approach
-Total Physical Response
-communicative approaches
-eclectic or combination approaches

However, it must be remembered that despite any advantages or drawbacks, these are not methods for direct understanding of subjects in school education. In other words, connecting EL2 to concept formation is impossible, basically because the focus of attention is centered on conveying techniques rather than content. Bowers (1986) states that language learning solely by communicative language activities takes away the energy from learners who wish to continue their studies and he warned that little would be attained in classes employing this approach exclusively. In Japan as in the United States, in the middle elementary grades, reading comprehension, writing techniques and mathematical skills are being formed, and ever increasing abstract expressions and problems are taught which children are required to understand. As the schooling advances to higher levels, the course of education advances to new information. Listening and reading skills advance to new concepts which must be grasped or delivered as speeches or written documents. However, according to Cummins (1983), Saville-Troike (1984) and others, most EL2 researchers agree that moving from the second stage (the social communication level) to the third stage (the academic level) requires five to seven years.

For such reasons, in recent years some research has begun attempting to produce EL2 methods necessary for school education. First, we have Chamot & O' Mally (1987) who set forth CALLA (the Cognitive Academic Language Learning Approach) as one learning approach for EL2 in schools. The target group of CALLA are young students, especially upper elementary and middle school students with limited English proficiency. CALLA is a model made in such a way that these

non-native English speaking pupils can improve their English and keep up with school education. While they are learning science, mathematics, or social science as outlined in the curriculum, they acquire English at an academic level. In their recent research, Snow, Met, Genesee (1989) et al, claim that EL2 learning which is taught together with content classes and cross referenced or integrated with each other, is much more effective than normal EL2 learning. They further insist that the content of the subjects stimulates language learning and by assiduously following the pursuit of language learning, this combined method is highly effective in raising the level of academic thinking. Further along this line, Anderson, Eisenberg, Holland, Weiner, & Rivera-Kron (1983) et al make similar conclusions. In short, when subjects in school education are taught together with EL2, it is a means to connect with concept formation. These theories support the intent and content of the present thesis.

4.2. CONCEPT ATTAINMENT LEARNING.

We have theorized so far that the schema by which the learner perceives EL2 brings the learners' concept formation in closer connection with EL2. This theory may be termed "Concept Attainment Learning." Further, this may be subdivided into the first stage of "functional token learning" and a second stage of "concept connecting learning". The first stage has a wide range of adaptability and is an aggregate of formulaic tokens. The objective of this stage is to form a connection between perception circulation and concept formulation. The second stage then is developing the schema which arises from perception circulation to a specialized height, where it acts on the completed concept formation. The learning patterns are not a means to directly pursue these various stages, but are rather a self supplementary spiral method that leads to the development of concept attainment.

In the first stage of functional token learning, rote learning is utilized. The point that we must not neglect, is that in order to connect EL2 to concept formation, we must arouse perception circulation through methods which increase the frequency of perception. Rote learning or simple repetition is of course not a totally applicable learning technique but one tool that can be used to increase the frequency of perception. As EL2 learning theory needs to consider which tools are appropriate at which stage, we may find that repetitive learning is absolutely necessary for the first stages

in foreign language learning. In the past, ESL/EFL instructors and researchers would adopt a new learning theory, but they would not forget previous, conventional teaching theories and thus continue to teach part of the old methods, often unconsciously. So rote learning has continued to be used because teachers in schools used it intuitively, probably it was effective in accomplishing their teaching aims. Yet because rote learning was so out-of-fashion, no one would admit that they actually used it intentionally.

Whereas rote learning had its role on practice and repeating, it must not be misconstrued with mechanical memorization. Memorization is a temporary, intensive repetition for the purpose of blind reproduction, usually for a test. Simple repetition done many times does not specifically intend to memorize the words, phrases or sentences, but rather just to give exposure and immersion in the sound of a new language. With special regards to learning by rote, Gatobonton & Segalowitz (1988) reported that rote learning itself has the merit of increasing automatization. They stated that a large amount of information could assimilated in one motion when produced in repetitive manner. Thus in this paper, we assert that "perception frequency" is attained artificially by rote learning and thus admit the usefulness of this method at appropriate stages.

However, this paper also goes beyond this to suggest a new "functional token learning method" in which carefully selected phrases are used for repetition. This is different from pattern practice which deals with a complete sentence to be learned by repetition. The problem with whole sentences is that they are so specific and come attached with a specific meaning formed within the context of the gist of a story, discourse or scenario. They come from a highly developed EL2 schema that has been extracted from a well developed concept formation that eventually created this form of sentence. It could not be created from the undeveloped schema of a typical EL2 learner. In other words, even if complete sentences were used, it would be impossible to bring them to perception circulation for beginning learners. At this stage generally accepted phrases can be aggregated into simple and easy formulated tokens and offered to learners for repetition. However, even if an L2 learner is provided with complete sentences and given abundant practice, the state of inadequate concept formation would continue in the real world, and learners would have to undergo a

considerable length of time before they could actually assimilate and freely use the language.

Cognitive learning theory tells us that blind memorizing of an L2 would not connect to the concept formation of the learner. At the same time, previously and already learned cognitive learning cannot connect with the concept of English without frequent perception circulation. As far as abstract and complicated situations are concerned, communicative methods had absolutely no effect because too much stress was laid on meaningful learning. Communicative theories were mainly concerned with the particular situation or setting, or what expression was being said under what circumstance. The main effort was to learn what expression was being used. However, as previously explained, this has been the cause of failure. We can say this because, the situation and the story combine to restrict the use of the phrase or expression, which makes the original meaning very specific. Moreover, English expressions are restricted and limited, and it forces the special expressions to serve as general conceptions, which is against the concept formation characteristics that we are trying to set forth.

Schema is not static, but rises from an underdeveloped form to higher and more specialized forms. This characteristic cannot be ignored in theorizing concept formation. Therefore, in a situation where learners have an extremely underdeveloped or limited EL2, even if we introduce an expression to learners, their schema cannot or is not large enough to bring about concept formation which would lead to perception circulation. However, in the beginning learning stages, if we give formulaic tokens which can be used widely and are functionally similar and introduce rote learning to artificially stimulate frequent usage, we can then connect this EL2 with concept formation.

4.2.1 FUNCTIONAL TOKEN LEARNING.

Introducing these formulaic tokens in the early stages of EL2 learning is what we call functional token learning. When the EL2 schema is undeveloped, there are three conditions that can help it give rise to perception circulation and connect with concept formation. The first condition is to give functional similarity to expression groups. Then the second condition is to standardize this group and the third is to

heighten the functional similarity.

For instance, "I want to buy a new camera," is an expression to be used in a specific situation. However, the sentence, "I want to buy a camera," is more general than "I want to buy a new camera." Furthermore, the expression "I want to" has a higher frequency of appearance than "I want to buy a camera," and is more common usage. Such expressions can be collected with the idea of functional identity because they meet the first condition.

One example of EL2 teaching materials which use "functional identity" as a standard were developed by Neichi (1965). A listing of auxiliary verbs and another list of polite expressions of request were collected by Neichi (1965) and listed below.

Future auxiliary verbs that express the users' intent

I am going to
I want to
I want you to
I have to
I am supposed to
I am trying to
I will be able to
You had better

Polite expressions of request (partial list)

Will you please
Would you please
Could you please
Would you
Could you
I wonder if you could
I would appreciate it if you could
I would like to
Would you like to
How would you like to
Would it be all right to

Since strictly labeling the first list as auxiliary verbs or another term is not important for the intent of this paper, grammatical categories will be neglected. These lists were compiled with aim that the meaning of the sentence has a decisive role. Earlier, the first condition, "to present expressions that have functional similarity" coincides with the objective of these lists. Among Neichi's teaching materials, there are numerous figures and diagrams that he utilizes such as the one illustrated in Figure 4.

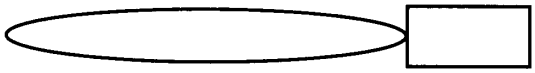


FIGURE 4. Example of Functional Tokens in an English Sentence

The square at the end of the model represents where the verb is placed, while the spindle shaped portion represents a token such as one of the phrases expressing intent in the above auxiliary verb list. This structural model establishes the second condition stated above, standardizing the groups of phrases. The third condition, namely to heighten the functional identity, the learner must repeat either the "futuristic auxiliary verb that expresses the intent of the user" or the "polite expressions" verbally to artificially increase cognition frequency.

Therefore, to give rise to perception circulation, one condition that must be met is to assemble or gather expressions that have functional identity. This in turn will bring about concept formation through the underdeveloped schema of a learner's EL2. In this paper, Neichi's English teaching materials will be used as concrete evidence to illustrate this process. In addition, we can represent this model in terms of a more typical linguistic formula as shown in Fig. 5. Here we shall refer to this expression as the "functional token model".

$$[NP]\text{-}[INFL]\ [x]\ [VP]$$

FIGURE 5. Functional Token Model

Regarding this model, we shall use Chomsky's (1982) terms for convenience. Here, NP stands for noun phrase and INFL indicates auxiliary verb, sequence of

tenses, and agreement of person which governs the concept. This portion coincides with the phrases in Neichi's English structural model. Next, VP is the verb phrase. Both [NP-INFL] and [VP] represent functional tokens. Each token is then practiced independently. This includes the lower categories that are formed by functional tokens; these also can be visualized but will neglected here.

Each functional token that can be expressed as [NP-INFL] and [VP] are concrete actual sentence components, and moreover, they should be usable in various cases and situations in real world discourse. [X] combines with [NP-INFL] and [VP] to take on a specialized higher form of a schema — an abstract category rather than a specific piece of knowledge. The actual teaching theory of Neichi supports this "functional token learning". When applied to undeveloped schema of beginning EL2 learners, the three conditions are fulfilled by the teaching material in the "Functional Token Model." From this we may expect that Neichi's teaching material would be effective.

4.2.2 FROM FUNCTIONAL TOKEN LEARNING TO CONCEPT CONNECTING LEARNING.

"Concept connecting learning" is a strategy to achieve the final objective of EL2, the higher forms of academic usage. This is the third level of EL2 acquisition, following the survival and social communicative levels. This method derives from Magle & Sanders' (1986) suggestion that memory is stored temporarily and can be connected with other kinds of long term memory. But to become long term memory, specific knowledge must be connected to the concept formation. Short-term, specific knowledge which is not connected cannot become long-term memory. In other words, concepts that have been completely formed can have the EL2 schema connected to it. A separate EL2 concept formation does not exist, rather the specific knowledge which makes up the EL2 schema is connected to the concept formation which is the container for all specific knowledge. To achieve this, standard textbooks for non-language subjects at the primary or middle school level can be utilized. The experience of EL2 acquisition through regular school textbooks becomes a starting point of specialized, academic level EL2 motivation. This work can be brought about by an organized curriculum that is taught through common textbooks using English that is not so

difficult for beginning learners. The reason why it can be said is because at this stage, the content is already familiar through previous study of the subject in L1. Another point is that learners who have a completed their concept formation have little trouble in grasping the meaning. Moreover, the fact that new information can be extracted in an organized fashion and be understood would form an opportunity to connect EL2 to a completed concept body. Carrell (1987) theorized that the content of material that has been previously understood in L1 can be transferred and used to predict the meaning of readings in L2. She first analyzed EL2 learners after puberty who had marks in the TOEFL test ranging from 450 points to 525 points which is considered the high-intermediate-level (the second stage in the present report). After conducting experiments to test EL2 abilities in reading and understanding, she compared results according to four categories: 1) field already known, 2) field unknown, 3) writing form already known, and 4) writing form not known. Her conclusion indicated that the degree of comprehension was higher in "already comprehended field+unknown writing form" compared to "unknown field+already known writing form". In other words, even with a limited English understanding at the second stage and a completed concept body, the learner has the ability to predict and can extract the necessary information. By continuing this learning process, the information perceived from the EL2 schema can be connected with the completed concept formation. Further, the schema can go on to develop into a schema that can process a higher more specialized form of English. This is the basis of an alternative methodology called "concept attainment learning."

5. CONCLUSION.

The final objective in EL2 learning is to connect EL2 with the concept formation already completed through L1. The learning process of the mother tongue (L1) and the second language (L2) is closely related to concept formation, thus both L1 and L2 develop by the same concept but different schema. This concept gives us predictive ability towards our world, and produces or extracts new information. Although the body of schema is constantly renewed or corrected by the new information, the concept formation is relatively stable and changes little after puberty. EL2 knowledge is

perceived and may or may not be connected to the concept formation depending on the methodology used.

A child who grows up to puberty while continually learning through his or her mother tongue has completed concept formation through L1. However, in a case of a learner who has terminated concept formation prior to puberty, the acquisition of EL2 may be stopped at a very low level.

In completing concept formation, the contribution of school education before puberty is considerable. Therefore, we cannot ignore the development of L1 in our research work. Likewise in the education of EL2, we must combine other subjects in the common curriculum. Therefore, we must prepare functionally similar teaching materials and increase their artificial frequency by repetition practice. By doing this, the given information is moved towards functional similarity and eventually heightens the concept formation.

The method for connecting EL2 learning to the concept formation, in the present report, is called "concept attainment learning". This model attempts to create a language learning theory which connects fluency in all three levels of learning a foreign language — survival, social communicative, and academic. This then is the ultimate objective of learning English as a second language.

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