An Empirical Study of Meaning Negotiation from the Perspective of Task Characteristics—Task Difficulty and Task Complexity

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Abstract

The paper first gives an overview of meaning negotiation, ranging from definition, classifications, a model for significant effects on communication as well as language learning; discusses two task characteristics, task complexity and task difficulty of meaning negotiation, which affect meaning negotiation. Finally, the paper examines how task characteristics—task complexity and task difficulty affect the quality and quantity of meaning negotiation. The investigation involves 40 undergraduate English majors in Jilin University and adopts three research methods: four tasks for group discussions, questionnaires and interviews. Four main findings arise from the research: (1) Task complexity exerts a complex imbalanced effect on the quality of meaning negotiation. (2) Based on Finding 1, trade-off effects are indispensable: the more cognitively demanding task causes participants to use more complex, but less accurate and fluent language and vice versa. (3) An interplay between cognitive demands and the quantity of meaning negotiation is noticeable: Task complexity influences the quantity of meaning negotiation profoundly, which also reacts to the former in some sense. (4) Task complexity and task difficulty correlate positively.

Key words: meaning negotiation; task complexity; task difficulty; task types

1. Introduction

As a crucial phenomenon and an integral part in communication, meaning negotiation has attracted great concern of researchers since the early 1980s. Various theoretical and
empirical studies on negotiation of meaning e.g. Pica & Doughty, 1985; Pica, 1994; Ma, 2004, etc., have been carried out and, as a consequence, plentiful and substantial results have been achieved due to their industrious effort.

2. A Brief Review of the Theoretical Background of Meaning Negotiation

Numerous researchers, such as Long (1983a, 1983b), Bygate (1987), Fuente (2002), Oliver (2002), Foster & Ohta (2005), devoted a lot to defining the term “negotiation of meaning”. It is generally defined as conversational modifications or adjustments that take place in communicative interactions when learners and their interlocutors experience difficulty in understanding messages. During negotiation, participants work together to arrive at message comprehension using strategies such as comprehension checks, confirmation requests, clarification requests, and repetitions.

Widdowson (1999) further classifies negotiation of meaning into two kinds of activities: reciprocal negotiation and non-reciprocal negotiation. In the former situation, meaning negotiation is a mutual concern in that interlocutors can signal or indicate understanding or non-understanding immediately by the turn-taking of talk. Thus both sides modify their utterances so as to ensure a mutual understanding in the end. But the situation is totally different in non-reciprocal discourse. Take the case of writing as an example. Communication is the affair of the participants taken individually rather than mutually. However, this does not mean that no negotiation takes place. As a matter of fact, “the writer is engaged in a kind of vicarious interaction with a presumed reader and anticipates and provides for likely reactions” (Widdowson, 1999: 107-108). This means that in written discourse, there is nothing that either the reader or the writer can do about the other one’s “mistakes.” The reader cannot alter what the writer writes, and the writer cannot make sure that the reader understands. There is no direct negotiation between the two.

Another deeper insight into the concept of negotiation of meaning can be gained by resorting to the model proposed by Varonis & Gass (1985). This model consists of four functional primes (See Figure 1) to represent and account for the sequences.

![Figure 1. Proposed model for non-understandings (Varonis & Gass, 1985)](image)

The first part of the model consists of a trigger (T). The second part is termed as the resolution, which encompasses an indicator (I), a response (R), and a reaction to the response (RR). More specifically, the trigger is the utterance on the part of the speaker which results in some indication of non-understanding on the part of the hearer. The second prime of the model is an indicator (I), which signals that an utterance has triggered
a non-understanding and can be expressed by means of repeating the trigger, questioning, or requesting for additional information, etc. This non-understanding essentially halts the horizontal progression of the conversation and thus pushes down the conversation. In the third prime, the speaker usually helps the hearer to understand his utterance by way of repetition, expansion, rephrasing or reduction, etc, so this prime refers to the speaker’s response (R) to the indicator. While the fourth prime is the hearer’s reaction to the speaker’s response (RR) to express whether a real understanding has been arrived at or not.

Being an indispensable component of interactive communication, the process of meaning negotiation for meaning plays a crucial role not only in communication, but also in language learning.

At the outset, meaning negotiation is facilitative of communication, which can be analyzed from three perspectives. In the first place, as Widdowson argues, that the nature of communication—the development of learners’ communicative competence is actually an implicit process of meaning negotiating—determines the importance of negotiation of meaning in it. Second, he also thinks meaning negotiation promotes the crucial socializing purpose of language. In communication, we constantly refer to schematic knowledge—more general and conventional assumptions and beliefs which define what is accepted as normal or typical in respect of the way reality is structured and to the conduct of social life. Therefore, by activating relevant contextual knowledge, we can gain entry into a particular culture or subculture (1999: 99-103). Third, it is held by Oliver (2002) that the process of meaning negotiation for meaning functions as both a means to prevent conversational trouble and a repair mechanism to overcome communication breakdown.

Furthermore, meaning negotiation of meaning assists learners’ Second Language acquisition (SLA) in three principal aspects. Firstly, it helps learners to obtain comprehensible input that is specially modified for their individual circumstances and is a necessary condition for SLA. Particularly, Fuente (2002) argues that negotiation can promote acquisition because it allows learners to understand words and structures beyond their present level of competence and eventually, enables them to incorporate them into their L2 production. Secondly, meaning negotiation of meaning also prompts learners to adjust and modify their own output in order to make themselves be understood. In this process, learners are “pushed toward the delivery of a message that is not only conveyed, but conveyed precisely, coherently and appropriately” (Swain, 1985: 249). Thirdly, negotiation of meaning provides learners with feedback about their attempts at the target language. During the process, learners are provided with opportunities to use words and thus receive feedback, which may enable them to notice the discrepancy between the target language and theirs.

In addition, negotiation of meaning is facilitative of the SLA process cognitively—it may facilitate noticing or attention to form, and thereby, promote input internalized. Ellis (1991) claims that the acquisition process includes the procedures of noticing, comparing and integrating. In Long’s updated interaction hypothesis, he also suggests that in terms of internalizing interaction, there is a role in SLA for negotiated interaction that elicits negative feedback, which may induce the noticing of some forms (1996: 414).

However, on the other hand, meaning negotiation is also cognitively affected by
factors like the participants’ proficiency, their background knowledge, communication strategies, confidence, their characters, motivation etc. The interaction of these factors may have some impact on meaning negotiation (Ma, 2004).

Apart from these influencing factors, two factors are highly crucial for the research—task complexity and task difficulty, which are deemed to affect meaning negotiation. According to Robinson (2001), task complexity is the result of the attentional focus, working memory, reasoning and other cognitive demands imposed by the structure of the task on the language learner. All of these design characteristics are relatively fixed and invariant. Therefore, task complexity is also fixed and invariant. A simple task will always be less demanding than a complex one. Robinson (2001) proposed several dimensions that affect task complexity (See Table 1).

### Table 1. Task complexity (adapted from Robinson, 2001)

<table>
<thead>
<tr>
<th>Task complexity (cognitive factors)</th>
<th>(a) resource-directing</th>
<th>(b) resource-depleting</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>e.g., +/- few elements</td>
<td>e.g., +/- planning</td>
</tr>
<tr>
<td></td>
<td>+/- here-and-now</td>
<td>+/- single task</td>
</tr>
<tr>
<td></td>
<td>+/- no reasoning demands</td>
<td>+/- prior knowledge</td>
</tr>
</tbody>
</table>

Task complexity can be distinguished between two categories: resource-directing dimensions and resource-depleting dimensions. The two categories affect resource allocation in sharply different ways.

On the one hand, increasing task complexity along resource-directing dimensions (e.g., by requiring reasoning) makes greater resource demands which resort to specific features of the language code. This indicates that some logical connectors, for example, if-then, therefore, because, as well as the syntactic permutations necessary to embedding and subordination of clauses, might be used in this circumstance. Increasing complex tasks along resource-depleting dimensions demands more on cognitive factors like attention and working memory, but do not direct resources to features of language code.

The two dimensions of task complexity tend to interact and affect task production—resource allocation arrives at an optimum when a pedagogic task is made simple along a resource-depleting dimension (e.g., by allowing planning time) and complex along a resource-directing dimension (e.g., by requiring reasoning) to satisfy the linguistic demands of the task, in comparison with when the task is made complex on both dimensions simultaneously. Thus it can be reasonably supposed that the change of task complexity can result in difference of language production and thereby affect the quantity and quality of meaning negotiation for meaning.

Whereas, task difficulty is learner factors that make a task more or less difficult. The effects of task difficulty on negotiation of meaning can be analyzed from the perspective of information processing. For example, Gass (1997) depicts negotiation as “a facilitator of learning” and it is one means but not the only means of drawing attention to areas of needed change. It is one means by which input can become comprehensible and manageable. (pp. 131-132)
From these words, it can be seen that meaning negotiation alters the task demands placed on a learner during input processing (Van patten, 2004: 12). But on the other hand, according to Van patten (2004), the change in task demands helps to free up attentional resources allowing learners to process something they might miss otherwise (12). Specifically, when the communicative difficulty of tasks is relatively small, interlocutors can pay more attention to their language form, so that they can avoid some linguistic errors and convey meanings more clearly. In contrast, when confronted with more difficult communicative tasks, interlocutors pay more attention to the task itself—meaning, focusing on how to accomplish the tasks, whereas less attention is given to form. In other words, they cannot control their linguistic performance, possibly making it unclear, or even producing errors. In this circumstance, the speaker’s utterances cannot be understood by the hearer so as to cause communicative breakdown. Thereby, the speaker’s utterance also becomes the trigger of negotiation for meaning. Some studies, like those by Daughty & Pica (1986) and Newton (1991), proved these results that in performing two-way tasks and closed tasks, there is more negotiation of meaning. Therefore, task difficulty is an important factor affecting meaning negotiation.

Apart from the above cited theoretical achievements, a vast number of western studies ranging from its theoretical model, component features, rationale to its relationships with numerous aspects of SLA sprang up since the 1980s. They provide a broad vision to subsequent researchers and have a far-reaching influence on negotiation studies.

These additional achievements can be concluded in four aspects:

1) Studies concerning the theoretical model and component features of meaning negotiation. For instance: Especially Varonis & Gass (1985) and Pica & Doughty (1985) have established the models for negotiation of meaning respectively.

2) Studies regarding the relationship between meaning negotiation and various factors in SLA: Particularly some studies are conducted on whether meaning negotiation promotes learners to comprehend their language input (Gass & Varonis, 1994; Loschky, 1994; Pica, 1991); other studies are concerned with the relationship between meaning negotiation and modified output (Polio & Gass, 1998).

3) Studies about the relationship between meaning negotiation and some particular factors, like communicative tasks (Nakahama et al., 2001) and

4) studies related to the rationale underlying negotiation of meaning: Especially, Pica (1994) investigated the benefits of meaning negotiation in SLA from the perspectives of comprehensible input, comprehensible output and language awareness.

In China, the research on negotiation of meaning has gained growing attention in recent years. Typically, several important investigations are worth mentioning: Ma (2004) explored the main factors affecting the process of meaning negotiation in interactive communication from the cognitive and psychological perspectives of SLA. Fang (2005) probed into the relationship between meaning negotiation and focused task-based approach. He emphasizes the importance of the focused task-based approach because there is a universal consensus among scholars that it is an optimal facilitative of meaning negotiation.

To sum up, none of these studies at home and abroad are concerned with the
relationship between meaning negotiation and task complexity and task difficulty, which are actually closely interwoven. This study is aimed at such questions as: How does task complexity influence the quality of negotiation of meaning? How does task complexity influence the quantity of negotiation of meaning? How does task complexity relate to task difficulty?

3. Research Methodology

In order to find out the effects of task characteristics on the quality and quantity of meaning negotiation, I carried out a survey on 40 English majors in Jilin University. Simultaneously, it was intended to examine the effect of meaning negotiation on communication and try to find out whether task characteristics had any influence on meaning negotiation and whether there was any relationship between the two task characteristics—task complexity and task difficulty.

The participants in the study were 40 undergraduate English majors, in Jilin University. They were randomly chosen from the 2005-grade classes of mixed levels.

3.1 Instruments

This research used three types of instruments: four tasks for group discussions, a questionnaire survey and interviews.

3.1.1 Tasks

All four tasks were carried out by the participants in small groups.

The Personal Information Exchange task (Task 1) required the participants to describe to the other members themselves and their future dreams. In this task, the topic was familiar to the participants and possibly had already been rehearsed in English. Besides, the information flow was one-way, and in processing the task, background knowledge helped to lessen the information processing load. Therefore, it was thought to require the least cognitive effort and allow the greatest attention to language form.

In the Narrative task (Task 2), each member of the group had to construct a storyline from a series of four pictures that were loosely but not obviously connected, with each subject given one (See Appendix). They were not allowed to look at the pictures of others, but could acquire relevant information while listening. This two-way, convergent task involved encoding new, visual information into linguistic form and some degree of imagination was obligatory. Therefore, the complexity of this task was speculated to be greater than the personal task, but less than the other two.

For the Decision-making task (Task 3), participants were asked to decide who would be abandoned and justify it, when a balloon was endangered and four people were in it: a teacher, a doctor, a merchant and a soldier (He & Wang, 2003). They were less familiar with the topic. The information flow was one-way. According to Brown et al. (1984), decision-making tasks should be more complex than narrative ones, because the former
are more abstract. Besides, the latter can gain visual aid. Thus not only was the cognitive load of the decision-making task heavier than the personal and narrative tasks, but also its attentional resources given to language form would be less.

The problem-solving task (Task 4) was based on an imagined situation—a fire had broken out where you live. You had a few minutes to grab five of your belongings and rescue them. Which five things would you take and explain why. This convergent, two-way opinion-gap task was carried out by means of group discussion, so although participants shared the information in common, they must reach an agreement through certain negotiation of meaning, and resolve counterbalancing some disputes. Therefore, its information processing load was thought to be the heaviest among the four tasks.

3.1.2 Questionnaires
The questionnaires were adapted from that of Robinson (2001). Each item was rated on a 9-point Likert scale. These items were worded in the following way, starting from the left 0, to the right 9:

(1) I thought this task was easy/ I thought this task was hard;
(2) I felt relaxed doing this task/ I felt frustrated doing this task;
(3) I didn’t do well on this task/ I did well on this task;
(4) This task was not interesting/ This task was interesting;
(5) I don’t want to do more tasks like this/ I want to do more tasks like this.

Responses to these five items were used to assess learner perceptions of task difficulty.

3.1.3 Interviews
The interviews were administered to the participants to confirm some of the research results. And they helped the researcher to note any unanticipated problems that might occur. The questions included:

1) Do you know negotiation of meaning? If your answer is yes, have you ever employed it constantly and unconsciously in communication?
2) Among the four types of tasks, which do you think will make you resort to negotiation of meaning most? Why?
3) Which task is the easiest and which is the most difficult? Why?
4) When will you pay more attention to form—when planning time is given or not?

3.2 Procedures
The 40 participants were divided into small groups with 4 in each group. Simultaneously, the complexity of the tasks was manipulated along the resource depletion dimension—the 10 groups were randomly divided on the basis of planning time. Five groups of participants were provided with 10-minute planning time for each task. To maximize the chances that they would indeed engage in planning, they were asked to take notes about what they were going to say but were told that these notes would be taken away before they began to speak. The other half, deprived of planning time, did the tasks with only a brief introduction to ensure that they all understood what was required of them. Whereby, task complexity was specified as two factors: task types and task processing conditions—
planning conditions in the process of manipulation.

While completing each task, all participants were audio taped by MP3s. Immediately following the performance of each task, participants were asked to complete a brief questionnaire. At the end of all tasks, participants received the interviews.

3.3 Research Measures
Following Skehan (1996), the quality of meaning negotiation was assessed by a range of dependent variables—the accuracy, complexity and fluency in the participants’ production. According to him, complexity, which concerns the form, emphasizes the organization of what is said and draws attention to the progressively more elaborate language that may be used, as well as a greater variety of syntactic patterning. Accuracy, the other aspect of form, focuses on freedom from error. A measure of accuracy may be the result of relatively simple, well-controlled forms being used to achieve a more target-like use of language. Fluency is thought to reflect the primacy of meaning and the capacity to cope with real-time communication. It also reflects the effectiveness of the planning process and the way propositions can be orchestrated into effective, ongoing discourse.

The three variables could be worked out according to the following formulae respectively.

Accuracy was measured by dividing the number of correct clauses (error-free clauses) by the total number of clauses for each subject and so represented the proportion of accurate clauses (a maximum of 1.00). Here a clause refers to a group of words which form a grammatical unit and which contain a subject and a finite verb (Richards et al., 2002: 65).

Complexity was measured by dividing the total number of clauses by the total number of c-units (communication unit) for each subject and so reflected the number of clauses per c-unit. The minimum value obtainable is 1.00. The c-unit is defined by Brock (1986) as an independent utterance providing referential or pragmatic meaning, allows for ellipsis and thus is an appropriate measure for the spoken language. It may be made up of one simple independent finite clause or else an independent finite clause plus one or more dependent finite or nonfinite clauses.

Fluency was measured by the number of total seconds of silence and pauses per subject in each transcript (Skehan, 1999: 108).

Following Oliver (1998), the quantity of meaning negotiation was assessed by analyzing participants’ specific negotiation strategies, namely, percentage of clarification requests, percentage of confirmation checks, percentage of comprehension checks and percentage of repetitions. All the examples listed in the following part are chosen from the transcriptions of participant interactions the scripts of the research.

1) Percentage of clarification requests
Clarification requests were those utterances made by the listener to clarify what the speaker had said, and included statements such as “I don’t understand,” wh questions, yes/no questions, and tag questions (Long, 1983b), as in Example 1. The ratio in this and subsequent analyses was calculated by dividing the number of negotiation strategies (e.g., clarification requests) by the number of utterances and multiplying by 100.

Example 1:
A: There is a bill on the ground.
B: There is what?

2) Percentage of confirmation checks
   Confirmation checks were those utterances made by the listener to establish that the
   preceding utterance had been heard and understood correctly, but they included repetition
   of all or part of the utterances accompanied by rising intonation, as in Example 2.
   Example 2:
   A: I think I would take my credit card.
   B: Credit card?

3) Percentage of comprehension checks
   Comprehension checks were those utterances made by the speaker to check whether a
   preceding utterance had been correctly understood by the listener and consisted primarily
   of questions, either tag questions, repetition with rising intonation, or questions such as
   “Do you understand”, as in Example 3.
   Example 3:
   A: Do you know my picture?

4) Percentage of repetitions.
   This included the speaker’s various kinds of repetitions, be they partial, exact or
   expanded utterances within each speaking turn, as in Examples 4, 5 and 6.
   Example 4:
   A: There is a man. There is a man. (Exact)
   Example 5:
   A: It’s mine. Mine. (Partial)
   Example 6:
   A: They shouted. They shouted at each other. (Expanded)

4. Results

All the quantitative data were processed by SPSS for windows 13.0. And the significance
was set at 0.05 level.

4.1 Task Complexity and the Quality of Meaning Negotiation
Participants’ quality of meaning negotiation was assessed by the accuracy, complexity
and fluency of their language production respectively. The quantitative results of these
measures were analyzed associated with their relationship to task complexity.

4.1.1 Task complexity and participants’ accuracy in language production
The mean scores and standard deviations for participants’ accuracy in the four tasks are
provided in Table 2. The accuracy of the personal task is the highest (0.64 and 0.71 in no
planning and planning conditions respectively) and that of the narrative task is secondary
(0.59 and 0.68), followed by the decision-making task (0.59 and 0.65) and problem-
solving task (0.54 and 0.60) in succession. The data were then submitted to a measure of
one-way ANOVA, using participants’ accuracy as dependent variables. Its results reveal
that participants’ accuracy differs significantly ($F = 3.199, p = 0.029$).

**Table 2. Changes of accuracy under different task types and planning conditions**

<table>
<thead>
<tr>
<th>Items</th>
<th>Task types</th>
<th>No planning</th>
<th>Planning</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>M</td>
<td>SD</td>
</tr>
<tr>
<td>1</td>
<td></td>
<td>0.64</td>
<td>0.07</td>
</tr>
<tr>
<td>2</td>
<td></td>
<td>0.59</td>
<td>0.10</td>
</tr>
<tr>
<td>3</td>
<td></td>
<td>0.59</td>
<td>0.10</td>
</tr>
<tr>
<td>4</td>
<td></td>
<td>0.54</td>
<td>0.09</td>
</tr>
</tbody>
</table>

A repeated measure, one-way ANOVA, using measures of planning conditions as dependent variables, shows a significant difference in participants’ accuracy ($F = 7.708, p = 0.007$). Higher accuracy can be associated with planning conditions in all the tasks. Conversely, lower accuracy occurs in no planning conditions.

**4.1.2 Task complexity and the complexity of participants’ language production**

The complexity in participants’ language production differs strikingly. Table 3 shows that the greatest complexity can be attached to the problem-solving task in both no planning (1.47) and planning conditions (1.54), followed by the decision-making task (1.43 and 1.49) and the narrative task (1.34 and 1.40). The personal information exchange task produces the least complexity (1.27 and 1.33). These results are further confirmed by another measure of one-way ANOVA, using participants’ complexity as dependent variables. The F value 8.662 ($p = 0.000$) firmly indicates that complexity achieved significance for all the four tasks.

**Table 3. Changes of complexity under different task types and planning conditions**

<table>
<thead>
<tr>
<th>Items</th>
<th>Task types</th>
<th>No planning</th>
<th>Planning</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>M</td>
<td>SD</td>
</tr>
<tr>
<td>1</td>
<td></td>
<td>1.27</td>
<td>0.09</td>
</tr>
<tr>
<td>2</td>
<td></td>
<td>1.34</td>
<td>0.16</td>
</tr>
<tr>
<td>3</td>
<td></td>
<td>1.43</td>
<td>0.12</td>
</tr>
<tr>
<td>4</td>
<td></td>
<td>1.47</td>
<td>0.12</td>
</tr>
</tbody>
</table>

Besides, it is striking that planning conditions exerted an influence in all the four tasks. A duplicated measure of one-way ANOVA, using planning conditions as dependent variables, convincingly proves that there exists a sharp contrast between planning and no planning conditions ($F = 5.731, p = 0.020$). This also suggests the strong interaction between task types and planning conditions.
4.1.3 Task complexity and participants’ fluency in language production

The figures exhibited in Table 4 clearly indicate the strong correlation between the cognitive load placed on participants and their fluency. Specifically, the personal task gets the greatest fluency (27 seconds of silence and pauses) on average in both no planning and planning conditions, succeeded by the narrative task (45), the decision-making task (59) and the problem-solving task (76).

<table>
<thead>
<tr>
<th>Table 4. Fluency of four tasks under different task types and planning conditions</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
<tr>
<td>no planning</td>
</tr>
<tr>
<td>planning</td>
</tr>
<tr>
<td>Average</td>
</tr>
</tbody>
</table>

Of course, planning conditions also work here, and their positive effect is shown through the figures. Take personal task as an example, participants’ fluency is 18 and 35 under planning and no planning conditions respectively, which well illustrates that the participants’ fluency under planning condition is obviously more dramatic than no-planning conditions.

4.2 Task Complexity and the Quantity of Meaning Negotiation

Since the personal task and the narrative task are both one-way, and there is no interaction in them, it is unnecessary to discuss them when the quantity of negotiation of meaning is analyzed. Thus the concentration, in doing so, is on the problem-solving task and the narrative task.

<table>
<thead>
<tr>
<th>Table 5. Negotiation strategies under different task types and planning conditions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strategies</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>clarification</td>
</tr>
<tr>
<td>requests</td>
</tr>
<tr>
<td>confirmation</td>
</tr>
<tr>
<td>checks</td>
</tr>
<tr>
<td>comprehension</td>
</tr>
<tr>
<td>checks</td>
</tr>
<tr>
<td>repetitions</td>
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<td></td>
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</tbody>
</table>

Three points are revealed by Table 5:

First, whatever the mean percentage of every negotiation strategy is—be it high or low, all of them have certain occurrences. This well testifies that participants did employ multiple negotiation strategies to overcome communication breakdown or prevent conversational trouble. In other words, meaning negotiation is desirable as well as
necessary for communication.

Second, more negotiation strategies were used in the problem-solving task than the narrative task. Simultaneously, what is worth mentioning is that the amount of negotiation strategies utilized by participants also differs in the same task, among which the use of repetitions reaches the peak. In Task 4, their occurring percentage is 33.5 per cent on average (SD = 8.22), while in Task 2, it is 29.50 per cent on average (SD = 7.02). Evidently, in both tasks, repetitions were used far more frequently than the other strategies.

Finally, the effects of planning conditions are profound as well. Planning leads participants to utilizing more negotiation strategies than no planning.

4.3 Task Difficulty and the Quality of Meaning Negotiation

Data collected from the questionnaires were used to assess learner perceptions of task difficulty and were shown in Table 6.

Table 6. Descriptive statistics for questionnaire responses on four tasks

<table>
<thead>
<tr>
<th></th>
<th>difficulty</th>
<th>stress</th>
<th>ability</th>
<th>interest</th>
<th>motivation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>SD%</td>
<td>M</td>
<td>SD%</td>
<td>M</td>
</tr>
<tr>
<td>1</td>
<td>3.38</td>
<td>1.36</td>
<td>2.88</td>
<td>1.09</td>
<td>4.44</td>
</tr>
<tr>
<td>2</td>
<td>4.19</td>
<td>1.43</td>
<td>3.78</td>
<td>1.36</td>
<td>5.19</td>
</tr>
<tr>
<td>3</td>
<td>4.38</td>
<td>1.41</td>
<td>3.88</td>
<td>1.15</td>
<td>4.50</td>
</tr>
<tr>
<td>4</td>
<td>4.63</td>
<td>1.20</td>
<td>3.94</td>
<td>1.29</td>
<td>4.50</td>
</tr>
</tbody>
</table>

Some consistent clues can be found from the first two groups of figures in Table 6. Both difficulty and stress follow the same order: the personal task was assessed the lowest difficulty and the least stress (3.38 and 2.88 respectively). From the narrative task (4.19 and 3.78), the decision-making task (4.38 and 3.88) to the problem-solving task (4.63 and 3.94), the tasks were rated increasingly difficult and stressful. Whereas, for the other three standards, no clear patterns can be obtained.

In addition, correlations of the difficulty ratings and the three measures of participants’ production—accuracy, complexity and fluency were examined respectively, with the results shown in Table 7.

Table 7. Pearson Correlations between accuracy, complexity and task difficulty

<table>
<thead>
<tr>
<th>Difficulty ratings</th>
<th>Correlations</th>
<th>A</th>
<th>P</th>
<th>C</th>
<th>P</th>
<th>F</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>difficulty</td>
<td>-0.544</td>
<td>0.000</td>
<td>0.245</td>
<td>0.051</td>
<td>-0.434</td>
<td>0.000</td>
<td></td>
</tr>
<tr>
<td>stress</td>
<td>-0.502</td>
<td>0.000</td>
<td>0.326**</td>
<td>0.009</td>
<td>-0.356</td>
<td>0.001</td>
<td></td>
</tr>
<tr>
<td>ability</td>
<td>0.218</td>
<td>0.083</td>
<td>0.104</td>
<td>0.412</td>
<td>0.234</td>
<td>0.090</td>
<td></td>
</tr>
<tr>
<td>interest</td>
<td>-0.128</td>
<td>0.314</td>
<td>0.128</td>
<td>0.314</td>
<td>0.316</td>
<td>0.214</td>
<td></td>
</tr>
<tr>
<td>motivation</td>
<td>-0.124</td>
<td>0.331</td>
<td>0.011</td>
<td>0.933</td>
<td>0.213</td>
<td>0.112</td>
<td></td>
</tr>
</tbody>
</table>

**Correlation is significant at the 0.01 level. P = significance (2-tailed), A = accuracy, C = complexity, F = fluency.
Table 7 indicates that difficulty ratings are significantly and negatively correlated with participants’ accuracy ($r = -0.544$, $p = 0.000$) and fluency ($r = -0.434$, $p = 0.000$). This means those participants who produced more error-free and fluent clauses rated the tasks less difficult than those whose accuracy and fluency were lower. Similarly, participants’ ratings of stress are found to be significantly and negatively correlated with participants’ accuracy ($r = -0.502$, $p = 0.000$) and fluency ($r = -0.356$, $p = 0.001$). That is to say, participants who produced less accurate and fluent language rated their stress to complete the task higher than those who produced more accurate and fluent language. However, task difficulty is not prominently related to participants’ accuracy and fluency in terms of ability, interest and motivation.

Based on Table 7, it is also evident that participants’ complexity is significantly and positively correlated with their ratings of stress ($r = 0.326$, $p = 0.009$), and difficulty ($r = 0.245$, $p = 0.051$). The combination of both relationships indicates that those participants who rated the task as more stressful and difficult, elicited more complex language. Participants’ complexity in language production does not correlate significantly with the other three variables.

### 4.4 Task Difficulty and the Quantity of Meaning Negotiation

Correlations of negotiation strategies and their relevant difficulty ratings, both only involving Task 2 and Task 4, are as follows:

**Table 8.** Pearson correlations between task difficulty and negotiation strategies

<table>
<thead>
<tr>
<th>Correlation</th>
<th>Strategies</th>
<th>clarification requests</th>
<th>confirmation checks</th>
<th>comprehension checks</th>
<th>repetitions</th>
</tr>
</thead>
<tbody>
<tr>
<td>difficulty</td>
<td>$r$</td>
<td>0.135</td>
<td>0.085</td>
<td>-0.110</td>
<td>0.006</td>
</tr>
<tr>
<td></td>
<td>$p$</td>
<td>0.463</td>
<td>0.645</td>
<td>0.550</td>
<td>0.973</td>
</tr>
<tr>
<td>stress</td>
<td>$r$</td>
<td>0.067</td>
<td>0.063</td>
<td>0.006</td>
<td>0.141</td>
</tr>
<tr>
<td></td>
<td>$p$</td>
<td>0.715</td>
<td>0.731</td>
<td>0.972</td>
<td>0.441</td>
</tr>
<tr>
<td>ability</td>
<td>$r$</td>
<td>-0.374*</td>
<td>-0.098</td>
<td>-0.376*</td>
<td>-0.132</td>
</tr>
<tr>
<td></td>
<td>$p$</td>
<td>0.035</td>
<td>0.594</td>
<td>0.034</td>
<td>0.471</td>
</tr>
<tr>
<td>interest</td>
<td>$r$</td>
<td>-0.186</td>
<td>-0.196</td>
<td>-0.325</td>
<td>-0.197</td>
</tr>
<tr>
<td></td>
<td>$p$</td>
<td>0.309</td>
<td>0.283</td>
<td>0.069</td>
<td>0.281</td>
</tr>
<tr>
<td>motivation</td>
<td>$r$</td>
<td>-0.356*</td>
<td>0.038</td>
<td>-0.503**</td>
<td>-0.221</td>
</tr>
<tr>
<td></td>
<td>$p$</td>
<td>0.045</td>
<td>0.838</td>
<td>0.003</td>
<td>0.225</td>
</tr>
</tbody>
</table>

*Correlation is significant at the 0.05 level.

As is shown in Table 8, four significant correlations are available.

1. Participants’ ratings of ability and motivation are prominently and negatively correlated with their utilization of clarification requests respectively ($r = -0.374$, $p = 0.035$; $r = -0.356$, $p = 0.045$), i.e. if they felt less confident in their ability and less motivated to complete the task, they employed more clarification requests than otherwise.

2. The rest two correlations are both attributable to the strategy of comprehension checks. One is its negative correlation with participants’ confidence in ability ($r = -0.376$, $p = 0.035$),
p = 0.034), and the other concerns its dramatic negative correlation with participants’ ratings of motivation (r = -0.503, p = 0.003). In other words, for the cognitively more demanding tasks, participants who felt less confident in their ability and less motivated to fulfill it, turned to more comprehension checks than those who performed it with more confidence and motivation.

5. Findings and Implications

Four main findings arise from the results stated above.

Finding 1. A complex imbalanced effect of task complexity on the quality of meaning negotiation

In the research, task complexity is specified as task types and planning conditions, whose interaction produces rather complicated and uneven results.

The tasks used in this research are, mostly connected with participants’ real lives, except for the narrative task. In the personal task, participants described an aspect of their actual lives, whereas in the problem-solving and decision-making tasks, they had to draw on their own system of values and beliefs. There is evidence indicating that discourse salience can influence the level of accuracy on a task, particularly when syntax and morphology have discoursal value to signal meaning (Tarone, 1985). Although this is speculative, it may be the case that participants are drawn toward a greater degree of precision and accuracy when they can use planning conditions to invest the language used in tasks with more personal significance. Particularly, it is noteworthy that the narrative task is less effective at meeting this criterion of real-world connections. It is relevant, in this respect, that its accuracy on average (0.63) was only slightly superior to the decision-making task (0.62), rather than significantly, though it was rated comparatively easy with the visual aid.

It is also noticeable that the personal task produced the greatest accuracy and fluency, but the least subordination, perhaps reflecting the linguistic demands that were made to express personal information, too familiar and too dull, as well as the succinctness that may result from the requirement of the topic itself. It is totally reverse with the problem-solving task, where participants’ complexity was greatest, while their accuracy and fluency were both lowest. In carrying out the task, a lot of argumentation and reasoning contributed to the use of more logical connectors, along with the syntactic permutations necessary to embedding and subordination of clauses. The rest two tasks just fell between the two extremes.

Finding 2. Trade-off effects indispensable to negotiation of meaning

Based on Finding 1, an additional outcome becomes self-evident: The results that the more cognitively demanding task caused participants to use more complex, but less accurate and fluent language and vice versa suggest that trade-off effects are working here.

Since learners have only a limited-capacity memory system—working memory available, their attentional resources need directing at one of the three goals of language
performance—accuracy, complexity, fluency in general. Although all being desirable goals, they are in some degree of mutual tension and compete with each other when attentional resources are limited. As a consequence, full attention cannot be given to each of these goals and trade-off effect occurs. Willis & Willis argues that the pursuit of one of these goals can easily be at the expense of the others. In other words, learners should not emphasize a particular goal too long at the expense of the others; instead, it is desirable to ensure that attention is divided between them as effectively as possible (2002: 22-23).

Typically, in the study, the personal task generated a greater degree of accuracy without achieving much complexity. Meanwhile, the problem-solving task produced the highest level of complexity at the expense of accuracy. What seems to be happening is that the goals of complexity and accuracy competed for the limited information processing resources.

The most plausible account would seem to be that the problem-solving task plus planning condition caused participants to structure their subsequent task contributions in a more ambitious manner—the planning time was channeled into the production of more complex ideas, which then pushed learners to levels of syntax beyond the level of comfortable control or, alternatively, whose execution was so demanding on available resources that, through the prioritization of more sensible ideas, accuracy was squeezed out (Foster & Skehan, 1996). In the meanwhile, the personal task suggests that being able to draw upon familiar, ready-encoded information does promote a greater degree of fluency and a corresponding lack of need for planning.

Contrary to these two extreme cases, the decision-making and the narrative tasks seemed to occupy an intermediate position. The joint levels of accuracy and complexity in both tasks, strengthened by planning condition, demonstrate progress being made toward both goals simultaneously. In that case, the cognitive resources available seemed to cope adequately with the pressures.

**Finding 3.** An interplay between cognitive demands and the quantity of meaning negotiation

A noteworthy discovery in this research is task complexity has a profound effect on the quantity of meaning negotiation. More accurately, more cognitively demanding tasks prompt more amount of meaning negotiation. The previous data clearly testify that the ratio of negotiation strategies employed in the problem-solving task, amounting to 57.90 per cent, which is overall higher than that in the narrative task, 56.06 per cent. Robinson (2001) argued that there would be more interaction on the complex task, leading to more confirmation checks and clarification requests on the part of the hearer. This greater amount of interaction thereby generated, also had the effect of reducing the fluency of participants, where planning is a critical factor to consider.

However, on the other hand, the reduction of fluency, because of the employment of meaning negotiation, also reacts to task complexity in some sense. Table 5 clearly indicates that planning prompts participants to appeal to more repetitions. This suggests that participants seem to use planning time to capitalize on the use of time-creating devices (Bygate, 1987). Such learners seem to use the planning to think “on-line”, as a result planning produces the more use of negotiation strategies like repetitions and
clarification requests, rendering the discourse, in one sense, less fluent. This finding just suggests the naturalness of discourse, in that native speakers also engage in lots of such linguistic behaviors to enable them to cope with the real-time problem. In other words, it may be that participants under the unplanned condition, who would devote more attention to protect time for ongoing planning, were unable to exploit these strategies. In contrast, participants under planning, already blessed by the favorable condition, were able to capitalize upon their clear ideas and make things even easier by exploiting these negotiation strategies to create a natural buffer against time pressure. Thus more attentional resources were freed up accordingly. So in this sense, the use of certain negotiation strategies does help to lower the cognitive load and communicative demand. This firmly demonstrates the interplay between cognitive demands and the quantity of meaning negotiation.

**Finding 4.** The positive correlation of task complexity and task difficulty

On the one hand, task complexity is partially positively correlated with participants’ perceptions of task difficulty—ratings of difficulty and stress, as is indexed by Table 6. And encouragingly, differences in task complexity are unrelated to ratings of interest and motivation, suggesting that as tasks increase in cognitive complexity, approaching the authenticity of target task demands, there is no loss of interest in or motivation to complete the task.

Additionally, trade-off effects reflected from the relationship between the quality of meaning negotiation and task complexity and task difficulty respectively add secondary evidence to this finding. More specifically, both task complexity and task difficulty are negatively related to participants’ accuracy and fluency, to divergent degree, but positively related to their complexity. The cognitively more demanding task was rated more stressful and difficult, resulting in participants’ higher accuracy and fluency, but lower complexity.

On the other hand, the relationship of both task complexity and task difficulty to the amount of meaning negotiation is somewhat different and complex. Task complexity is in a sheer positive relationship with the amount of meaning negotiation, while task difficulty is not related to the adoption of negotiation strategies concerning participants’ ratings of difficulty, stress and interest at all. Instead, task difficulty is only related to the strategies in part: ratings of ability and motivation are negatively correlated with clarification requests and comprehension checks, as is shown in Table 8.

However, although the complicated relationships of the quantity of meaning negotiation with task complexity and task difficulty is different superficially, they do imply the same thing—the more complex task is rated with less confidence and motivation, bringing as a result the more use of negotiation strategies on the part of participants.

Beyond that, an uneven occurrence of the various negotiation strategies is exhibited by the data. In both tasks, there occurs a much higher level of repetitions than the other three strategies. According to Brown (1991), one possible explanation for the higher incidence of repetitions may quite simply be that, on the whole, these tasks put a considerable strain on participants in that the tasks made considerable demands on their limited linguistic competence. This also reflects the possibility that the negotiation takes place at a more basic level, where a higher level of repetitions, but a lower level of
comprehension checks, clarification requests and confirmation checks may be found.

The findings in this study provide much insight into the task-based language teaching (TBLT). Particularly, diversified task types should be adopted not only to arouse the interest of students, but also to enrich research and stimulate its development. The four tasks used in the present study yielded contrasting results. The results obtained were consistent with the hypothesized task properties. But these conclusions are just based on four tasks. So it is desirable to conduct research on other examples of these four task types, as well as on other task types so as to make the generalized results more convincing and rational. Moreover, it is advisable that task designers should flexibly manipulate task complexity so that the chosen tasks are neither too challenging nor too dull. The results deriving from the research has proved that there is more interaction for the cognitively more demanding task. On the other hand, the interaction relatively shifts the task demands placed on a learner during input processing. And the change in task demands frees up attentional resources, allowing learners to process something they might miss otherwise. As far as the quality of meaning negotiation is concerned, attention should be ensured to be divided between the three goals of language performance—accuracy, complexity, fluency as effectively as possible when attentional resources are limited. This can be achieved by implementing tasks through controlling pressures such as adjusting planning time so as to facilitate negotiation of meaning as well as maximize the chances that there will be a balance between meaning and form in communication.

References


### Appendix

(Copy editing: Joshua Lee)