

Schema Theory, Comprehensible Input, and the Teaching of English as a Foreign Language

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Second and foreign language teaching as an educational enterprise has not distinguished itself throughout the world by its success rate. That there are pockets of highly successful L2 language teaching is easily verified, but for the most part the track record is not very good. Thailand, which is a classic example of an EFL (English as a Foreign Language) country, is typical of countries where L2 teaching and learning have not been particularly successful although foreign languages have been taught there for many, many years. Certain individuals in Thailand have been successful in their L2 learning, but the reasons for their success can almost always be explained on the basis of unique L2 learning circumstances. And, more often than not, the reasons for success lie outside of the public education system.

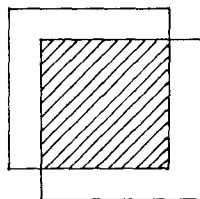
It is easy to find fault from afar and criticize EFL teaching in environments other than one's own. (1) Occasionally something of value accrues from such criticism, but it is only when the criticism is based on a careful analysis of the factors involved in particular situations that generally anything constructive follows in terms of improved teaching and learning. With this in mind, I will attempt in this paper, as the idiom has it, to put my money where my mouth is.

In suggesting possible ways for improving EFL teaching in Thailand, I turn to two theories which I will take a stab at melding and applying to the EFL situation which obtains in the kingdom. These theories are, first, that of Stephen Krashen, and in particular his notion of the crucial importance of comprehensible input for successful EFL/ESL learning, and second, the so-called schema theory which can be attributed to a variety of people. (For a detailed description of schema theory, see Rumelhart, 1980; for pedagogical implications, see Strange, 1980.)

I will begin with schema theory because if I were asked to rank the two theories in importance for a theoretical consideration of L2 learning, I would have to put schema theory first because comprehensible input IS comprehensible only in

terms of the schemata which exist in each individual. If schema theory represents "the truth," then we must accept that the various schema present in the brain are what make comprehension (of anything) possible.

For the reader unfamiliar with schema theory let me take a little space to describe it, at least as I understand it. Schema theory is posited to explain 1) how knowledge is organized in the brain, 2) how new knowledge is added to existing knowledge, and 3) how existing knowledge is adapted, changed, or corrected. Schemata may be thought of as blueprints of knowledge, or perhaps computer programs of what we know etched somewhere in the brain. An example from the real world illustrates how the theory works. The example I have chosen is that of cooking rice. Anyone who knows how to cook rice has a rice-cooking schema tucked away somewhere in the recesses of his brain. (2) This rice-cooking schema is part of a larger schema, one concerned with cooking in general. Now, and importantly, the rice-cooking schema of a Thai housewife, cook, servant, etc. will differ from that of an average American housewife/husband. Moreover, the rice-cooking schema of a resident of Bangkok may differ markedly from that of a resident of Chiangmai depending, of course, on the type of rice being cooked. The sequence of events involved in preparing and cooking rice is specific to the type of rice selected for cooking including such things as the kind and size of pot used, the washing of the rice (in Hawaii, for example, rice is washed several times before being cooked to remove the talc which has been used to coat the rice during the manufacturing/packaging process -- why the talc is used to coat the rice I don't know, it's not part of my rice-cooking schema!), the ratio of water to rice, the heat of the fire, how long the rice is boiled before it is covered, the length of the subsequent steaming, etc. How comparable is the Thai rice-cooking schema (Bangkok style) to that of an American residing in Los Angeles? Clearly, there are some features which are the same and there are features which are different. We can show the two schemata as follows where the shaded part represents shared features, the unshaded portion those aspects peculiar to each method of cooking rice.



Thus, an understanding of what it means to cook rice is not understood in precisely the same way in any two different parts of the world, but in general, the cooking of rice is roughly the same everywhere because of the chemical and physical properties of the rice itself.

Are there universal schemata, that is, schemata that we are born with? An argument can be made that the schemata for (at least certain) smells are not learned behavior; indeed, for certain physical reactions and/or sensations to stimuli (perception of light, smell, taste, feel, etc.) it could be reasoned that no schemata are involved. If this is true, then some other theory would have to explain our "basic" knowledge of these sensations which are not learned. The perception of sound presents an interesting case. Spoken language consists of sound waves. These sound waves impinge on the listeners' ear drums and presumably all of the sound waves of a particular language cause nearly identical vibrations of the tympanic membrane. But it is well-established that L2 learners tend to hear L1 sounds in terms of their own phonological systems. Thus, hearing the sounds of a language seemingly is somehow different than the perception of certain other environmental sounds. In addition, it seems reasonable to assume that there are schemata which account for the meanings of sounds so that the sound of a backfiring car in a sense consists of two elements: the physical sound (for which there is either no schema, or a universal schema specific for certain sound types) and the recognition that the sound is that of a car for which there would have to be a specific schema. If there were not a schema for the sound of a backfiring car, the noise would be interpreted as random noise. (Note, however, that the sound of a backfiring car is oftentimes taken to be that of a gun being fired which means that the two schemata share some of the same features.)

Music is another interesting case. It is reasonable to assume that a 440A struck on a piano would be heard as being the same by all individuals with normal auditory acuity. However, one man's music is another man's din. (I could never develop a schema for Chinese opera if I listened to it for the next 20 years!) Therefore, there must be some kind of schema for music -- which lets the listener from any cultural group recognize that "music" is being played -- and other schemata which are specific for the music of a given culture.

If universal schemata exist (and something like them must exist otherwise humans would not share the same nearly identical reactions to the physical environment) they differ from culture-specific schemata in that culture-specific schemata are meaningful. There is precious little meaning in a 440A sound (other than that it is sound), but there is an abundance of meaning in a song. Perception of a 440A doesn't have to be learned; but music does. I'm sure others have shared experiences similar to mine with respect to music. When I first heard a Thai mother singing to her baby, I thought that the mother was in pain -- the "noise" was so disagreeable to my ears. After several years residence in Thailand I came to understand and enjoy this type of music -- what had been disorganized noise became meaningful to me. In other words, I had developed a schema for Thai music.

Schema theory posits thousands of interrelated blocks of cognition -- cognitive chunks, if you will -- to explain how we store, amend, and add on to pre-existing stored knowledge. It is a useful theory because it helps us in thinking about how we might proceed in building and implementing more efficient language teaching curricula.

It is clear to me that for EFL teaching to be successful in Thailand, and elsewhere, educational planners must take cognizance of the schemata which are encoded in their respective learners' heads. Therefore, the teacher who teaches English in a village school in Korat is not teaching to the same array of collective schemata as is the teacher in a classroom of students at Triam Udom in Bangkok. I recognize that responsible people in education are aware of these differences. But to ignore this common knowledge in terms of pedagogy and the materials to support that pedagogy is educationally indefensible. In an ideal world, the collective schemata of a particular student population would not only be taken into consideration by educational authorities, but it would dictate the curriculum and its implementation. To implement such an enterprise requires appropriately trained teachers and matching materials. (I can hear the voices in the Ministry of Education in Bangkok saying, "We know that. It's obvious." Obvious it is -- no question. But the obvious needs saying sometimes and the real purpose of this paper is to state the obvious but in terms of what I consider to be two powerful theoretical constructs.)

It is time now to turn to the work of Stephen Krashen and explore his ideas about second language acquisition and learning particularly how they might relate to schema theory. The aspect of Krashen's theory which I will consider in this analysis is, as I indicated at the beginning of this paper, his concept of comprehensible input. Comprehensible input is part of Krashen's input hypothesis theory about which he says, "...the input hypothesis, may be the single most important concept in second language acquisition theory today. It is important because it attempts to answer the crucial theoretical question of how we acquire language. It is also important because it may hold the answer to many of our everyday problems in second language instructional at all levels." (Krashen 1982: 9)

Krashen holds that comprehensible input is the crux of the whole successful second language business. If the reader will pause for a moment and reflect on Krashen's claim, it seems to me that he will be drawn to the conclusion that his claim is an elegant version of common sense. In learning anything (why restrict the learning to language?) the more comprehensible the input is, the easier, more profitable, and efficient the learning will be. Of course, if everything the L2 learner hears or reads in a second language is totally comprehensible then no language learning will take place. However, other kinds of learning can occur: we do learn by reading and listening to others. In discussing the ways in which a learner advances in his knowledge of language, Krashen says:

"...how do we move from one stage to another? If an acquirer is at "stage 4", how can he progress to "stage 5"? More generally, how do we move from stage i , where i represents current competence, to $i+1$, the next level? The input hypothesis makes the following claim: a necessary (but not sufficient) condition to move from stage i to stage $i+1$ is that the acquirer understand input that contains $i+1$, where "understand" means that the acquirer is focussed on the meaning and not the form of the message. We acquire, in other words, only when we understand language that contains structure that is "a little beyond" where we are now. How is this possible? How can we understand language that contains structures that we have not yet acquired? The answers to this apparent paradox is that we use more than our linguistic competence to help us understand. We also use context, our knowledge of the world, our extra-linguistic information to help us understand language directed at us." (1982 : 20)

In other words, the acquirer uses his L2 linguistic competence plus whatever schemata he has. If Krashen is correct, then it follows that L2 teachers should be striving to provide comprehensible input paying close attention to its level of linguistic complexity as well as its level of cognitive complexity. This does not mean presenting the learner with materials which are carefully graded according to grammatical complexity, but rather with materials which are interesting and meaningful. Obviously one would not start with highly complex language from either a linguistic or cognitive perspective.

Just because input is comprehensible does not automatically ensure that it will be learned. For example, I am not the slightest bit interested in how engineers calculate the stresses involved when designing and constructing a bridge. For one thing, my mathematics and physics schemata are poorly organized, incomplete, full of holes, and in general, very defective. A good teacher could work very hard to provide comprehensible input to me related to the engineering problem sketched above, but in my particular case, I would probably let the input go in one ear and out the other. Thus, interest and motivation play a vital role in making comprehensible input utilizable to the learner. Krashen addresses this problem in these words :

"Optimal input focusses the acquirer on the message and not on form. To go a step further, the best input is so interesting and relevant that the acquirer may even "forget" that the message is encoded in a foreign language.

Creating materials and providing input that meet this characteristic may appear to be an easy and obvious task, but my view is that, in reality, this requirement is not easy to meet, nor has the profession considered it obvious. It is very difficult to present and discuss topics of interest to a class of people whose goals, interests, and backgrounds differ from the teachers' and from each other's. I also claim that relevance and interest have not been widely perceived as requirements for input, since so many materials fail to meet this requirement!" (1982 : 66)

When the Thai child acquires his mother tongue (Krashen believes that one's native language is acquired, whereas a second language is usually learned), he gradually constructs linguistic as well as sociolinguistic schemata in his brain. (Krashen 1982 : 10) Thus, he acquires a phonological schema which, in turn, consists of a schema for the consonant system, the privileges of occurrence of the consonant phonemes, their morphophonemics, etc.; another schema for the vowel system, another for the tones, etc. In addition, the acquirer gradually builds a schema for the syntactical system with all its complexities, and a lexical system as well. The acquiring of these various schemata goes on simultaneously.

By the time a child has reached six or seven years of age, he has acquired or constructed a complex set of schemata in his brain which we call language and in this particular example, Thai. But what the child has stored in his brain--in a so far unknown form--is more than just the Thai language, it is LANGUAGE.

Therefore, the young Thai child (who is by no means finished with his language learning at age six or seven although he can be said to have acquired the major aspects by this age) and the American child of comparable age have both acquired the same cognitive construct, namely, LANGUAGE. Thus, our two young language acquirers both have schemata for their respective phonological, morphological syntactical, and lexical systems. That these schemata must be very similar is a given. That they differ in their particular architecture is also a given.

From this argument it follows that the Thai learner of English is not starting from scratch when he undertakes the formidable task of learning English. He has already been (presume a normal child) a successful language learner, taking the comprehensible input (and a lot of it not so comprehensible at first) of his native language, "operating" on it in as yet an undetermined way and cataloguing it in his cerebral hemispheres, both left and right. This language schema building took place only because 1) the data (Thai language) was there for his brain to work on and 2) it was, at least in part, comprehensible. Without both of these factors available, the child would not have learned his language. Language, be it first or second, is not learned in a linguistic-cultural vacuum.

For the child to be equally successful in learning a second language, it seems only reasonable to suggest that the child have access to the same kinds of data that the native speaking child had while he acquired his first language. But, you protest, it is impossible to reconstruct the same environment in Pitsanuloke for English language learning that obtains in Pittsburgh and I would agree. However, if we are realistic and accept the fact that we cannot transport the language learning environment of Pittsburgh to Pitsanuloke we certainly can see to it that we do not construct barriers to language learning either by means of our pedagogy or the materials which we use in support of that pedagogy. There are explainable reasons why individuals who have been quite successful first language learners (and everybody save the severely mentally retarded is a successful first language learner although the level of achievement is not the same in all instances) do not learn second languages. I remain unconvinced that there is anything inherent within the human organism which prevents successful second language learning but rather that failures are a result of conditions imposed from the outside in one form or another. Poor second language learners are not born; they are made.

At the time that the LI acquirer is busily engaged in getting a linguistic system into his brain, he is at an age when there is "everything" to learn. Moreover, the child is eager to learn. It may be difficult for adults to appreciate this thirst for learning because we are so far removed in time from this initial learning period. I'll wager that this must be an exciting time for a child as he acquires his LI while simultaneously learning new things about the world. That initial excitement is very difficult to recapture in a school setting. Only the most imaginative and skillful teachers are capable of sustaining an exciting environment in most school situations. Teachers face large classes, long hours, materials selected by someone else, a curriculum designed by others, etc. In addition, they may be poorly trained to exercise their craft. And yet the public expects good results. Children manage to muddle through content courses which are taught in less than ideal circumstances because sometimes the subject matter is itself intrinsically interesting. Thus, a good library book on history may excite a student even though the teacher is doing a poor job of teaching from sterile, out-of-date classroom texts. Students do seem to get through school. (Whether they are educated or not is another matter.)

But second language learning seems to be a special case, one that requires more gentle care and treatment. Once students become disinterested in learning a second language, it is a very difficult matter to get them enthused about it again. Beginning language classes are often full and the students are excited at the prospects of taking on a new tongue. Before long that excitement all too often dims. The enrollment in subsequent semesters goes down, down, down. Why? It would seem that the more one knew of a language the easier the more advanced language

classes would be and the prospects of more interesting things to do in a class in terms of reading and writing and discussing would encourage and sustain enrollment. Native speakers of a language continue to grow and develop in the use of their mother tongue if the circumstances permit it. Should we expect anything less of second language learners if they, too, are provided with the appropriate language learning ambience?

Enough theory. What can be done in the everyday world of L2 learning and teaching to ameliorate a situation which everyone agrees is badly in need of improvement? My position is clear: Take stock of the schemata of the learners and the index of comprehensibility of the input the educational system provides. Many of the L2 teaching materials in use today are not very suitable as sources of comprehensible input because they do not reflect how people use language in realistic ways. Yet teachers continue teaching from the materials without bothering to criticize their content. If a teacher is poorly trained and is not a proficient user of the L2 himself, then we have no right to shake our finger at him for being less than fully professional. However, there are those in higher positions who should know better and it is their responsibility to see that appropriate materials find their way into the school system.

There is a bigger question that needs answering. It is a difficult question and one that some people would prefer to sidestep, but until the question is addressed with honesty, the L2 teaching situation in Thailand--and other similar L2 countries--has little chance of improvement in my judgment. That question is this: Who should be studying second languages in the first place? I reject out-of-hand the argument that the school system must be fair to everyone in a democracy and make the opportunity to study a second language available to all. Show me one school system in the world that is absolutely fair to all. The notion of a school system offering equal opportunities to all is impractical and unworkable and we might as well recognize this somewhat disagreeable fact. All men are not created equal--and neither are the women, who seem to have been forgotten when the phrase was coined! It would be nice, wonderful, beautiful, marvelous, and magnificent if societies were able to offer equal educational opportunities to all of their citizens, but that utopia is far, far in the dim and distant future. So let's be practical. Thailand needs a cadre of proficient second language speakers and writers. They have some now, of course, but they could undoubtedly use many more. (Everything I have said thus far about Thailand applies equally to the United States.) Thailand does not need thousands and thousands and thousands of bilingual citizens. What would such people do with their second languages? They certainly don't need a second language to communicate with each other--they can use Thai. But second language speakers/readers/writers Thailand does need--nobody questions this. Educa-

tion costs money, therefore it seems only reasonable to explore the most efficient means of producing as many L2 users as the country needs. I am suggesting that schema theory and the input hypothesis are worthy of serious consideration by educational planners because they address in direct fashion some of the problems planners must face.

Language is not sterile stuff lining the pages of textbooks. Language is something which people use for specific purposes. These purposes are well-known, but somehow these purposes are not finding their way into textbooks. We still find textbooks filled with dialogs of what people do NOT say on their daily rounds. A classic example is the dialog which purports to show what transpires when one makes a routine transaction at a bank. I don't know whether to laugh or cry when I read such dialogs. When I cash a check at a bank, I generally say nothing other than the 'thank you' which is expected at the conclusion of the transaction. Certain textbook writers are seemingly oblivious of the way that people really use languages and more seriously, they seem not to understand much about the way in which people learn languages. It is no wonder that L2 students become discouraged in their L2 learning attempts. They didn't experience a struggle when they learned their first language--although there are certainly periods of frustration when one is acquiring his first language. People don't drop out of "L1 classes"--everybody passes. (3) Have we forgotten that we acquired our mother tongue in a communicative ambience? Have we forgotten that we use language to give and take meaning from each other? It would seem we have if the contents of some of the textbooks we use are any indication of L2 pedagogical philosophies.

For successful second language learning to obtain we need to take into careful consideration the schemata of our learners. We need to provide them with comprehensible input in their language classes. We need classes of manageable size. We need teachers who are proficient L2 users themselves. We need time--lots of it. (Nobody ever learned a second language well by going to class Monday-Wednesday-Friday from 8:30 to 9:30.) And if we are going to get the job done and done well, we are going to have to be selective. Nobody should be required to study a second language. There is material aplenty to be learned in the mother tongue. (4) But if we do accept students into our L2 classes, we should be prepared to give them our best shot and this we are not doing.

A kid in Korat who is going to be a farmer doesn't need to waste his time struggling with a language that he will never use in his entire life. He needs to fill his head with those things which are going to make him a better farmer rather than with bits and pieces of a foreign language. If the educational system can afford to have good teachers supplied with adequate materials to teach from and sufficient time for teaching and make them available throughout the kingdom that is something which is highly desirable. But I would argue that this is not feasible

now nor will it be in the foreseeable future. Thus, the decisions concerning L2 teaching in a country such as Thailand are both educational and political. If Krashen is right, and if the schema theory advocates are also right, then educational planners can justify restricting the teaching of second languages to those instances where they can be taught with a reasonable chance of success. Theory dictates the L2 audience. Unless the second language learning conditions are appropriate, children are not going to learn second languages well and the educational system cannot be scolded for not performing its job. Therefore, second languages should be offered only in those places which can provide appropriate facilities, teachers, etc. (5) If critics want to label this elitist education, so be it. I would counter by saying that given the circumstances which obtain in Thailand today, an elitist education it must be for a long time to come. This is no cause for shame. If the day dawns when professional teaching of second languages comes and can be spread throughout the kingdom, then Thailand will have set an example for the rest of the EFL world.

This paper concludes with a plea for restricting EFL teaching in Thailand to those schools which can offer instruction which has a reasonable chance of success. It suggests that EFL professionals take a critical and analytical look at the materials which are currently being used for instructional purposes and the pedagogy used by the teachers who are responsible for EFL teaching. It asks that teachers provide sufficient background information so that Thai students will be able to enrich their schemata and thus understand more fully the language that they hear and read. Lectures and discussions can be conducted either in the target language or in the native language--the purpose is to enhance the overall knowledge of the students and the medium used to accomplish this is not crucial. It urges that language be taught as if it is real, i.e., something which is used for communication between human beings, and not as an academic subject.

Second language teaching which builds on the schemata of the students and uses materials and teaching techniques which provide comprehensible input to the students can be a challenging and rewarding experience for students and teachers alike. (But it must be recognized that it also involves a lot of hard work because this kind of language teaching is much more difficult than teaching from a cut-and-dried syllabus tied to a text filled with drills and exercises.)

Michael Halliday has said, "The child knows what language is because he knows what language does." (Halliday 1973: 10) Thai students who know what language is because they know what it does should be accorded the opportunity of finding out what English can do. If their knowledge of what language does can be exploited rather than ignoring that knowledge and subjecting them to a pedagogy which has little or no relevance to the uses of language, there is every reason to believe that they will be successful in their EFL endeavors and in so doing will provide Thailand with a rich resource--proficient users of a second world language.

NOTES

1. That M.L. Boonlua was one Thai educator who had no qualms about addressing an educational problem no matter how sensitive with frankness, openness, and honesty surely goes without saying.

2. Throughout this paper I will use the so-called male pronoun to refer to individuals of both sexes. I do so without any sexist bias. The Thai language does not have this anaphoric reference problem. Whether this is evidence that Thai is a non-sexist language reflecting a non-sexist culture is another matter. I am, however, reminded of the remark my friend Mayuri Sukwiwat, longtime student, protegee and friend of M.L. Boonlua, once made in an address in Honolulu: "Thailand is a man's country run by women!"

3. Students do fail and perform poorly in language arts classes where they are being instructed in their mother tongue. The reasons for failure are complex, but my guess is that, just as in L2 classes, the burden of responsibility rests with the teachers and the materials the teachers use.

4. This statement will not hold for those parts of the world where the indigenous languages do not have an orthography or where there is little material in print. One could question what schooling means for these people. Is it classrooms and books? Or would some other kind of education be more meaningful?

5. I recall clearly M.L. Boonlua relating an incident to me about the time that she was asked to address a group of educators concerned with teaching English to girls in the lower vocational schools, if memory serves me right. She told them that they probably didn't want to hear what she had to say, but they insisted she advise them. She had been allotted some 30 minutes to make her remarks, but she said she would only need a few seconds. After being introduced to the assembled educators a question was posed to her by the moderator--something along the lines of, "How should we teach English to girls in the lower vocational schools?" M.L. Boonlua replied, "Don't!" She then took the remaining time to lecture the group on the practicalities of second language teaching and the inappropriateness of squandering educational resources on populations of students which would never have occasions for use of the English language.

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