A Balancing Act
How can intelligent computer-generated feedback be provided in learner-to-learner interactions?

1 Introduction and Motivation

Language teachers and second language acquisition (SLA) researchers alike have displayed great interest in gaining a better understanding of the feasibility and usefulness of providing corrective feedback on learner errors (see, for example, Truscott, 1999; Lyster, Lightbown, & Spada, 1999). Advantageously, computer-assisted language learning (CALL) environments present a variety of opportunities to evaluate the effectiveness of feedback for both pedagogical and theoretical purposes. However, there is a tension in CALL between the communicative freedom allowed in learner activities and the amount and types of feedback a learner can receive. In essence, the freer the activity, the more difficult it is to automatically deduce what a learner intends. Although intelligent CALL (ICALL) is meant to address this issue through the use of natural language processing (Heift & Schulze, 2007), parsing is not accurate enough to deal with completely free uses of language. In this paper, after discussing the rationale for providing corrective feedback in the context of meaningful communicative activities, we will describe the design of an ICALL system which is currently under development. This system is working toward the goal of providing intelligent computer-generated feedback in learner-to-learner interactions.

The potential for ICALL systems to provide individualized feedback for second language (L2) learners creates many promising means of facilitating L2 development. Through the use of natural language processing (NLP) techniques, ICALL systems are able to generate detailed information regarding learners’ L2 production. In fact, faced with non-targetlike input, a well-designed ICALL system is often able to identify precisely how a learner’s means of expression falls short of a nativelike target, as well as how it could be reformulated to express the same meaning in a targetlike way (Amaral & Meurers, 2006; Heift & Nicholson, 2001; Nagata, 2002). The provision of precise feedback tailored to learners’ own particular areas of difficulty can foster awareness of relevant language forms and encourage learners to make cognitive comparisons between their interlanguage and the target language (Doughty, 2001; Ellis, 1994)—a potentially beneficial process since empirical studies have shown not only that noticing of language forms is associated with learning, but also that higher levels of awareness are associated with more learning (for example, Leow, 1997; Rosa & O’Neill, 1999; cf. Schmidt’s 1990, 2001 noticing hypothesis). Besides being individualized with respect to a learner’s mistakes, ICALL feedback can also be tailored to activity goals, proficiency levels, cognitive abilities, or other dimensions an instructor sees as relevant (Amaral & Meurers, 2007b; Heift & Schulze, 2003). With precise error diagnosis and feedback, ICALL systems can then track improvement across exercises, using persistent learner models. The combined effect of all of these advantages is a level of individualization which truly makes ICALL “intelligent” and potentially supportive of L2 development.
There is a trade-off, however, between the ability of an ICALL system to provide meaningful, accurate feedback and the flexibility an ICALL system allows for in terms of communicative interaction. Developers of language learning technology increasingly emphasize the importance of promoting contextualized language use, and with increasing success (for example, Amaral, Metcalf, & Meurers, 2006; Amaral & Meurers, 2006). This reflects the conclusions of SLA theorists (for example, Doughty & Long, 2003), who have proposed that “optimal psycholinguistic environments” for SLA involve L2 learners using language for authentic purposes relevant to their needs. This includes negotiating for meaning, receiving interactionally modified input (including negative feedback), and focusing on form in the context of meaningful communication, thereby developing “functional language proficiency without sacrificing grammatical accuracy” (Doughty & Long, 2003, p. 50). Despite the recognized value of these ideas as design considerations, however, the promotion of actual communicative interaction in systems capable of providing feedback remains relatively unexplored (for an exception, see Petersen, 2006). Processing learner input is a challenging task, and allowing free-text input is simply not feasible (see the discussion in Amaral & Meurers, 2006, on the FreeText project (L’Haire, 2004)). To manage computational complexity, ICALL exercises are thus often restricted to the sentence level, and activities often do not simulate true communication.

A different strand of CALL research emphasizes meaningful conversation without the provision of individualized feedback. In synchronous computer-mediated communication (CMC), activities can approximate ‘target tasks’ which are relevant to real-life situations of language use—for example, communicative functions such as consensus-building and decision-making, or more specific tasks such as following directions to navigate one’s way around a map. Activities of these sorts allow L2 learners to function as language users with communicative goals as opposed to taking a predominantly metalinguistic orientation toward the superficial manipulation of L2 forms (Doughty & Long, 2003; Ellis, 2003). Learner-to-learner CMC has been shown to provide a context for the occurrence of several interactional features linked to L2 development, including the negotiation of lexical meaning (Blake, 2000), learners’ monitoring of their linguistic output and self-correction (Salaberry, 2000), and the incorporation of others’ morphosyntactic feedback into their own production (Pellettieri, 2000). It has also been argued that CMC promotes collaborative, learner-centered construction of knowledge and that it offers a more comfortable and less face-threatening environment for interaction than oral discussions in a classroom setting might present (Warschauer, 1996). Moreover, whereas learners may have difficulty allocating attention to both form and meaning in aural input (see, for example, VanPatten, 1989), the written modality can be characterized as involving less ephemeral language due to the possibility of re-reading, less pressing time constraints, and therefore reduced processing demands, allowing learners to produce more complex language (Warschauer, 1996) and perhaps serving as an equalizer for learners with lower working memory capacity (Payne & Whitney, 2002).

Synchronous CMC also has its limitations, however. First and foremost, notwithstanding the occurrence of the potentially beneficial interactional features mentioned above,
serious concerns have been raised regarding the quality of learner-to-learner interactions in CMC. It has been suggested that without feedback from a trusted authority, learners might reinforce each other’s errors (Kern, 1995) and that, even if learners are willing to provide feedback, they may not always have the resources necessary for correcting each other (Blake, 2000). Furthermore, the grammatical benefits of synchronous CMC are not completely clear: in negotiating for meaning, learners may naturally tend to focus on lexis without attending to morphosyntax (Blake, 2000), and some learners might not be concerned with grammatical accuracy in the first place (Kern, 1995). Given these possibilities, arguments regarding the availability of additional planning time for producing grammatical utterances in the written modality may be moot. Teachers can set explicit expectations for grammatically correct language, of course (Lee, 2001), but this has to be balanced with a primary focus on meaningful communication.

In sum, from one vantage point, we have ICALL research demonstrating that individualized feedback can be provided on learner errors. From another vantage point, we have research indicating the acquisition benefits of learners engaging in meaningful communication with one another. This raises an intriguing possibility: Can some form of ICALL feedback be integrated into a synchronous CMC environment in such a way that the benefits of each can be exploited while avoiding, or minimizing, their limitations? We believe that the answer is yes, but that it will require great care to accomplish the necessary balancing act successfully. How can we design a system that will not only provide learners with a meaningful communicative environment (allowing for negotiation, interactional modifications, focus on form, etc.), but also provide detailed, informative, computer-generated feedback on grammatical constructions?

In merging intelligent computer-generated feedback with synchronous learner-to-learner CMC, we want to allow learners’ interactions to be as free as possible, promoting authentic communication. At the same time, we are restricted by certain limitations of ICALL and must constrain the communicative situation in some way in order to make computational processing manageable. With a CMC setting, there is a need to reduce the amount of variability in learner input so that accurate feedback can be given. To illustrate how this can be done, we will describe the design of a system currently under development to provide feedback on postpositional particles to learners of Korean as a foreign language. By controlling the activity specifications and the range of learner input, we argue that grammatical feedback can be given in a synchronous CMC activity without undue sacrifice of communicative authenticity.

2 Scope of the Proposed Study

Given that feedback generation in ICALL has generally been designed for beginning learners, we start our exploration with beginning learners. The learner population of interest is currently English-speaking university students in first- and second-year Korean classes in the USA. Korean is an important language to investigate in this context, as it is a Less Commonly Taught Language (National Council of Less Commonly Taught Languages, 2004) and there is a great need for more pedagogical research on the learning of Korean (Song, 2006). Additionally, the US government has identified Korean as a
critical language in need of more proficient speakers (National Virtual Translation Center, 2007).

From a linguistic perspective, Korean presents a variety of features which are less prevalent in many Western languages, such as a rich system of case marking and relatively free word order. Korean also presents a challenge in its orthography, as it is written in a non-Roman script, namely Hangeul. Hangeul is an alphabet-based system of writing in which characters are combined to form syllabic units. Since we hope ultimately to integrate our ICALL system into undergraduate Korean classes, the synchronous CMC in our study will be carried out entirely in the written modality, employing resources which are commonly available at US universities (e.g., QWERTY keyboards). Thus, typing in Hangeul presents a potential challenge for beginning learners, an issue we return to in section 3.2.

In this paper, we are focusing on the design of one particular activity type for beginning Korean learners. By keeping the scope of the project limited, we can maintain a design which is feasible to implement while also creating a platform for future activities. In this way, we intend to provide a constructive proof of one way in which intelligent feedback can be provided in a CMC environment. Based on properties of the design which make this feasible, section 5 presents ways that additional activities could be developed to target other areas of language, including some for which learners at higher proficiency levels might be expected to profit from feedback.

2.1 Beginning learners

Designing an activity for beginning learners raises the question of whether beginners can or should use CMC. It is well-established in the SLA literature that it is important for learners to develop the ability to *use* language to communicate meaning, as opposed to simply “displaying” language or manipulating L2 forms systematically without attending to meaning (for a recent expression of this argument, see, for example, Ellis, 2003). In this sense, CMC provides an attractive environment for SLA. However, unconstrained communicative tasks might be stressful for beginning learners or might simply be beyond their capabilities, leading in some cases to failure and frustration. Learners should not be expected to complete the equivalent of real-world target tasks immediately, but should rather be led through graded pedagogic tasks with appropriate guidance and scaffolding (Doughty & Long, 2003). Thus, tasks need to be designed in such a way that participants will be comfortable communicating meaningfully in the L2.

To allow for interaction between beginning learners, we take this to mean that tasks should be sufficiently delineated and familiar. Not only is this a driving pedagogical goal, but, as we will see, this is also a desirable goal from the perspective of computational processing. It is important to acknowledge that if we intend to extend this approach for use with advanced learners in the future, we must find ways of maintaining communicativity as a top priority, keeping in mind the wider range of language abilities and the developmental needs of more proficient L2 speakers. For now, however, pedagogically and computationally motivated constraints seem to be working
synergistically to provide us with an entry point for exploring the possibility of merging ICALL and CMC, as described in section 3.

2.2 Target of feedback: Korean particles

A major issue in defining a task for beginning learners in which focused feedback can be provided is to identify a linguistic target which they have at least some ability to use, but with which they need additional practice. In Korean, postpositional particles (described below) are one such area of grammar. Particles must be used even in simple sentences and are taught from the beginning of L2 Korean study. However, the particle system in Korean is quite complex and difficult for native speakers of English to master. As such, particle errors account for a substantial proportion of the mistakes made by beginning learners of Korean (Ko et al., 2004).

In Korean sentences (as in Japanese, cf. Nagata, 1995), postpositional particles are used to indicate grammatical functions, thematic roles (for example, who is doing what to whom), and the locations of people and objects. A common mistake among learners of Korean is to omit a particle or to substitute one particle for another (Jang, Lee, & Seo, 2008). For instance, we might expect learners to make errors as in (1b) below. When expressing an equivalent of the sentence ‘Sumi needs a book’ in Korean, the noun ‘book’ must be marked with the subject particle */ka* to indicate that the book is the subject that is needed, as shown in (1a). However, English-speaking learners often use the object particle */eul/reul* with the noun ‘book,’ as in (1b), wrongly suggesting that the verb *pilyohaeyo* (‘need’) is a transitive verb.

(1) ‘Sumi needs a book.’

a. 수미-는 체-이 필요해요.
   sumi-nun chaek-i pilyohaeyo
   Sumi-TOP book-SUBJ need-polite ending

b. *수미-는 체-을 필요해요.
   sumi-nun chaek-eul pilyohaeyo
   Sumi-TOP book-OBJ need-polite ending

In addition, Korean particles are not in one-to-one correspondence with analogous grammatical forms in English, such as prepositions. As shown in Figure 1, not only does the English word ‘to’ have four different Korean translations, but one of these translations, the Korean particle */eul/reul*, can also be translated into English as ‘in’.

Furthermore, Korean locative particles mark distinctions that are not made in English, differentiating, for example, between the location of a static object versus the location of a dynamic activity.

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1 *-i/-ka* are phonologically conditioned allomorphs for the subject particle and *-eul/-reul* are phonologically conditioned allomorphs for the object particle.

2 Transcriptions follow the conventions of the Revised Romanization of Korean.
< Figure 1: Mapping between English prepositions and Korean particles >

Given that errors with particles occur from the beginning of Korean study and persist even at more advanced levels of proficiency, they represent a domain in which learners could benefit from additional out-of-class practice and individualized feedback in communicative situations.

3 The Activity

Many ICALL systems are able to provide precise and accurate corrective feedback through availing themselves of a small set of correct answers on sentence-level exercises. As we pointed out above, completely free interaction on authentic, high-level communicative tasks is not feasible for ICALL processing and may not be beneficial for beginning learners either. If we start with a notion of providing grammatical feedback in learner-to-learner CMC, we then need to constrain the environment to make learners comfortable and to make processing feasible. We provide these constraints in two general ways: firstly in how we specify the communicative activity (section 3.1), and secondly in how we guide the interactions to restrict the range of learner input (section 3.2). Our proposal in both of these areas is reflected in the way we are designing the user interface (section 3.3).

3.1 Activity specification

The specific task type we are considering to meet the competing demands of interaction and computation is a dyadic picture-based spot-the-differences task, or an information gap task. This is of course not the only type of task which could be used, but it is a guided and goal-oriented one which constrains the vocabulary under discussion in a natural way through the use of pictures (cf. Petersen, 2006). More specifically, in one of the spot-the-differences tasks we are piloting, each participant in a given pair sees a different cross-section of a house and must exchange information with his or her partner in the L2 in order to find similarities and differences in the actions and locations of the members of a family shown in the two versions (see Figure 2 below). This activity is currently set up as a competition between pairs of participants: the learners must make note of their findings in a game record, organized according to family member, which serves as an additional means of encouraging the participants to exchange specific types of information in order to complete the task successfully.

In another spot-the-differences task we are developing (adapted from Egi, 2004), each participant in a pair views a different version of a restaurant scene in which a crime has just occurred. One picture represents the situation moments before the crime, whereas the other represents the situation moments afterwards. While discussing the actions and locations of the waiters and customers in Korean, the participants must keep track of pertinent information on a virtual notepad (similar to the game record). After completing the synchronous CMC portion of the task in Korean, each participant must then submit a written report of the crime to the police, narrating in English how they believe the event
must have transpired in light of the information they have discovered through their conversation. The rationale behind this post-CMC activity is that it might help to increase the learners’ level of interest and investment in finding differences since it will encourage them to imagine how the pictures can be integrated to form a coherent event.

Our approach to narrowing the linguistic domain will reduce many of the computational complexities involved in generating feedback, while still allowing for communicative interaction between learners. It should be noted that these tasks may not be particularly authentic in terms of their relevance to common real-world communicative situations. However, they can arguably be called “interactionally authentic” (Ellis, 2003) or “pedagogically authentic” (Nunan, 1989) in the sense that the sorts of language skills they can be expected to elicit (for example, negotiation toward shared understanding, asking questions, clarifying meanings, etc.) “[correspond] to the kind of communicative behavior that arises from performing real-world tasks” (Ellis, 2003, p. 6). Such task types are commonly used in interaction research to target specific areas of language and to promote negotiation and L2 learning.

3.2 Limiting the range of learner input

While picture-based tasks can certainly limit the topics under discussion, L2 learners still have the potential to use vocabulary and constructions outside a given domain, not to mention the potential to form sentences incorrectly. While we want to allow learners to make mistakes with particles and other grammatical points related to argument relations, we also need to restrict the range of learner input (that is, the set of allowable sentences to be handled by the ICALL system) in order to make processing tractable and enable the provision of accurate feedback.

In this context, we can recall the issue of how beginning learners will be able to construct Korean sentences in the first place, given that they do not yet know how to type in Korean using a standard US QWERTY keyboard. Since we wish to provide communicative practice with particles, we need to ensure that the focus of the task does not become that of simply inputting Korean.

The way we propose to approach both issues is to use word and particle banks, which should provide guidance for the learners and constrain processing. Rather than having to type sentences character by character, learners will be able to select the tokens they wish to use simply by clicking on words and particles.

3.3 The interface

A key component in any CMC environment is the design and layout of the interface. In this section, we will walk through the basic layout for the chatting interface, shown in Figure 2. We intend to determine user satisfaction as part of the piloting process, using concurrent think-aloud protocols as well as retrospective questionnaires and interviews to inform a more optimal interface design in the future.
The spot-the-differences picture in the upper right-hand corner of the screen will serve to frame the learners’ discussion around a goal-directed task. Although the picture appears somewhat small in Figure 2, it dynamically becomes larger and easier to see when learners scroll over it.

Beneath the picture is the game record, or virtual notepad, that learners have to fill out. For each character depicted, the learners must determine whether their versions of the picture match or not, then click on either S or D to indicate a similarity or difference. Furthermore, to encourage additional vocabulary practice, each learner must keep track of the specific locations and activities of the characters in his or her partner’s picture by dragging Korean words into the appropriate boxes of the game record. Keeping this interface simple and intuitive will be essential to minimizing cognitive load since having to think about how an interface works can divide learners’ attentional resources and distract them from the primary learning task (Brooks, 1993; Chandler & Sweller, 1991; Oliver & Herrington, 1995).

In the upper left-hand corner is the chat window, which records the chat and permits scrolling so that the learners can review the previous conversation up to that point. Directly beneath the chat window is the sentence drafting area, where users construct their sentences before entering them into the conversation. As mentioned above, in order to add a word or particle to the sentence drafting area, learners simply click on the desired element from the appropriate bank. These banks appear in the lower left-hand corner of the screen.

If the learners want help on Korean particle usage, they can request computer-generated feedback by clicking on the CHECK button. The SEND button then makes the sentence appear in the chat window as part of the conversation. By allowing learners to check their L2 production and receive feedback on demand, the system may help them to be more confident in the language they use and let them take more initiative in deciding how much feedback they want. Importantly, when they do choose to receive feedback, it will be provided within a short time after they have made an error, likely within a ‘cognitive processing window’ that allows them to compare the non-targetlike and targetlike versions (cf. Doughty, 2001).

The feedback itself is presented in the bottom right-hand corner of the screen, where a friendly avatar provides tailored metalinguistic information regarding particle usage (cf. Nagata, 1995). Other types of feedback, such as highlighting or recasts, can of course be employed in the future (see section 4.2); the important point here is that the learners are able to receive instantaneous and unambiguous feedback which gives them a chance to modify their output before using the sentence in a conversation.

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3 Should learners underuse this option, however, it would be straightforward to change the interface such that they must receive grammatical feedback.
Despite the justification for every component, the screen might still seem complex. However, note that each quadrant of the screen serves a separate purpose. The upper left (chat window) keeps track of the conversation, while the lower left (word and particle banks) and lower right (feedback area) provide support for that conversation. The upper right (picture and game record) handles the specific domain.

4 Discussion

4.1 Is processing feasible?

A major question we started with was whether we can provide feedback in a CMC environment, considering that ICALL techniques have been developed for limited ranges of language, not completely free production. We have proposed a variety of ways to constrain the domain and guide the language employed by the learners, arguing that picture-based information gap tasks with a game record or virtual notepad should serve to direct learners toward a certain range of vocabulary. The biggest constraint on learner input, however, will come from the word and particle banks, which limit the types of syntactic structure by limiting the verbs that can be used. As we have suggested, this may be necessary for beginning learners who cannot type in Korean, and it may serve as a scaffold for using vocabulary productively in conversation. Computationally speaking, the upshot of all these constraints is that processing does not need to detect all types of learner mistakes, but can focus on detecting particle errors in a known domain.

Crucially, there is an open question of how to process Korean learner input in order to detect ill-formed sentences. Since the general relations between individuals in the task pictures will be fixed and known, we could use some fairly traditional, anticipation-based pattern matching (i.e., regular expressions) to identify correct sentences and sentences that are likely to be ill-formed. Given the range of possible learner mistakes and the need to provide intelligent feedback, however, a more general approach will employ linguistic abstraction of the data to basic part-of-speech (POS) and syntactic information to provide some annotation of input (cf. Amaral & Meurers, 2007a). The advantage of this approach is that, even if we cannot generate a full analysis for a sentence, some information can be extracted as to the learner’s intended meaning. In the meantime, establishing that an interaction-based Korean system is possible opens up the possibility of experimenting with different techniques for processing ill-formed input (see Dickinson & Lee, 2008).

4.2 Is focused feedback beneficial?

At this stage, the feedback provided will focus consistently on one pre-selected error type: problems with postpositional particles. It has been suggested in the literature on L2 corrective feedback that an intensive focus on one type of linguistic target may be more effective in certain contexts than wide-ranging incidental feedback on a variety of errors (for example, Lyster, 1998; Nicholas, Lightbown, & Spada, 2001). Recent meta-analyses (Mackey & Goo, 2007; Russell & Spada, 2006) have not consistently found significant differences in the effectiveness of specific versus general feedback, both of which show
medium to large effect sizes. However, as the meta-analysts themselves point out, there have been too few primary studies to tell for sure. In our study, reasoning that intensive feedback appears to be at least as effective as extensive feedback (if not more so), we will inform learners that they will be receiving feedback only on particles. The intention behind this decision is to dissuade learners from mistaking a lack of feedback for correctness.

Importantly, given its emphasis on interaction, the system we are developing should eventually provide an excellent forum for testing questions relevant to SLA theory and language pedagogy. For example, using pre-test/post-test designs, we will be able to manipulate and evaluate the relative effectiveness of different types and frequencies of feedback for learners of different proficiency levels, learning styles, and aptitude profiles.

4.3 Is meaningful communication promoted?

With all of the constraints we have mentioned—in particular, the restrictions potentially imposed on learners’ communicative freedom by the use of a word bank to facilitate sentence construction—one might be tempted to ask whether the task-based setting described here truly represents “synchronous CMC” as it has commonly been conceptualized in the literature. That is, is this a forum for acquiring communicative strategies as well as grammatical competence?

In this respect, it will be important for us to explore the effect of learners’ proficiency levels on their interactive behavior. Guided picture-based tasks have been used successfully in other CMC studies as a means of ensuring that all experimental groups attempt at least roughly the same sorts of sentences and receive approximately the same amount of feedback (see, for example, the story-retelling tasks in Sachs & Suh, 2007); however, the learners in these studies have tended already to be somewhat proficient typists in the languages they were learning. To our knowledge, computer-mediated task-based interactions have not been attempted with beginning learners of L2 Korean, nor have word banks been used in synchronous CMC. Obviously, this elevates the need for piloting as we develop the system. Our primary interest at the present time is thus to investigate how beginning learners actually try to use the Korean language during these sorts of interactions.

Aside from issues related to learner proficiency levels, a few major questions remain concerning the encouragement of purposeful communication. First, to what extent will participants orient to the tasks as primarily meaning-focused activities if it is clear that feedback is focusing exclusively on accurate particle usage? It is important to point out that we have chosen to provide feedback on particles in part because they are so crucial to expressing and understanding meaning in Korean sentences. Furthermore, the activity design for the house task is set up as a competition (cf. the discussion of the game record above) as a means of requiring learners to interact and convey specific information in the L2. Naturally, it will be important to evaluate the participants’ interest in completing these sorts of tasks. It seems plausible, for instance, that learners might display greater
engagement with the restaurant crime scene task since it involves imagining an underlying narrative to explain the differences they discover between the pictures.

From another perspective, one could also ask to what extent participants can be expected to focus on grammatical form. Despite the provision of feedback, nothing in the design truly necessitates that learners use particles correctly. Given that native speakers of English are accustomed to relying on word order as cues to argument relations in their L1, they may initially be less inclined to use particles for this purpose (see, for example, MacWhinney, 2001; VanPatten, 2007). Since particles convey significant communicative value in Korean, however, and since this fact is stressed from the outset in Korean classes, we hope that it will become clear to the learners that the ostensibly grammar-oriented feedback they receive in fact facilitates their communication of meaning. If further encouragement would be helpful, one possibility might be to reward the learners in some way for correct particle use (for example, a separate grammar scoring function, analogous to the scoring of the game record); another might be to test the learners on both the grammatical forms and the content of their partners’ pictures after the chat sessions.

Finally, there is the issue of the participants’ freedom to express a wide range of creative ideas in the context of these tasks. We need to investigate ways of ensuring that the word bank is sufficiently rich for their communicative purposes. Furthermore, we need to make the words in the bank as easy to access as possible, and this will involve several decisions about how to organize it. Words can be organized alphabetically, semantically/thematically, or even by morphosyntactic categories. Determining which type of organization best facilitates fluid communication and vocabulary use as well as L2 development is thus another primary concern.

5 Additional activities

In order to develop activities which can be used to target other language constructions for learners at higher levels of Korean study, it will be necessary to consult Korean pedagogical practice and learner corpus data, structured according to proficiency level (Cowan & Leeser, 2007). In designing our current set of tasks, we started from the desire to provide tailored corrective feedback to beginning learners. As discussed above, postpositional particles are essential for expressing who is doing what to whom in Korean sentences, yet they remain a notorious source of L2 errors despite being taught to and used by learners early on. Importantly for our purposes, given a sufficiently constrained context, particles are likely identifiable as either targetlike or nontargetlike through the use of NLP tools.

Several other areas of the Korean language may also be amenable to a merging of synchronous CMC and ICALL feedback. Korean is a richly inflected agglutinative language with an extensive system of suffixes, and the sorts of grammatical structures that utilize suffixes (e.g., tense, honorification, clausal connectives) would naturally be relevant in communicative tasks. If learners’ relative social status could be fixed for the purpose of a role-play situation, for instance, they could be given computer-generated
feedback on their uses of honorifics in discussing other people’s actions (for example, when talking about a teacher versus a grandmother versus a close friend, or when trying to decide who, among a set of co-workers, should receive an award, be invited to a party, or be given a life vest on a sinking ship). Alternatively, if the learners’ task were to make sense of a set of rumors they had heard, they could be given feedback on their uses of complementizers to introduce different types of embedded clauses in reported speech (cf. Hwang, 2007) since indirect questions, statements, and imperatives require different complementizers in Korean.

All of these tasks have in common that they can easily and naturally be performed using specific domains of vocabulary. As we argued above, a major factor contributing to the feasibility of processing learner input will be the guidance provided through pictures and task-specific word banks. We consider it important as a first step to prove that there is at least one type of task in which intelligent computer-generated feedback can, in fact, be provided in synchronous CMC in ways that are facilitative of SLA. As such, we have decided to begin with an approach whose practical viability we feel confident about, under the expectation that certain restrictions might be removable in the future.

6 Outlook

A crucial first step in developing this ICALL/CMC system, practically speaking, will be to pilot the communicative tasks, as well as the competitive game and narrative summary components, via the web interface. This will give us an even clearer sense of what to expect in learner-generated CMC input. Furthermore, this kind of testing will indicate how the word and particle banks are actually used and can point to a more appropriate, efficient, and user-friendly design that will allow for easy expansion for other activities.

In tandem with piloting the tasks, we are currently developing the ICALL system. Although we could develop exercises specific to picture-based information gap tasks rather quickly, the system ultimately needs to be general enough not just to handle the currently proposed activities, but also to be extendible to multiple Korean exercises (see section 5). Thus, we are in the process of developing different modules to be used in this scenario, along the lines of the TAGARELA system (Amaral & Meurers, 2006). An activity module will indicate the targeted pictures, expected constructions, and words to be included in the word bank for each exercise. The processing of the input will be kept separate in an expert model, whose linguistic analysis will be passed on to an error diagnosis module. The error diagnosis module will be able to take information from both the expert and activity models to determine the most likely error and pass this information on to the feedback module, which will generate an appropriate feedback message.

We hope that the result will successfully blend the competing goals of meaningful L2 conversation and accurate grammatical feedback in synchronous computer-mediated communication.

References


Figures

Figure 1: Mapping between English prepositions and Korean particles

Figure 2: User interface