On Hypothesis Formation (HF) and Hypothesis Testing (HT) in Output Activities

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Swain has made it clear that hypothesis formation (HF) and hypothesis testing (HT) are crucial phases in the process of output activities. Having outlined the process of output, however, she then proceeded to discuss the advantages of collaborative dialogue in succeeding papers. As a result, the mechanisms and dynamics of HF and HT have largely been left unexploited. In this paper, I would like to explore latent richness of HF and HT as a pedagogical approach in a more detailed manner.

Swain illustrates HF as follows, using the example of a French language learner who has generated an incorrect approximation of a French word:

> His final solution *"la détruision,"* is not correct, but he has created this new form by making use of his knowledge of French: he used the stem of the verb he has just produced and added a French noun suffix. This example is revealing because it is an incorrect solution. It allows us to conclude that new knowledge has been created through a search of the learner's own existing knowledge, there being no other source (2005: 474).

Thus, HF is an activity in which a learner tries to form a hypothesis about the language while he or she is still learning it. This is also an activity which is qualitatively different from simply emitting a memorized chunk or a whole sentence. The learner above has memorized some parts of certain French words, and yet what counts most here is the fact that he has taken an educated, albeit unfortunate in this instance, guess in coming up with a possible solution. This is, according to Swain, a form of mental gymnastics in which the learner is duly engaged while trying his own output.

HT is the succeeding stage of the output continuum. It is the hypothesis testing function, a "trial run" which is:

> reflecting learners' hypothesis of how to say (write) their intent. A considerable body of research and theorizing over the last two decades has suggested that output, particularly erroneous output, can often be an indication that a learner has formulated a hypothesis about how the language works, and is testing it out (1995:126).

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Through HT, we can publicly observe that the learner has indeed gone through the creative process in his or her mind. HT, therefore, has the function of indicating to others that the learner has created, not simply repeated, something new. This is a step forward toward the skill of basic command of the target language. HT encompasses all the other skills involved in speaking and writing, but the most important function bears on the psychological mechanisms which trigger HT.

In output-centered language lessons, then, it is essential to have learners get engaged in both HF and HT. As Swain outlines above, both HF and HT often result in erroneous outputs; the correct output may or may not be the product of HF. Erroneous outputs, therefore, can be statistically more reliable indications that the learner has formulated a hypothesis. Seen in this view, as the adage goes, errors are not something which should be avoided by any means. To put it more precisely, they are the indications of the requisite two steps before the learner eventually arrives at a mastery of the target language.

In his classical 1973 work on error analysis, Corder proposed four types of errors: *omission, addition, selection* and *ordering* (Kakita *et. al*, 1983). Brown (1980) further developed the error taxonomy, renaming *selection* as *substitution*. A similar observation has been reported by Kobayashi and Sasaki (1997), using a Japanese infant's particle use as data. Making errors is not only an unavoidable process but also an inherent process in the course of language development, both first and second. At present, we have at least four types of errors. Or rather we have four ways of HF, for HF more often than not results in one type of error or another. The first example Swain showed above can be classified as the error of addition, for two morphemes are mistakenly combined into one. Further, we can turn these four types of HF into an effective teaching tool. While Swain's subject formulated the hypothesis on his own, most of the students in the EFL environment are known to rely on a prompt or scaffolding from the teacher, especially in speaking and writing activities. Therefore, these four ways need to be developed into pedagogical approaches for the teacher to employ. Capitalizing on one of the four HF types, I have developed my own teaching approach. The approach I have chosen is an addition of a sort, which I have relabeled as *combination*. The theory behind and specific procedures of the lesson are detailed in Adachi (2009): the gist of the approach is summarized in the five steps below:

(1) Students are given list of chunks taken from a reading passage. They are supposed to have memorized the passage prior to the lesson. The list has short phrases in English and their corresponding Japanese translations.
(2) All the chunks on the list are numbered.
(3) When the teacher reads the number, the students respond by repeating the English phrases, looking only at the Japanese counterparts.
(4) Having confirmed that the students have adequately memorized all the chunks, the teacher then proceeds to the combination activities. The combination activities include several types, but the most basic one requires students to combine two chunks so that

they create and test out erroneous, and yet original, sentences.

(5) Some of the errors found in the new sentences are to be pointed out and corrected through a dialogue between the teacher and the student.

What follows is the list of examples that students produced in Step (4) above in one of my experimental lessons conducted during the academic year 2008.

(1) I learned that after the Ainu festival.

(2) At one time the life of Ainu people is disappearing.

(3) So some Ainu people started when a language disappears.

(4) They think that was disappearing.

(5) Ainu language classes was disappearing.

(6) I read a book at one time.

(7) The life of a people is the Ainu language.

(8) They think that I learned that.

(9) After the Ainu festival I learned that.

(10) The life of a people is the Ainu language.

(11) Ainu language classes after the Ainu festival.

(12) I learned that they think that.

(13) In its language at one time.

(14) The Ainu language dies out.

(15) I read a book in its language.

(16) They think that at one time.

(17) After the Ainu festival so some Ainu people started.

(18) I read a book the life of Ainu people is.

(19) When a language disappears I read a book.

(20) Ainu language classes dies out.

(21) At one time they think that.

(22) They think that the culture also.

(23) At one time dies out.

(24) I learned that they think that.

(25) The life of a people is the culture also.

(26) They think that the Ainu language.

(27) After the Ainu festival I learned that the language is disappearing.

(28) I learned that the life of a people is the Ainu language.

(29) After the Ainu festival, some Ainu people started to inform their culture.

(30) I read a book at one time.

(31) when a language disappears, the life of a people also dies out.

(32) After the Ainu festival, they think that.

(33) When a language disappears, I learned that.

(34) The life of a people is the Ainu language.

(35) The culture also in its language.

(36) So some Ainu people started after the Ainu festival.

(37) I learned that the culture also.

(38) They think that in its language.

(39) The Ainu language dies out.

(40) At one time I read a book.

(41) The life of a people is the Ainu language.

(42) They think that when a language disappears.

(43) I learned that after the Ainu festival.

(44) When a language disappears I learned that.

As we can see above, almost all of these examples manifest one kind of language deficiency or another: some are utterly ungrammatical, others are amorphous, still others are ambiguous in their exact meanings. On the other hand, all these examples are formed by students through a mental search, there being no other source. Admittedly, these hypotheses have been formulated while students are looking at a list of chunks and therefore may not be as creative as Swain's subjects. The difference comes primarily from the two different learning environments (the EFL situation as opposed to the immersion program) as much as from the resultant gaps in their respective levels of proficiency. In the former, much more scaffolding is usually called for, especially at the basic level of exercise. Despite this, if HF and HT are to be of crucial importance in enhancing the student's language mastery, as I contend in this paper, the examples above are burgeoning signs that the students have made initial progress toward the right direction. It is up to the practicing teacher as to which error(s) to dwell on in the following Step (5), depending upon the teaching target, the level of the students, the kind of language activity they are currently conducting, and the like.

The discussion thus far yields more questions than answers. For instance, how creative or productive in terms of hypothesis forming can the above exercise be? How can we develop other types of pedagogical approaches inducing HF and HT? Even the combination type I have shown in this paper can be further improved into more sophisticated variations suitable for students with different needs and linguistic abilities. The most important question of all would be whether or not this kind of exercise based on HF and HT will contribute, in the long run, to the attainment of the ultimate goal of foreign language learning. These are some of the research questions I will turn to in coming studies.

References:

Brown, H. Douglas. (1980). *Principles of language learning and teaching* (First edition). Englewood Cliffs, New Jersey: Prentice-Hall, Inc.

Swain, M. (1995). Three functions of output in second language learning. In G.Cook, & B.

Seidlhofer (Eds.), *Principles and practice in applied linguistics: Studies in honour of H.G. Widdowson* (pp.125-144). Oxford: Oxford University Press.

_____. (2005). The output hypothesis: Theory and research. In Hinkel, E. (Ed.), *Handbook of research in second language teaching and learning* (pp. 471-483). Mahwah, New Jersey: Lawrence Erlbaum Associates, Publishers.

足立和美 (2009).「Swain と Widdowson―アウトプット仮説とチャンクを用いた中学校レベルにおけるスピーキングとライティング指導の理論的枠組み―」『中国地区英語教育学会紀要』（採択決定）.

小篠敏明(編) (1984).『英語の誤答分析』大修館書店.

小林春美，佐々木正人(編) (1997). 『子どもたちの言語獲得』大修館書店.

【日本語要旨】

アウトプット活動における「仮説の生成」と「仮説の検証」の役割

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本稿は、カナダのスウェインが提唱したアウトプット仮説を利用した指導のための原理と、それを用いた実践例、ならびにここで得られたデータを紹介することを目的としている。

アウトプット仮説では「気づき」であるとか、「仮説の生成・検証」が重要な位置づけを与えられている。しかしスウェイン自身は、「仮説の生成・検証」について、概略的に述べているだけで、その中身については充分に検討しているわけではない。これはスウェインがカナダのイマージョン・プログラムという環境の中で調査研究を行っていることと関係していると思われる。イマージョン・プログラムで第二言語（フランス語）を学んだ学習者は、調査研究の対象となった時点ですでにかなりの語学力を有している。このためスウェインは、基本的な言語運用能力の養成とも大きく関わる「仮説の生成・検証」よりむしろ、その次に来る過程を重要視しているからである。

一方わが国の英語教育の環境はカナダとは大きく異なっている。日本の教育環境で重要なのは、中学生、高校生の最も基本的な言語運用能力の養成である。そこでスウェインが取り上げていない「仮設の生成・検証」をより丁寧に考察し、その上で日本の英語教育への応用を考えることとした。

まず、スウェインの「仮説の生成・検証」を二つに分け、それぞれの役割分担を明らかにした。この過程で、「仮説の生成」と「仮説の検証」は、実践の場ではエラーとなって現れやすいことが確認できた。エラーに関するこれまでの研究により、エラーには4パターンあることが知られているが、これはとりもなおさず、仮説を生み出す四つの方法でもある。本稿では、そのうちの一つを応用した授業の概略を述べ、そこで得られたデータを紹介している。このような試行的な実践からも、「仮説の生成」と「仮説の検証」は、アウトプット活動指導の原理として豊かな可能性を有していると判断される。

今後の課題として、本稿で述べた実践的な指導法が仮説の生成に寄与する程度の調査、仮説生成のための他の具体的な方法の検討、そして最終的に、このような実践方法が英語の基本的な運用能力育成に貢献できる範囲、あるいは限界の実証的研究などが上げられる。