Preparing Students for External Learning

Ralph L. Rose

Waseda University Faculty of Science and Engineering

Biodata: Ralph L. Rose is a faculty member of the Center for English Language Education in the Waseda University Faculty of Science and Engineering in Tokyo, Japan. His primary research interests include hesitation phenomena as well as psycholinguistic models of discourse processing and pronoun interpretation.

Preparing Students for External Learning

Abstract

Field (2007) argues for more attention to training learners to continue their learning after leaving the institution. This paper lays out an argument for one method of doing this—having students take the role of teacher—with the goal of developing learners' ability to select suitable learning materials for themselves and decide how to use them. The study also evaluates this method and measures its effectiveness via surveys of the learners' selection preferences before and after the method. Results show that learners develop their selection criteria by relaxing their criteria, opening up their preferences to a wider variety of potential study materials. In addition, learners report that they recognize this change and believe they are better prepared to engage in independent study in the future. Finally, results also show that the effectiveness of the learning by teaching method varies with respect to students' thinking styles (Sternberg 1997).

Introduction

The rapid spread of the Internet in recent years has led to a proliferation of potential materials for second language study. Audiovisual materials are readily available for comprehension practice and blog writings are accessible through a plethora of venues for the study of linguistic structure. However, the sheer glut of materials presents other problems: the difficulty of finding suitable materials for language study. Many on-line audio and video archives may contain amateur productions with poor audio quality that is difficult for nonnatives to hear accurately let alone comprehend. Furthermore, the language of the speakers may not be representative of the target language. Therefore, a second language learner who sets out to find some materials for self-study may be utterly lost without some kind of guidance or standards to work from. Some selection criteria exist for such materials as video (e.g., Arcario 1992; Burt 1999), but these are written for teacher use and may not necessarily coincide with each individual learners' needs and desires. For

instance, for language teachers, length may be a very important criterion, particularly for constructing a lesson that will fit into a scheduled time frame. However, when considering a material for self-study, learners may not care so much about length (relative to other criteria) because their time is much more flexible.

The present research reports on an effort to raise students' awareness of how potential self-study materials that are freely available on-line may vary with respect to selection criteria, and help them decide which criteria are most important to themselves. Furthermore, the research covers how different kinds of students respond to the attempt to have their awareness of these criteria raised. In short, this is an empirical study of one method of raising language learners' ability to engage in future autonomous language study, and the effectiveness of this method on learners with different thinking styles.

Background

The starting point for discussing the background of this study is actually the end-point or outcome: that is, the final state of the learners' study ability at which they are capable of selecting suitable on-line materials for language self-study and furthermore are capable of deciding how to make productive use of those materials in their study program. In general, at this end-point, students have achieved '...the ability to take charge of [their] own learning.' (Holec 1979: 3). This involves bringing the student through several earlier less autonomous states of learning ability. At the lowest state, they are most passive: They have no concept of any independent criteria that would determine the suitability of a particular material to their current language learning needs, nor of the range of methods that could be used to engage with the materials. From this stage, they progress to a stage where they recognize the existence of selection criteria and study methods, but do not know their own preferences with regard to these criteria and methods. As they progress to the next state, they become introspective about these criteria and methods and finally reach the end-state in which they are fully aware of their own preferences and can choose and use materials accordingly (cf., stages of developing learner autonomy in Nunan 1997).

Language learners who have reached a state in which they are able to take an active role in their learning by setting their own learning goals, choosing suitable learning activities to engage in, and then evaluating their own progress towards their goals have achieved a certain degree of learner autonomy (Holec 1979; Benson 2001, 2007; inter alia). Studies of practical methods for developing learner autonomy focused for many years on such things as self-access centers (Gardner and Miller 1999), or such self-reflective techniques as journaling as a means of promoting self-reflection (e.g., Yang 2007). One thing that most of these studies have had in common is that they have looked at how to promote learner autonomy while learners are affiliated with some academic context—enrolled in a language-learning course or enrolled in an institution. In recent years, however, there have been increasing calls to enhance learner autonomy for future learning, after learners have left the formal language learning context (Harmer 2001; Field 2007). In other words, learners should be provided not just with language skills up to a certain level, but also with the skills necessary to continue their learning on their own afterward.

Field (2007) lays out an argument for preparing learners for this later learning which he refers to as *external learning* (also referred to as *continuing learning* by Harmer 2001). He proposes a two-stage approach to ensuring that learners are prepared for external learning. First, the learner needs to develop the ability to understand the meaning associated with a text—be it written or spoken. Second, the learner needs to know how to find linguistic data in texts. That is, they need to be able to recognize (or notice) the linguistic patterns in those texts. He briefly describes some methods for helping students to develop this ability including recall activities, gap filling, and self-access work.

In essence, Field's two-stage approach encompasses the using part of the developmental process described above. But learners who engage in external learning also need to be able to choose suitable materials. One method which could address both the choosing and using aspects of autonomy development to have learners take on the role of teacher—an approach that has been in use for many years in education in general, as well as specifically in language teaching (cf.,

'learning through teaching', Gartner, Kohler, and Riessman 1971; Lippitt 1975 or 'learning by teaching', Martin 1985). Observed benefits include such things as learner perception of their own learning as well as increased self-confidence (Mynard and Almarzouqi 2006). Most important, this method directly involves learners in the choosing and using aspects of lesson preparation. In theory, then, this approach should be one way to effect learners' movement through the different stages described above.

The process of moving through the various stages above involves a good deal of self-reflection. Much research to date has shown that people learn differently with respect to different mental or emotional conditions (Reid 1987; Felder and Henriques 1995; Falout, Elwood, and Hood 2009). One description of how people think differently is contained in Sternberg's (1997) theory of mental self-government. In this theory, people's thinking is marked by different thinking styles. The three that are most relevant in the present research are the executive, legislative, and judicial thinking styles. People with a high executive thinking style prefer to solve problems by following existing, established rules and procedures. In contrast, people with a high legislative thinking style prefer to create new rules to solve problems that they face. People with a high judicial thinking style evaluate and critique rule systems. In Sternberg's view, these thinking styles are not mutually exclusive. Thus, an individual may exhibit the characteristics of more than one thinking style. Furthermore, the thinking styles are not categorical: People may exhibit each thinking style to different degrees. Thus, it is more accurate to talk about an individual's thinking style *profile*.

Under this model, learners with different thinking styles would be expected to progress through the stages described above in different ways. High executive students, for example, might expect to receive a set of criteria from the teacher, and perhaps even some optimal preferences for these criteria and accept these as-is. Thus, these students might be expected to progress the most slowly through the various stages, taking a longer time to reach the point where they discover their own preferences. High legislative students might be expected to develop not just their own preferences, but perhaps even their own original set of criteria. Thus, these students might progress

through the stages quickly since they are pre-wired, as it were, for deep self-reflection. Finally, high judicial students would be expected to be the most critical of the materials selection process as they evaluate and consider various criteria carefully.

The present study is designed to investigate how learners progress through these stages and to what degree learners with different thinking styles progress differently. The remainder of the paper therefore describes the experimental method used to investigate this, followed by results, analysis, and discussion.

Method

The study described here was performed at the University of Tokyo, Japan with two sections of a one-semester (15 week) required English listening comprehension course taught by the author. Students were second-year students who have not yet chosen a specialization. Their English language proficiency varied from high (false) beginner to advanced levels. The class met once a week for ninety minutes and constituted one of about ten to twelve courses in the students' schedules that semester. Students were informed of the experiment in advance and signed consent forms showing their agreement to have their data used in this study. Four students did not give consent and are therefore not included in the study.

The aim of this study was to investigate how these learners move toward an end-state in which they are able to choose and use their own materials. While many methods have been discussed for developing learner autonomy, in the present study, the selected method was learning by teaching. Student groups engaged in project work in which each group chose one audiovisual material from the Internet, designed a listening comprehension lesson, taught the lesson to their classmates, and then prepared a follow-up quiz to assess the class's comprehension. This procedure is summarized in Table 1 together with the corresponding autonomy state that learners should hypothetically reach after successfully completing each step of the method.

[TABLE 1 NEAR HERE]

In order to assess the learners' development of their ability to choose suitable study materials, a

survey was prepared which is based on a set of thirteen selection criteria (adapted, in part, from Arcario 1992 and Burt 1999), as follows.

- Visual support

- Length

- Language difficulty

- Topic

- Genre

- Text Purpose

- Popularity

- Number of speakers

- Background knowledge

- Availability of transcript

- Speaker accent

- Speaker attitude

- Speaker speed

For each criterion, the survey consisted of two questions, one asking how important the learner felt the criterion was in selecting audiovisual study materials and one asking learners to choose their preferred instances for the criterion. Both questions were multiple choice questions with the first one expressed as a four-point Likert item, and the second one as simply a list of options. For illustrative purposes, the respective questions for the 'Visual support' criterion are shown below.

- How important is the visual support (whether the material is audio only or not)?

  not important at all   a little important   somewhat important   very important

- What kind of visual support do you prefer?

  no video (audio only)   Slideshow (i.e., still pictures)

  audio with video (speaker not in view)   audio with video (speaker in view)

no preference

This survey was administered in the participants' native language (Japanese) twice: Once before the above method was applied (pre-test) and once afterward (post-test). The prediction is that learners who progress from the start-state to the end-state as a result of the method will exhibit different selection criteria preferences from the pre-test to the post-test, as they come to realize their own preferences, or merely refine their existing preferences. Learners who show no change can be assumed to either already be autonomous learners (i.e., reach the end-state *before* the method) or be unaffected by the method. In either case, they can be regarded as learners on whom the method has no effect.

In addition to the criteria survey, an independent survey was performed to examine students' perceptions of their own final autonomy state as well as of the method used to promote their autonomy. The survey include several four-point Likert-scale items. In order to minimize the likelihood of receiving overly accommodating responses from the learners, two versions of the survey were prepared—one using positive statements and one using corresponding negative statements. For example, when asking about the students' self-perception of their autonomy state, the following two versions were used.

- I learned some ideas about how how to do independent study of English.

   Strongly disagree   slightly disagree   slightly agree   strongly agree

- I didn't learn any ideas about how how to do independent study of English.

   Strongly disagree   slightly disagree   slightly agree   strongly agree

Students received either a positive survey (with all questions in positive form) or a negative survey. Standard experimental practice usually dictates that participants should receive mixed surveys (with half positive, half negative items). However, this was deemed to be potentially too confusing to the participants as questions flip their polarity from one to the next. Thus, it was decided to proceed with merely a between-groups design.

Finally, the Thinking Styles Inventory (Sternberg and Wagner 1992) was administered in order

to determine the students' thinking style profile. This survey was administered at the beginning of the course at the same time as the selection criteria pre-test. The autonomy survey was administered at the end of the course together with the selection criteria post-test. Although the class was conducted entirely in English, all of the surveys were conducted in Japanese.

Results and Analysis

In total, 55 students consented to participate in the study. However, as a result of absences, six students did not complete all of the various surveys. Hence, the results and analysis are based on the remaining 49 students. The Thinking Styles Inventory revealed that these students exhibit a wide range of thinking styles. The results of the inventory are shown in Table 2.

[TABLE 2 NEAR HERE]

An even distribution of responses across the full range would yield an average of 4.0 for each thinking style. The executive thinking style is the only one of the three that differs from this [$t(49)=5.3$, $p<0.001$]. Results suggest that these students are higher executive thinkers than would be expected by chance. However, this difference, although statistically significant, is quite small: 4.8 compared to 4.0 on a scale from 1.0 to 7.0. Furthermore, the actual distribution of the executives scores is essentially the same as that of the legislative and judicial scores. Thus, this difference is ignored for the remainder of the analysis.

In order to evaluate how learners' selection criteria preferences change, a metric is used which is calculated as the sum of the magnitude of the changes in each of the thirteen criteria from the pre-test to the post-test. Hereafter, this metric is referred to as ΔSCP (i.e., 'change in selection criteria preference'). Learners whose preferences have not changed should show ΔSCP=0, or, assuming minimal variation from pre-test to post-test, ΔSCP=6.5, on average.[1] This is then used as a baseline for comparison. Learners in the study showed a mean ΔSCP of 9.41 with a standard deviation of 3.2. A t-test shows that this is higher than the baseline of ΔSCP=6.5 [$t(49)=6.4$, $p<0.001$]. Hence, it is clear that learners' selection criteria preferences changed during the study. However, this change is not consistent across the three thinking styles. Figure 1 shows the ΔSCP values when the

participants are partitioned into high and low groups (top half and bottom half, respectively) according to the scores for each of the three thinking styles—executive, legislative, and judicial. Of the three thinking styles, the only difference between the high and low groups is in the legislative thinking style: High legislative students changed their selection criterion preferences to a greater degree than low legislative students [t(49)=2.09), p<0.05].

[FIGURE 1 NEAR HERE]

Table 3 shows the pre-test and post-test importance ratings for the thirteen selection criteria used in this study. Learners see language difficulty, topic, availability of transcript, speaker accent, and speaker speed as important selection criteria. On the other hand, they see popularity and number of speakers as unimportant. They are ambivalent about other criteria. At the time of the post-test, their preferences have shifted somewhat: They continue to see language difficulty, availability of transcript, and speaker speed as important and popularity and number of speakers as unimportant. They also come to regard background knowledge and speaker attitude as unimportant while becoming ambivalent about speaker accent.

[TABLE 3 NEAR HERE]

Hence, it seems that for the most part, learners are changing their preferences by decreasing the number of criteria that they find important. There are no criteria that increase in importance. Three criteria become less important across all learners: number of speakers, speaker accent, and speaker attitude. Two more criteria are marginally less important: background knowledge and speaker speed.

A small number of selection criteria preference changes are related to thinking styles. The importance of speaker attitude increases more for high executive than low executive learners [t(49)=2.15, p<0.05]. The importance of length [t(49)=1.77, p=0.08] and background knowledge [t(49)=1.69, p=0.098] increases marginally more for high legislative than low legislative learners. The importance of availability of transcript increases more for high judicial than low judicial learners [t(49)=2.21, p<0.03].

For the three selection criteria that learners consistently rate as important before and after, learners' preferences are also consistent. For language difficulty, learners consistently prefer materials that have a difficulty level that is at the learner's competence (39%) or a little more difficult (51%). For availability of transcript, learners prefer that the transcript be available for download (82%) as opposed to embedded in the material as captions (8%) or other options. Finally, for speaker speed, learners prefer that the speed be 'normal' (43%) or 'a little faster than normal' (31%).

Of greater concern for the present study, though is preference changes. In the pre-test, learners regarded topic as an important criterion with 51% preferring materials that are 'in my areas of interest'. In the post-test, topic is no longer regarded as an important criterion, and only 29% prefer materials that are 'in my areas of interest'. Instead, 65% have 'no preference'. Another criterion which was regarded as important in the pre-test was speaker accent with 55% indicating a preference for North American English. In the post-test, however, speaker accent is no longer important, and the preference for North American English drops to 43%.

For the two criteria which become significantly unimportant in the post-test, background knowledge and speaker attitude, learners retain similar preferences from pre-test to post-test. Learners prefer materials that require 'a little' (45%) or 'some' (33%) background knowledge. They also prefer materials where the speakers' attitudes are 'varied' (59%). In short, when forced to admit their preferences on these criteria, learners do have preferences. However, as a whole, they regard these criteria as irrelevant to materials selection for their external learning efforts.

Figure 2 shows the results of the post-test survey of learners' impressions of the method employed in this study to develop their autonomy: that is, choosing their own study material, then preparing and teaching a lesson based on it to their classmates. Responses are positive for all statements, showing that students found the experience useful and enjoyable. Not only did they find it a good experience to teach their classmates, but they also found it a good experience to be taught by their classmates. Another result from these data was notable. As explained above, in order to

minimize the effect of learners giving overly accommodating responses, the survey was given in both positive and negative formats. When comparing the results of these two different versions, the differences were insignificant except for the last two of the items discussed here (the experience of teaching and the experience of being taught by their classmates). What is particularly notable is that while both versions of the survey generated positive responses for both items, the difference between them was one of intensity, but in an unexpected way: The negative versions of the statements (i.e., '...was not a good experience') generated *more* positive responses than the positive versions. In other words, rather than the negative statements making it easier for learners to admit any negative feelings they may have had about the experience, the learners actually became more adamant in denying the negativity of the statement in order to make a positive statement about the experience.

[FIGURE 2 NEAR HERE]

Figure 3 shows the survey responses for items about the learners' self-perceptions of autonomy. Results show that learners believe that they have developed knowledge about how to engage in independent study and that they have ideas for how to do this using the Internet. Furthermore, after participating in the study, they report that they are more motivated to engage in independent study of English in the future. However, this motivation does not seem to extend to study of other languages or of other (non-language) subjects. In short, although their autonomy in language learning appears to have increased, that autonomy does not automatically transfer to other languages or topic areas. In the entire survey, only one difference was found with respect to thinking styles and this was with the second item here, 'I developed several ideas about how to do independent language study.' Although both high and low judicial students generally agree with the statement, the difference is one of intensity: Low judicial students were more likely to agree with this statement than high judicial students [$t(49)=2.07$, $p<0.05$].

[FIGURE 3 NEAR HERE]

Discussion

Based on the results presented above, a hierarchy of learner's materials selection criteria which results from the method used in the present study can be constructed as shown in Table 4. Several observations can be made about this hierarchy. First, it is interesting that the learners in this study start off with a larger set of important criteria, but then narrow this to just three criteria (language difficulty, availability of transcript, and speaker speed). In effect, they are loosening their selection criteria, leading to wider range of materials that they might choose from. There is little evidence in the present study to explain this, but one possibility is that the learners have developed more ideas for how to make effective use of a wider variety of materials, and therefore are willing to be less choosy. This is underscored by the fact that in the survey, they themselves believe that they have developed more ideas for how to engage in independent study. In short, then, the evidence from the pre-test, post-test, and survey, taken together, show that the learners in this study became more autonomous by developing a clearer sense of their own study materials selection criteria, and also by becoming aware of this fact in themselves. Admittedly, without suitable controls, it is difficult to conclude whether the specific method of having students choose materials, design a lesson, and teach it is the primary cause of the development of their autonomy, or if simply participating in comprehensions lessons for several weeks was sufficient to develop their autonomy. However, the fact that learners regarded the experience as 'useful' would seem to point toward the conclusion that it was an important factor in helping them refine their selection criteria.

[TABLE 4 NEAR HERE]

Some further observations can be made about the learners' hierarchy in Table 4 when comparing this to selection criteria that have been discussed in the literature (e.g., Arcario 1992; Burt 1999). It is curious that learners place low importance on background knowledge. When choosing materials for the classroom, teachers have been advised to consider whether materials can stand alone (cf., 'independence of sequence' in Arcario 1992: 119). Learners seem to regard this as unimportant. If a selected material turns out to require a lot of background information, then these

learners do not regard this as a disadvantage, but perhaps a challenge to face when it happens. In short, they prefer to pay attention to other selection criteria first.

Similarly, learners do not regard popularity of the materials as an important criterion. Intuitively, it would seem that materials which are popular in their native context would be of interest to learners, in the belief that studying these materials would help learners become more familiar with the current pop culture of the target language. However, it's possible that learners believe that popular materials are not necessarily useful for language learning. They may be seen as less transparent or perhaps of too narrow applicability.

Like many other studies that have shown that language learning methods influence students in systematically different ways depending on mental states or predispositions, this study shows that learners had different reactions to the method employed in this study based on their thinking style. In particular, with respect to how learners' material selection criteria preferences changed, results showed that while high executive and low executive students show no difference from each other, High legislative students showed a larger change in their preferences than low legislative students, and high judicial students also showed a larger change than low judicial students although the difference was not statistically significant. The executive thinking style dimension is apparently not a dimension in which the method used in this study is effective: This method does not offer learners a (set of) rules to simply follow in order to prepare for independent study. Rather, learners must develop their own selection criteria preferences—a task directly suited to legislative thinkers who prefer to create their own original rules. Judicial thinkers also prefer to create their own rules, but only after evaluating and critiquing existing rules—steps which were not part of the method being tested here. Thus, the influence of the method on judicial thinkers was weaker than on the legislative thinkers.

This explanation may extend to the somewhat curious result for judicial thinkers with respect to the survey question, 'I developed several ideas about how to do independent study.' While learners overall agreed with this, high judicial thinkers agreed with this significantly less than low

judicial thinkers. Apparently, the method did not allow these learners enough opportunity to consider and evaluate ways to do independent study, so they could not then construct their own ideas. Legislative thinkers don't care about looking at existing systems and create their own ideas on their own, so they were not influenced here. Executive thinkers on the other hand, may have simply adopted the classroom methods as independent study methods as-is, without modification.

One final comment should be made on the small, but rather unexpected difference between the positive and negative versions of the final survey. Although this is not related to the key theme of this study—autonomy—it is a result with wide implications in experimental design. While learners gave a positive response to the positive versions of survey items (e.g., 'The project was useful for me.'), learners gave *even more* positive responses to a few items when they were in a negative form (e.g., 'The project was not useful for me.'). In other words, if survey-takers are accommodating what they perceive is the researcher's desired result, then they are being *more* accommodating when the survey items are negative. This result was somewhat surprising and suggests that great care must be taken when gathering information through any sort of survey. If the takers can reasonably perceive what result the researchers expect, then they may aggressively seek to accommodate those results. It is not clear to what extent this may have happened in the present study. Only two survey items showed this trend, and they are not critical to the overall conclusion that learners' autonomy for external learning advanced. However, further work may be necessary to independently confirm the results.

Conclusion

Learner autonomy continues to be a widely studied area of language teaching and of education more generally. The rapid expansion of the Internet and growth of availability of materials for study has surely been one factor in the continuing interest in methods of enhancing our students' autonomy. This study in particular has sought to investigate how learner autonomy is developed in a manner that prepares them for external learning and specifically for learning how to select suitable study materials and decide study methods with those materials. Results show that as a result of the

method used in this study—having learners take the role of the teacher in the classroom—learners refine their selection criteria by actually relaxing the criteria they use to choose materials. Furthermore, they are aware of their developments toward autonomy and believe they are better capable of engaging in external learning in the future.

One present gap in this study is a gap that is likely to pervade much research on the development of autonomy for external learning. This is the question of what actually happens after these learners leave the program or institution.: What proportion of these learners actually go on to engage in external learning? Do they actually use the methods and ideas they have been prepared for? If not, what alternatives do they use? And finally, what kind of success rate do they achieve and how does that compare to learners who have not been prepared in the same manner? Technically speaking, these questions are not particularly difficult to ask and answer: Many well-established techniques can be used to evaluate each one. The real challenge is that the target population for these questions has moved beyond the purview of the program or institution in which the original training took place. As a result, perhaps only a small fraction of the original population may provide data on these questions. It is hoped that future work on the efficacy of training methods for external learning can bridge this gap in order to help instructors choose effective methods for learners.

Notes

1 $\overline{\Delta\text{SCP}}$=6.5 is based on the assumption that for each criterion, there is enough tolerance in a learner's mark such that it varies up to one point on the Likert four-point scale. Probabilistically, based on a total of 13 different criteria, this leads to a mean variation of 6.5. In other words, if a learner's actual preferences have not changed, random marking errors (e.g., this criterion up one or that criterion down one) would lead to a mean measured difference of 6.5.

References

Arcario, P. 1992. 'Criteria for selecting video materials' in Stempleski, S. and P. Arcario (eds.): *Video in second language teaching: using, selecting, and producing video for the classroom*. Teachers of English to Speakers of Other Languages, Inc.

Benson, P. 2001. *Teaching and researching autonomy in language learning*. Pearson Education.

Benson, P. 2007. 'Autonomy in language teaching and learning.' *Language Teaching* 40/1: 21-40. [http://journals.cambridge.org/action/displayAbstract?fromPage=online&aid=642476]

Burt, M. 1999. 'Using videos with adult English language learners. ERIC Digest' . National Clearinghouse for ESL Literacy Education. [http://www.eric.ed.gov/ERICWebPortal/detail?accno=ED434539]

Falout, J., **J. Elwood**, and **M. Hood**. 2009. 'Demotivation: Affective states and learning outcomes.' *System* 37/3: 403-417. [http://www.sciencedirect.com/science?_ob=ArticleURL&_udi=B6VCH-4WKJ5B7-1&_user=10&_coverDate=09%2F30%2F2009&_rdoc=1&_fmt=high&_orig=search&_origin=search&_sort=d&_docanchor=&view=c&_acct=C000050221&_version=1&_urlVersion=0&_userid=10&md5=1f81956dfa9a61504d0fb0a6efb82678&searchtype=a]

Felder, R. M. and **E. R. Henriques**. 1995. 'Learning and teaching styles in foreign and second language education.' *Foreign Language Annals* 28/1: 21-31. [http://onlinelibrary.wiley.com/doi/10.1111/j.1944-9720.1995.tb00767.x/abstract]

Field, J. 2007. 'Looking outwards, not inwards.' *ELT Journal* 61/1: 30-38. [http://eltj.oxfordjournals.org/content/61/1/30]

Gardner, D. and **L. Miller**. 1999. *Establishing self-access: from theory to practice*. Cambridge University Press.

Gartner, A., **M. C. Kohler**, and **F. Riessman**. 1971. *Children teach children: Learning by teaching*. Harper & Row, Publishers, Inc.

Harmer, J. 2001. *The practice of English language teaching, 3rd edition*. Longman.

Holec, H. 1979. *Autonomy and foreign language learning*. Council of Europe.

Lippitt, P. 1975. *Students teach students*. Phi Delta Kappa Educational Foundation.

[http://www.eric.ed.gov/ERICWebPortal/detail?accno=ED113296]

Martin, J. P. 1985. *Zum aufbau didaktischer teilkompetenzen beim schüler:*

fremdsprachenunterricht auf der lerntheoretischen basis des

informationsverarbeitungsansatzes. Narr Verlag.

Mynard, J. and **I. Almarzouqi**. 2006. 'Investigating peer tutoring.' *ELT Journal* 60/1: 13-22.

[http://eltj.oxfordjournals.org/content/60/1/13]

Nunan, D. 1997. 'Designing and adapting materials to encourage learner autonomy' in Benson, P.

and P. Voller (eds.): *Autonomy and independence in language learning*. Longman.

Reid, J. M. 1987. 'The learning style preferences of ESL students.' *TESOL Quarterly* 21/1: 87-111.

[http://www.ingentaconnect.com/content/tesol/tq/1987/00000021/00000001/art00006]

Sternberg, R. J. 1997. *Thinking styles*. Cambridge University Press.

Sternberg, R. J. and **R. K. Wagner**. 1992. *Thinking styles inventory*.

Yang, T. 2007. 'Changes in learner autonomy by means of journal writing: from the point of view of

learners' in Proceedings of the Independent Learning Association 2007 Japan Conference.

[http://independentlearning.org/ILA/ila07/files/ILA2007_041.pdf]

Tables

Method	Autonomy state
	State 0: Learners know nothing about selection criteria or learning tasks
1. Instructor gives instruction about general selection criteria as well as how to organize an effective comprehension lesson.	State 1: Learners are aware of the concept of selection criteria and basic teaching and learning methods.
2. Groups choose audiovisual material on Internet and report to instructor. Instructor gives feedback.	State 2a: Learners know that selection criteria may be suitable or not.
3. Groups develop lesson plan and submit to instructor. Instructor gives feedback.	State 2b: Learners know that learning methods may be suitable or not.
4. Groups teach their lesson. Groups prepare a review quiz and submit to instructor. Class takes review quiz in following week.	Final State: Learners have their own individual ideas of suitable selection criteria as well as suitable learning tasks.

Table 1. Summary of the learners' progression through different states of autonomy development and the corresponding steps of the learning by teaching method.

	Maximum	Minimum	Average	Standard Dev.
Executive	7.0	1.8	4.8	1.1
Legislative	6.5	2.2	4.1	1.0
Judicial	6.5	1.9	4.2	1.0

Table 2. Results of Sternberg's Thinking Style Inventory for n=49 participants. Possible scores range from 1 (low) to 7 (high) for each style.

Criterion	Pre-test	Post-test	Mean difference (Post-test - Pre-test)
Visual support	2.59	2.57	-0.02
Length	2.49	2.53	0.04
Language difficulty	2.96***	2.98***	0.02
Topic	2.84**	2.65	-0.18
Genre	2.69	2.59	-0.1
Text Purpose	2.67	2.57	-0.1
Popularity	1.82***	1.82***	0
Number of speakers	2.02***	1.63***	-0.43***
Background knowledge	2.47	2.24*	-0.22
Availability of transcript	2.96***	3.02***	0.12
Speaker accent	2.88**	2.39	-0.49***
Speaker attitude	2.49	2.20***	-0.29*
Speaker speed	3.20***	2.96***	-0.24

Table 3. Pre-test and Post-test mean ratings of importance and difference between them for selection criteria based on a 4-point Likert scale where 1='not important at all' and 4='very important'. Ratings which are significantly greater or less than chance (2.5) according to t-tests are marked (*<0.05, **<0.01, ***<0.005).

Importance	Selection Criterion
High	Language difficulty
	Availability of transcript
	Speaker speed
Medium	Visual support
	Length
	Topic
	Genre
	Text Purpose
	Popularity
	Speaker accent
Low	Number of speakers
	Background knowledge
	Speaker attitude

Table 4. Hierarchy of learners' materials selection criteria.

Figures

Figure 1. Change in criteria selection preferences (ΔSCP) with respect to thinking styles (95% confidence intervals; n=49).
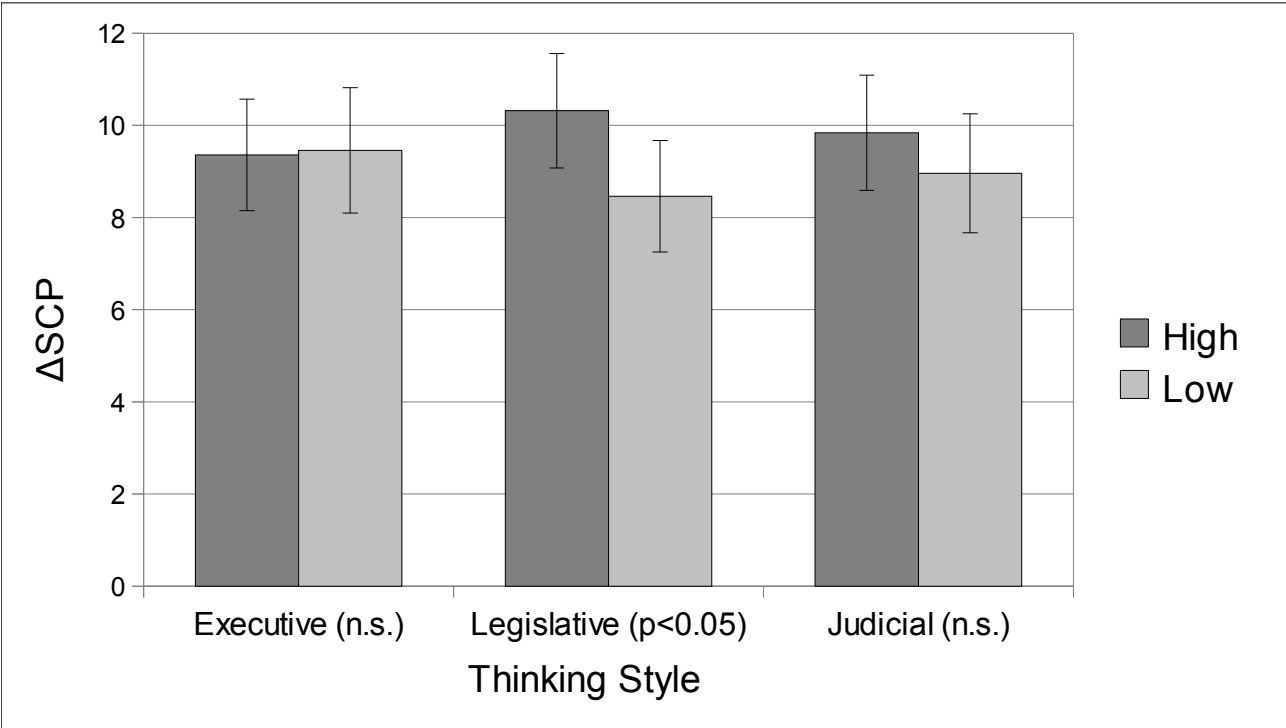
Figure 2. Post-test survey responses showing mean degree of agreement (1='strongly disagree' …
4='strongly agree') with various statements about classroom experience (95% confidence intervals;
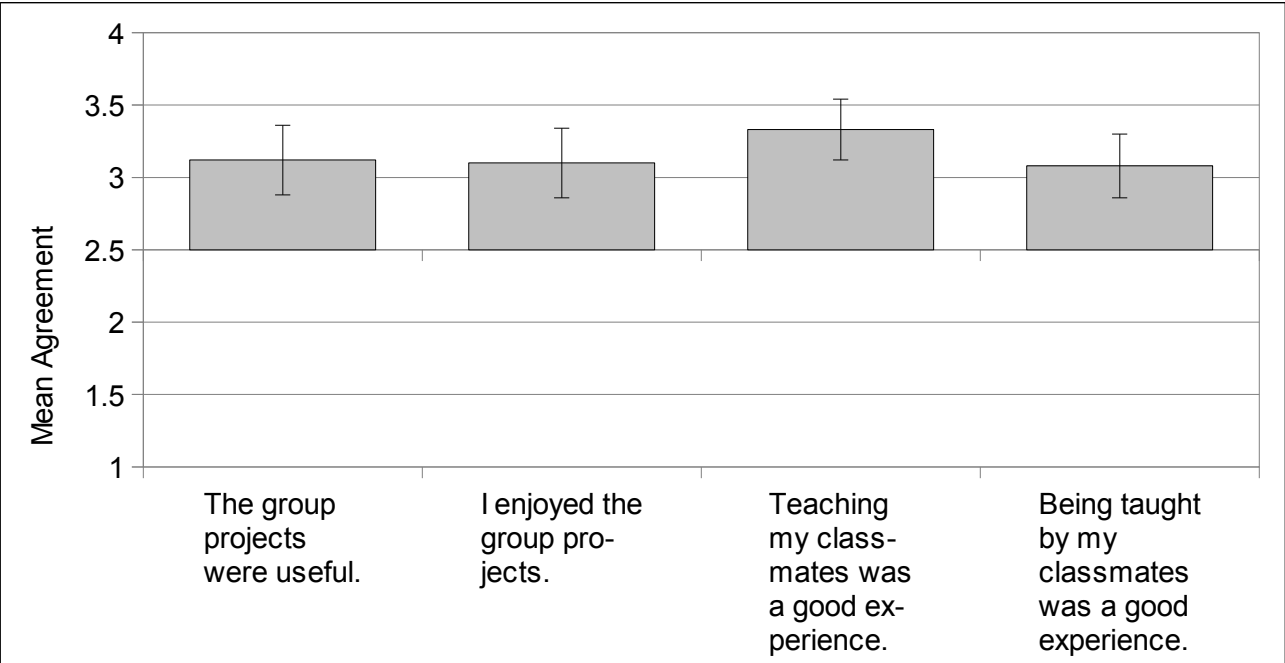n=49). All means are significantly greater (p<0.001) than chance (i.e., 2.5).

Figure 3. Post-test survey responses showing mean degree of agreement (1='strongly disagree' … 4='strongly agree') with various statements about self-perceptions of autonomy (95% confidence intervals; n=49). Means of asterisk-marked* items are significantly greater (p<0.001) than chance (i.e., 2.5).