

Neanderthals May Have Been Handsome: On Teaching Archaeology and the English Modal + Have + Past Participle Construction

Debra J. Occhi

本稿では英語における助動詞+have+過去分詞の形式を示しながら考古学的推論の基礎を教えようとする授業を問題にする。この文型は英文による考古学を扱った文章によく見られるが、証拠に基づく結論を示すために使われる形である。また、本稿では日本における考古学の文献と教育について考察するが、中学校・高等学校の暗記を主体とした試験にも言及する。助動詞に関する表現は英日両言語間で正確に対応していない場合もあり、学生の文化的、また教育的素地は教科内容を中心とした言語教育の立案に際して考慮すべきである。

This article describes a lesson designed to teach the basics of archaeological inference together with the English modal + have + past participle construction. This grammatical construction often appears in archaeological writing in English. It is used to show conclusions based on evidence. This article also discusses aspects of archaeological writing and education in Japan. These include the memorization-based examination focus of middle and high school education. It is also the case that English and Japanese modal expressions do not correspond neatly between languages. The article recommends that students' cultural and educational backgrounds be considered when designing content-based second language instruction.

Introduction

The topic of this article¹ is based on a lesson developed in collaboration with my teaching partner, Karen Eberly, for our first-year Introduction to Anthropology course. Our objective was to give the students an overview of the various fields of anthropology in an appropriate English teaching and active learning format. For each topic we covered in the course, we focused on a particular area of English fluency that we felt students should strengthen.

We both agreed that in teaching the archaeology section, we would focus on the modal+have+past participle for two reasons. First, the practice of archaeology involves constructing conclusions about past human behavior based on evidence. This is an important issue of content which is often expressed in English through use of this grammatical form. Also, we were aware from our own teaching experiences that Japanese students tend to find this form problematic. That made it a good topic from the English teaching perspective.

Since then I have begun to investigate precollege social science education in Japan, examined appropriate texts written by Japanese in both Japanese and English, and used an expanded version of the teaching materials discussed in this paper in the upper division archaeology course as well. I would like to continue this investigation more deeply, particularly by examining precollege materials, but at this point I understand better now why Japanese students might have had such trouble with these constructions. This paper includes an explanation of the lesson

¹ I am deeply grateful to Karen Eberly for providing the documentary tape and handouts and for being an excellent collaborator in course design and implementation. Any errors in this paper are mine.

Karen and I developed as well as the preliminary findings of my research conducted since then to try to discover what background students may bring to this kind of lesson. The following section discusses what I have found so far.

Theoretical Background

The theoretical background I bring to this issue is that of applied cultural linguistics, that is, the application of a theoretical hybrid of linguistic anthropology and cognitive linguistics (Palmer 1996). Under the cognitive linguistics framework, language is "an essential instrument and component of culture, whose reflection in linguistic structure is pervasive and quite significant." (Langacker 1999:16) Furthermore:

The expression itself – overt linguistic elements and the notions they directly encode – is of course merely the tip of the iceberg. The expression per se is part of a usage event, i.e. an actual instance of language use, comprising the interlocutors' full contextual understanding of the expression, including their apprehension of its interactive force. The usage event is usually part of a longer discourse, and is one facet of the interlocutors' overall social interaction. The interaction takes place in a particular situational context, which in turn is embedded in a culture, which develops as a way of coping with the world. (Langacker 2001:14)

Cultural linguistics asserts the cultural element of cognition; it can fruitfully be applied to many previously perplexing issues in the second language teaching classroom. The issue of interest in this paper arises from teaching archaeology under a liberal arts framework of critical inquiry in English to Japanese college students who have grown up in the local educational and cultural environment. This environment leads them towards specific tendencies for interpreting prehistory in an educational context as well as a limited set of linguistic resources in English. Working with these students, therefore, presents a different set of challenges than those encountered when teaching native English speakers educated in the U.S. Since the stated purpose of this educational institution is "to develop international citizens conversant in Japanese and foreign cultures and fluent in English" (MIC, 2003:5), as instructors we are faced with the need to present topics in an appropriate English-based discursive context and to find ways to engage students in such discourse.

This paper shows one way that cognitive and cultural schemata can be presented to foster understanding of grammatical forms in a second language classroom. In this case we used several resources: a video which presented discussion and reenactment of Neanderthal lifestyles and contained several modal + have + past participle forms, in conjunction with worksheets, extensive discussion, and brainstorming. Though we did not conduct any objective testing measures of increase in English proficiency, we certainly witnessed the 'aha' phenomenon during use of these materials. We saw that students improved their grasp of the grammatical form and its corresponding use of inference based on their performance in other tasks throughout the semester. Students rated this lesson highly for its usefulness in end-of-semester evaluations.

Of course I am not claiming that we awakened any new thinking powers in the students. Controversy has surrounded research regarding the production of correct counterfactual usage in Chinese as examined by Bloom, Au, and others (discussed in Palmer 1996:163-9). However, my research takes a different approach. Rather than positing an argument about whether thinking for speaking puts constraints on thinking in a first language (L1), I am interested in examining what

linguistic and cultural features learned by L1 speakers need to be taken into account when designing appropriate materials for teaching a second language (L2).

I will structure the discussion as follows. After outlining what research findings and popular media can show about the cultural context of Japanese precollege students and educational practices, and comparing the linguistic resources of interest, I will describe a teaching unit designed to take these issues into account. Though the differences are widely cross-linguistic as well as cross-cultural, I will have to limit the comparison of Japanese to American English due to limitations of my own background as well as those of the authors whom I cite.

Prior Research

The particular issue taken up here is that of interpretation of archaeological findings, but more general differences emerge when examining speakers' tendency of interpreting events. Apparently, cultural difference in explanation styles shows up very early between Japanese and American schoolchildren. Watanabe (2001) used four graphic representations as stimulus for elementary students. Her chief finding is that "Japanese students have a strong tendency to state whole events in chronological order, while American students tend to state the result or effect first and identify causes in their explanations." (346) She states concern "that the difference in style is sometimes mistaken for the difference in the abilities of students from different cultural backgrounds." (ibid) Indeed my analysis is not a critique of ability; it is rather an examination of linguistic behavior and cultural practice and a suggestion for implementing this understanding in an educational context.

As Japanese students move into middle and high school, the stakes in what McVeigh (2002) has dubbed the "educatio-examination" system are raised significantly. The training that students receive at these levels is aimed toward performance on objective exams which require memorization of well-defined, isolated facts (closed-knowledge) rather than broad, interconnected systems (ibid:100). As a result, students approach education with the expectation that the content of the day's lesson is a packaged set of facts to be absorbed, rather than a situation necessitating analytic skills to make a discovery. *Sources* of these facts are not discussed. Japanese prehistory - and much of science for that matter - is presented in the Japanese educational system as received wisdom, to be memorized piecemeal in preparation for objective examinations. (Habu 1989, Habu & Fawcett 1990, McVeigh 2002) This practice runs counter to the critical thinking pedagogy with which Miyazaki International College faculty are charged.

Though the focus of this paper is on teaching archaeology in English, a counterexample is also worth mentioning. In teaching Japanese discourse styles, Maynard argues that:

when compared with English, the distinction in Japanese genres is less clear and genre-specific discourse principles and strategies are less forcefully practiced...The conclusion may not be stated until the very end of the essay, only after seemingly unnecessary steps, or the conclusion may be only indirectly suggested. (1998:12-13)

We can see this mixing of genres in middle school educational discourse, where folklore, prehistory, and history are presented together in a style of learning that emphasizes memorization of discrete items. In an example taken from a third-year middle school worksheet entitled 歴史の流れ "Flow of History" combining *manga*, text, and charts, we see the mythical ruler Himiko who 'ruled the Yamato

kingdom through magic' placed in a timeline alongside archaeological finds, historical events and persons. Each of these items should be memorized in preparation for the decisive high school entrance exam.

Translations of specialist archaeological discourse, in this case Yamamoto Tadanao's 日本考古学用語辞典 "Dictionary of Japanese archaeological terms" (2001) show that inferential conclusions are sometimes, but not often, translated into modal + have + past participle constructions. Consider these examples²:

The manufacture of pottery in Japan is **thought to have begun** about 12,000 years ago (113)

We **can imagine** that the use of animal hides has a very long history in human culture, but as such artifacts do not preserve well, opportunities to deal with them archaeologically are few (145)

Horse bones **are thought to occur** from the Jōmon period, but the appearance of horse trappings dates to about the middle of the Kofun period, so it is **thought** that the practice of riding horses began only at that time (170)

The earrings and necklaces **seem to have been used** by women, and the belt ornaments by men (172)

Stone and pottery versions **are known** from the Yayoi period, and among them are examples accompanied by spindles (214)

However, cave dwellings **can be seen to continue** from the Paleaeolithic until the Yayoi period (231)

We can see that there is a prevalence of potential and passive forms as well as verbs of thought and sight (e.g., "it can be seen that X"). Passive forms delete the agent; we don't know whose research findings are being referred to, nor are alternative interpretations of data encouraged.

Popular works aimed at children are stated even more directly and less analytically than the specialist text cited above, as in this example sponsored by NHK: Baba Hisao, Kimura Hideaki, and Oda Shizuo's まんがでたどる日本人はるかな旅 "Following NHK's 'Long Journey of the Japanese People' Through Manga," 2001³.

人類は、チンパンジーやゴリラなどの類人猿と共通の祖先から分かれて進化してきた。その進化の過程を古い順になどると、猿人、原人、旧人、新人の四つに分けられる。

Humans **came to evolve separately** from anthropoid apes such as chimpanzees and gorillas from a common ancestor. To put these evolutionary stages in order from the oldest, **they can be separated** into ape people, early humans (*Homo Erectus*), ancient humans (*Neandertal*), and modern humans (*Cro Magnon*).

猿人から新人に進化する過程で、形としてめだつことは、脳が大きくなったことと、歯やあごの骨が退化して小さくなったことだ。猿人は、約五〇〇万年前、アフリカの森林の中で、二本足で直立して歩行をはじめたときに誕生した。その猿人から原人が生まれ、原人は、約一七〇万年前にアフリカを出て、ヨーロッパやアジアに広がった。そして、その子孫から、五〇万年前に旧人が誕生する。

² I will refrain from the use of (sic) as the reader can easily see that cases of unnatural English and/or unsupported logic appear. Which of these are due to translation problems and which owe to explanatory style is unclear.

³ Translations of this and the newspaper articles following are mine with relevant parts in bold. I will also refrain from using (sic) as with the prior examples – DJO.

As ape people evolved in stages into new humans, what is noticeable about their shape are the facts that the brain **got larger**, and the teeth and chin retrogressed and **got smaller**. Ape people **were born** about 5 million years ago, when they stood on two legs and began to walk in the middle of the African forests. Those ape people gave birth to early humans, who came out of Africa and spread into Europe and Asia about 1.7 million years ago. And, from those descendants, ancient humans **were born** 500,000 years ago.

さらに、人類誕生の地アフリカで、約十五万年前に、新人（ホモ・サピエンス）が誕生する。この新人こそが、現代人の直接の祖先なのだ。そして一〇万年前、彼らはアフリカをでて、世界の各地に広がり始めたのだ (2001:23)。

Moreover, in Africa, the birthplace of humans, modern humans **were born** about 150,000 years ago. These modern humans are the direct ancestors of people today. And 100,000 years ago, they **came out of Africa and began to spread** all over the world (op.cit.).

(N.b. in the accompanying figure the Neandertal is shown with a brain case smaller than modern humans, contrary to skeletal evidence.)

Later in the same text:

縄文人のムラでは、男性と女性の仕事ははっきり区別されていた (ibid:60)。

In the Jomon villages, men's and women's work **were clearly separated**.

Though this is a popular text aimed at elementary school students, it contains features quite similar to the more specialized text cited earlier. In the next example, we see an innovative approach to the study of archaeology, which seems to point out some of the problems of the usual style of study without presenting any real solutions. This recent Asahi news article shows that though a dynamic appraisal of prehistory was attempted in one classroom exercise in Toyama, that it is far from the norm:

Putting discussion into history class

On May 19, the National Museum of Folklore and history announced that according to the results of radiocarbon analysis of earthenware excavated in northern Kyushu, the Yayoi period began about 500 years earlier [than previously thought]. In that the social studies class was just studying Jomon and Yayoi periods, this timely announcement was made to the class. At that time, a student asked, "What shall we write on the tests?" For the students, who think that 'social studies equals memorization,' this is a very serious question.

Recently, it is said that improvement of the test contents continues; however, **it is unreasonable from the start to expect many analytic questions** on the in-school-memorization-based tests that precede high school entrance examinations.

In order to impress students with the fact that though it is important to learn, it is also important to take data and think about it, this year debate was introduced into the first year history class.

This month's theme was "If you were living [then], would it be Jomon Era? Yayoi era?" First, it was explained that in order to be able to persuasively assert various points of view, it is necessary to back up one's reasons with data.

...

The students, who prior to conducting the debate seemed not to be keen about doing it, wrote their impressions that "though at first they were nervous, after beginning to speak they gradually came to enjoy it and wanted to speak more."

Speaking based on data is not only an important skill in class but also in life in society. We would like to practice more classes in which, rather than memorization

of textbook contents, students can speak of their own viewpoints and thoughts about history.

歴史授業に討論を取り入れ

5月19日、国立歴史民俗博物館が、放射性炭素年代測定法で北部九州出土の土器を調べた結果、「弥生時代が約500年早まる」と発表した。

社会科授業ではちょうど縄文・弥生時代を学習していて、タイムリーなこの発表を授業で紹介した。

このとき、ある生徒は「それじゃテストのとき、どう書けばいいの？」と質問してきた。「社会科＝暗記教科」と思っている生徒には、この質問はとても重要である。

最近では、出題内容の改善が進んでいるとはいえ、高校入試をはじめ、校内テストでは暗記さえしていれば解ける問題が多い現状では無理もない。

覚えることは重要だが、資料を使って考えることの重要性にも気づいてもらおうと、今年度、1年生の歴史授業に討論を取り入れた。

今月のテーマは「もし住むなら縄文時代か、弥生時代か？」である。まず、それぞれの立場の主張に説得力をもたせるためには、理由が必要であること、その理由が資料（事実）に裏付けられていることが必要だと説明した。

事実を調べることは討論には欠かせないことであるが、今回は時間の都合上、とることができなかった。わずかな準備時間だったが、教科書や資料集の中から資料（事実）を提示し、その資料を自分の立場に有利になるように解釈し、活発に発言した。

討論を行う前にはあまり乗り気ではなかった生徒が「最初は緊張していたけど、一言発言するとなんだか楽しくなってきました。もっと発言したかった」と感想を書いてきた。

資料に基づいて発言することは、授業だけでなく社会で生きるために必要な力である。教科書の内容を単に暗記する授業ではなく、自分なりの見方や考え方（歴史観）を発言できる授業を今後も実践していきたい。

(6/19) <http://mytown.asahi.com/toyama/news02.asp?c=19&kiji=41>

It would have been interesting to have more detail in the article about how the 'thoughts and opinions' were grounded and expressed by these students. Following this brief look at our students' educational background from a cultural perspective, let us now briefly consider differences between evidential expressions in Japanese and English as this surely has an impact on students' basis for understanding as well. Although Japanese language is quite sensitive to evidentiality of information, particularly psychological states, it does not have a grammaticized verbal category of evidentials (Shibatani 1986:383). Rather, evidentiality appears in various word classes. A survey of Japanese-English dictionaries further reveals that the English modal past participle construction seldom appears in translation of the various Japanese evidential markers. Each set of lexical resources overlaps with other areas of linguistic usage, which makes mapping across languages even more difficult. For instance, in Japanese, evidentiality overlaps with pragmatic indexing of social hierarchy (e.g., *daroo* 'probably'), and in English, with modal obligation (e.g., 'must'). We have already seen that samples of popular archaeological writing intended for younger, general, or even specialist audiences do not use forms that parallel the English structures; rather they typically include potential + past or nonpast forms, relying heavily on verbs of thought and sight.

Classroom Implications

Students who come to our content-based second language archaeology class with this educational background are thus challenged. Their cultural schema for learning about prehistory lacks a strong inferential component. The evidential resources of Japanese do not map neatly onto the English forms. Not surprisingly, in open-ended writing tasks they underproduce such modals where use of these forms is warranted.

To engage students in the use of these forms, and in the schema of inferential thinking that underlies their use, my teaching partner and I presented them with visual evidence from a U.S.-made television documentary program (Discovery Channel 2001), accompanied by printouts of the narrative structured in a cloze format. In this way we hoped to circumvent issues of L1 transfer as well as to cause students to focus on the explanatory language in the video. The video was about what archaeologists have concluded regarding Neanderthal lifestyles based on skeletal and other evidence, and it includes several uses of the modal+have+past participle form. During the video, re-creations of Neanderthal life were interspersed with scenes of appropriate skeletal and other evidence.

Following the initial viewing, cloze exercise, and vocabulary review, students worked to create forms that express conclusions based directly from evidence, e.g.,

Neanderthal leg bones were short => Neanderthals *must have been* short.

We then discussed situations appearing in the film in which combining evidence with greater degrees of inference (i.e., input from the analyst's cultural schemas) necessitates modal forms expressing lower levels of certainty, e.g.,

Flowers were found with bones => Neanderthals *may have had* funerals.

or

=> The flowers *may have been* trash.

Students then practiced discussing evidence with the [modal + have + past participle] constructions, creating sentences which appropriately express their conclusions. We wanted to be sure that students understood that inference about the past often contains input from the analyst's present-day culture or from ethnographic analogy which may be misleading.

One serendipitous bit of content in the documentary video reinforced the notion of external cultural input with an element of surprise. In a segment discussing the difficulty of life and scarcity of food resources for Neanderthals, we see a young boy in a tree raiding a bird's nest, dropping the eggs to an elderly (i.e., roughly forty-year-old) man below. The last egg breaks in the old man's hand, and he flings it to the ground. It is not hard to imagine that a Neanderthal, lacking knowledge of the germ theory of disease, would eat such valuable protein when it is available. However, the film shows the egg being thrown away. This is a clear case of cultural input by the filmmakers. Though Americans are taught not to eat raw eggs due to fear of bacterial contamination, Japanese do eat raw eggs. Seeing the juxtaposition of wastage in the video with the audio discussion of scarcity of food points to the cultural input of the filmmakers and prompts a different inference for the students, namely that:

"I would have eaten the egg" => He might have eaten the egg.

Conclusion

During the lesson described above, students could experience how the inferential schema often associated with use of the modal+have+past participle can

connect physical evidence, analytic inference, and cultural input to create conclusions expressing varying degrees of strength. This kind of exercise forms the basis for other analytic discussions and was repeated throughout the course when appropriate.

As Loveday says:

Whatever the specific objective of L2 teaching may be, one of its fundamental goals must be to impart an ability to comprehend fully and with satisfaction what the target community means in speaking and writing. This must entail the comprehension of a distant and different way of organizing experience...language reflects and expresses the cognitive code of a particular community. If a teacher is going to provide an adequate explanation of the meaning of an item in the L2, this can only be done by referring to cultural knowledge. (1982:53)

Of course, not only words in the L2, but grammatical structures also need to be presented in an appropriate cultural context. Furthermore, as this paper shows, students' first-language set of cultural linguistic models should be taken into account whenever possible when designing appropriate curricula for second language learners. Considering which structures are appropriate for the topic being taught creates opportunities to integrate language and content in the classroom. (Occhi, Davis, and Vail, 2002)

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