The influence of pictures and text on task performance Paul Leeming

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This paper reflects on the results of an investigation into the influence of pictures and text on student interactions in communicative tasks. University students were given four different tasks involving varying amounts of pictures and text, and the subsequent interactions were recorded. Both as input and output, pictures were found to be more useful in promoting meaningful interactions, which provided opportunities for learning. Purely text-based tasks were found to require little understanding of the language involved, and the resultant dialogue often involved little more than negotiation of spelling. The number of instances of negotiation for each task was compared, and it was found that negotiation of meaning was not an effective measure of the usefulness of tasks. In contrast, *negotiation of content*, a concept relatively unexplored in the literature, was a stronger indicator of the quality of student interaction as determined by qualitative analysis of the interactions.

本論では、コミュニケーションに関するタスクを行う際の生徒間のコミュニケーションの性質に関し、インプットおよびアウ トプットのための手段としての図像とテキストの持つ影響について行った調査の結果を考察している。二人一組の大学生に、 それぞれ異なった量の図像とテキストを持つ4つのタスクを与え、それに続く学生間のコミュニケーションを記録した。インプッ ト、アウトプットの両方において、学習機会の提供に役立つ有意義な相互コミュニケーションの促進に関し、図像が持つ有用性 がテキストをはるかに上回ることが明らかになった。純粋なテキストベースのタスクは、それに関わる言葉に対する最小限の理 解しか必要とせず、そこから生じる対話は、綴りに関する話し合いの域をほとんど出ないことがしばしばであることが確認さ れた。それぞれのタスクで行われた話し合いの回数も比較され、言葉の意味に関する話し合いはタスクの有用性を測る有効な 手段ではないことが明らかになった。それとは対照的に、この分野の研究文献では取り上げられることの少ない「タスクの内 容に関する話し合い」は、生徒間のコミュニケーションの質をより明確に示していた。本論は、日本での英語教育においてタス クを有効に使用することに関心を持つ教師に対する、英語教育における推奨事項を提示して締めくくられている。

ESPITE THE now widespread use of tasks in language teaching, there are still relatively few examples in the literature of studies that provide descriptive details of such tasks and how students completed them. This paper attempts to address this issue by exploring language learning tasks in addition to identifying their potential for second language acquisition.

This study considered the influence of pictures and text on student interaction. Although negotiation for meaning is commonly used as a method of analysis, this paper discusses some potential problems with this approach and suggests alternatives focused on negotiation of content.

JALT2009 CONFERENCE PROCEEDINGS

Background

There are many different definitions of tasks in the literature but perhaps one of the most comprehensive is by Skehan (1998):

A task is an activity in which meaning is primary; there is some kind of communication problem to solve; there is some sort of relationship to comparable real-world activities; task completion has some priority; the assessment of the task is in terms of outcome. (p. 95)

Properties of tasks

A one-way task is where the information is transmitted from only one participant to the other(s). A two-way task is one in which all parties hold unique information which is exchanged in two directions between the interlocutors. Pica and Doughty (1985) suggested that this information transfer is a crucial feature of negotiation for meaning (NfM) tasks. Long (1989) and Doughty and Pica (1986) found that two-way tasks produce significantly more NfM and conversational adjustments than one-way tasks. Jigsaw tasks are when both parties hold unique information that must be combined in order to achieve task completion. This task structure inevitably leads to two-way interaction. Information gap tasks on the other hand, are those where one party has missing information that is held by the other party. This type of task may be completed through either one-way or two-way interaction.

Ellis (1993) surmised that tasks delivered pictorially rather than verbally will be less demanding because they make no demands on the learners' linguistic or metalinguistic resources. It also seems plausible that the same logic will follow for tasks that require pictorial output, as Ellis (2003) suggested, "the least complex outcome is... some simple visual product... as this poses no linguistic demands at the level of outcome" (p. 226). Put simply, tasks that rely heavily on pictures both for input and

output have a lighter cognitive load and therefore are easier to process.

If negotiation brings about learning, then it becomes of interest to determine the influence of task type on negotiation and several researchers have investigated this (see Doughty & Pica, 1986; Gass & Varonis, 1985; Rulon & McCreary, 1986; Varonis & Gass, 1985). The research found that information gap tasks undertaken by dyads, whether one-way or two-way, were most likely to bring about NfM, which is defined below.

Negotiation of/for meaning (NfM)

Long (1996) provides a comprehensive definition of NfM:

The process in which, in an effort to communicate, learners and competent speakers provide and interpret signals of their own and their interlocutor's perceived comprehension, thus provoking adjustments to linguistic form, conversational structure, message content, or all three, until an acceptable level of understanding is achieved. (p. 418)

NfM arises when there is a breakdown or interruption in communication that needs resolution (see Ellis, 1999, 2001; Gass & Selinker, 1994; Mackey, Gass, & McDonough, 2000; Pica, 1992, 1994). Communication breakdowns are considered valuable and necessary for acquisition to occur. They are at the outer limits of the learner's interlanguage, and learners are theoretically being forced to produce what Swain (1985) called *pushed output* and also to notice the gap (Schmidt, 1990).

NfM and tasks

NfM is generally divided into the following categories: (a) comprehension checks, (b) clarification requests, and (c) confirmation checks. Ellis (2003) questioned the theoretical justifications for this and other criticisms by Foster and Ohta (2005) were also advanced. Pica, Kanagy, and Falodun (1993) suggested that teachers' plans for a task might not represent what occurs in the classroom. It seems that a greater understanding of what occurs when students undertake communicative tasks is needed.

NfM and language learning

Foster and Ohta (20015) found several potentially serious problems with NfM, of which the most pertinent to this study was that it could be tedious and face threatening. NfM stems from a breakdown or failure to communicate, and in certain cultures, failure in front of other people is not acceptable. Hofstede (1980) found that the Japanese generally dislike unstructured situations where they are uncertain of what is going to happen. He called this "uncertainty avoidance." This suggests that communication breakdown, seen, as the prompt for NfM, may be something students in Japan avoid, and therefore some other means of assessing the value of tasks may be more appropriate.

The claim that negotiation supports development of grammatical competence and accuracy is weakened by the research of Pica (1992) who found that of 569 identified negotiation sequences, not one was morphological in nature. It is possible to communicate using only lexis while disregarding conflicts in morphosyntax. Meanings are carried by lexical content words and the finer points and nuances are carried by the grammatical function words. Therefore, in more cognitively challenging tasks, learners are more focused on lexis than grammar.

Tasks and quality of interaction

Negotiation of content (NfC) is a term introduced by Rulon and McCreary (1986). Ellis and Barkhuizen (2005) stated that NfC occurs when students are unable to "relate the information provided by learner 1 and understood by learner 2 to the task in hand" (p. 182). Ellis (2003) suggested that NfC is something the researcher interested in the quality and type of language produced in tasks should investigate alongside NfM. This negotiation is concerned with processing the information of the task rather than the meaning of language used by the students. A search of the language learning literature reveals very little on this topic and it seems clear that negotiation of content is an area worthy of further investigation.

Because of limited classroom time, it is important that tasks are efficient in achieving the teacher's goals and maximizing students' talk-time. If a task is able to provide both students in the dyad with high talk-time then it could be considered effective, and for this reason we were interested in the influence that pictures and text, both for input and output, would have on students' interactions.

Research questions

The two research questions investigated were:

- How do text and pictures in tasks affect the quality and quantity of negotiation involved?
- How does the number of instances of negotiation of meaning compare to negotiation of content in indicating potential learning value of tasks?

Methodology

Participants

The research was conducted with Japanese students, 1 male and 3 female, enrolled in an advanced intensive English language program at a leading university in western Japan. Students had 7 to 9 years of formal English study with paper-based TOEFL scores over 500.



Procedure

The research was conducted over a 2-day period. Students were grouped into two dyads and completed tasks with the same partner throughout the study. Each dyad carried out a total of four different communicative tasks. Three jigsaw activities and an information gap activity were used (see Table 1 for task details).

Order com- pleted	Task type / name	Picture- and / or Text-based	INF request- er-supplier relationship	Interaction requirement
1	Jigsaw / Movie infor- mation	Text-based	2 way	Required
2	Information gap / Draw the picture	Picture-based	1 way > 2 way	Required
3	Jigsaw / Giv- ing directions	Text and Picture-based	2 way	Required
4	Jigsaw / Find the differ- ences	Picture-based	2 way	Required

Table 1. Task information

Tasks

Based on their own experiences in a wide range of contexts, the authors selected tasks typical of those used in many high school and university classrooms in Japan. To address the research



questions, four different tasks were chosen. The following is a brief description of each task.

- The first task was a purely text-based jigsaw task that involved the learners working together to complete the missing information each of them had by asking questions and providing answers (see Appendix 1).
- The second task was a purely picture-based information gap task. One participant with a picture was told to describe it while the other participant was to draw as directed (see Appendix 2).
- The third task was a text and picture-based jigsaw task. The learners had to ask each other where to purchase a range of items, and their partners in turn had to give suggestions and directions (see Appendix 3).
- The final task was a purely picture-based jigsaw task. The task involved the learners working together to identify differences between their pictures (see Appendix 4).
- The first and third tasks were downloaded from the ESL website Boggles World <www.bogglesworldesl.com>. The authors created the second task and the fourth task was taken from Soars and Soars (1993).

Analysis

In order to provide a comprehensive description of interactions it was decided that analysis would involve both qualitative and quantitative methods. Quantitative analysis was conducted to examine the influence of task on the number of instances of negotiation and also the opportunities for student talk generated. Approximately 90 minutes of recordings were transcribed and examined qualitatively to determine the nature of the interactions. This involved detailed examination of each of the interactions in an attempt to identify potential language learning opportunities and how the students responded to them.

Levels of negotiation

Negotiation of meaning was classified as being either a request for clarification, a request for confirmation, or a comprehension check. Repetitions, where the interlocutor repeats verbatim what their partner has said, were coded as requests for confirmation when intonation indicated that it was a question rather than simple repetition. Requests for clarification are when the student directly asked questions such as "What do you mean?" in an attempt to gain further explanation from their partner. Comprehension checks are when the student offered their own interpretation to confirm that he has heard or understood correctly by asking questions such as "Do you mean ... ?" Negotiation of content was also noted. This occurred when the linguistic content was fully understood and the students sought to understand the difference in the information their partner seemed to have and their own. An example would be "So you have a clock in your room?" The duration of the tasks varied from around 4 to 14 minutes. In order to make comparison possible, the data was standardized so that each task was calculated to last for 10 minutes. Combined data for the two dyads are shown in Table 2.

Invariability of NfM counts between tasks suggested that text, pictures, and task-type (info-gap or jigsaw) had little influence on the extent of NfM. In contrast, the number of instances of negotiation of content varied greatly depending on the task type. With the text-only jigsaw task there was only one instance during 10 minutes of standardized interaction time in which the pairs needed to negotiate the content of the task, while for the picture-text jigsaw task nine instances were observed. The two picture-only based tasks showed 17 cases of negotiation of content for the info-gap task and 26 for the jigsaw task. It seems that text and pictures influenced the extent to which students have to negotiate the content of the task.

Table 2. Task type and number of negotiations

Figures in bold are standardized so that each task is calculated to last 10 minutes. Figures in brackets represent the raw count.

Task	Nego	Nego-		
	Requests for clarifi- cation	Requests for confir- mation	Compre- hension checks	tiations of content
Jigsaw text only	1 (1)	16 (29)	2(4)	1(1)
Info gap picture only	2(3)	11 (16)	2(3)	17(24)
Jigsaw text/pic- ture	1(3)	16 (43	2(5)	9 (24)
Jigsaw pic- ture only	3(4)	18(22)	0 (0)	26 (32)
Total	7(11)	61 (110)	6(12)	53(81)

Tasks and student talk-time

Adobe Audition 2.0 was used to calculate the total number and duration of all pauses longer than 0.3 seconds. This included time for dictation and writing, which were considered to have an impact on the overall potential for student talk. The total task time was divided by the total length of pauses to give the per-



centage of time in each interaction comprised of unfilled pauses, enabling a comparison of the amount of student talk generated by each task. The results are shown in Table 3.

Table 3.	Task type	and student	talk-time
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Task type	Total task length (seconds)	Total pause length (seconds)	% of interaction comprised of pauses
Jigsaw text only	1096	431	39
Info gap picture only	848	356	42
Jigsaw text/picture	1608	633	39
Jigsaw picture only	746	229	31

Standardized talk-time remained similar between tasks with the exception of the jigsaw picture task. The text-only and text/ picture tasks required students to transcribe information creating pauses in speech, and the same applies for the information gap task where students were required to draw a picture. The picture-only jigsaw task simply asked students to circle the relevant information, and resulted in relatively more fluent twoway conversation. It appears therefore that tasks with simple output media that require little time, such as circling, are more likely to provide students with opportunities for natural practice in the target language.

Tasks and the quality of negotiation

The researchers were interested in how effective this kind of quantitative analysis was in accurately portraying the learning

potential of tasks. To investigate this, the data were analyzed qualitatively for patterns in the style of negotiation that took place.

Text-only jigsaw task

A typical example of the negotiation that occurred is shown below:

- 1. J: ah location is *bo::rgyu*.
- 2. F: borgyu¿

3.

4.

5.

6.

J: borgu Theater.

- F: bo: V¿
- J: VOGUE.
- F: okay.

The name of a movie theater was being discussed and F, in lines 2 and 4, was unsure of the spelling of Vogue and so used two requests for confirmation. J, in line 3, simply repeated the location but then in line 5 spelled out the word vogue for the other student. Many negotiations simply involved confirming or checking the spelling of words, and the task began to resemble a dictation exercise at times, because that was all that was required to complete the task. As a result of the input and output media used, which in this case was a sheet containing text only, where students were required to complete the missing information, there was no need to understand task content and therefore comparatively little negotiation of any type occurred. It was felt that this task was representative of tasks found in many EFL textbooks. There was no evidence of pushed output by students in this task, and change in language use usually involved slower repetition of the word in question or spelling out the word. It was very difficult from simply listening to the recordings and watching the video to determine if the students have any understanding of the language used.



Picture and text-based task

Again a typical interaction is shown in the following extract:

- 1. M: maybe eh bathing,
- 2. N: bathing what is bathing?
- 3. M: swimwear? (.) beach swimwear?
- 4. N: (eh
- 5. M: aquarium¿ ah *chauchauchau*.
- 6. N: no.

Student M had to ask for advice on the appropriate place to purchase a bathing suit but student N did not understand what *bathing* meant and in line 2 asked M to explain. M was able to provide a correct definition of the term in line 3 and an opportunity for learning was shown. Students processed the language and ultimately were able to find the correct place, although it is not shown in the excerpt. Unlike the text-only task, the text in this task, in conjunction with the pictures, enabled students to understand the language content seemingly because there was text and pictures.

In the picture and text-based task, a significant amount of negotiation resembling the dictation from the text-only task was observed, yet there was little need for pushed output as some of the necessary language was provided for students. The students did however sometimes attempt to provide clarity by giving a more detailed description of locations.

Picture-only jigsaw task

The following exchange is typical of the kind of interaction that occurred.

- 1. F: what time is the clock?
- 2. H: clock?

- 3. F: clock.
- 4. H: clock. (1.5) on the-
- 5. F: [on the wall.]
- 6. H: on the TV?
- 7. F: no, no, no. on the wall.
- 8. H: on the wall?
- 9. F: yeah, on the fire. Not on the fire.
- 10. H: no clock.
- 11. F: oh really?

Both students understood the language being used but were seeking to understand the content of the task and this is an example of negotiation of content where students collaboratively seek to determine the location of the clock. The negotiation of content involved in this excerpt shows that the students are processing the language and are eventually able to understand each other.

Picture-only information gap task

The picture-only information gap task generated frequent negotiation of content and requests for confirmation and clarification as shown below.

- 1. F: green.
- 2. H: green?
- 3. H/F: ((laughter))
- 4. H: what do you mean?
- 5. F: usually,
- 6. H: yeah.
- 7. F: next to flower, some-
- 8. H: sunflower?

- 9. F: maa-many flower,
- 10. H: yeah¿
- 11. F: some green is there. some green¿ green¿
- 12. H: you mean you mean grass?
- 13. F: yeah. grass grass. ((laughter))

It seems that F (line 11) was unable to recall the word *grass* and so attempted to explain using the word *green* which was not understood, leading to a request for clarification by H. H was finally able to supply her with the correct vocabulary item. Metalinguistic discussion of this nature occurred several times in the picture-only information gap task, showing that students were able to process the information and provide each other with learning opportunities.

Discussion

Text, pictures, and opportunities for negotiation

The quantitative analysis revealed little difference in the opportunities for NfM between the four different tasks. There were very few requests for clarification or checks for comprehension, and the vast majority of negotiations involved requests for confirmation. NfM gave no indication of the quality of the interaction taking place and supports the criticism by Foster and Ohta (2005) that simply looking at instances of NfM does not give any real description of the opportunities for language learning in a task.

NfC appeared to be far more effective in differentiating between the different tasks. The text-only task required almost no NfC, while the mixture of pictures and text led to some instances where students attempted to create a shared understanding of the content of the task. Both picture-only tasks led to the largest level of NfC. As shown in the analysis, the nature of the interactions was very different when using pictures. This enhancement was not shown by the instances of NfM but by the instances of NfC, which varied more, indicating greater differences between tasks.

This study was not only concerned with quantitative comparisons between tasks, but was also interested in whether these tasks provided students with opportunities for language acquisition. The quality of interaction seems to be strongly influenced by both text and pictures, in terms of both the input and output.

The purely text-based task required little thought and came to resemble a dictation exercise. Despite opportunities for learning unknown vocabulary, comprehension of the task content was not necessary and it seemed that students were more concerned with task completion and therefore even direct requests for help were ignored. Words can sometimes be conveyed without understanding but when a picture is to be replicated or discussed, both parties must comprehend the language. The almost complete lack of negotiation of content seems indicative of the limited opportunities for language learning presented by textonly based tasks used in this study.

The picture / text-based task required the students to understand the language in order to complete the task, and there were several instances when students successfully provided each other with help. Students wrote down names of places, and therefore there was still a significant amount of dictation, but on the whole these tasks seemed far more suited to language learning because of the improvement in quality of interaction indicated by the increased levels of negotiation of content.

Qualitative analysis revealed that both picture-based tasks provided the clearest examples of language learning in that students assisted each other with unknown vocabulary related to the task content. The interactions differed in that, unlike the information gap, in the jigsaw when both students had different



parts of the complete information they were able to move forward more quickly, whilst maintaining fluent communication. Also, the output medium changed opportunities for student talk and the jigsaw tasks seemed to be the most efficient use of classroom time in that it led to the largest amount of language production by students. Put simply, when students only had to circle objects they were able to spend more time speaking. The number of instances of negotiation of content was by far the largest for the picture-based tasks, and supports the possibility that levels of negotiation of content are directly linked to opportunities for learning provided by tasks.

Pedagogical implications

The findings suggest that tasks requiring negotiation of content are more likely to lead to meaningful interactions and that the presence of text may be detrimental to the quality of interaction, particularly with regard to the amount of student talk which can be generated in the given time, although this may be significantly influenced by the design of the particular task and also the learning styles of students. Teachers should consider task goals and attempt tasks prior to their use in the classroom in order to determine the kind of exchange that is likely to occur.

Suggestions for possible future research

There have been very few studies investigating negotiation of content by students working together to solve tasks and we would encourage more research investigating the links between negotiation of content and second language acquisition, and also the influence of text and pictures on student interactions. Investigation of student interaction while performing tasks has been the subject of many studies, but most papers contain a simple task description of several lines, making interpretation of the data and replication studies difficult. We call for future stud-

ies to provide clear examples of the tasks used in order to aid in a deeper understanding of the interaction between the nature of the task and student interaction.

Limitations

Although the current study does have implications for the design and use of tasks in the language classroom, it should be noted that this was a very small study (N = 4) with students who are highly motivated, and have relatively high levels of ability, and also knew each other before the study. The data was gathered in a controlled setting away from the classroom, which is also likely to have some impact on the results.

While the results suggest that text and pictures influence the nature of the interaction, it is still unclear as to how this may occur and also whether there are other factors, which may not have been accounted for in this study. The authors attempted to select tasks which were representative of those commonly used in ESL and EFL contexts, but the different linguistic and cognitive demands of each task mean that the comparisons made above must be read cautiously. Other factors such as subject familiarity and vocabulary knowledge may be responsible for some or all of the differences in interaction and therefore conclusions can only be tentative, and the generalizability of these findings must be seen as limited.

Conclusion

This study set out to investigate the way in which pictures and text interact to influence student talk when dyads are working together on communicative tasks in the language classroom. The quantitative analysis seems to suggest that the type of task or the level of text or pictures involved does not affect instances of negotiation of meaning, but that negotiation of content differs significantly between tasks. As subsequent qualitative analysis



showed, the quality of interaction was found to vary greatly, and it seems that negotiation of content may be a stronger quantitative indicator of the quality of tasks in providing students with chances for second language acquisition.

The purely picture-based tasks both provided students with opportunities to negotiate both meaning and content and there were several clear examples where students were pushed to make their message understood. There were also chances to help each other with unknown vocabulary. In this study it seems that pictures were more effective in ensuring that there was understanding of the task content and that students had ample opportunities for interaction that provided real opportunities for second language acquisition to occur. The quality of the interactions as indicated by NfC worsened as text increased, with the text-only task being ineffective in this case. The picture-only jigsaw task led students to produce language more fluently than any of the other tasks, providing a good chance for language practice.

Bio data

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Appendix I

Text-only jigsaw task

(adapted from <www.bogglesworldesl.com>)

Sheet A: Do you feel like seeing a movie? Fill in the missing information.			
Movie: Gigantic	Movie: Penguins in Space		
Location:	Location: Caprice Theater		
Synopsis:	Synopsis: Jenny Roberts plays a penguin that travels through space.		
Showtimes:	Showtimes: 6:45, 8:45		
Movie: Idiots with Guns VII	Movie: The Tricycle Thief		
Location: Metro Theater	Location:		
Synopsis: Arnold Stallone plays a soldier who saves New York from terrorists.	Synopsis:		
Showtimes: 2:00, 5:00, 9:30	Showtimes:		



Movie: Dr. Poot	Movie: Attack of the 50ft Turnip	Movie: Idiots with Guns VII	Movie: The Tricycle Thief
Location:	Location: Filberg Theater	Location:	Location: Vogue Theater
Synopsis:	Synopsis: Christina Spears plays a sexy cop who has to stop a turnip from destroy- ing the Earth.	Synopsis:	Synopsis: Mick Page plays a thief who steals the tricycle of a powerful gangster.
Showtimes:	Showtimes: 7:10, 9:20	Showtimes:	Showtimes: 7:15, 10:30
		Movie: Dr. Poot	Movie: Attack of the 50ft Turnip
Sheet B: Do you feel like seei	ng a movie?	Location: Robson Theater	Location:
Fill in the missing information			
Movie: Gigantic	Movie: Penguins in Space	Synopsis: Frank Stein plays an evil scientist who tries to	Synopsis:
Location: Capitol Theater	Location:	take over the world.	
Synopsis: Lenny Drew plays a rich man who falls in love with a poor woman.	Synopsis:	Showtimes: 6:30, 8:50	Showtimes:
Showtimes: 7:00, 9:15	Showtimes:		1



Appendix 2

Picture-based information gap task



Appendix 3 Text and picture based jigsaw task





Appendix 4

Picture-based jigsaw task (from Soars & Soars, 1993)







JALT2009 CONFERENCE PROCEEDINGS