DISCOURSE ANALYSIS OF INTERNET-FORUM COMMUNICATION AND
ITS APPLICATION TO SIMULATION AND GAMING

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Abstract

Research at the Universidad Politécnica de Valencia has shown that computer-mediated communication by way of telematic simulation enhances the learning of English as a foreign language in the specific aspects of written expression, reading comprehension, listening comprehension and grammar (García Carbonell 1998). Additionally, close examination of the corpus of synchronous and asynchronous communication generated over several years using telematic simulation has made it possible to establish a taxonomy of learner errors in grammar and written expression (MacDonald 2004), which will be useful in drawing up materials for use in the language classroom. Our paper proposes to further the research in grammar use in asynchronous communication by analyzing the corpus generated in several internet forums of interest in a technical context. A particular grammatical component, modality, will be identified (e.g., will, must, can, may, etc.) and a game designed to practice the language of volition and prediction, obligation and necessity, ability, possibility and hypothesis. Our research confirms Internet forum communication as a useful tool to explore not only how modality is used but as a potential for designing and producing educational materials and activities.

1. Introduction

The socialization of internet in the last decade has favored the expansion of network interactions among users in both synchronous and asynchronous modes. Synchronous communication, e.g. in chats, implies real-time, online interaction, the tone and register of which, although physically typed, reflects real conversational written discourse, especially when participants are accustomed to interacting. The non-verbal clues used in conversation are not present but are replaced by other paralinguistic clues embedded in the text, which is not always as straightforward in its effect on the reader as a gesture would be in face-to-face communication. On the other hand, asynchronous communication, e.g. in discussion forums (DFs), implies threaded discussions held through messages posted by the participants at their own pace, as contributions to the specific topic of the ongoing discussion in a forum. Not being constrained by real-time can make carefully crafted contributions, adapted to the audience,
dense with meaning, coherent and complete (Lapadat: 2002). Messages are stored and, unlike synchronous communication, do not require the sender and receiver to be at the same place at the same time to participate.

Asynchronous communication facilitates multi-participant discourse based on text, which makes it an excellent vehicle for exchanging information to support professional development. This discourse seems to share the characteristics of both written and oral communication (Yates 1996). The linguistic characteristics of electronic communication, both synchronous and asynchronous, have drawn the attention of discourse analysis scholars and composition theorists mainly focusing on netspeak neologisms, prefixes, compounds, abbreviations, emotional expressions and discourse conventions (e.g. Baron, 1998; Bolton 1991; Crystal, 2001; Yus, 2001; Posteguillo, 2003; Turney et al. 2003). Interesting studies by researchers in the field of second language acquisition and computer-mediated communication (CMC) have also reported on the introduction of interactive text-based online platforms for language learning. These studies have focused on the methodology used and on its effectiveness in the improvement of the language skills of students (García-Carbonell, 1998; MacDonald, 2004), the assessment of the learning process (García-Carbonell, et al., 1998; García-Carbonell et al., 2001) or the similarities between text-based interactions via computer and face-to-face interactions (Warschauer, 1996). But little has been published on the active participation of students in professional discussion boards and the potential of the analyses of interactions in asynchronous communication to study the linguistic and formal characteristics and to design and produce educational activities in the framework of new technologies. Research by the authors (Montero et al., 2005b) on the discourse of DFs has shown that modality does seem to reflect the orality usually attributed to synchronous interactions. The purpose of this paper is to operationalize the results of the authors’ most recent research through application in simulation and gaming.

2. Background

Although asynchronous communication dates back to the late 1960s, DFs were first devised in the mid 80s and are nowadays used as a tool for promoting different modes of learning that can lead to enhanced learning outcomes for students (Thomas, 2004). DFs boards can be online collaborative learning spaces in which communities get engaged in the discourse on a topic about which they share common interests or goals. The interactions produced therein facilitate the student involvement in authentic communication and the developing of relationships with other students, professionals or members of the scientific community, thus creating a real learning community (García-Carbonell et al., 2004; Sutherland et al., 2003). A learning community is for Bielaczyc & Collins (1999: 271) a cohesive group which embodies a culture of learning in which everyone is involved in a collective effort of understanding. Professional forum discussions comply with the three elements described by Tinto (2003) as necessary to form a
learning community: mutual engagement, shared repertoire and joint enterprise. The collaborative work carried out in a learning community develops a common ground of knowledge, according to Sherry et al. (1998), putting into practice authentic task, knowledge development, research or reflection.

Participation in DFs in a topic-oriented discussion helps students to identify and solve problems related with their work, which can become a stimulus for the acquisition of the communicative and linguistic skills which the learner needs for his/her specific purposes (cf. Sutherland et al., 2003). Thus, three objectives are fulfilled. On the one hand, there are language and communication skills-oriented objectives. On the other, a contents objective, which is set keeping in mind Christine Nuttall’s opinion that it is good “to learn English at the same time that students learn something else”. The “something else” forms the contents objective.

The study of the language used in electronic communication has drawn the attention of linguists, who have debated the oral or written and formal or informal features of the language. The informalization of discourse is related to what Ong (1982:11) has called second orality. This informalization has changed many traditional distinctions, such as the association of formality with written language and of informality with the spoken word (Montero et al. 2005a). The work of Fairclough has centered upon the processes of informalization or conversationalization and technologization of discourse, underlining that in modern discourse practices, there are more and more “mixtures of formal and informal styles, technical and non-technical vocabularies, markers of authority and familiarity, more typically written and more typically spoken syntactic forms” (Fairclough 1995: 79). Asynchronous communication discourse is considered today an informal hybrid of oral and written communication and is nowadays being used as a bridge between written and spoken skills for learners (Kern, 1995). The empirical research carried out by Sherry et al. (1998) and García-Carbonell (1998) revealed the importance of the written medium of computer communication for developing not only writing skills but also to develop oral proficiency and linguistic, and metalinguistic competence. In the present research we focused on a linguistic aspect of orality, i.e., the high use of modality in oral contexts, and studied its use in a corpus of DFs. Our springboard was Yates’s (1996) qualitative survey on the use of modals which concludes that the contextual use of modal auxiliaries in CMC is comparable to that of speech and much higher than that of written speech.

In language learning contexts the correct use of modal auxiliaries implies special difficulties for foreign learners of English taking into account the special characteristics of these verbs, i.e.: they do not co-occur, they have no -s forms for the third person singular, they have no non-finite forms, they have no imperatives, must has no morphological past tense form although the others do, there are suppletive negative forms, there are formal differences the modal verbs in their epistemic and deontic meanings, in terms of negation and sense (Palmer 1990: 33-34). Modal verbs express our personal attitude towards an utterance, conveying a number of
meanings, two very important of which are epistemic and deontic. Epistemic meaning relates to the speaker's relative certainty of what he affirms. For example, he may be certain that what he says is true, he may think it possible that what he says is true, or he may be certain that what he says is not true. Deontic modality, on the other hand, is concerned with duty, obligation, and permission. A third type of meaning is dynamic modality, which is subject-oriented in the sense that it is concerned with the ability or volition of the subject of the sentence, rather than the opinions (epistemic) or attitudes (deontic) of the speaker (Palmer, 1922: 36). All these aspects make modality an important aspect of language which requires further practice of students even at advanced levels. Our research on modality in DFs took as a starting point Yates' study (1999: 45-45) which states that the overall relative frequency of modal usage is similar in speech and CMC.

By means of corpus-based empirical research we wished to confirm our hypothesis that there were conversational elements in the asynchronous communication of discussion boards which reflect traits of orality through the use of modal verbs, in contrast to modal meanings in formal written discourse. Our study found that the use of modal verbs in the language of DFs offers similar characteristics to that of speech to express obligation and necessity, ability and possibility and hypothesis.

3. Summary of the experiment

In order to offer students a more detailed picture of how professionals, experts and the general public communicate electronically in forums on a particular subject and, at the same time, improve their communication skills in English, we subscribed to a number of discussion boards on the topic of computer science devices. The topic-oriented discussions held with colleagues with whom they share interests seemed to be an appropriate, authentic, cultural context not only for language learning purposes but also for enhancing professional communication. Participants in the forums were professionals, experts and novices in the field of computer science whose involvement in the discussion aimed at sharing up-to-date information on new devices being used in the field. Participants contributed to the thread of the discussion with their posts.

The flow of messages exchanged was used as the corpus for our research on modality. The selected corpus was made up of 10 threads, which contained a total amount of 878 messages. The total number of tokens was 83,061 of 6,133 types which made a ratio of 7.38. The method used for data collection was to omit message headers, label each forum with an identification letter and number the lines of the text of the messages exchanged. Wordsmith Tools (Scott 1996) were used to analyze the text by counting the number of words and the number of messages per forum and to isolate modals in the context in which they were used. The data obtained allowed the study of the use, collocations and frequency patterns of modals in asynchronous interactions. The modals were then classified by the authors following Coates'
(1983: 27-28) model of the semantic clusters of modal auxiliaries: obligation and necessity, ability and possibility, epistemic possibility, volition and prediction and hypothetical modals. Subsequently, results were compared with those obtained by Yates (1996) in CMC, speech and writing and by Pliqué et al. (2002) in medicine and biology research articles (RAs). Finally, the modals of the corpus were classified according to a combination of the chief meanings given by Quirk et al. (1980: 66-104) and the categorizations by Coates (1983), Palmer (1990), Yates (1996) and Pliqué et al. (2002).

Wordsmith tools found a total number of 1409 modals in the 83,061 token corpus of DFs as opposed to 706 modals found in the RA corpus which comprised 102,234 tokens. A statistical analysis of the overall frequency of modals in DFs and RAs revealed that they are much more widely used in the former, 1.69% of the tokens, than in RAs, in which they represent 0.69%. The data obtained revealed the significantly high use of modals in DFs, more than double than in RAs, which confirms the difference between the discourse in DF discourse and the written scientific discourse in RAs. For example, as can be seen in the following table, in the five semantic clusters the percentage of modal use is higher in DFs except for the modals of epistemic possibility and, more specifically, with the use of may, 37.96% vs. 4.47%, which is significantly higher in RAs.

<table>
<thead>
<tr>
<th>SEMANTIC CLUSTERS</th>
<th>MODALS</th>
<th>RESEARCH ARTICLES (RAs) (Piqué et al 2002)</th>
<th>DISCUSSION FORUMS (DFs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Obligation and necessity</td>
<td>MUST</td>
<td>1.69%</td>
<td>1.49%</td>
</tr>
<tr>
<td></td>
<td>NEED</td>
<td>1.27%</td>
<td>0.7%</td>
</tr>
<tr>
<td></td>
<td>SHOULD</td>
<td>4.10%</td>
<td>6.95%</td>
</tr>
<tr>
<td></td>
<td>OUGHT</td>
<td>0</td>
<td>0.07%</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>7.06%</td>
<td>9.21%</td>
</tr>
<tr>
<td>Ability and possibility</td>
<td>CAN</td>
<td>21.86%</td>
<td>26.18%</td>
</tr>
<tr>
<td></td>
<td>COULD</td>
<td>8.49%</td>
<td>7.23%</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>30.35%</td>
<td>33.47%</td>
</tr>
<tr>
<td>Epistemic possibility</td>
<td>MAY</td>
<td>37.96%</td>
<td>4.47%</td>
</tr>
<tr>
<td></td>
<td>MIGHT</td>
<td>7.2%</td>
<td>3.05%</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>45.16%</td>
<td>7.53%</td>
</tr>
<tr>
<td>Volition and prediction</td>
<td>WILL</td>
<td>6.09%</td>
<td>32.62%</td>
</tr>
<tr>
<td></td>
<td>SHALL</td>
<td>0</td>
<td>0.07%</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>6.09%</td>
<td>32.69%</td>
</tr>
<tr>
<td>Hypothetical modal</td>
<td>SHOULD</td>
<td>3.68%</td>
<td>0.14%</td>
</tr>
<tr>
<td></td>
<td>WOULD</td>
<td>7.64%</td>
<td>17.05%</td>
</tr>
</tbody>
</table>
The use of *may* implying permission was not very frequent in the DF corpus. *May* was almost only used in the instructions given by the moderator of the forum to participants: *you may not post new threads, you may not post replies, you may not post attachments* ...

Volition and prediction modals (*will, shall*) showed highly significant differences between the RAs and DFs. In the latter, the modal *will* was the most widely used modal (32.62%) with *can* in second place (26.18%). In DFs, the most predominant meaning of *will* was prediction (29.49%), being notably less frequently used to convey intention (1.63%), insistence (1.06%) and willingness (3.34%). In contrast, in RAs the frequency of *will* was only 6.09%, in consonance with the researchers’ preference for the use of hedges to avoid making absolute statements.

Table 2 shows the classification of the modals in DFs according to the combination of the chief meanings given by Quirk et al. (1980: 66-104) and the categorizations by Coates (1983), Palmer (1990), Yates (1996) and Piqué et al. (2002).
As can be seen from the categories in DFs shown in table 2, the number of occurrences in the category possibility (can) was the highest, followed by prediction (will). Logical necessity, ability and hypothetical modal follow, with the rest of the categories lagging far behind.

The findings of our research on the use of modal auxiliaries in DFs relate clearly to Yates’ finding that modal use in CMC is comparable modal use in speech to express obligation and necessity, ability and possibility and hypothesis. The high presence of modality in DFs is a common feature of the orality which can be concluded as implicit in the genre of discussion forums. This conclusion shows that orality is not only limited to spoken-aural settings but can be extended to other modes. The implications for the educational environment are that it may be possible to develop speaking skills through DFs, a written medium which occupies the middle ground between the oral and written discourse. There are, for example, instances of negative possibility with can’t which have clear teaching implications, as students tend to find it difficult to use this verb form to express impossibility. The high use of can found in our corpus, nearly a quarter of the overall incidence, also has clear implications for teaching the use of this modal to express ability and especially theoretical possibility, where Spanish speaking learners of English find difficulties due to the fact that in English, something that is theoretically possible or conveys a factual possibility may imply a different use of a modal verb, can vs. may. However, in Spanish both meanings are conveyed by the same verb, poder. The study carried out by Yates (1996) on modality in CMC found that the use of modals in this medium is significantly higher than that in speech or writing, the modals conveying ability and possibility being the most used.

As an educational tool, DFs open possibilities for contextualization by textualizing knowledge and letting participants take advantage, on the one hand, of the information provided by other professionals and, on the other hand, of real language immersion in an authentic context, the sociocultural context in which the language is used. Language has often been taught as words and sentences, not as discourse and interaction in context (Kramsch, 1999). Our experience suggests that DFs are likely to have an impact on the use of language as text. As active participants in the electronic discussion boards, students, motivated by the novelty of communicating with experts in their area of study, have access to contributing to and learning from the ongoing conversations in their field. In that sense, participation in DFs can be approached as an effective instructional platform aimed at collaboration and continuing education to enhance communication for professionals. All in all, apart from the educational use of discussion forums for collaborative research to keep pace with the scientific progress and feedback on specific information, the students’ involvement in discussion threads produces meaningful communication in real contexts which makes discussion forums an active language learning tool.

4. Operationalizing research results
Discourse analysis has been defined as the analysis of speech units larger than the sentence and of their relationship to the communication contexts in which they are used, becoming “the study of the linguistic relations and structure in discourse” (Merriam-Webster). The Collins Dictionary (Jary and Jary 1995: 128) defines it as "forms of textual analysis in which the aim is to exhibit the structure of discourse and discourse formations" or "analysis of the role of the reader or viewer in reading and creating meaning".

Discourse analysis research is valuable not only because it can help in the description of language paradigms. It also provides useful information to approach materials production that will allow learners to use their previous language knowledge in learning new communication patterns. The materials devised in this paper as a result of discussion forum discourse analysis will focus on the specific categorizations of modality that the analytical techniques have highlighted in the message interaction. The materials thus designed will offer opportunities to practice specific patterns of discourse.

Having identified a specific use of modality in the language of discussion forum interactions, we propose a specific activity to improve and consolidate the use of modals, a point of grammar which we have found in our teaching experience to be a particularly high hurdle for students of English as a foreign language. THE CRYSTAL BALL is a situational game designed to provide the opportunity to use the language of volition and prediction, obligation and necessity, ability, possibility and hypothesis, the concepts categorized and set out by Quirk at al. (1980).

THE CRYSTAL BALL can be played with groups of five people in a classroom setting in approximately one hour. The five people play the roles of characters who have visited a fortune teller and have all received terribly disquieting predictions. The situation calls for a meeting of the five to discuss the revelations and the possibilities for action.

The game: THE CRYSTAL BALL

Situation
Five people (an engineering student, a teenager, a retired policeman, a compulsive gambler and a housekeeper) have visited the same fortune teller whose crystal ball revealed important future happenings to each of the five. Alarmed by the terrible predictions, they get together to discuss what to do.

Roles
A. Engineering student: He will face expulsion from the university after being caught using his mobile telephone on final exams. He will be accused of cheating and will not be able to graduate as he had always dreamed.
B. Teenager: She will have an accident driving her motorbike, which will leave her confined to a wheelchair the rest of her life.
C. Retired policeman: He will witness a horrible crime. He will be confronted with the dilemma of risking his life to prevent the crime.
D. Compulsive gambler: He will be lured to the roulette table. He will lose all his money and the properties of his family.
E. Devoted wife: She will be taking care of her beloved husband who has a terminal illness and is in excruciating pain. He will ask her to help him die.

*Learning objective*
For intermediate-level students of English as a Foreign Language: To practice modal auxiliary verbs which express volition and prediction, obligation and necessity, ability, possibility and hypothesis

*Time required:* 1-2 hours

*Number of participants:* 5 people in each group

*Materials:* A role card for each participant

**ROLE CARDS**

<table>
<thead>
<tr>
<th>Engineering student</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>THE CRYSTAL BALL</strong></td>
</tr>
<tr>
<td><strong>Profile sheet #1</strong></td>
</tr>
<tr>
<td>You are an engineering student named Charles McKeague. The other day your father phoned his friend, Mary James, to talk about his visit to a fortune teller whom he had visited with you. What a surprise to find that Mary had visited the same fortune teller! You were told that you will face expulsion from the university after being caught using your mobile telephone to get outside help on final exams. You will be accused of cheating and will not be able to graduate as you have always dreamed. Through Mary, you have discovered that five people have visited the same fortune teller, whose crystal ball revealed a horrible future happening to each of the five. Alarmed by the terrible predictions, all of you get together at your parents’ house to discuss what to do if the predictions come true.</td>
</tr>
<tr>
<td><strong>Background information:</strong> Your father and you believe in fortune tellers. You have both visited a notorious fortune teller who lives in your city.</td>
</tr>
<tr>
<td>****************************************</td>
</tr>
<tr>
<td>Describe your visit to the fortune teller to those present at the meeting and discuss the implications for the future in terms of work, family and social environment. Keep in mind the nuances of the modal auxiliary verbs can, could, may, might, will, shall, should, would, must, need, ought, have to.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>B. Teenager</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>THE CRYSTAL BALL</strong></td>
</tr>
<tr>
<td><strong>Profile sheet #2</strong></td>
</tr>
<tr>
<td>You are a teenager named Penny. The other day an old friend of your mother’s, Peter McKeague, who is a retired policeman, phoned to talk about the fortune teller whom he had visited with his son. What a surprise to find that your mother and you had visited the same fortune teller! You were told that you will have an accident driving your motorbike, which will leave you in a wheelchair the rest of your life. Through Peter, you have discovered that five people have visited the same fortune teller, whose crystal ball revealed a horrible future happening to each of the five. Alarmed by the terrible predictions, all of you get together at Peter’s house to discuss what to do if the predictions come true.</td>
</tr>
<tr>
<td><strong>Background information:</strong> Your mother and you believe in fortune tellers. You have both visited a notorious fortune teller who lives in your city.</td>
</tr>
</tbody>
</table>
Describe your visit to the fortune teller to those present at the meeting and discuss the implications for the future in terms of work, family and social environment. Keep in mind the nuances of the modal auxiliary verbs can, could, may, might, will, shall, should, would, must, need, ought, have to.

C. Retired policeman

THE CRYSTAL BALL
Profile sheet #3

You are a retired policeman named Peter McKeague. The other day you phoned your friend, Mary James, to talk about your visit to a fortune teller whom you had visited with your son. What a surprise to find that her she had visited the same fortune teller with her daughter! You will witness a horrible crime and will be confronted with the dilemma of risking your life to prevent the crime. Through Mary, you have discovered that five people have visited the same fortune teller, whose crystal ball revealed a horrible future happening to each of the five. Alarmed by the terrible predictions, all of you get together at your house to discuss what to do if the predictions come true.

Background information: Your son and you believe in fortune tellers. You have both visited a notorious fortune teller who lives in your city.

D. Compulsive gambler

THE CRYSTAL BALL
Profile sheet #4

You are a compulsive gambler named Edward Parker. The other day you went to see your neighbor, Peter McKeague, who is a retired policeman, to talk about the fortune teller whom you had visited. What a surprise to find that his son and he had visited the same fortune teller! You were told that you will be lured to the roulette table and will lose all your money and the properties of your family. Through Peter, you have discovered that five people have visited the same fortune teller, whose crystal ball revealed a horrible future happening to each of the five. Alarmed by the terrible predictions, all of you get together at Peter’s house to discuss what to do if the predictions come true.

Background information: Your neighbor and you believe in fortune tellers. You have both visited a notorious fortune teller who lives in your city.
nuances of the modal auxiliary verbs can, could, may might, will, shall, should, would, must, need, ought, have to.

E. Housewife

THE CRYSTAL BALL
Profile sheet #5

You are a housewife named Mary James. The other day an old friend of you, Peter McKeague, who is a retired policeman, phoned to talk about the fortune teller whom he had visited with his son. What a surprise to find that your daughter and you had visited the same fortune teller! You were told that you will be taking care of your beloved husband who will have a terminal illness and will be in excruciating pain. He will ask you to help him die. Through Peter, you have discovered that five people have visited the same fortune teller, whose crystal ball revealed a horrible future happening to each of the five. Alarmed by the terrible predictions, all of you get together at Peter’s house to discuss what to do if the predictions come true.

Background information: Your neighbor and you believe in fortune tellers. You have both visited a notorious fortune teller who lives in your city.

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Describe your visit to the fortune teller to those present at the meeting and discuss the implications for the future in terms of work, family and social environment. Keep in mind the nuances of the modal auxiliary verbs can, could, may might, will, shall, should, would, must, need, ought, have to.

References
