

Goal formation in dialogic communication

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1. Outline of the Study

The subject of this paper is dyadic conversations. It discusses what is termed here as "the process of goal formation" on the part of individual participants engaged in conversations in response to assigned tasks. My interpretation of the process is motivated by certain concepts derived from Vygotskian psycholinguistic theory, a global theory of cognitive development attributed to the works of the Russian psycholinguist, Lev Vygotsky, in the 1920s and the 1930s, and which has gained considerable attention among Western scholars since the 1980s. (See Vygotsky 1962, 1978, 1986; Moll 1990; Wertsch 1985a,b; Wertsch 1991; Diaz and Berk 1992).

The paper first describes two Vygotskian concepts: "situation definition" and "control" that are relevant for dialogic communication. Next, it gives some details of the task, the subjects, and the data collection procedure that provide conversational data discussed in this paper. The paper then interprets the data in order to show the process of goal formation. It concludes with some comments on the significance of the Vygotskian view of goal formation in relation to investigating dyadic conversations within the broader context of second language acquisition research.

2. Concepts

2.1 Situation definition

The notion of situation definition was introduced by Wertsch, the most notable Western proponent of Vygotskian psycholinguistic theory. He defines the notion as follows in relation to adult-child interaction:

A situation definition is the way in which a setting or context is represented--that is, defined--by those who are operating in that setting. I use the term definition because I want to emphasize that humans actively create a representation of a situation; they are not the passive recipients of this representation (Wertsch 1984:8).

What this means is that two interlocutors communicating in the same context and apparently doing the same task may have different perspectives and goals (i.e., engaged in different activities in fact). Wertsch clarifies this point through the following example involving adult-child joint problem-solving activity. In the interaction, involving a problem-solving situation in the form of a puzzle, the task assigned is to construct an object according to a given model. Pieces provided for constructing the copy object have to be selected and put together carefully by matching them with the pieces in the model. However, this is the adult's situation definition in which the principle of representation is something like "object-to-be-used-in-the-copy-because-of-the-presence-of-a-corresponding-piece-in-the-model" (Wertsch 1984:9). On the other hand, the child's situation definition is different in that the concept of a model has not yet entered in his mental representation of the task. Thus, even under adult guidance, he picks up the pieces without regard to the requirements of the

model. In his mind, each piece is represented as an "object-to-be-used-as-I-see-it-fit" (p.9). Thus, at this point when the adult asks the child "Show me what you need next," the word "next" has different referents for each in terms of the model in their mental representation.

This notion of situation definition has important implications for investigating task-based dialogic communication. The researcher needs to be aware of the fact that the task he assigns to a dyad in an experimental setting is not to be analyzed in his own terms. The task may be understood by the interlocutors differently from what the researcher has in mind. In fact, as Rommetveit (1987) points out, "The very act of informing an individual of the nature and intent of a given experiment can lead that individual to act contrary to our predictions." As already mentioned, Wertsch's very use of the word "definition" means the participants engaged in communicating with each other do not passively receive instructions from the researcher but *create* their own instructions while defining the task for themselves.

Furthermore, as Newman et al. (1984) point out, experimental design in a laboratory setting, compared to individual behavior in real world settings, is an artificial context. The experimenter strives for maximal control in terms of the task, the subject's goal during the task, and the conditions for carrying out the task. It is assumed that the subject must be made to work in accordance with the task set by the experimenter. Such experimentation aims at creating a model system of behavior in which the variables are controlled. However, "the constraints on activity used to create model systems render them systematically dissimilar to the system of activity created in society for other purposes" (Newman et al. 1984:173).

Similarly, the tendency to consider task as an integral factor in its own right and, consequently, assign it an independent status, is misleading. Such a view is implied in Zabrodin (1983), who proposes to look at task in itself as a closed activity, imposing its own limitations and conditions on a subject. Thus, an experimenter's design of a task before an experiment is taken as the beginning point of any psychological analysis. However, as Appel (1986) argues, raising a task to the level of a category, in fact, results in looking at the product, and not the process of a psychological behavior.

In short, in any investigation of dyadic communication, it is important to look at how the interlocutors define the assigned task for themselves.

2.2 Control

In the Vygotskian psycholinguistic theory of cognitive development, underlying the development is the notion of regulation in terms of subordinating the natural or elementary mental function to social-cultural control. The theory provides what is called *Vygotsky's genetic method*, a method that accounts for movements in genetic development from the biological to the cultural, the social to the individual, the child to the adult, interpsychological to intrapsychological functioning, in which the locus of control shifts from the external to the internal mind. (For details, see Wertsch 1985a:17-76.) Hence, a cognitively developed individual is one who has become independent of his external context and gained self-regulation.

This cognitive development in terms of regulation is *linguistically* organized. Speech becomes instrumental in gaining control over one's own self both intellectually and affectively. Frawley (1987:147) emphasizes this point in specifying that the function of language is "the regulation of self, others, and objects in the social environment." He explains this function as follows:

Language serves to regulate, first, objects, where 'objects' means anything in the environment which is nonhuman and has ontological status. Thus objects are such things as tables, chairs, dogs, and even facts. The object-regulation function is the most elemental operation of language; naming is a classic example of object-regulation through language. Second, language functions to regulate other people. This other-regulation function can be either other-regulating (when speech functions from the point of the speaker to control other people) or other-regulated (when speech is produced because other people control the situation in which the speaker utters language. Typical examples of language with other-regulation function are speech acts, or methods by which individuals attempt to control verbally the behavior of other individuals. Third, language serves to regulate the self... self-regulation is, in fact, the highest and most critical function of speech (since it is how the individual ultimately controls himself and his mind...). All self-directed, monological utterances have this function... (Frawley 1987:147-48).

Given this account of cognitive development in which language assumes control functions in any speech activity, and based on the notion of situation definition, the relationship between the interlocutors in dialogic communication is to be seen in terms of "patterns of dyadic communication control" (Rommetveit 1985:184). Two major kinds of patterns are identified: symmetric and asymmetric. In the symmetric pattern, the interlocutors are able to present each other's private worlds freely based on their respective situation definitions. In maximally symmetric dyadic communication, there may be "unlimited interchangeability" of each other's private world. It is a communicative situation in which both the participants feel equally powerful.

However, in the real world, such unlimited interchangeability rarely exists. "Due to unequal distribution of knowledge, power," dyadic communication is mostly characterized by asymmetric patterns (Rommetveit 1985:192). Directionality of control between the interlocutors characterizes such communication. In other words, individual interlocutors, depending on their respective situation definitions, experience variable power relationships. The obvious example of an asymmetric situation is adult-child interaction in which the child's cognitive development rests on the internalization of the adult's situation definition. The same principle, however, applies to adult-adult communication in which one adult may attempt to establish his private world at the expense of the other's. Whose private world is imposed or accepted becomes the central issue.

Within the Vygotskian psycholinguistic framework itself, the asymmetric patterns of control emerge in the features of object-regulation, other-regulation, and self-regulation in the interlocutors' behavior in a particular task. In this context, the important research concerns are whether the individual interlocutors are controlling or being controlled in a task situation, whether an individual interlocutor is able to maintain self-regulation in the presence of the other interlocutor, whether an individual interlocutor becomes object-regulated by the non-human facts of the task, etc. The element of task itself is embedded within an interlocutor's situation definition.

3. Task, subjects, and data collection procedure

The data in this paper is extracted from a larger pool of data in my dissertation study (Ahmed 1988). In the task selected for this paper, the participants were given two similar, although not identical maps. (For the maps, see Littlewood 1984:40). They were instructed to discuss and exchange information to find a safe route by which one of the interlocutors could move from one position to another on the map. The route would be safe if the interlocutor could avoid certain areas and follow certain paths on their maps. They were instructed to discuss and provide information to each other on how to find the safe route. The task was designed as a two-way task incorporating obligatory exchange of information between the participants.

Three dyads consisting of both native speakers (NS) and non-native speakers (NNS) participated separately in the task as follows: a NS-NS dyad, a NNS-NNS dyad, and a NS-NNS dyad. The NNSs were from different L1 backgrounds. For each dyad, the interlocutors sat across a table, facing each other. They were given similar maps, though with some crucial differences. Therefore, two sets of instructions were provided. (See the appendices A & B.)

The data was collected as follows. On the day of the experiment, the researcher and the interlocutors met in a designated room. The instructions were provided in written form on the first page of the two-page set of materials (the second page showed the map). The researcher did not provide any oral instructions or explain the nature of the task. He simply asked the participants to read the instructions carefully and carry out the task. After this step, the researcher left the room to let the interlocutors do the task. The interlocutors were aware of the ten-minute limit. After ten minutes, the researcher entered the room and asked the interlocutors to discontinue the task.

All the conversations were videotaped with a camera that had been set in a fixed position in advance. Later, the conversations were transcribed. The transcribed data also included descriptions of non-verbal gestures which the researcher found helpful for data-analysis. The analysis in this paper is based on selected excerpts from these conversations.

4. Analysis

From the Vygotskian point of view, the process of goal formation ought to be investigated in any speech activity, including dialogic communication. In such speech activity, an interlocutor facing a task engages in a process in which the goal of the task appears subjectively in the form of a "mental image of the object" of the activity, a type of "anticipatory reflection" (Lomov 1982:48). In other words, the individual forms an idea of what the result of the task-activity is going to be. This goal formation accordingly directs his behavior towards a subjectively-formed result.

The conversational data show that while responding to the task materials the interlocutors define the goal differently from that given in the instructions. In fact, they more often violate than follow all or part of the instructions related to the goal of the task. The following excerpt, showing the beginning of the NS-NS conversations, provides supporting details. Interlocutor X, a female NS, is supposed to be in Camp X shown on her map, while Interlocutor Y, the male NS, is in Camp Y on his.

Excerpt 1

[The researcher leaves. The interlocutors begin to check the task materials. X looks at the map first, then returns to the instructions sheet. Y checks the instructions first, then turns to the map. In keeping with the researcher's instructions, they do not look at each other's maps. Total time elapsed when the first utterance is heard: one minute and 31 seconds.]

- A. NS(Y): now...you're...you're in camp X
B. NS(X): uh...ha
C. Y: now...now [looks at speaker X for a moment]
I don't know what the gradations are/
whether this 400...600...
D. X: we're both trying to get to camp Y?
E. Y: wait.../
"your partner has the same kind of map" (low tone)
[reads instructions]
F. X: so I have to come to camp Y?/ O.K?
G. Y: [continues reading the instructions]
H. X: so you're supposed to be giving me
directions?
I. Y: right.../well.../
we're supposed to figure out ...
J. X: O.K.
K. Y: the route most directly (low tone)
L. X: just...get ("get" stressed)
[Laughs a little. Makes hand movement.]
M. Y: all right... (pause)
you could always go ... straight to camp X/
let's walk to the woods
N. X: no...you can't go through the forest
O. Y: can't...auu! [affective!]
P. X: can't go through the forest/
why can't you just follow the...
Q. Y: where? [looks at her]
R. X: what's that?/the X's.../
go down...uh...straight down...camp X
[points out in her own map]
straight down around.../
[long pause]
you have A...B...C
[Laughs a little. Looks at him.]
S. Y: yeah...yeah
T. X: O.K...go down...uh...block B.. and ... across

In this initial phase of goal formation, speaker X's utterances in (D), (F), and (H) indicate her attempt to comprehend the task goal and the conditions for reaching the goal (H). She seems to understand the task goal that conforms to the goal stipulated in the instructions (F). However, she does not take any initiative to define the goal explicitly and provide directions to reach the goal.

On the other hand, in response to X's questions, Y at first attempts to comprehend the instructions for himself, as shown in the self-directed speech in utterances (E) and (G). He comes up with the interpretation in (K) that leads to a specific goal in (M). However, the goal actually turns out to be contrary to that stated in the instructions, since Y suggests going to Camp X instead of Camp Y, i.e., a reversal of the instructions.

Furthermore, his utterance (M) is crucial in its use of the phrase could always go...straight. It shows that Y sets the goal of going to Camp X in terms of a possibility, a possibility that they can adopt if nothing else works. Again, straight implies that he does not take into account the constraints imposed by the researcher's instructions. In other words, he shows a tendency to find an easy route to Camp X, not a permissible route as defined by the instructions. In fact, if the researcher's instructions are followed, the permissible route is anything but straight. Following the possible task goal, speaker Y comes up with a specific plan of action, i.e., let's walk to the woods. According to the instructions, however, Y is not supposed to walk anywhere.

X is eager to complete the task, as shown in the verbal and the non-verbal characteristics of her utterance (L). However, she does not ignore the constraints imposed in the researcher's instructions, as seen in her inhibition in utterance (N) of Y's specific plan of action. Consequently, the plan is abandoned and, subsequently, X comes up with an alternative plan in (R). However, her plan reverses the direction that had been proposed by Y earlier in that she now asks him to move from Camp X. However, this plan is only partially in keeping with the researcher's instructions because X ignores the fact that speaker Y is in Camp Y and is not supposed to move from there. However, as the conversation proceeds, this plan is soon abandoned when Y points out that, according to the map, she is still going through the woods, which is a prohibited area. They abandon the plan once again. Following this, Y takes over and starts directing her with a new plan.

This pattern of giving up one plan of action and coming up with another continues throughout the conversation. There are several such attempts at planning, as shown in the following excerpts:

Excerpt 2

- A. NS(X): why can't you just follow the...
- B. NS(Y): where?
- C. X: what's that?/X's.../go down.../uh...
straight down...camp X...straight down/
[long pause]
you have A...B...C [laughs a little]

Excerpt 3

- Y: O.K.../all right...let me think/
all right...if you come...from yours/
your camp X/
if you really come down...block E/
the other end

Excerpt 4

Y: all right...let me make sure/
box 5E.../do you have an X?

Excerpt 5

X: how about then/
I guess you just have to go down/
just cross the river...on...that's...on A/
cross the river/
then go down.../ go straight down/
...and...uh...you know.../
do you have a target in C/
or whatever it is....

In these attempts, the interlocutors keep changing their roles as giver or receiver of directions. However, as the conversation proceeds, every attempt is in fact abandoned because each time one of them confronts some problem that forces the other to give up the attempt. Moreover, not all attempts coincide with the instructions. In fact, the instructions are often violated, the most explicit violation occurring in the fourth attempt when speaker X directs speaker Y to follow yet another specific plan, given in the following excerpt:

Excerpt 6

- A. NS(X): How about/I was thinking about/
we go backwards from camp Y/
so that...if it does not work...to camp X/
maybe find the route from camp Y to X
- B. NX(Y): O.K./ all right
- C. X: Can you go across the whole map?/
you can go across the whole map/
it doesn't have to [pause]
- D. Y: across the whole...?/I don't understand?/
what do you mean by across the whole map?/
use the whole
- E. X: yeah/ you can use the whole map/
you don't have to follow...that...uh...route/
do you know what I mean?
- F. Y: I don't know ... what route.
- G. X: you don't have to follow...that...that...
the one where the X's are/
you have to follow that only?/
that's the only way?
- H. Y: well...you've to cross/
well...in mine...you've to cross the river
- I. X: right
- J. Y: to get to camp Y
- K. X: O.K./.../O.K. [different intonations]
- L. Y: what?
- M. X: here we go!/[pause]/ why we can't just [laughs]

In the task materials, there are two fundamental instructions. Besides stipulating the unidirectional movement of the interlocutor in Camp X to Camp Y, the instructions also mention that only at certain points, represented on the maps by the letter X, can the interlocutor from Camp X cross the river to reach Camp Y. However, as speaker X's utterances (A) and (G) show, both of these fundamental points are ignored, although in (G) the speaker expresses self-doubts.

On his part, as shown in utterance (B), Y accepts the possibility of X's suggested movement from camp Y to camp X. However, as shown in (J), with reference to his own map he has not abandoned the idea of X moving towards his own camp Y. Thus, he entertains the possibility of moving in both directions, a strategy not allowed in the researcher's instructions.

The ending of the conversation is important in showing how the process of goal formation ends:

Excerpt 7

- A. NS(Y): see mine.../I have..
[Y sounds irritated. X laughs.]
 on my map... I have/.../I have/.../nine X's/
 I have one...block one...D/.../two...C/
 one ...B
- B. NS(X): that's what I have
- C. Y: one...between one five/.../I got...like...
 right between one...two/one on line...and A/
 one in three...B
[The researcher opens the door and enters the room. Y speaks a little fast.]
 D/.../five...E/.../four...B/between 4...B...C/
 and one in ... four... like between four... five... and A
- D. Researcher: How's it going?
- E. X: not very good *[laughs]*
- F. Y: *[murmurs...unintelligible]*

This is the last attempt at finding the route. However, this attempt is distinct in that unlike the others, it does not represent any specific plan of action following a defined goal. It actually shows speaker Y focusing on certain local features of the map, in this case the symbol X, which stands for the allowable passages across the river in the map. Thus, the conversation ends, or rather is stopped by the researcher, while the interlocutors are still trying to understand certain micro-level features of the task.

This NS-NS conversation ends without the completion of the task. Furthermore, no specific plan of action is implemented. Goal formation in this specific conversation consists of the adoption of several different goals, some contrary to the researcher's stated goal. More importantly, the goal formation process is characterized by the changing and/or abandonment of goals.

A similar process of variable goal formation is seen in the NNS-NNS conversation on the same task. The following excerpt shows the task opening:

Excerpt 8

[The researcher leaves the room. X and Y, both female NNSs, read the instructions separately. First, X turns over the first page, looks at the map on the second page, returns to the first page, then turns to the map again on the second page. Y turns to the second page later. Reading time: about two minutes.]

- A. Y: I am X *[Looks at X]/.../you are Y*
B. X: yes
[pause for a few seconds]
I am not certain.../did you understand?
C. Y: *[reads instructions in a low tone]*
you will go to meet your partner ... in ... camp Y/.../
you and your partner decide which route you should take
to your partner's camp...
[Now looks at X. Tone rises]
maybe...I will go to your camp/ and you...go to my camp...no?
[they both laugh]
D. X: *[reads instructions in a low tone]*
on the next page you will see a map/
your partner has the same kind of map/.../
imagine that you are in ...camp
[now looks at the map on the next page]
Tone rises on the following]
I am in camp Y/ you are in camp ... where?
E. Y: X
F. X: right/.../now *[very low tone on now]*
[Low tone on the following. Reads instructions.]
your partner will come to meet you in your camp /.../
together you and your partner discuss and decide ...
which route your partner should take.
[Pause for a few seconds. Tone rises.]
I have to try to get to you ... and
G. Y: yeah *(low tone)*
H. X: you have to try to get
I. Y: yeah *(low tone)*
K. X: me

Both the non-native speaking interlocutors face difficulty in comprehending the instructions at this initial stage of their conversation. Both misinterpret the goal, as shown in Y's utterance (C), and X's in (F), (H), and (K). Furthermore, in the course of the action, both the interlocutors violate the researcher's instructions in various ways. Speaker Y directs speaker X to move from camp Y to camp X. After X inhibits the movement by pointing out certain restrictions on her map according to the researcher's instructions, a radical change occurs in the goal, as shown in X's utterances (E) and (G) in the following excerpt:

Excerpt 9

- A. NNS(X): yes... and on the right side... I have... uh..
electric fence

- B. NNS(Y): ah...
 C. X: so I can't (*laughs a little*)
 D. Y: uh (*low tone*)
- E. X: what about you why don't you try to meet me/.../
 why don't you try to meet me ...
- F. Y: ok
 G. X: I will stay here ...OK?
 H. Y: um .../ can I cross the river ... uh... to B...4?
 I. X: uh ... you can go to B5?

Utterances (H) and (I) establish the pattern of action for the rest of the conversation. Y asks a series of questions regarding her own movement, and X directs her movement. All these in fact violate the researcher's instructions. Finally, like the NS-NS dyad, this dyad is unable to complete the task. No specific plan is implemented, and goals, different from the one set by the researcher, are formed and abandoned.

In both the NS-NS and the NNS-NNS dyads, the interlocutors' affective expressions are significant. In the NS-NS dyad, as shown in Excerpt 1, X's affective utterance and non-verbal behavior in (L) are crucial in that they show she wishes to complete the task quickly and easily. Similarly in utterance (O) in Excerpt 1, Y gives up his plan with a feeling of exasperation when X inhibits him. In fact, this affective bent towards a quick and easy completion occurs on the part of both X and Y during the course of their conversation (see also utterance (M) in Excerpt 6). In the NNS-NNS dyad, there are several expressions of task difficulty (e.g., *oh...my god*, *oh...gosh*). These affective expressions arise during moments of cognitive difficulties when a participant tentatively looks for or abandons a plan. The expressions thus have the effect of forming a psychological macrostructure that shows how these interlocutors act towards the task and which induces variability in their goal formation.

In terms of completing the task according to the researcher's instructions, the NS-NNS dyad is the most successful in that the interlocutors are able to complete the movement from camp X to camp Y. Underlying their success is the ability they demonstrate in controlling the task materials throughout the conversation. The following excerpt shows how they begin their conversation:

Excerpt 10

- A. NS(X): you understand?
 B. NNS(Y): ok...yes
 C. X: now...now... our maps are not the same .../
 but they're ...they're almost the same
 D. Y: almost same/
 and there are some /.../ uh... there isn't something ...in...in my
 map which
 E. X: which is in my map
 F. Y: which doesn't show
 G. X: ok...ok... now... you are ... where are you?
 H. Y: camp X
 I. X: ok... I'm in camp Y/.../ we need to bring you
 K. Y: to camp Y
 L. X: yes
 M. Y: ok

Unlike the interlocutors in the other two dyads, these interlocutors do not just read the researcher's instructions once again after the initial reading but provide information about the instructions. The excerpt shows mostly other-directed social speech on the part of both the interlocutors in terms of cooperative dialogic exchange. Significantly, there are no affective expressions of the sort found in the other two dyads on the same task. In the use of specific linguistic features, these interlocutors show cognitive distancing from the objects in the task, thereby showing greater control over the task materials.

More importantly, the female NS establishes control over the conversation from the very beginning, as shown in (A), Excerpt 10. Furthermore, she exhibits a sense of joint responsibility for finding the route, as shown in (I), Excerpt 10. This control is maintained throughout the conversation in that it is the NS who mostly directs the movement from camp X to camp Y by a series of imperative utterances directed at Y, as illustrated in the following brief excerpts:

Excerpt 11

- A. NS(X): and don't ... don't... don't go by the river
just go straight down
- B. NNS(Y): uh..um
- C. X: ok... we're in B now
- D. Y: B

Excerpt 12

- A. NS(X): OK... go to the ... to the second...
go across the line
- B. NNS(Y): uh...um
- C. X: until right before that X
- D. Y: uh ... um
- E. X: OK./.../ now we can go straight down ... on the line
- F. Y: uh ... um
- G. X: OK

5. Conclusion

To summarize, these descriptions of the goal formation process reveal substantial variability in the formation of task goals in relation to the goals stipulated in the researcher's instructions. The NS-NS dyad looks for and then abandons a series of different goals. The interlocutors seem to enter the dialog in a light-hearted manner. They do not pay much attention to the instructions. Consequently, much of the conversation focuses on comprehending or determining what the task goal is, with no success in discovering the goal as set by the researcher. A similar process is seen in the NNS-NNS dyad. The same lack of success, from the researcher's point of view, is found in their conversation, which may be due to the interlocutors' linguistic difficulties in the second language. On the other hand, the NS-NNS dyad shows much better control. Even then, between the two participants, there is an asymmetric pattern of control: the NS controls much of the task materials and the NNS participant.

Vygotskian psycholinguistic theory propounds, what it calls the *theory of activity* in terms of both a fundamental concept (Wertsch 1981; Lomov 1982) and an analytical framework (Leontiev 1981). In light of this theory of activity, the

variability in the goal formation process as discussed above may be attributed to an interlocutor's orientation towards a task, which in turn may be rooted in his motive.

There is an important implication for second language acquisition research (SLAR). In SLAR, dialogic communication is widely viewed in terms of information exchange or negotiation of meaning in which the participants are supposed to send and receive messages. The linguistic features of their speech are thus analyzed in the context of this transmission/exchange of information model. However, the Vygotskian approach provides a different focus. By drawing attention to a speaker's goals in terms of situation definition, the speaker is viewed not so much as communicating with another individual as attempting to control his own cognitive behavior in the face of a self-defined task and the presence of another individual. Such an approach would lead to an understanding of the orientation and motives that are significant factors in any speech activity. It is this understanding that plays a central role in the Vygotskian theory of cognitive development.

Note: This paper is no more than a draft at the moment, as a first step towards a finally revised, expanded, and edited paper. The author is solely responsible for any mistakes or weaknesses.

Appendix A

PLEASE READ THE FOLLOWING INSTRUCTIONS VERY CAREFULLY

On the next page you will see a map. Your partner has the same kind of map. Imagine that you are in **Camp Y**, and your partner is in **Camp X**. Your partner will come to meet you in your camp. Together, you and your partner discuss and decide which route your partner should take.

Remember, you must not see your partner's map.

On the map, there are certain things that are shown on **YOUR** map, but they are not shown on **YOUR PARTNER's** map. Then, there are some things that are shown on your partner's map, but they are not shown on your map.

Also, there are some things you and your partner can do, but there are some things you both **cannot do**. You can cross the river only at some **safe points**. You should look at the **box below the map**. Look carefully at the **details inside the box**.

If you do not understand some details, you should talk to your partner. You both should give information to each other. You should discuss with your partner to find a **safe route** to your camp.

Remember the following points. Your must not see your partner's map. Also, you must not show your map to your partner.

You have about ten minutes to do this task. If you do not finish in ten minutes, I will come in and stop you.

Now, talk to your partner and find a safe route from Camp X to Camp Y.

Appendix B

PLEASE READ THE FOLLOWING INSTRUCTIONS VERY CAREFULLY

On the next page you will see a map. Your partner has the same kind of map. Imagine that you are in **Camp X**, and your partner is in **Camp Y**. You will go to meet your partner in Camp Y. Together, you and your partner discuss and decide which route your partner should take.

Remember, you must not see your partner's map.

On the map, there are certain things that are shown on **YOUR** map, but they are not shown on **YOUR PARTNER's** map. Then, there are some things that are shown on your partner's map, but they are not shown on your map.

Also, there are some things you and your partner can do, but there are some things you both **cannot do**. You can cross the river only at some **safe points**. You should look at the **box below the map**. Look carefully at the **details inside the box**.

If you do not understand some details, you should talk to your partner. You both should give information to each other. You should discuss with your partner to find a **safe route** to your camp.

Remember the following points. Your must not see your partner's map. Also, you must not show your map to your partner.

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Now, talk to your partner and find a safe route from Camp X to Camp Y.

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