

## **CMC interaction: A study on the benefits of recast on L2 learning**

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### **Keywords**

Attention, Awareness, CMC (Computer mediated communication), implicit feedback, interaction, noticing, positive or negative evidence, recast, think aloud

### **Abstract/Introduction**

Current SLA research on feedback (recasts) (Long & Robinson, 1998) provided during oral interaction (e.g., Iwashita, 2003; Leeman, 2003) has reported positive benefits on L2 learning. These effects are typically related to Schmidt's noticing hypothesis (Schmidt, 1990 and elsewhere) that claims that learners need to notice (attention + low level of awareness) target forms in the input before what is noticed becomes intake. Given the inherent problem of measuring the process of noticing in oral interaction studies, several studies have used offline procedures (e.g., stimulated recalls, cf. Mackey *et al.*, 2000) to measure whether noticing did take place during previous interaction. On the other hand, the roles of noticing and awareness in SLA have been methodologically addressed and supported by several studies (Leow, 1997, 2001; Rosa & Leow, 2004; Rosa & O'Neill, 1999) that have employed concurrent think aloud protocols during written tasks. Given that some studies (e.g., Kotter, 2003; Morris, 2005) have shown that computer-mediated-communication (CMC) between NSs and NNs allows for implicit feedback (such as recasts) to appear naturally, the present study seeks to employ current SLA research methodology (e.g., think aloud protocols) to address the role recasts play in L2 development in a CMC environment.

### **Review of the Literature**

#### *Recasts in SLA*

Empirical studies in SLA research suggest that implicit feedback provided during interactional conversation in the form of recast has positive effects on L2 development. Mackey and Philp (1998) investigated whether ESL learners who participated in task-based interactions with intensive recasts outperformed learners who participated in interactions without intensive recasts in the production of question forms. Thirty-five ESL learners from beginner and lower intermediate intensive ESL classes were distributed in five different groups: control (6), interactor ready (6), interactor unready (6), recast ready (9) and recast unready (8). Readiness and unreadiness were determined by proficiency

level assessments (beginner and intermediate). Participants were asked to complete three information gap tasks during the tests and treatment where they were required to produce questions. Their findings showed that participants in the intermediate group who received intensive recasts outperformed those at the same level who did not receive intensive recasts. Mackey and Philp (1998) pointed out that it was difficult to identify whether learners who repeated the recast were actually perceiving it as feedback or were simply saying the same thing in a different way. This conclusion poses the need to research more in depth into the issue of learners' 'noticing' of recasts in order to find out to what extent the provision of recasts is linked to L2 acquisition.

Evidence of the positive effects of recasts was also provided by Long, Inagaki and Ortega (1998) who addressed whether providing models and recasts facilitated L2 development in two different studies. The first study involved 24 second-semester learners of Japanese distributed in five groups. There were two target forms: adjective ordering and locative construction. The distribution of the groups was made taking into account the type of feedback provided (model or recast) and the target forms. The first group received a first treatment with recasts in adjective ordering production and a second treatment with models and locatives as the target form. The second group had models and locatives in the first treatment and recasts and adjective ordering in the second treatment. In the third group, recasts in locatives were provided in the first treatment and models in adjective ordering in the second one. Finally, the last experimental group had models and adjective ordering in the first treatment and recasts and locatives in the second one. The analysis on the oral picture-description task posttests revealed advantages for the treatment groups over the control on the adjective ordering target form but not on the locative form.

The second study in Long et al. (1998) included 30 undergraduate third-semester Spanish students involved in task-based interaction assigned to four treatment groups and a control group. The treatment groups alternated recasts and models with the two target forms (object topicalization and adverb placement) in the same way the Japanese experiment did. The results for this study revealed that not only did the recast and model group outperform the control one, but also that the recast group obtained higher scores than the model group for the adverb placement posttests.

The findings obtained in these two studies suggest that the type of form used as target may play an important role in the effects that recast have on L2 development. However, the results in these studies need to be taken with caution due to the low number of participants in each treatment group and to some methodological issues related to the design of the experiment itself such as the number of items in the tests and the election of the target forms.

Han (2002) reported on a study with eight EFL participants investigating whether learners who had received recasts during oral narrative were able to

improve their use of tense consistency. Participants were given a cartoon strip and had to tell a brief account of the story, first in writing and then orally (with or without recast). The posttests revealed that the recast group outperformed the non-recast group and was able to maintain tense consistency not only in the oral narratives but also in the written narratives. In addition, as an attempt to find out to what degree participants were aware of the feedback received, Han addressed whether learners who had received recasts showed higher awareness on tense consistency than learners who had not. Awareness was operationalized as the ability to self-correct instances of the target form. Despite the fact that the non-recast group self-corrected more, the recast group produced more instances of self-correction concerning the target form.

Iwashita (2003) investigated the acquisition of two grammatical Japanese structures (the locative-initial and the verb morpheme *te*-) in task-based conversation including negative feedback and positive evidence. The study involved 55 beginner Japanese students and 55 native speakers (NSs) of Japanese with 41 dyads in the treatment group and 14 in the control group. Whereas the treatment group participated in three communication tasks with a native speaker (a single two-way jigsaw task and two one-way information-gap task), the control group talked with the native speaker on any topic on their choice. The interactional moves were classified as either implicit negative feedback (recasts or negotiation moves) or positive evidence (completion model, translation model or simple model). The analysis of the transcriptions showed that, for all target forms, the largest proportion of moves were simple models. In addition, recasts were preferred over negotiation of meaning when implicit negative feedback was provided. With regards to the impact on the different interactional moves on L2 development, overall, learners seemed to have benefited from the interaction with the NSs. Evidence for the beneficial effect of recasts was only shown for one of the target forms: the *te*-form verb which supports previous studies that argued for a differential effect of recasts on L2 development depending on the target form.

Leeman (2003) compared the effect that four different types of interactional input had on 74 first-year Spanish learners' development of the Spanish noun-adjective agreement. The four conditions were (1) + recasts, (2) +negative evidence, (3) +enhanced salience, or (4) control. In the first part of each task, the recast group was provided with implicit negative evidence through reformulation of the target form for all ungrammatical target forms. Participants in the negative evidence group were also provided with implicit negative evidence but not with a reformulation of the target form. The third and fourth group did not receive any feedback. In the second part of each task, all groups were exposed to positive evidence. In addition, stress and intonation were used in the enhanced salience group in order to enhance the salience of the target form. The results revealed that the recast and the enhanced salience groups outperformed the control group on all posttreatment measures except on the second gender-agreement posttest, in which only the enhanced salience group significantly

outperformed the control group. The negative evidence group did not outperform the control group in any of the posttreatment measures. The researchers concluded that the implicit negative evidence that recasts seem to provide may not be a key factor for L2 development. Leeman suggested the use of concurrent measures of attention (e.g., think aloud protocols) to directly address learners' attention to the target forms in the input. The present study intends to shed some light into this matter by investigating learner's attentional processes in relation to their reactions to recasts.

### *Noticing and recast*

Research that has not investigated L2 development but addressed the issue of 'noticing and recast' includes different ways of operationalizing noticing. Mackey, Gass and McDonough (2000) investigated feedback perception in 17 beginner and intermediate learners of English and Italian. The participants were immersed in a two-way information exchange activity that required them to find out differences between two pictures. Feedback in the form of recast and negotiation of meaning was provided. Sessions were videotaped and participants were later required to recall their thoughts while the interaction was taking place. The results indicated that learners were able to perceive lexical and phonological feedback as such more than morphosyntactic feedback. Limitations to this study come from the use of stimulated recalls, which may rely heavily on memory capacity.

Ohta (2000) operationalized noticing through student's private speech in a study conducted in a Japanese classroom. Participants in the study were wearing microphones so that their responses were recorded. The results found that participants reacted to recasts but mainly when it was directed to other students or to the whole class. Caution is needed when interpreting these results because, on the one hand, the focus-on-form context in which the class was taking place as opposed to other more communicative task-based oriented interaction may have played an important role directing learners to focus their attention on the type of language produced. On the other hand, since participants were wearing microphones, they might have been more aware of the fact that their language behavior was being examined.

A study by Philp (2003) directly addressed the issue of 'noticing' in interactional conversation by investigating whether learners noticed recasts in relation to other variables. Given the limitations that oral interaction imposes in terms of operationalizing noticing, Philp had, as one of her goals, "to develop a means of measuring noticing in oral interaction" (p. 101). Noticing of recasts was operationalized as a correct recall right after the production of the recast. Philp investigated whether the ability to recall a recast was constrained by the level of the learner, the length of the recast and the number of changes made by the recast. Thirty-three EFL students participated in five NS-NNS dyads divided in low, intermediate, or high level according to the scores obtained on question-

formation pretests. Three tasks were assigned: a warm-up task, a story completion task, and a picture-drawing task. During the completion of the tasks, recasts were followed by two knocks, after which NNs had to recall what they had just heard. The results obtained revealed that learners receiving recasts did notice the provided implicit feedback. In addition, the findings demonstrated that noticing the feedback in this particular context was limited by the length of the recast, the number of changes made in the recast, and the so-called readiness of the learner.

Despite the fact that Philp motivated the use of this type of recall with previous research that had used think alouds to measure levels of awareness (e.g., Leow, 1997, 2000; Rosa & O'Neill, 1999), the operationalization of noticing used by Philp may be questioned due to the possibility that the added intrusions (two knocks after the recasts) altered the regular flow of the task.

### *CMC and recasts*

The use of CMC in second language learning has been broadly used over recent years. Research has taken several approaches into account including, among others, the study of social dimensions of interactions between NSs and NNSs (Belz, 2002), attitudes and perceptions in email exchanges (Greenfield, 2003) or categorization of instances of interaction from a discourse perspective (Toyoda, 2002). Several qualitative studies have found a positive relation between CMC and L2 learning within a discourse framework (Blake, 2000; Salaberry, 2000). However, to my knowledge, there is only one experimental study that has looked at L2 development (De la Fuente, 2003) which involved L2 vocabulary acquisition and interaction between NNS-NNS. De la Fuente (2003) investigated to what degree CMC interaction contributed to L2 vocabulary acquisition when compared to face-to-face interaction. Twenty participants divided in two groups (Oral interaction and Virtual chat) participated in a study to learn 14 Spanish words. The participants, grouped in pairs, had to negotiate the meaning of the 14 words in order to be able to perform the activity. First, one of the participants in the pair had to give instructions so that the other participant would find out the meaning of the first 7 words. Then, the roles were reversed, and the person giving instructions was receiving them using the other 7 words. The following day, the same activity was performed but participants giving instructions had to receive them with the same 7 words they used to provide information. Participants in the CMC group performed the same tasks via Virtual chat. The posttests revealed gains of L2 vocabulary in both groups, which suggests that negotiation during interaction, not only face-to-face but also in the written mode, enhances L2 learning. To explain the results obtained, De la Fuente argues that interaction (either through CMC or face-to-face) helps focus learners' attention to target forms in the input. However, like previous qualitative studies that had suggested that CMC interaction promoted learners to "notice the gap" (Blake, 2000) and focus their attention on the target form (Kitade, 2000), no

methodological attempt was made in this study to measure attention and its relationship to L2 vocabulary learning.

Other studies have addressed the question of whether CMC allows feedback to be provided naturally in conversations between NSs and NNSs (Kötter, 2003; Morris, 2005). Kötter (2003) examined negotiation of meaning and code-switching in online tandems between 14 advanced learners of English in Germany and 15 intermediate learners of German in the USA. An analysis of the electronic transcripts that the students produced when interacting showed that instances such as clarification requests were the most common type of repairs used from a wide variety that included confirmation checks, overt indications of understanding or agreement and recasts.

A recent study by Morris (2005) examined children NS-NNS interaction involved in a task-based communication activity in an elementary Spanish immersion classroom during CMC. The study investigated the type of errors (lexical, syntactic or L1 error) and the type of feedback provided by the NS (recast, negotiation of meaning or explicit correction) in relation to the type of error. The results showed that learners provided basically implicit negative feedback in the forms of negotiation of meaning and recast.

The above-mentioned studies that have addressed CMC and recasts have demonstrated that the provision of recasts can occur naturally during computerized conversation, but no relationship between CMC interaction and L2 development can be established based on the results. Consequently, given the positive relationship that has been claimed to exist between the provision of recasts and L2 acquisition (Han, 2002; Iwashita, 2003; Leeman, 2003; Mackey & Philp, 1998) and since CMC interaction seems to induce implicit feedback (Kötter, 2003; Morris, 2005) and L2 vocabulary development (De la Fuente, 2003), the present study seeks to investigate whether the linguistic benefits observed for conversational recasts in L2 development can be extended to a context where interaction is engaged in a written mode such as in CMC. More specifically, given the need to methodologically measure the process of attention and address the role of recasts on L2 development, the present study seeks to address this gap in the CMC literature by employing current SLA research methodology (e.g., think aloud protocols) to investigate the role recasts play in L2 development in a CMC environment. The collection of concurrent data on learners' processes during interaction addresses the question of why recasts are beneficial for L2 acquisition by avoiding methodological problems encountered in previous research on conversational interaction (Han, 2002; Mackey et al., 2000; Ohta, 2000; Philp, 2003).

The present study seeks to answer the following research questions:

1-Do beginner Spanish learners involved in CMC interaction with NSs and receiving recasts outperform non-recast learners on Spanish gender and

number agreement, as measured on a post and delayed test?

2-Do beginner Spanish learners involved in CMC interaction with NSs and receiving recast report more noticing of target forms when compared to the non-recast learners?

2.b. Do learners receiving recast report 'noticing' negative and/or positive evidence?

3-Is there a relationship between noticing and L2 development as measured by post- and delayed tests on Spanish gender and number agreement?

## **Research design**

### ***Participants***

Thirty second-semester learners of Spanish as a foreign language will be randomly divided into two groups: recast and non-recast group. Participants will be volunteers with no intermediate knowledge of another Romance language and enrolled in a second semester Spanish program that promotes all four skills in an information-sharing context. At the time of the experiment, the targeted form should have been formally presented in the previous semester. To ensure that only participants with minimal knowledge of the target form are included, only those participants who score 10 or less out of 32 on the pretest will be included in the final pool. Participants will also be eliminated for not completing all parts of the experiment or for reporting that they figured out the purpose of the study during the pretest.

### ***Target form***

The target form will be the same as in Leeman (2003), the Spanish gender-number agreement. In Spanish, the noun must agree in gender and number with any adjective or determiner that modifies it. As mentioned in Leeman (2003), the criteria for the selection of this form are, on the one hand, the low perceptual salience and the limited communicative value. On the other hand, since this form is difficult to acquire in learners under a communicative approach (Harley, 1989, 1998; Pica, 1994; Terrell, Baycroft, & Perrone, 1987; VanPatten, 1989), research on this target form raises the possibility of providing pedagogical implications. In addition, since Leeman (2003) found out that negative evidence might not have played an important role in the beneficial effects of recast and suggested that results should be contrasted with direct attentional measures, the present research attempts to address this issue by gathering think aloud data while learners are exposed to recast in the same target form as in Leeman (2003).

## **Materials**

### *Tests*

A pretest-immediate posttest-delayed posttest design will be developed. Similarly to Leeman (2003) participants will complete tests which will consist of picture-difference tasks completed online individually. Participants will be given two pictures with colored differences and will be asked to find as many differences as they can. There will be three different versions (pre, post and delayed). The pre-test will contain 24 critical items balanced in terms of gender and number and 8 distractors, which will consist of objects located only in one of the pictures (4 in each). The pictures will be provided on paper but the answers will be typed. The pictures will contain inanimate feminine or masculine objects such as *mesa* (table), *silla* (chair), *libro* (book) in different colors and numbers so that participants will have to use gender and number agreement accordingly in order to be able to compare both pictures. In order to find out whether participants can apply the learnt rule to other contexts, the post and delayed test will contain not only the 24 critical items already presented in the pretest and treatment, but also 24 new critical items and 12 distractors which will make a total of 48 critical items and 12 distractors in the post and delayed tests (see Appendix for a list of the items included in all three tests and treatment).

As an attempt to avoid potential problems with vocabulary, a picture with the names written on every item will be provided. In addition, and since the experiment measures gender and number agreement between noun and adjective and not plural formation or determiner-noun agreement, words will be provided with their articles and in their plural form when needed.

### *Treatment*

During the treatment, each participant will be engaged in a CMC task-based interaction activity (a one-way information-gap activity) where the participant will have to provide the researcher with the necessary information to complete the activity. The participant will be able to place different colored-objects in a picture and will have to describe the picture so that the researcher can locate the objects accordingly. There will be a total of 24 items (the same items presented in the pretest) and 8 different distractors. In order to use the distractors, the participant will have to refer to the size of the object instead of the color after placing either a large or a small object in the picture.

Whereas the treatment group will receive recast every time they produce an ungrammatical target form (1), the control group will receive no recast and will be asked to continue (2)<sup>i</sup>:

(1) Recast group

NNS: *En la mesa hay una taza \*rojo*  
"On the table there's a \* red cup"

R: *Um hmm, una taza roja. ¿Qué más?*  
"Um hmm, a red cup. What else?"

(2) Non-recast group

NNS: *En la mesa hay una taza \*rojo*  
"On the table there's a \* red cup"

R: *Um hmm. ¿Qué más?*  
"Um hmm. What else?"

The interaction will take place in the virtual room on "Blackboard", which will allow the researcher to collect all written transcripts. While involved in the interaction, participants will be asked to think aloud. In order to do so, participants will be provided the opportunity to practice thinking aloud prior to the experiment.

### **Procedures**

Pretests will be administered one week before the treatment session. During the treatment session, the researcher will meet individually with each participant for one hour in which participants will complete the treatment and immediate posttest. A week later, participants will be asked to complete the delayed test and the debriefing questionnaire. This questionnaire will be provided in order to ask whether they receive any external exposure to the target form during the period that the experiment lasted and whether they are aware of the purpose of the experiment.

### **Assessment and Coding**

#### **Tests**

Each target form will be coded individually so that a total of 24 points maximum could be obtained for the pretest and a total of 48 points for the posttest and delayed tests. Gender will only be measured in the singular items, and number agreement will be measured in the plural items to make it more controlled. Since the names for the vocabulary words will be given, it is expected that all words will be used. However, in order to prevent differences due to the number of obligatory contexts, all scores will be calculated as ratios of target agreement to obligatory contexts provided.

#### **Coding of noticing**

Verbalizations will be transcribed and “noticing” will be coded as follows: a) instance of noticed negative evidence (NE), b) instance of noticed positive evidence (PE), c) instance of noticed negative and positive evidence (NPE). Negative evidence (NE) will include instances where the participant noticed that he said something wrong in relation to the target form. Instances of negative evidence would be:

*“I said it wrong”*  
*“Oh, it wasn’t casa roja”*

Instances of noticed positive evidence (PE) will include those verbalizations where the participant refers to the corrected recast, not to his/her mistake. An example would be:

*“Oh, casa roja”*

Finally, instances of positive and negative evidence (NPE) will include those verbalizations where the participant refers to both his/her mistake and the corrected recast. Examples would be:

*“Oh, wrong, it’s casa roja”*  
*“It’s not casa rojo, but casa roja”*

For each participant, the number of instances noticed for each category will be counted so that there will be a final number that will include the three subtotals.

## **Analyses**

In order to answer the first research question, whether beginner Spanish learners involved in CMC interaction with NSs and receiving recasts outperform non-recast learners on Spanish gender and number agreement, the results from the pre-, post- and delayed tests will be entered into a 2X3 repeated measures ANOVA with two main factors, TIME (pre, post and delayed) and GROUP ( $\pm$  recast) and one interaction (TIME x GROUP).

Based on previous literature on recast and L2 development (Iwashita, 2003; Leeman, 2003; Long et al., 1998; Mackey & Philp, 1998), it is hypothesized that the recast group will outperform the non-recast group.

In order to answer the second research question, whether beginner Spanish learners involved in CMC interaction with NSs and receiving recast report more noticing of target forms when compared to the non-recast learners, the number of noticed instances will be submitted to a one-way ANOVA with one dependent variable (number of instances noticed) and one independent variable (GROUP:  $\pm$  recast).

Based on previous literature on noticing and recast (Mackey et al., 2000; Philp, 2003), it is hypothesized that there will be a significant difference between both groups ( $\pm$  recast) and that the recast will notice more than the non-recast group.

In order to answer the second part of this research question, whether learners receiving recast report 'noticing' negative and/or positive evidence, a qualitative analysis will compare the amount of instances reported for each category and will investigate whether participants notice feedback as such and to what extent what they notice is negative evidence, positive and negative evidence or just positive evidence.

Finally, in order to answer the third research question, whether there is a relationship between noticing and L2 development, a series of correlation analyses will be performed in which the number of instances noticed will be compared to the scores on the post and delayed tests.

Based on previous literature on noticing and levels of awareness and L2 development (Leow, 1997, 2001; Rosa & Leow, 2004; Rosa & O'Neill, 1999), it is hypothesized that the higher the number of instances noticed, the better the results on the gender-number agreement tests.

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<sup>i</sup> Since there is no data yet, the examples provided are based on those found by Leeman (2003)