

CMC among multilingual students of English for academic purposes: linguistic and sociolinguistic communicative factors in online written responses

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Abstract

The present study examines linguistic and sociolinguistic factors in a Web-enhanced, advanced course of academic English reading comprehension. Language learning on the Internet involves skills different from those used in the traditional classroom. Another dimension is added when students are multilingual and have different native languages. The course activities include comprehension questions, informal written tasks integrating and evaluating various content areas of authentic reading materials, computer-mediated communication such as Forums and Polls (individual and group work), as well as usability and attitude questionnaires.

The sample population consisted of 35 students at the University of Haifa. Their native languages were Hebrew (21 students), Arabic (3 students), Russian (or one of the language in the former Soviet Union, 9 students), or Amharic (2 students). In this study, native speakers of Hebrew, the language of the majority, were considered to be bilingual (Hebrew and English), whereas native speakers of the other languages were considered to be multilingual, as they knew at least Hebrew and English in addition to their native languages.

Despite the linguistic, religious, ethnic, political and gender differences that separate our students, CMC, through the Forum, produced not only an equalization but an openness of participation both in quantity of participation and in quality. Both majority and minority groups participated more than has been experienced in face-to-face classroom discussion and in a variety of informal tones which previously had not been heard in the classroom. Responses indicated positive emotional involvement which motivated students to participate beyond the minimum requirement for class credit.

Rationale and background

The present study examines linguistic and sociolinguistic factors in a Web-enhanced, advanced course of academic English reading comprehension. Language learning on the Internet involves skills different from those used in the traditional classroom (Darhower 2003). Another dimension is added when students are multilingual and have different native languages. The course activities include comprehension questions, informal written tasks

integrating and evaluating various content areas of authentic reading materials, computer-mediated communication such as Forums and Polls (individual and group work), as well as usability and attitude questionnaires.

Computer-mediated communication (CMC)

Computer-mediated communication (CMC) is considered an innovative way to increase foreign language use in the classroom (Gonzalez-Bueno 1998; Yong 2003), to improve students' foreign language writing and speaking skills while exchanging email messages (St John & Cash 1995; Salaberry 1996; Gonzalez-Bueno, 1998; Little and Ushioda, 1998; Ushioda 2000; Jarvis 2001), and to enhance student motivation (Salaberry 1996; Gonzalez-Bueno 1998). Warschauer (1996) analyzes motivation in terms of three common factors: communication, empowerment and learning. CMC can be used, moreover, to facilitate collaborative language learning (Warschauer 1997). Instructor/student e-mail messaging can serve as a transition toward the use of foreign language in a real-cybernetic-world context (Gonzalez-Bueno 1998).

Salaberry (1996) adds other aspects which should guide the design of pedagogical activities (ibid.: 18): the learner addresses a specific audience for purposes other than demonstrating a skill, expansion of the network of peers (sharing the work with fellow students), increased access to cross-cultural information (sharing the work with other communities), freedom from time and location constraints (e.g., non accessible regions or conflicting schedules), emergence of new discursive environments: absence of nonverbal cues (e.g., more spontaneous participation in group work, increased participation of minorities), and unparalleled access to information databases and help on-line.

In addition to enhancing student motivation and achievement, CMC is said to facilitate the strengthening of individual and group identity. Students feel free to exchange ideas in a safe, supportive atmosphere (Gonzalez-Bueno 1998) (Bohlke 2003), without

'losing face' (Salaberry 1996), where full credit is given for relevant responses and participation, whether or not the responses are grammatically correct. This approach also has potential for encouraging positive intercultural communication and understanding.

The Internet can be used as a means of communication and feedback for students to exchange their ideas and opinions about the texts they have read. Such an exchange reinforces the reading skills as students read the contributions of their peers, and gives practice in the writing skills as students react by adding their own.

Using the Internet in class transforms teacher and student roles. Teachers can moderate these discussions, adding a further dimension by refining definitions and provoking further discussion, maintaining focus on topic and motivating extensive use of language. Whereas the frontal teacher is a source of information and grades, the teacher in an Internet classroom becomes a facilitator, coach and trainer, and a moderator of discussion groups. Teachers accompany the learning process both inside and outside the classroom (Kohn 2004; Saarenkunnas & Kuure 2003; Rueschoff & Ritter 2001).

Saarenkunnas & Kuure (2003) believe it is important to consider what kind of group identities the participants refer to (ibid.: 213). Students become semi-autonomous learners (Felix 1999; Blin 1999; Hoven 1999), responsible for their own learning, cooperating in group-work on projects and interactive tasks (Ganderton 1999; Felix 1999; Hoven 1999).

Use of computers in reading courses to promote communicative skills

Especially in large classes, language learning in the traditional classroom is not entirely satisfactory because individual learner needs can be neglected (Bohlke 2003). Moreover, each student does not usually have an equal chance to participate in class discussions. A shy student is not always able to participate fully, and sometimes men can be more dominant

than women in classroom discussions (Sussman & Tyson 2000). Thus the student does not always receive the maximum benefits from the learning process.

The introduction of Web-based materials is an attempt to remedy this problem, and adds a new dimension to a language course. A variety of text types appears in the Internet, and these can be used by course developers to add depth and breadth to students' experiences in English. Authentic texts come in a variety of registers, knowledge of which, in addition to academic English, enables students to participate fully as citizens of the world.

Web use is important in second and foreign language reading, especially for being able to provide access to authentic language material, and for interactivity (i.e., learner and computer, learner and text, and among various mental processes occurring within the learners themselves) (Ganderton 1999: 50). The literature contains many examples of university studies based on academic reading comprehension in a foreign language (Schcolnik & Kol 2004; Hemard & Cushion, 2001; Labour 2001; Burnage 2001; Nesi 1998).

Recent research on language learning using the new technologies explores pedagogical approaches (Baumeister et al. 2000; Cameron 2000; Chambers & Davies 2001; Debski & Levy 1999; Elkabas, Trott & Wooldridge 1999; Kramsch & Andersen 1999; Moeller 1997), integration into existing curricula (Salaberry 2001; Warschauer 2002), efficient use of existing resources (Chambers & Davies 2001; Levy 1997), and users' experiences (Belz 2002; Debski & Gruba 1999; Levy 1997; Murray 1999; Stepp-Greany 2002).

Reading text on screen is usually accompanied by interactive reading tasks: hypertext, email, and CMC (computer-mediated communication). Interactive reading invites a response in the form of written text (e.g., questionnaires, discussion groups, polls), and spoken text (using a microphone and loudspeaker).

As learning is a process of socially negotiated construction of meaning (Rueschoff & Ritter 2001; Lee 2001), an examination of student communication yields information on text comprehension, on the one hand, and cognitive and social perceptions, on the other. Sociolinguistic differences in students' written responses can be detected and classified. For example, Lee (2001: 232) states: "Among the strategies are modification devices, such as comprehension and confirmation check, request for clarification, and self-repair."

According to speech accommodation theory (defined by Giles et al. 1991), similarity in language use between communicator and recipient reduces the perceived psychological distance between communicator and recipient, and this in turn can lead to greater receptivity to persuasive communication (Krauss & Chiu 1998: 26). Thus, people's speech styles tend to converge – to reduce psychological distance between themselves and others (Krauss & Chiu 1998: 43). On the other hand, people react to identity-threatening circumstances by accenting differences. Speech divergence can be a strategy to make themselves psychologically and favorably distinct from out-group members, reaffirm their ethnic identity, and maintain in-group distinctiveness (Krauss & Chiu 1998). An interesting question, then, would be the extent to which students maintain their individual and group identities, in terms of native language/ethnic group and gender, when communicating with their instructor and peers. The amount of convergence or divergence may be telling. Convergent and divergent communication are expressed in the present study as students' agreement and disagreement.

Another sociolinguistic factor would be formality/informality of register. Speech production in an informal situation (with speakers nearer the bilingual end of the continuum) was found by Dewaele (2001) to be more fluent than production in a formal situation (with speakers nearer the monolingual end of the continuum). Moreover, he also found lower fluency and accuracy in the formal situation, which could be explained by inhibition, stress

and anxiety, and which resulted in more monitoring (Dewaele 2001: 81-82). The present study included tasks requiring both formal and informal written responses.

The purposes of this study were:

1. to compare the written on-line English responses of bilinguals (with Hebrew as the L1 and English as the L2) and multilinguals (native speakers of Arabic, Russian, and Amharic, with English as the L3 or Ln) in terms of linguistic and sociolinguistic influences

2. to examine the extent to which text comprehension, language performance, and sociolinguistic communication differ among the groups.

The present study examines the extent to which the following linguistic and sociolinguistic differ among speakers of different native languages.

Linguistic factors:

- *Text comprehension:* understanding of texts, coherent answers, use of outside information, effect of text topic on responses
- *Language performance:* number of errors, cohesive devices (connectors and referents). Our evaluation of student errors took into account the speech-like quality of written discourse on the Internet (Gonzalez-Bueno 1998).

Sociolinguistic factors:

length of response; tone, use of emphatic language, humor and irony; hedging; motivation; and responses to the teacher and students having the same or different native language

Method

English is a global language, used extensively for academic purposes in communications, economics, education, science, and other fields. Israeli students need to be able to read English texts in journals and textbooks as part of their university course work. Entering university, students whose reading proficiency is not adequate are required to take courses in reading comprehension. These courses include academic texts and practice in reading skills.

English reading comprehension courses at the University of Haifa

The Department of Foreign Languages at the University of Haifa offers courses in English reading comprehension that enable students to read academic texts in their fields. Each semester, approximately 1500 students are registered. The population of students and teaching faculty is multilingual and multicultural. Although the language of instruction is Hebrew, native languages of the students include Hebrew, Arabic, Amharic, Russian and other languages from the former Soviet Union, and others. In order to graduate, all students need to be able to read academic texts in English, which may be their L2, L3 or Ln.

Sample

The sample population consisted of 35 students at the University of Haifa (N=35) who participated in the first two weeks of an advanced English course in reading for academic purposes. Their native languages were Hebrew (21 students), Arabic (3 students), Russian (or one of the language in the former Soviet Union, 9 students), or Amharic (2 students). There were 16 male students and 19 females. In this study, native speakers of Hebrew, the language of the majority, were considered to be bilingual (Hebrew and English), whereas native speakers of the other languages were considered to be multilingual, as they knew at least Hebrew and English in addition to their native languages. Unlike other studies (Fernandez-Garcia & Martinez-Arbelaiz 2003), our students did not share an L1 although they did share a fluent knowledge of Hebrew.

Below in Table 1 are the frequencies of responses made by the 35 students during the course, categorized according to native language and gender. Although each student was required to reply to three questions, some participated more while others participated less. To investigate the nature of student responses, we decided to relate to each reply rather than to each student.

native language	males	females	total responses
Hebrew	63	86	149
Arabic	8	6	14
Russian	11	18	29
Amharic	0	3	3
TOTAL:	82	113	195 responses

Table 1: Frequencies of responses by native language and gender

HighLearn interactive component

Our project is part of an ongoing national effort, begun in 1999, and sponsored by the Council for Higher Education in Israel to encourage universities to create online interactive courses in all fields. Our mixed mode English academic reading comprehension course combines traditional and CALL (Computer Assisted Language Learning) components using the HighLearn platform, created by Britannica Knowledge Systems Ltd. This course was reported by Avinor et al. (2002).

The following skills are reinforced using the Internet: critical thinking and analysis, creativity, awareness, synthesis, evaluation. It also fostered the ability to distinguish between fact and opinion, draw conclusions, apply ideas in text to students' world view, and make suggestions for improvement.

The online activities bridge the new technology with the traditional classroom. They foster use of language beyond the classroom, engaging students in discussion activities in which they interact not only with the teacher but also with each other. Our approach is to ask students about their opinions, and to apply ideas presented in the text to their real world.

Each HighLearn unit is based on one or more general academic texts which has been selected from a variety of disciplines: Education, Ethics in Medicine, Intelligence, Jewish History, Modern History, Psychology, Science, Sociology. These authentic texts are mostly taken from journals or the Internet, and are 5 – 10 pages in length. They are not so technical,

however, that an intelligent reader from another discipline would be unable to understand them.

The week is divided into two parts: during the first part, students attend class and respond to the comprehension questions by computer, and during the second half they participate in the Forum discussion and vote in the Poll also by computer. Opinion polls ask students to side with one of the views expressed in a text and justify their opinion. Students can compare their opinions with those of the author(s) and their class peers. In an attempt to emphasize the fun of the activity and minimize the feeling that some opinions are more correct than others, no credit is given to participation in Polls. At the following class meeting, the teacher and students discuss the questions, Forum, and Poll of the previous week, as well as the new text for the following week. When applicable, textbook questions are discussed and assigned for homework.

Forum discussions revolved around a general question which applies the principle discussed in the text to the Israeli reality. Each student is instructed to answer the Forum questions. Three points are given for a full answer, according to the following criteria: 1) 10-20 words in English, 2) answer to the point, and c) logical and coherent. In addition, the student needs to participate again, and this time to relate to one student entry with which s/he disagrees or finds most interesting. The fourth point is given for relating to peers. Credit is given for full participation, regardless of the correctness of the content or form of the answer.

Procedures

Questions were introduced that required thought and discussion, explanation of opinions. These questions could not be answered by simply copying from the text and allowed for varying opinions and multiple correct answers. In addition, collaborative language learning

was promoted in Forum discussions and voting Polls, which allowed each student an equal voice in expressing opinions on texts. Students' reading comprehension and opinions were evidenced in written online responses to Comprehension Questions (formal academic register) and in Forum discussions (informal register) which created an online discourse with instructor and peers.

There were two types of tasks: formal Comprehension Questions and informal Forum participation. Comprehension Questions elicited students' personal opinions on the main issues discussed in the text. In the Forum discussions, students were asked to apply principles from the text to the Israeli situation. Two responses were required in the Forum: one replying to teacher's question, and one replying to another student or group of students. As classes are comparatively large (30-50), and the whole class is required to respond each time, only one or two Forum and Poll activities appear for each text. The Comprehension Questions were viewed only by the teacher, whereas the Forum and Polls were open to the whole class.

Comparisons were made between responses of bilingual (native speakers of Hebrew) and multilingual students (native speakers of Arabic, Amharic, and Russian or another language spoken in the former Soviet Union), and separately for each group. Comparisons were also made between responses of male and female students. Groups were compared for responses and grades in the HighLearn section of the course (Comprehension Questions and the Forum) and in the complete course. Types of responses across texts were compared as well.

Statistical assumptions and delimitations:

1) Each response was counted and analyzed separately. Although each student was asked to reply three times for each text (once for comprehension and twice in the Forum – replying to the teacher's question and responding to a classmate), many students did not. As these

were the first two Internet lessons, some students did not answer because they were struggling with technical problems with the HighLearn program or their own access to computers. Other students enjoyed the tasks so much that they participated more than they were expected to. Moreover, it was assumed that each response would differ qualitatively, depending on whether it is addressed to the teacher or to another student. It was not possible, therefore, to consider a student's 'average' response. Consequently, we did not reduce each student's set of responses to a mean score.

2) Native speakers of Amharic were excluded from the comparative statistics because there were only two. They were included in the summative statistics, however.

3) The categories of Language Performance items were collapsed into values 1 – 4 (with 4 being most correct, with no errors: 4 = excellent, 3 = good, 2 = fair, 1 = poor). For the item on capital letters, the categories of 'all capitals' and 'all small case' were considered the same as 'no errors'. This decision was based on generally accepted computer usage. Small letters are common in email, even for the personal pronoun 'I' (Gonzalez-Bueno, 1998). Large letters signify special emphasis. Both usages are correct.

Results and discussion

Example of comprehension question:

Hard Drugs: Do you agree with the point of view of Doug Bandow or Elliot Currie on the issue of the dangers of drug abuse to the individual?

Sample answers to comprehension questions:

There is no doubt that there is a great danger in drug abuse for individuals but according to bandow's opinion, which i agree with, the legalization will move the individual from getting into the illicit market and might stop the crime circle surrounding the drug issue.

I agree with Currie because I think that legalization of drugs will increase their availability in the society. As a result parts of the individuals that had never been using drugs will now

be exposed to them and their bad sides affects like: addiction, poor health condition and rise in criminal activity as a result of lack of self-control.

Example of forum questions:

Hard Drugs: [From the two authors you have read] Whose approach do you think would be most suitable for Israel? Explain in 10-20 words.

Sample forum discussion and analysis

Table 2 presents a section of the Forum discussion in Fall 2001. The students' spelling has not been corrected. The gender, native language, and significant sociolinguistic factors are also indicated. "Posted by" indicates a student's answer to the Forum question whereas "reply from" indicates a response to a student.

	gender	L1	sociolinguistic factor
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Subject: Currie's approach

Posted by:	male	Hebrew	outside info, agree
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I think that Currie's approach is most suitable for israel. The defects of legalization will increase our current problems. The benefits are unsignifiacnt to us.

Subject: the last thing we need is drug legelaization

Reply from:	female	Arabic	emphasis, agree
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Also in israel i'm against legelaization. because it will distroy society and will creat free axess to drugs , that creat a drug dependent society.

Subject: israel

Posted by:	female	Russian	outside info, humor, length, agree
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i think that the approach of licalization will be suitable for israel because it is too meny wars in this country and i think that we do not need another war even if it against something like drugs. i think that we need to move in a road of peas and understanding the problems of athers, so the approach of licalization will be the wright way for israel.

Subject: you are wrong sweet heart

Reply from:	female	Arabic	outside info, humor, disagree
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due to the fact that we have a lot of wars we must not destroy our society and our youth insted we must find a way to heal our society and drug leglaization will only cause pain .

Language@Internet SV1-2/2006 (www.languageatinternet.de, urn:nbn:de:0009-7-3709, ISSN 1860-2029)

Subject: stam (colloquial Hebrew, meaning 'just like that', 'for no particular reason')
Reply from: male Arabic outside info, humor, agree
If barak & arafat - when they set together in camp davids 2 -have smoked marijuana and
talked together , i believe that we would have a defferent situation in these days :)

Subject: good answer
Reply from: male Hebrew emphasis, agree
You are abselutely right!

Subject: new angle!
Reply from female English humor, agree
(teacher/researcher)
Now this is a perspective I haven't thought of before! :-)

Subject: legalization
Reply from: female Russian outside info, agree
i think, that if less dangerous drugs will be legal in isreal it will prevent the use of hard
drugs, becous it will be not as action like now.

Subject: Full legalization
Reply from: male Russian humor, agree
Let people taste and decide!

Table 2: Section from forum discussion

The Forum section promoted a feeling of collaborative learning, with a free and lively exchange of opinions and text interpretations among students. On the level of classroom communication, an atmosphere of equality pervaded as differences in gender and group identity appeared to melt away without students' physical presence. Closer inspection of student responses, however, revealed that students did not relinquish their individual and group identities (in terms of gender and native language or ethnic origin).

Linguistic factors

Language performance of responses was good to excellent for the four native languages.

Language performance of responses differed between Comprehension Questions and Forum. Relatively fewer errors were made in the Forum (categories poor and fair: 21%, good and excellent: 79%) than in the Comprehension Questions (categories poor and fair: 35%, good and excellent: 65%). Students may have been likely to make more mistakes in the Comprehension Questions because they were writing more formally, using academic vocabulary. In the Forum, on the other hand, they responded to classmates more spontaneously using informal language and shorter sentences.

The frequency of cohesive devices (connectors and referents) in student responses was examined to determine whether differences could be detected among the native languages. Use of connectors was widespread, appearing in 70% of the responses. Native speakers of Arabic tended to use fewest connectors. This is probably an avoidance strategy because students were trained by high school teachers to write in short, simple sentences to avoid making mistakes. (Personal communication, Dr. Nazih Kassis, teacher of English at Ramah High School and Department of Foreign Languages, University of Haifa.) No statistically significant differences were found.

Referents appeared in 84% of the responses. Native speakers of Arabic tended to use fewest referents, probably for the same reasons, to avoid making mistakes. In the informal Forum, more referents were used than in the Comprehension Questions. This use of referents is probably linked to register as informal language uses more personal pronouns than formal language.

Sociolinguistic factors

The tasks in this HighLearn program give students an opportunity to offer their own opinions and to become emotionally involved. Although instructions asked for responses of

10-20 words, many responses contained more than 30. Very few responses (15 = 8%) contained fewer than ten words. Most long responses were written in the Forum (84% in contrast with 39% for Comprehension Questions). The informal register of the Forum appears to invite more student participation. Most responses by native speakers of Arabic and Amharic tended to be shorter, within the 20-30 word limit. These groups may write less because they may have less experience and feel less comfortable than the others when writing in English. According to Dewaele (2001) mean length of utterance can be linked to fluency.

According to the literature, differences in gender would not be expected in cyberspace (Krauss & Chiu 1998). Sussman & Tyson (2000), however, found that men wrote longer postings (a greater number of words) than women. In contrast, the present study found significantly longer responses by female than male students (chi-square = 9.5799, df = 3, p = .0225). This result raises certain questions. Do females try harder than males to be persuasive? Are their language skills more polished? Are males more task-oriented? Are females more emotionally involved, needing more words to express themselves?

Text content also appeared to affect length of response; there was a tendency for longer responses for the first text (Pro-social Cartoons) than the second text (Hard Drugs) (chi-square = 6.6912, df = 3, p = .0824).

As could be expected, students who wrote longer responses were more likely to make mistakes (Pearson Correlation: Language performance by length (number of words): $r = -0.2133$, $p = .0028$). These findings are in line with those of Gonzalez-Bueno (1998) who explains this phenomenon by arguing that students writing longer responses demonstrated greater confidence but decreased self-monitoring.

In general, responses showed agreement with Forum questions. Although 62.5% responses by native speakers of Arabic showed disagreement, this number represented only 5 responses and was not statistically significant.

The tone of most responses was academic and neutral except (in the Forum) for 2 native speakers of Hebrew and 2 native speakers of Russian. These students may have been quite self-confident and were able to try a different tone. Emphatic responses were more frequent in the Forum, however, where relatively more responses by native speakers of Russian (9 responses = 53%) tended to be emphatic. Were these students more emotionally involved than the others?

Few responses showed humor or irony. Most appearances were in the Forum. Differences among languages were significant, however: native speakers of Arabic (4 responses = 29%) used humor or irony most frequently, followed by Russian (5 responses = 17%) and native speakers of Hebrew (13 responses = 9%), (chi-square = 6.0946, $df=2$, $p = .0475$). These responses reflected individual contributions and added a personal flavor to the discussion.

Very few responses used hedging: 7 responses by native speakers of Hebrew and 1 by a native speaker of Russian. All were in the Forum. The language skills of these students were above average. Hedging may enhance clarity of message (Krauss & Chiu 1998). Whereas most of the literature links hedging and female gender (Krauss & Chiu 1998), the findings in this study link hedging with bilinguals (native speakers of Hebrew).

A significant difference was found in the Forum between responses to the teacher and those to other students, whether of the same native language or a different native language. Most responses by native speakers of Russian (71%) were addressed to the teacher, followed by native speakers of Hebrew (55%) and Arabic (33%) (chi-square = 12.6607, $df = 4$, $p = .0131$). Are Russian speakers accustomed to seeing the teacher as an

authority figure and to performing the role of good students? Is this role more important than communicating with peers? As most students were native speakers of Hebrew, necessitating many responses to other native speakers of Hebrew, results on the question of the native language of the students to whom they responded became meaningless (chi-square = 12.6607, df = 4, p = .0131).

Bilingual (majority) vs. multilingual (minority) responses

It is interesting that no significant differences between responses by bilingual Hebrew-English speakers (majority) and multilingual Arabic/Russian-Hebrew-English speakers (minority) students were found for textual comprehension and language performance.

For sociolinguistic communication, however, results showed significant differences between the convergent majority and the divergent minority. Only 35% bilinguals (native speakers of Hebrew) disagreed with the statements, whereas 42% of the multilinguals (native speakers of Arabic, Russian, or Amharic) disagreed (chi-square = 6.4198, df = 2, p = .0404). There was a tendency for responses by bilinguals (21%) to be less emphatic than multilinguals (35%) (chi-square = 3.3537, df = 1, p = .0671). Responses by bilinguals contained fewer instances of humor or irony (9%) than did multilinguals (20%) (chi-square = 4.1267, df = 1, p = .0422).

Could it be that native speakers of Arabic, Russian, or Amharic consider themselves members of minority groups and view the majority society from alternative perspectives? Minority groups, then, may disagree with majority views and need to be more persuasive to make their point, possibly by using humor and irony. These groups, along with women, may need to be honing their persuasive skills.

Whereas both groups of responses were aimed at the teacher, bilingual responses (30%) tended to be aimed at students of the same native language, whereas multilingual

responses tended to be aimed at students whose native language was different (35%) (chi-square = 8.0553, $df = 2$, $p = .0178$). The fact that more students were native speakers of Hebrew obligated most students to relate to the bilingual group more frequently and did not permit free choice. Results were not conclusive.

Grades for bilinguals were significantly higher than for multilinguals: High Learn bilingual mean = 18, multilingual mean = 13.462, $t = 2.49$, $df = 31$, $p = .0183$; Course grade bilingual mean = 79.333, multilingual mean = 70.583, $t = 2.83$, $df = 31$, $p = .0081$.

Sociolinguistic communicative factors

Results showed that multilingual students used more sociolinguistic communicative factors than bilingual students although their grades were lower. Tables 3a and 3b summarize the results for each of the factors examined.

factor	L1 = Hebrew	L1 = Other	df	chi-square	prob.
use of outside information	56%	50%	1	.5770	.4475
length of response	64	59	3	3.4774	.3237
disagreement	35	42	2	6.4198	.0404
emphasis (emphatic writing)	21	35	1	3.3537	.0671
humor or irony	9	20	1	4.1267	.0422
	males	females			
length of response	57%	68%	3	9.0799	.0225

Table 3a: A comparison of sociolinguistic communicative factors by language and gender

factor	Hebrew	Russian	Arabic	prob.
use of outside information	56%	57%	52%	ns
length of response	64	69	43	ns
disagreement	35	40	63	ns
emphasis (emphatic writing)	21	38	28	ns
humor or irony	9	17	29	.0475

Table 3b: A comparison of sociolinguistic communicative factors by native language

Whereas the only significant difference among the native languages was found for the use of humor or irony (with most responses by native speakers of Arabic), more significant differences were found by dividing between bilingual native speakers of Hebrew and the other (multilingual) students. Multilingual students wrote a significantly higher number of responses containing elements of disagreement, emphasis and humor or irony. Moreover, females wrote significantly longer responses. Further, the entire range of discourse was always in the target language, the only exceptions being isolated emphatic exclamations in Hebrew written in Latin letters.

These results can be interpreted in terms of self-confidence, familiarity with the majority culture, making up for perceived disadvantages, English language proficiency, and proficiency using the computer. The reasons for these differences need to be explored further, for other languages and in other countries, a project beyond the scope of this pilot study.

4. Conclusions

Despite the linguistic, religious, ethnic, political and gender differences that separate our students, CMC, through the Forum, produced not only an equalization but an openness of participation both in quantity of participation and in quality. Both majority and minority groups participated more than has been experienced in face-to-face classroom discussion and

in a variety of informal tones which previously had not been heard in the classroom. Responses indicated positive emotional involvement which motivated students to participate beyond the minimum requirement for class credit.

Although no generalizations or stereotypes can/should be made on the basis of a single group of students, students in this study of linguistic and sociolinguistic factors expressed themselves more openly and freely in informal communication in the Forum discussions than in formal responses to our Comprehension Questions. In the Forum, which appeared to invite more student participation, relatively fewer errors were made, and shorter sentences were used. More cohesive devices (referents), more hedging, more emphatic responses as well as humor and irony, were used in the Forum. Mean length of utterance can be linked to fluency and text content. Writing longer responses demonstrated greater confidence but decreased self-monitoring. As could be expected, students who wrote longer responses were more likely to make mistakes.

Results showed that multilingual students used more sociolinguistic communicative factors than bilingual students although their grades were lower. Student participation supplemented the more formal atmosphere of the classroom; Forum discussion was conducted in a variety of informal tones not usually heard in the classroom, reflecting the relaxed and equalizing atmosphere of the Forum, regardless of English proficiency. Since participation gave students an opportunity to raise their grades, it can be assumed that in a class without CMC, the expressive achievement of the weaker students would have gone undetected (and unappreciated), and their grades would have been even lower.

Web based courses enhanced student motivation and achievement. CMC added a vibrant dimension to a traditional course and to encourage intercultural communication and understanding.

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