

# Activating and Developing Knowledge Through Inquiry Learning

Debrah Huber

In this paper the use of projects as an alternative to textbook-driven conversation classes will be discussed. These projects can be useful both as motivating exercises and as a way in which to broaden the students repertoire of knowledge. As an important (and evaluated) part of every 'conversation' class conducted over the past three years at Bunkyo Women's Junior College, and more recently at Bunkyo University, the goal has been to involve students in their own learning process. Group projects enable students to broaden their horizons beyond conventional classroom interactions. The projects, which are carried out in groups, are finally presented to the class as a whole. The use of this alternative learning process has generally been well accepted by the participants. Recently an opportunity to augment my own knowledge of conducting project work presented itself in a seminar given by Dr. Graham Wells, who was a guest lecturer at Temple University Tokyo. In this seminar Dr. Wells presented his own research based upon the *'inquiry learning method'*. Dr. Wells's research is based upon studies of mixed native speaking and non-native speaking primary school children in Ontario, Canada. Obviously there are considerable differences between the ESL primary school teaching environment and the EFL

college or university classes conducted in Japan. However, the central idea of *inquiry learning* can be adapted to the Japanese context. The seminar provided a formal basis for what was previously an ad-hoc approach to the use of projects. This paper will present some of the theoretical bases of project use in the EFL classroom. However, prior to the consideration of *inquiry learning* it may be useful to consider recent findings in reading theory which have pertinence in the activation and creation of an L2 knowledge base.

Current reading theory, at first glance, seems to be somewhat removed from creating oral communicative competence, yet there is a good deal of relevance in the practical application of teaching reading to some of the problems facing teachers who are trying to foster interest in language learning. Comprehension, be it of a text or a spoken communication, is dependent upon several factors. Among these factors are both the learner's skill in distinguishing and understanding a communicative act, and his/her global or specific cultural knowledge necessary to interpret the communication correctly. Current reading theory takes both of the above considerations into account and has been formalized as the *interactive model*, which can, quite usefully, be adapted to include the other receptive skill, specifically, listening. Comprehension, being a primary component of both receptive skills, reading and listening competence, is the primary concern of any communicative act. This relevance is realized in *schema theory*. Schemata are abstract knowledge structures. They provide a model with which to conceptualize the organization of knowledge within the individual. Primarily used

in reading theory, schema theory, non the less provides a useful method of analyzing and conceptualizing knowledge organization within the mind.

The history of *schema theory*, has at its roots Gestalt psychology, which emphasizes the holistic properties of thought and mental organization. In Gestalt psychology it is believed that "...the properties of a whole experience cannot be inferred from its parts" (Anderson and Pearson 1988 : 38). Where lacunae exist there is a tendency to seek closure by organizing the perceptual discrepancy into an appropriate whole. Examples of this phenomena are the well known, optical illusions which use foreground and background to create two separate images. The most common example is that of the chalice image which is used to demonstrate the *figure ground phenomena*. This tendency to use the "whole message may determine the way in which the parts are perceived, the memory work (s) on transformation of chaotic messages into 'good form,' the closure of incomplete patterns as in the addition of details to memory schemata..." (Stagner 1988 : 441-442). Goodman's psycholinguistic model of reading had great impact especially in the area of reading comprehension. He contended that reading comprehension "being a psycholinguistic guessing game...centers on (the) use of the term *decoding*...Goodman uses it to describe how either a graphemic input or a phonemic input gets translated into a meaning code" (Samuels and Kamil 1988 : 23). By contrast the *cognitive psychological* approach posited a linear information code. The cognitive model and the psycholinguistic model have been integrated by Rumelhart (1977)

and Stanovich (1980) in the *interactive model* in which it is believed that “...a process at any level can compensate for deficiencies at any other level” (Stanovich in Samuels & Kamil 1988 : 32). Thus, both levels of interpretation work together in order for comprehension to occur. In the interactive model the organization of knowledge is conceptualized as hierarchically interrelating layers. The metaphors used for this organization are *bottom-up* and *top-down schema*. *The former in the reading skill refers to the recognition of graphemes, and sentences and their meanings ; in listening bottom-up schema would refer to comprehension of the components of a stream of incoming sound and the ability to distinguish the words within that stream. Top-down schema* are the so-called higher order knowledge structures in which hypotheses are formulated based upon the individual’s world-knowledge. Top-down schema form the basis upon which one is able, by receiving incoming data, to hypothesize or predict the next most likely occurring input. These predictions are either confirmed, in which case processing occurs rapidly, or in the case of the following information not supporting the prediction, allow a review of the text or a re-confirmation of the speech act. In order to be a truly proficient reader or to have true communicative competence one must have both bottom-up and top-down schema sufficiently developed in order to achieve what is know as *automaticity* in processing.

In simple terms the Japanese university age student has well developed schema in L1. They are able to read quickly and efficiently by combining their knowledge of incoming written/ sound data with

their knowledge of their culture and the world at large to facilitate good predicting abilities. In L2 it cannot be assumed that either incoming *data-driven* (or bottom-up processing) or the *conceptually-driven* (or top-down processing) are fully active. The student may be lacking knowledge of the language in both the conceptual realm and/ or the lexico-grammatical.

Despite several years of English language education, the average student enters the native speakers EFL class with severe deficits in both lower level recognition schema, and perhaps, less noticeably in top-down conceptual schema. Furthermore, when the student arrives in his or her first native speaker-taught English class, they arrive with a fully developed sense of what is appropriate behaviour, and how much is expected of them within the context of the class. The negative expectation of not being able to understand is high, and in keeping with expected modes of behaviour it would be the rare individual who would go against that norm. Students come to the native speaker led classroom with expectations of teacher-fronted, lock-step pedagogic style in which

...the teaching learning relationship is realized ...as inevitably one of transmission and reception: the curriculum is presented through teacher exposition and approved texts, and students are expected to learn through attentive listening and reading and through solitary study, with an emphasis on comprehending rather than questioning the information presented (Wells & Chang-Wells

1992 : 27).

There may also be present a strong anti-motivational factor namely, the underlying admonition against actually producing the spoken language. According to the predominant Japanese mode of common consent there is a fairly uniform lack of acknowledgment that English is a language which can be used for the purposes of ordinary daily discourse. Without getting completely mired in the problem of xenophobic tendencies in Japanese society, let it suffice to say that the self-perceived inability of the Japanese student to master English is one which has a strong base in the cultural belief system. Few students are expected to master the spoken language, and indeed, to actually do so would undermine the social cohesiveness which is at the heart of the system. Despite this the teacher can use *schema activation* and *inquiry learning* in a way which lends itself to the preferred Japanese style of learning. With its emphasis upon cooperation within the group students will, in most instances, produce work which even if not similar to western notions of academic work, is still motivating and occasionally interesting for the students.

*"Inquiry learning,"* which itself arose from the writings of Lev Vygotsky a short-lived, but brilliant Russian scholar who is known, together with Leont'ev, as the developer of sociohistorical/ cultural psychology, emphasizes the development of higher psychological processes as being a product of the artifacts (language and technology) of the culture in interaction with the intrapsychological processes of

thought. He also strongly insisted that the development of higher functioning occurs between individuals engaged in discourse. The central concept of cultural historical psychology is that any uncommunicated thought exists only in a land of shadows. By engaging the student in communication with other students in pursuit of a goal, namely the answering of the question posed by undertaking a project, the teacher adds more to the development of the students intellect than by the sole use of routine 'conversation class topics.'

In researching a project and putting it together as a presentation, the topic should not be so unchallenging as to be meaningless. The desired effect is a broadened knowledge base and an expanded vocabulary, not a reiteration of overworked clichés. In order to push intellectual development further the topic chosen must be

pitched slightly beyond (the) current level of unaided performance...This band between what the learner can already manage alone and the upper limit of what (he/she) can do with help what Vygotsky called the 'zone of proximal development'. It is in this zone that teaching should occur (Wells & Chang-Wells 1992 : 29).

The "zone of proximal development" is somewhat similar to Krashen's concept of  $i+1$ , in which input contains "structures at our next 'stage' --structures that are a bit beyond our current level of competence." (Krashen 1985 : 2). Vygotsky's 'zone of proximal development' was not developed as a model of L2 acquisition, therefore,

knowledge in the greater sense is under development, not only the structure of language. Thus, although Krashen discusses context and world knowledge his theory is more narrowly defined. The student, in cooperation with other students and the teacher incorporate new knowledge structures which may or may not include among them grammatical items. Thus, in terms of 'inquiry learning' knowledge schema are created in the joint effort of researching and presenting a problem in a coherent manner to a body of observers.

Using *inquiry learning* the "progressive" teacher may stimulate interest in learning. The student in cooperation with other members of a small group undertake to explore an area of interest to them which culminates in a presentation. There is an organization of developing the answer to the problem posed which consists of five stages: the first stage is that of *preparation*. In this stage the teacher assists in the selection of a topic within the students area of interest or as part of the schools curriculum. At the university level it may be preferable to allow the students to choose from among their own interests. This allows a vehicle for expression which according to the tenets of traditional pedagogy, may have been absent from the students experience. The second stage is that of the *launch*. The most important aspect of the launch is in the *brainstorming* activity which is integral to its success. In creating a semantic map of the given topic the activation of higher level schema is carried out. Working in groups the students pool their knowledge to create a map of the topic under discussion. It is at this juncture that the instructor can provide guidance in the form of provid-

ing appropriate vocabulary or grammar structures, or by filling gaps in the students specific cultural knowledge. Thus, semantic mapping activates knowledge and vocabulary present and provides a guide for vocabulary and / or grammatical structures not yet fully acquired at the low end of the hierarchy. The third stage is the stage of *student inquiry*. During this stage the students develop their projects and test their hypotheses concerning the question they have chosen. By formulating their topics they expand their knowledge and share their experiences and knowledge with each other. *Presentation* is the next stage of the process in which

students present the outcomes of their inquiries, Ideally this should involve a variety of modalities, speech, writing, diagrams, graphs models.....Sometimes the oral presentation may be followed by the writing of individual report ; sometimes the inquiry may culminate in an oral presentation... (Wells & Chang-Wells. 1992 : 1).

Following presentation should come a period of *reflection and evaluation*. At this time both the teacher, other students and those whose presentation it was, are given time to think about the content of the presentation and the manner in which it was presented. In this way the teacher is not the sole evaluator of the student's efforts. Fostering reflection and self evaluation is a central theme in 'inquiry learning.' By providing opportunity in which the student(s) may reflect upon the work and see how it was successful and how it could have been improved upon, the knowledge thus gained can be more meaningfully

incorporated into the total schematic network. The field effect should be a more self-determining and self-motivated student, who can judge his/ her own work efforts more realistically and critically.

The several projects which were undertaken at the college prior to the seminar had various degrees of success. However, of particular interest are those projects at the university level, which were initiated after the seminar. These have, at the time of writing, not yet been completed. In accordance with the writer's expectations, the university students exhibited a higher degree of comprehension and independence compared to student involvement at the college level. Topics chosen by the university group were more 'mature' and displayed an interest in world events and environmental concerns. Those chosen by the young women at the college tended to centre around holiday, travel destinations, part-time jobs and karaoke. Both groups of students tend to require a lot of teacher confirmation and guidance. In addition, both groups have a problem with the concept of process versus product. Despite all efforts to convince students that the process is the learning experience, and as such it is best conducted in L2, there is still a lot of resistance to that central idea and L1 use and translation are very much in evidence in both groups. Yet the sophistication of the questions asked and the ability to continue working without constant guidance is significantly higher at the university. At the present time no analysis of these outcomes has been attempted. Another aspect which deserves further analysis is that of intrinsic motivation as opposed to the extrinsically motivating factor of teacher evaluation. At this time it has been

necessary to utilize the 'grade' as a motivating factor, as such 'inquiry' falls short of its ideally self-motivated status. However, after several years of academic force-feeding the lack of intrinsic motivation is understandable. The differences observed so far in the degree of participation between college and university students reflects, perhaps, the university students greater exposure to foreign teaching styles rather than any measurable difference in intellectual ability. Furthermore, admittance into a university may increase the students self-esteem and thus, engender a more positive and motivated outcome. As things stand at the moment it is impossible to say whether the actual presentations which will be given at the university will differ significantly from those at the women's college. For the answer to that question another month is required for the present inquiry to be completed by both the college and the university students. Thus, the answer will have to be addressed in a discussion at a later date.

To sum up, students in Japan generally have had very little opportunity to make use of the information which they have memorized throughout their education. By allowing groups of individuals the freedom to choose a topic in which they are interested, an opportunity to activate and develop new areas of knowledge is given. The foreign teacher arriving rather late in the educational process cannot hope to alter the traditionally trained students. Neither can he/ she alter the system in which they participate. However by allowing and encouraging these slight forays into independence teachers provide authentic and meaningful experience. The project class in order to be successful must

be led by the teacher, but ultimately the focus is put upon the participation and effort of the students.

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