Decision-making Tasks in Computer-mediated Communication (CMC)

by Hanaa Khamis

American University in Cairo (AUC)
Alexandria, Egypt
hanaakhs@aucegypt.edu

Abstract

This article reviews the use of decision-making tasks to trigger interaction in CMC. It argues that these tasks promote communicative competence across different CMC modes. It finally reiterates the necessity to include more task-based learning and network-based language learning (NBLT) activities in contexts of English as a foreign/second language (EFL/ESL).

1. Introduction

Recent Second Language Acquisition (SLA) research advocates the use of task-based learning to enhance communicative effectiveness, in addition to language acquisition (Ellis, 2000). Tasks help bring in authentic language and communication into the classroom. They promote agency, or the ability to take meaningful and powerful actions and test the results, rather than just fluency or accuracy. They create contexts in which learners receive comprehensible input so they can produce comprehensible output.

In parallel with SLA practices, recent computer-assisted language learning (CALL) applications have followed suit. Network-based CALL, also known as network-based language teaching (NBLT), adopts the use of various task types in synchronous (real-time) and asynchronous (delayed time) CMC. Two most commonly used modes of interaction are written chat, a synchronous CMC mode, and threaded discussion, an asynchronous CMC mode.

Among various task types, decision-making tasks seem to best promote strategic competence. These are tasks in which interlocutors equally know all relevant facts, yet they do not necessarily have to reach one common solution (Pica, Holliday, Lewis, & Morgenthaler, 1989). Task completion potentially activates metacognitive strategies for assessing contexts, setting goals, constructing plans, and controlling the execution of plans (Bachman & Cohen, 1998).
2. Literature review

2.1 Characteristics of tasks in CMC
Tasks in CMC interactions have general characteristic features. They should be goal-oriented with a few possible outcomes (Pellettieri, 2000). However, some research findings imply the need for open-ended tasks in promoting interactions as well (Tudini, 2002). In addition, for successful task completion, interlocutors need to interact with one another over information beyond their repertoires (Pellettieri, 2000). In other words, interlocutors seem to reach better outcomes when the task is embedded with ideas and vocabulary that are relatively more challenging than their actual proficiency level.

2.2 Effective task types in CMC
The effect of task types in CMC interactions differs across spoken and online interactions. According to Pica, Kanagy, and Falodun (1993), jigsaw tasks appear to be the most facilitative for SLA in face-to-face interactions. The least facilitative types are arguably opinion exchange tasks, in addition to information gap, problem-solving, and decision-making tasks. In contrast, the extent to which a given task type can be influential in online interactions is still uncertain. The reasons may possibly be due to variations in interaction types or communicative goals, in addition to the nature of CMC itself.

The effectiveness of various task types in CMC interactions is still debatable. Findings by Blake (2000) on synchronous CMC and Kitade (2006) on asynchronous CMC give support to jigsaw tasks in promoting negotiation in CMC. These findings are consistent with previous studies on face-to-face interaction. Smith (2003) provides counter-evidence supporting decision-making tasks for negotiation in synchronous CMC. Consensus-building tasks were found to promote interactions in a study investigating strategy use in negotiating and maintaining common ground (Vandergriff, 2006).

The choice of appropriate task types can influence the quantity and quality of learner output. Jigsaw tasks were used in NBLT studies that investigated meaning negotiation over vocabulary and grammar (Blake, 2000; Kitade, 2006). Consensus-building tasks were found appropriate in investigating broader levels of interaction such
as strategy use (Vandergriff, 2006). Therefore, decision-making tasks would probably better function in the investigation of metalinguistic features in CMC.

2.3 Meaning negotiation during task-based interaction in CMC

Meaning negotiation occurs when there is a breakdown of communication during task-based interaction. Broadly speaking, interlocutors do not seem to spend much time negotiating meaning in CMC, compared to spoken interaction. Smith (2003) examined meaning negotiation of vocabulary in synchronous CMC using jigsaw and decision-making tasks. He reported that learners did negotiate meaning when non-understanding occurred. However, it was found that two thirds of the turns in synchronous CMC were spent in interactions toward successful task completion, even though the tasks were embedded with unfamiliar vocabulary. In a similar vein, Blake (2000) investigated the differences between various task types in promoting meaning negotiation in synchronous CMC: jigsaw, information gap and decision-making tasks. In addition, Tudini (2003) explored whether negotiation would occur in unattended open-ended chat sessions with native speakers in a distance learning project. Both studies reported similar findings to Smith’s (2003) where meaning negotiation comprised a relatively small percentage of overall turns in synchronous CMC. To conclude, negotiation in CMC does not seem to occur as often as in similar face-to-face task-based interactions.

2.4 Consensus-building in CMC

Insights into the nature of task types indicate that there could be problems in consensus-building that can well be ascribed to the special nature of CMC in many respects, according to Walther (1996). First, due to restricted time periods in synchronous CMC, versus delayed time in asynchronous CMC, it could take longer to reach decisions online than in spoken interaction. Second, sometimes reaching agreement online is doomed to failure because of the lack of personal and social messages. Third, it is sometimes difficult to organize structured CMC discussions, which could result in off-task digressions or the total drop of discussion threads. Fourth, CMC can sometimes be too meager an environment to reach set goals, unless there are broader social dynamics at play. Walther's view is further augmented by recent findings reporting several factors.
that could lead to breakdowns due to the very nature of CMC. Some examples are the delayed response time, lack of social consequences for dropping a discussion thread or inactive participation, and preferred brevity over sustained attention (Ware, 2003, cited in Kern, Ware, & Warschauer, 2004).

In sum, NBLT research findings highlight the nature of task-based CMC interaction. First, tasks in CMC interactions have main characteristics. They can be either closed or open-ended. For more fruitful results, they can include ideas and language that relatively challenge the actual proficiency level of interlocutors. Second, the effect of task types in CMC is still controversial. However, decision-making and consensus-building tasks seem to promote more sophisticated interactions in CMC. There is evidence that these task types are conducive to broader levels of interaction, contributing to strategic competence. Third, meaning negotiation seems to occur in CMC when communication breaks down. Unlike spoken interaction though, more time seems to be spent on successful task completion in CMC. Finally, consensus-building in CMC is challenged by several factors. Therefore, without careful attention to task design considering these factors, task completion in CMC can be doomed to failure.

3. Discussion

Task-based CMC interaction is in line with recent trends in SLA theory and practice. Besides adding interest to in-class activities, CMC is now essential in EFL/ESL settings for its great capacity in building an online community of practice that extends beyond classroom boundaries (Zhao, 1996). Furthermore, CMC modes, especially asynchronous CMC, are the backbone of distance learning programs. Learner preferences and comfort level affect decisions about the most suitable modes of interaction in these contexts (Levy & Stockwell, 2006). That is why it is essential to raise learners' awareness of the dynamics of different CMC modes. EFL/ESL instructors should set up an environment with optimum learning conditions for their learners. They should also prepare learners to deal with various modes of face-to-face and online learning, considering the pros and cons of each mode of interaction.

Recent research findings seem to support the potential of task-based CMC interaction in promoting various aspects of communicative competence in EFL/ESL
classes. In addition to traditional classroom activities, CMC interactions can improve the quantity and quality of language learning. EFL/ESL learners need to be familiarized with synchronous and asynchronous CMC to be aware of the strengths and weaknesses of each medium type. Apparently, the use of various task types in different modes of interaction can also enhance reasoning abilities and problem-solving skills among learners with their variations in personality types, learning styles, and medium preferences.

On the other hand, CMC interactions can have their downside. CMC discourse, especially synchronous CMC, could be characterized by having typing errors, language problems, informality, and code-switching (Khamis, 2008). Strictly speaking, this interaction type can represent a form of language use that is too far from being ideal. However, these issues are natural byproducts of authentic communicative activities. On the positive side, the scripts can be always retrieved for later reference. Post-activities can follow, where learners spot and correct their own errors, guided by their EFL/ESL instructors.

4. Classroom Applications

Following is a description of an activity that illustrates decision-making in synchronous and asynchronous CMC in an EFL/ESL context. The activity is divided into three stages: pre-, while, and post-task completion. In Stage 1, the learners are given directions, in addition to in-class as well as homework warm-up reading and exercises. Stage 2 takes two days online in which the learners work in closed pairs and groups of four to make decisions on the issues under discussion. Stage 3 is the closure of the activity in which the learners express their thoughts and feelings about their own experience with CMC discussions.

Stage 1 provides the learners with ideas and practice to help them in successful task completion in the following stage. An assigned reading with questions is given in class before task completion to ensure comprehension and baseline knowledge of the topic. For further homework practice, the learners electronically answer comprehension

---

1 Refer to Appendix A for an overview of the activity; Appendix B for a brief lesson plan; Appendix C for directions; Appendix D for the reading text and questions; and Appendix E for decision-making tasks.
questions, in the form of closed items with feedback on Blackboard, an online learning management system.

In Stage 2, the learners work in groups of four and pairs that are preferable even in gender distribution. All the learners are given the same task requirements. The design of the decision-making tasks presupposes that all of them have access to the same information requiring them to reach a decision, not necessarily a consensus, on the issues under discussion. On Day 1, the learners complete the first task in threaded discussion in the lab first, and then on their own over the same day. They decide in groups of four whether it is ethical to proceed with stem cell research on unborn babies, each arguing the position of one of four characters representing various perspectives. The task is successfully completed by stating a final decision based on a well-argued position for each of the four characters over a whole-day threaded discussion. Each member sends an introductory message arguing the position of the character s/he represents. Group members respond to each other by supporting, challenging, and elaborating on presented ideas. A closing message is sent to state each character’s final stance. On Day 2, the learners complete the second task in written chat over 30 minutes in the computer lab. They decide in pairs how to best deal with the parents intending to use the stem cells of their unborn baby in treating their sick child. The second task is successfully completed by reaching a final decision during the 30-minute written chat session.

Upon the completion of discussions, the learners move to Stage 3 in which they share their thoughts and feelings about the activity. They express their preferences about the two CMC interaction modes. They also reflect on the use of decision-making tasks in language learning. Their feedback will reflect learner perceptions about task-based CMC interaction in EFL/ESL contexts, besides their level of awareness of such activities.

5. Summary and Conclusions
This article reveals significant aspects of task-based CMC interaction. First, it reviews NBLT studies in support of its potential in promoting communicative competence. It highlights task characteristics, effective task types, meaning negotiation, and consensus-building in CMC. Second, it emphasizes the positive impact of task-based CMC interaction in EFL/ESL settings from a pedagogical standpoint. Finally, it introduces an
activity to illustrate the use of decision-making in synchronous and asynchronous CMC modes. To conclude, with careful task design and control for problems in consensus-building in CMC, this type of interaction can be quite conducive to communicative effectiveness in EFL/ESL environments. Furthermore, the use of various task types across different CMC modes can be both interesting and beneficial to EFL/ESL learners with their diversity in personality traits, learning styles, and medium preferences, among others.

The study of task-based learning in synchronous and asynchronous CMC for EFL/ESL purposes is necessary. Investigating the nature of various task types can provide EFL/ESL instructors with guidance on effective task-based learning in NBLT. These enquiries may shed light on untapped resources yet to be revealed about a brave new world of language learning and teaching.

References
### Appendix A

**Overview of the Activity**

<table>
<thead>
<tr>
<th>F O U R D A Y S</th>
<th>S A L L</th>
<th>I N</th>
<th>A L L</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Stage One (in-class &amp; homework)</strong></td>
<td><strong>Stage Two (in-lab &amp; homework)</strong></td>
<td><strong>Stage Three (in-lab)</strong></td>
<td></td>
</tr>
<tr>
<td><em>Pre-task</em></td>
<td><em>While task</em></td>
<td><em>Post-task</em></td>
<td></td>
</tr>
<tr>
<td><strong>Overview of the activity</strong></td>
<td><strong>Day 1: closed group threaded discussion representing the point of view of each of the following characters (6 groups of four):</strong></td>
<td><strong>Learners’ thoughts and feelings about the activity</strong></td>
<td></td>
</tr>
<tr>
<td>General instructions for task completion</td>
<td>A scientist</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Student Q/A</td>
<td>A parliament member</td>
<td></td>
<td></td>
</tr>
<tr>
<td>In-class reading &amp; exercises</td>
<td>A religious figure</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Follow-up HW exercises &amp; quiz</td>
<td>A Parkinson's patient</td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>(class time: 100 minutes)</em></td>
<td>Day 2: chat session in the CALL lab (12 pairs)</td>
<td><em>(class time: 50 minutes)</em></td>
<td></td>
</tr>
</tbody>
</table>
Appendix B

Lesson Plan in Brief

<table>
<thead>
<tr>
<th>Theme: Biology</th>
<th>Duration: 5 class periods (4 hrs 10 min)</th>
<th>No. of Students: 24 (preferably 12 males + 12 females)</th>
</tr>
</thead>
</table>

**Aims** – The overall purpose of the lesson: Explore decision-making tasks in online written chat and threaded discussion for better communicative effectiveness

**Objectives** – At the end of the activity, the students should be able to:
- Demonstrate understanding of the main ideas related to the topic
- Relate the topic to their background knowledge and daily life
- Make a decision in a group threaded discussion, arguing a position of a given character
- Make a decision during an online chat session in pairs about how to best handle a situation
- Reflect on the activity expressing their opinions about various online discussion tools

**Previous knowledge assumed & linked to previous lessons** – Knowledge about:
- Recent breakthroughs in scientific fields, e.g. genetics
- Argumentation skills
- Familiarity with online discussion tools

**Class materials and equipment required**
- A computer lab with 24 stations and internet access
- Hardcopies of the reading text and activities
- An uploaded lesson with exercises created using an online management system, e.g. Blackboard (N.B. see Appendix D for the reading text and questions)

**Homework set**
Online access to reading, exercises, and quiz for further practice and preparation via the class Blackboard for further practice
Appendix C
Directions to the Learners

Over the next few days, you will learn how to use two of the most important tools for online discussion: threaded discussion and written chat. In your threaded discussion, you will need to take a position whether for or against the issue under discussion. In groups, you are required to represent alternative points of view by well-supported arguments and counter-arguments. In your chat discussion, you will need to make a decision about a problem you face. In pairs, you may agree or disagree with your teammate about the final decision. You are greatly encouraged to challenge each other's views by asking questions and making comments on your contributions.

In Stage 1, you are expected to read and answer questions to help you with ideas during both online discussions. You must have completed the first preparatory stage before starting your discussions in Stage 2. You will work on these preparation activities both in-class and as homework before and during discussions.

Task completion in Stage 2, over two days, will be conducted through your class Blackboard, an online course management system. On Day 1, the teacher will assign you a role to argue its position on the issue over a whole-day threaded discussion. These roles represent various characters that may agree or disagree about the issue as long as they make logical well-supported arguments. On Day 2, you will discuss in pairs an issue of concern already covered in class during Stage 1. You will decide how best to handle the problem. You should note that all your discussions will be in English and will be later retrieved for reference.

By that you should have completed the task requirements for Stage 2. To wrap up this activity you will move to Stage 3 in which you express your reactions to this activity, including, but not limited to, what you liked/disliked about the tasks, the discussion tools, your pair/group interactions, and personal preferences. Your additional comments and feedback will be appreciated for improving future activities.
Before Reading
What are the chances of patients of diabetes, Parkinson's and Alzheimer of leading a normal life?

Reading Text

'New stem cell source' discovered

US scientists say they have discovered a new source of stem cells that could one day repair damaged human organs.

Researchers successfully extracted the cells from the fluid that fills the womb in pregnancy and then grew them in lab experiments.

The types of stem cell with potentially the most use have so far been derived from specially grown human embryos.

But this has created ethical concerns because the embryos are destroyed in the process.

Opponents say this is tantamount to cannibalism.

Supporters say stem cells offer real hope in treating illnesses like diabetes, Parkinson's and Alzheimer's.

Implanted in mice

Writing in Nature Biotechnology, the scientists said it should be possible to harness the cells' ability to grow into different tissue to treat disease.

However, UK experts had doubts about the feasibility of the technique.

They said gathering amniotic fluid from large numbers of women might be difficult.

Amniotic fluid contains a large number of cells, many of which come from the developing foetus.

The team from Wake Forest University School of Medicine, in North Carolina, extracted these from fluid samples taken as part of unrelated diagnostic tests during pregnancy, then encouraged them to grow in the laboratory.

They found that they had the potential to turn into a wide variety of different cells - the hallmark of potentially useful stem cells.

They then transplanted them into mice, and carried out further tests to look at how they performed in a living creature.

Again, the results were encouraging, with the stem cells spreading and starting to produce key body chemicals in both brain and liver.
Bone stem cells introduced onto an artificial 'scaffold' then implanted into mice also appeared to behave in a similar way to normal bone cells, forming bone even months later.

**Great interest**

The conclusion of the researchers was that the amniotic cells were 'pluripotent' - capable of becoming many different cell types, and that they held the potential for treatment - particularly on the child from whose mother they were taken, for whom they are an exact tissue match.

Dr Paolo De Coppi, now of Great Ormond Street Hospital, who worked on the study, said the amniotic stem cells were similar to, but not identical to, embryonic stem cells.

He said: "Our research suggests that for some clinical applications they may work better than embryonic stem cells.

"For example, embryonic stem cells injected into muscle can form teratomas - amniotic stem cells do not do this.

"However, the range of applications for these stem cells may be more narrow than for embryonic stem cells."

Dr De Coppi it might be possible to take amniotic stem cells from a child diagnosed before birth with a problem, and use them to grow new tissue in the laboratory, which would be ready to use to treat the child when it was born.

In theory, it might also be possible to genetically modify a foetus' own stem cells and inject them back into the amniotic fluid to correct gene disorders.

**Possible limitations**

Professor Colin McGuckin, from Newcastle University, is researching the use of similar cells taken from the umbilical cord at birth.

He welcomed the report, saying that it was 'thorough' and demonstrated the potential of amniotic stem cells.

"The best thing is to have a variety of stem cell sources to provide the best stem cell for patients. Unless researchers do work to demonstrate there are alternatives to embryonic stem cells, the wider public won't understand that.

"It shouldn't be seen as a race between embryonic stem cells and other sources."

However, he said that harvesting amniotic fluid presented particular difficulties in many cases.

"If it is a natural birth, the waters break and they are all over the floor, and you've lost them. In this country, the majority of women give birth naturally, which means that fluid could not be collected.

"You could conceivably gather amniotic fluid during a caesarean section, but that process could interfere with the experience of giving birth."
While Reading

A. State whether the following statements are true (T) or false (F). Support your answers with evidence from the text in BOTH cases. [N.B. Answers are provided below for ease of reference.]

1. Scientists use stem cells to replace diseased cells.
   FALSE "stem cells offer real hope of treating illnesses like diabetes…[they] can grow into types of tissue that are destroyed by the progression of these diseases."

2. Dead embryos offer good stem cells for research purposes.
   FALSE "Scientists say the most useful types are derived from specially grown human embryos."

3. Some people consider stem cell research a crime.
   TRUE "opponents say…this is tantamount to cannibalism."

4. Another source of stem cells has been found in the United States.
   FALSE "…scientists in the United States" not the United Kingdom.

5. The new source of cells is in the liquid surrounding unborn babies.
   TRUE 'The scientists…have found a ready source of useful stem cells in amniotic fluid, the liquid that surrounds a growing baby."

6. One thousand stem cells can cover almost the whole population providing a good genetic match.
   FALSE "they say that a bank of 100,000 of these stem cells could supply a genetic match for 99 percent of the US population' ; 100,000 not 1000"

B. Answer the following summary questions

1. Where did this research discovery take place?
2. What is the importance of this discovery?
3. What do the supporters say about this research?
4. What do the opponents have against this research?
5. What are the future prospects for this research?

After Reading

Questions to ponder

1. Is it ethically right to use the stem cells of unborn embryos?
2. Make a list of points for and against stem cell research.
Appendix E

Decision-making Task 1 – In Groups

A group of intellectuals are invited to make a written statement to the press expressing their opinions about stem cell research based on their own experiences. They need to decide whether it is ethically right to use the stem cells of unborn babies. You are one of those invited, but you will NOT represent your personal opinion. You will play one of four characters arguing a position either for or against the issue: a scientist, parliament member, religious figure, or Parkinson’s patient. Each of the four characters needs to argue and counter-argue with other characters to reach a final statement about the issue. Each character must support, challenge, and elaborate on presented ideas. Each character must contribute with an introductory message arguing the position of the character s/he represents. You need to respond to contributions made by other members. A closing message is sent to state each character’s final position. Note that all your discussion is in English.

Decision-making Task 2 – In Pairs

A woman approaches you as her doctor for follow-up on her recent pregnancy. After a while, it comes to your knowledge that the woman had a previous child born with problems. You run checks to ensure that the embryo is free of any deformities. The tests prove that the embryo is perfectly fine. Two months later, you stumble over a serious piece of information. You realize that the parents have read about stem cell research. They have made plans to use the cells of the unborn baby to save their sick child. You have read about this new research yourself. Given the risks involved in the process, the life of the unborn child might be at stake. You need to make a quick decision about how to handle this situation as a responsible doctor. Over an online discussion, think aloud with your team member who is in the same shoes. State what you should really do, based on the information you have about this research and your code of ethics. You may all agree or disagree as long as you make sound arguments. Note that all your discussion is in English.