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What is This?
Effects of communication mode and salience on recasts: A first exposure study

Yucel Yilmaz
Sakarya University, Turkey

Dogan Yuksel
Kocaeli University, Turkey

Abstract
This article reports on a study that investigated whether the extent to which learners benefit from recasts on two Turkish morphemes differ depending on communication mode – i.e. Face-to-Face Communication (F2FC) and text-based Synchronous Computer-Mediated Communication (SCMC) – and/or the salience of the target structure (i.e. salient and non-salient). In this first exposure study, 24 native speakers of English with no Turkish background studied 51 Turkish words by completing a series of vocabulary learning tasks. Participants who scored at or above a criterion level of 60% on a screening test met with the researcher and carried out two communicative tasks. In each task, learners received recasts on one of the target structures through one of the communication modes. The order of the tasks was counterbalanced across four subgroups of learners. Two oral production tasks were used as a posttest in order to measure learners’ performance on the two target structures. Results revealed that learners scored statistically significantly higher on receiving recasts through text-based SCMC than recasts through F2FC. However, results showed no difference between the salient and the non-salient morpheme in benefiting from recasts.

Keywords
negative feedback, interaction, recasts, computer-mediated communication, salience

I Introduction
Many second language acquisition (SLA) researchers agree that positive evidence (i.e. information that shows what is permissible in the language) is not sufficient to reach high
levels of proficiency in L2 grammar. Negative evidence (i.e. information that shows what is not permissible in the language) is also needed (Lightbown & Spada, 1990; Ellis, 1991; Gass, 1991; White, 1991; Long; 1996; but, for the opposite view, see Schwartz, 1993). Corrective feedback, as a source of negative evidence, is an important means to focus learners’ attention on their errors. In recent years, a great deal of research effort has been directed towards investigating the effectiveness of recasts as a type of corrective feedback. Recasts are defined as targetlike reformulations of learners’ non-targetlike utterances (Nicholas et al., 2001). The main reason for the interest in recasts has been the fact that recasts do not interrupt the flow of conversation due to their implicit nature.

Previous research has provided empirical evidence in support of the effectiveness of recasts in comparison to models and interaction without feedback (Ortega & Long, 1997; Doughty & Varela, 1998; Mackey & Philp, 1998; Choi, 2000; Ono & Witzel, 2002; Leeman, 2003). Descriptive studies investigating the nature of recasts (Sheen, 2006; Loewen & Philp, 2006; Egi, 2007) have found that the extent to which learners perceive the negative evidence provided through recasts varies depending on several factors (e.g. the length of recasts, the number of corrections a recast contains, etc.). However, these studies have focused on variability in the perception of negative evidence. Minimal attention has been paid as to whether the variability observed extends to learners’ oral language production. Therefore, it is necessary to investigate whether factors similar to the ones affecting the perception of negative evidence have an impact on learners’ oral language production. In addition, previous research investigating the role of moderating factors in the effectiveness of recasts has been largely observational in nature. In order to find out whether specific factors affect the extent to which learners benefit from recasts, experimental studies that compare types of recasts manipulated at different levels of these factors are needed.

II Recasts

A substantial body of research has revealed that recasts have a beneficial effect on language acquisition. The general pattern that emerges from findings in experimental studies is that learners who received recasts performed better than those who received models (i.e. non-contingent forms of positive evidence) (Ortega & Long, 1997; Ono & Witzel, 2002; Leeman, 2003). Other experimental (Mackey & Philp, 1998; Choi, 2000) and quasi-experimental (Doughty & Varela, 1998) studies showed that interaction with recasts was more effective than interaction without recasts.

Recasts have also been supported theoretically (Long & Robinson, 1998; Doughty, 2001). Long’s Interaction Hypothesis (Long, 1996) states that interaction facilitates language acquisition by providing positive and negative evidence. Long (2007) further points out that recasts play an important role in presenting negative evidence during interaction because they provide information about the target language just when the learner needs it, which leads to an efficient use of cognitive resources. Prior understanding of the message in a recast situation allows learners to allocate their freed-up attentional resources to the corrected linguistic form. According to Doughty (2001), since recasts take place just after an error is made, learners can cognitively compare their interlanguage form with the target language form. This comparison can result in beneficial cognitive processes such as noticing the hole and noticing the gap.
Other researchers (e.g. Lyster, 1998) argued that the acquisitional value of recasts was low because learners had difficulty in identifying the negative evidence recasts conveyed. Lyster and Ranta’s (1997) study showed that, although recasts were highly frequent (55% of all feedback turns), they elicited a low repair rate (18%). However, there is also evidence indicating that the lack of immediate repair may not be a feature that decreases the effectiveness of recasts. For example, Mackey and Philp (1998) showed that although learners did not repair their utterances on receiving recasts, they could still benefit from a rich diet of recasts as shown by their increased production of developmentally more advanced structures.

A number of factors seem to be affecting the perception of negative evidence in recasts. Using stimulated recalls, Mackey et al. (2000) found that learners could perceive recasts targeting phonology and lexis more easily than recasts targeting morphosyntax. Sheen (2006) found that shorter recasts and recasts that presented the correct form by substituting (rather than reordering, adding, or deleting) elements of the learner’s erroneous utterance produced higher rates of learner uptake. Loewen and Philp (2006) reported that recasts bearing stress, recasts with declarative intonation and recasts that contained only one change predicted successful uptake. They also found that recasts that had interrogative intonation, recasts that were short, and recasts that contained only one change predicted accuracy on individualized posttests. Finally, the verbal reports in Egi’s (2007) study indicated that longer recasts and recasts that contained a higher number of changes were interpreted as a comment on content rather than on form. These findings indicate that the extent to which learners perceive the negative evidence in recasts varies. A similar variability may apply to learners’ performance during language production after being exposed to recasts. In fact, previous research has provided hints about the potential role of two factors: communication mode and target structure salience.

### III Communication mode

Although, traditionally, researchers investigated the role of corrective feedback in language acquisition in the context of face-to-face communication (F2FC), recently they have started to show interest in other communication modes, such as text-based synchronous computer-mediated communication (SCMC). Text-based SCMC refers to real-time communication between people using text-based chat tools. Text-based SCMC has attracted much attention in the SLA field because of its similarity with F2FC. Features of F2FC, such as short turns, real-time communication, and informality of discourse are also present in SCMC. Research has shown that learner–learner interaction through text-based SCMC contains instances where learners’ draw each other’s attention to linguistic form (Blake, 2000; Pellettieri, 2000; de la Fuente, 2002; Kitade, 2000; Lee, 2002; Blake & Zyzik, 2003; Smith, 2003; Yilmaz, 2011), and that some of these instances involve the provision of corrective feedback at the level of lexis, grammar or orthography (Blake, 2000; Kitade, 2000; Pellettieri, 2000; Lee, 2002; Iwasaki & Oliver, 2003; Morris, 2005; Yilmaz, 2011). Two studies compared different types of feedback provided through SCMC. Loewen and Erlam (2006), and Sauro (2009) investigated the relative effectiveness of recasts and metalinguistic feedback (i.e. provision of a metalinguistic clue such as you need the past tense), in a pretest/posttest control group design. The results of these
two studies showed no advantage for the recast groups over the control groups and no difference between the recast and metalinguistic groups.

Researchers have argued that some features of text-based SCMC, such as enhanced salience due to the visual presentation of input, the re-readability of messages, and longer processing time can maximize learners’ opportunities to focus on form (Warschauer, 1997; Choi, 2000; Smith, 2004). Lai and Zhao’s (2006) study that compared the communication modes using learner’s verbal reports provided partial support for this claim. The study showed that learners noticed their own mistakes and interactional feedback more often during text-based SCMC than F2FC. However, the breakdown of the noticing of recasts revealed that the percentage of noticing was similar between the two communication modes (F2FC, 18%; SCMC, 10%).

Payne and Whitney’s (2002) study has also provided support for the claim. They suggested that spontaneous language production in text format in a chatroom could develop the same cognitive mechanisms underlying L2 speech. With this assumption, they compared two groups that differed in the communication mode through which they received instruction. The study followed a pretest/posttest quasi-experimental design. Over a 15-week semester, the experimental group received two hours of SCMC instruction in addition to two hours of oral classroom interaction per week, whereas the comparison group received only oral classroom interaction, four days per week. The results showed greater gains in oral proficiency for the group that received SCMC instruction.

IV Target structure salience

Several recast studies showed that recasts were differentially effective depending on linguistic structure. Ortega and Long (1997) found that recasts were more effective for Spanish adverb placement than clitic pronouns. They explained their results by arguing that Spanish adverbs were more salient than clitic pronouns because they were multisyllabic, stressed, and meaning bearing. Leeman (2003) reported greater benefits for Spanish number agreement than gender agreement. She pointed out that Spanish number agreement was more salient in the input than gender agreement because it was semantically transparent and phonetically substantial and it always occurred in word-final position. Mackey (2006) found that learners were more likely to notice English question forms than the past tense morpheme after receiving interactional feedback, including recasts. She observed that a possible reason for this was that question formation was more salient than the past tense morpheme because it involved syntactic movement.

Researchers seem to agree on the fact that salience is a factor that can explain results post-hoc. However, none of the previous studies set out to manipulate degree of salience as an independent variable. That would have required an operationalization of salience, which is a highly complex construct with many different layers and components. One way of narrowing the construct down is by defining it in terms of the physical or perceptual features of linguistic structures. Perceptual salience depends on factors such as phonetic substance, stress, pitch, word position and utterance position (Slobin, 1971; Brown, 1973). Goldschneider and DeKeyser (2001) have defined perceptual salience as ‘how easy it is to hear or perceive a given structure’ (p. 22). Ono and Witzel (2002) investigated the effects of perceptual salience on the development of four target structures through recasts and models, in a pretest/posttest control group design. Of the four structures chosen for the
study, plural -s and past tense -ed were considered less salient than progressive -ing and third person possessive pronouns with respect to phonetic substance, syllabicity, sonority, and bound/free status. Forty-two ESL learners were randomly assigned into models, recasts or production-only (control) groups. The study produced mixed results in relation to the saliency hypothesis. The researchers examined the hypothesis by comparing salient and non-salient morphemes in pairs. The comparison between progressive -ing (salient) and past -ed (non-salient) showed that recasts were equally effective for both of these structures, whereas the comparison between possessive pronouns (salient) and plural -s (non-salient) revealed that possessive pronouns benefited more from recasts.

Salience can also be considered from a broader perspective that goes beyond physical features of target structures. In their meta-analysis of 12 morpheme order studies, Goldschneider and DeKeyser (2001) searched for the regression model that would best predict the accuracy order of six commonly studied morphemes. The model that was composed of perceptual salience, frequency, semantic complexity, morphophonological regularity and syntactic category could explain 85% of the variance in learners’ accuracy scores. The researchers concluded that it was possible to collapse all the individual categories of salience investigated into one broad category of salience that could explain the acquisition order of morphemes.

V The present study

Our purpose in this study was to investigate the role of target structure salience and communication mode in the extent to which learners benefit from recasts. The study tested the following two hypotheses:

- Hypothesis 1: Learners will score higher on receiving recasts through text-based SCMC than recasts through F2FC.
- Hypothesis 2: Learners will score higher on the more salient target structure than on the less salient target structure after being exposed to recasts on both target structures.

For Hypothesis 1, the claim that SCMC, in comparison to F2FC, offers greater potential to maximize focus on form opportunities has found partial support in one study that investigated the noticing of interactional feedback (Lai & Zhao, 2006). Considering that Lai and Zhao relied exclusively on verbal reports, it is necessary to test whether learners would take more advantage of SCMC recasts than F2FC recasts as shown by performance measures. If text-based SCMC, with its unique features, such as visual presentation of input, re-readability of messages, and longer processing time facilitates focus on form, learners could take more advantage of online recasts compared to oral recasts. When these potential advantages are considered together with Payne and Whitney’s (2002) finding that an intervention through SCMC could develop learners’ oral performance, learners could be expected to perform better in oral production tests after receiving online recasts than after receiving oral recasts.

For Hypothesis 2, previous recast studies have shown that recasts are differentially effective depending on the target structure. Target structure salience could be one of the factors accounting for those results. However, only one study (Ono & Witzel, 2002) has
investigated this claim. The lack of research in this area as well as the mixed results reported by Ono and Witzel (2002) makes it necessary to test the salience hypothesis again.

VI Method

1 Participants

Twenty-seven native speakers of English with no Turkish language background participated in this study. Three participants were eliminated from the data analysis because their score on the screening test did not reach the threshold level. The resulting sample of 24 participants included 12 males and 12 females. The mean age of the group was 25.4. Except for one participant, all the participants had some prior second language learning experience in an instructed setting, with an average of 5.6 years of language instruction in a second language other than Turkish. None of the participants had any previous exposure to agglutinative languages in naturalistic or instructed settings.

2 Design of the study

This study followed a posttest-only counterbalanced design. A pretest was not necessary because learners had no prior knowledge of the target structures. The two levels of the independent variable salience were crossed with the two levels of the other independent variable communication mode, resulting in four treatment combinations. All learners were exposed to two of these combinations (see Table 1). The order of presentation and the treatment combinations were counterbalanced across four groups. The order of presentation of posttests was also counterbalanced across four groups. This way, each treatment combination in the treatment phase and each posttest in the posttest stage appeared both in first and second position. Participants were randomly assigned to one of four groups.

3 Target structures

Two Turkish structures were selected for the study: the plural morpheme /-lAr/, and the locative case morpheme /-DA/. Due to its agglutinative nature, Turkish has a wide range of affixes. Most affixes have phonologically conditioned allomorphs. Vowel harmony is
The most important factor determining the allomorphs of a morpheme. Vowel harmony states that a native Turkish word should either include exclusively non-front (central and back) vowels /a, ɯ, o, u/ or exclusively front vowels /e, i, œ, y/. The plural morpheme /-lAr/ becomes [-ler] or [-lar] depending on vowel harmony. The choice between /e/ and /a/ is determined by the preceding stem vowel. It is /e/ after front vowels and /a/ after non-fronts (see Table 2).

<table>
<thead>
<tr>
<th>Allomorphs of the plural morpheme</th>
</tr>
</thead>
<tbody>
<tr>
<td>[-ler]</td>
</tr>
<tr>
<td>Kemer-ler</td>
</tr>
<tr>
<td>belt-PLURAL</td>
</tr>
<tr>
<td>‘belts’</td>
</tr>
<tr>
<td>[-lar]</td>
</tr>
<tr>
<td>tabak-lar</td>
</tr>
<tr>
<td>plate-PLURAL</td>
</tr>
<tr>
<td>‘plates’</td>
</tr>
</tbody>
</table>

The locative /-DA/, which expresses the locative case in Turkish, has four allomorphs. It becomes [-de], [-da] and [-te], [-ta] depending on vowel harmony and suffix mutation. In Turkish, if a suffix that starting with /d/ is attached to a word ending in a voiceless consonant, then the first phoneme of the suffix turns into a voiceless consonant /t/. Therefore, /-DA/ becomes [-te] or [-ta] after voiceless consonants, and [-de] or [-da] after vowels or voiced consonants. The vowel choice in the suffix is also determined by the preceding stem vowel (see Table 3). The meaning of the locative case corresponds to English prepositions, ‘in’, ‘on’, ‘at’, and ‘by’. Given the difficulty of representing all these meanings, the study created contexts only for the meaning corresponding to the preposition ‘on’.

<table>
<thead>
<tr>
<th>Allomorphs of the locative morpheme</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ev-de</td>
</tr>
<tr>
<td>masa-da</td>
</tr>
<tr>
<td>sepet-te</td>
</tr>
<tr>
<td>raf-ta</td>
</tr>
<tr>
<td>house-LOC</td>
</tr>
<tr>
<td>‘on the house’</td>
</tr>
<tr>
<td>table-LOC</td>
</tr>
<tr>
<td>‘on the table’</td>
</tr>
<tr>
<td>basket-LOC</td>
</tr>
<tr>
<td>‘on the basket’</td>
</tr>
<tr>
<td>shelf-LOC</td>
</tr>
<tr>
<td>‘on the shelf’</td>
</tr>
</tbody>
</table>

The structures differed in terms of salience. Salience was operationalized in this study as the degree to which a structure can be perceived and linked to an underlying meaning. Perceptual salience, morphophonological regularity, L1–L2 similarity were the subfactors that contributed to the salience construct. Perceptual salience was defined as how easy it is to perceive a given structure. Categories representing auditory salience (i.e. number of phones, syllabicity and sonority) were adopted from Goldschneider and DeKeyser’s (2001) work. In addition, a category representing visual salience was created (i.e. suffix length). Each morpheme was scored according to each of these categories. Based on the sum of these scores, the plural was found to be more salient than the locative (for the actual scores, see Appendix 1).

In the same study, Goldschneider and DeKeyser (2001) defined morphophonological regularity as ‘the degree to which the functors are (or are not) affected by their phonological environment’ (p. 26). In their operationalization of the construct, two main factors contributed to morphophonological regularity: the number of phonological alternations and homophony with other grammatical morphemes. The limited number of
words and morphemes used in this study made only the first factor relevant. Given the fact that the locative had four and the plural had two allomorphs, the plural was found to be more salient than the locative in this category as well.

The last factor was L1–L2 similarity. L1–L2 similarity was defined as whether L1 and L2 morphemes shared the bound/free status. English and Turkish are similar in that both languages express plurality by bound morphemes. However, they differ in the expression of location. Turkish uses case marking and, therefore, a bound morpheme to express location, whereas, English uses prepositions and, therefore, free morphemes to express location. In sum, all components of salience considered, the plural was found to be more salient than the locative.

4 Instruments

a Target vocabulary: Fifty-one Turkish words (46 concrete and five colour words) were chosen based on three criteria. First, the words should be visualizable. Second, the words should not contain any orthographic characters that could look unfamiliar to participants because they exist in Turkish but not in English (e.g. ş, ö, ğ, etc.). Third, the total set of words should present sufficient variability with respect to the last two phonemes to ensure that all the allomorphs of each morpheme were represented equally in the treatment and posttest tasks. Of the selected words, four were monosyllabic, 41 were bisyllabic, and six were trisyllabic.

b Web-based vocabulary activities: Two types of web-based learning activities were used to help participants learn the words. The first one was a flash card activity. One side of the flashcard presented the orthographic form of the Turkish word with a picture illustrating the word, and the other side displayed the orthographic form of the English translation. Learners could also hear the spoken word through a clickable button next to the flashcard. The second activity asked learners to match the orthographic form of the words with a picture illustrating the word. Finally, a vocabulary test was administered to screen participants for the study. Each test item provided a picture and the initial letter of a word as a prompt. Learners were asked to type in the word that described the picture.

c Glossary: Learners were provided with an alphabetically ordered glossary containing all the words and their English translations. They were allowed to use this glossary when they failed to remember the words during the treatment.

d Treatment tasks: Each target structure was elicited through a communication game, Task A and Task B. Each task created 16 contexts for the use of one target structure. Task materials included two sets of 16-slide Microsoft PowerPoint presentations, one for the learner and one for the researcher. Each slide in the learner’s set contained one picture, whereas the corresponding slide in the researcher’s set contained three pictures, one of which was identical to the one in the learner’s slide. The pictures that learners were asked to describe along with task instructions set the context for the use of the relevant morpheme. Task A, which was designed to elicit the plural, presented pictures where two or more units of the same object could be seen. There were eight contexts for the use of each
allomorph. Task B, which was designed to elicit the locative, presented pictures where an object circled in red was located on a different object (see Appendices 2 and 3). There were four contexts for the use of each allomorph.

e Posttests: Two picture description tasks based on two Microsoft PowerPoint presentations were administered to measure learners’ ability to produce the two target structures orally in obligatory contexts. Even though one of the treatment tasks was carried out through text-based SCMC, an oral production measure was used as posttest because previous research has shown that SCMC exhibits not only the features of written but also the features of oral communication (Smith, 2003). Moreover, Payne and Whitney (2002) have shown that an intervention through SCMC can improve learners’ oral proficiency. Learners were not expected to have difficulty with the pronunciation of the words in the posttest because they were exposed to the phonological forms of the words through the web-based vocabulary activities before the treatment. Learners’ knowledge of each target structure was measured through a different posttest, Posttest A for the plural and Posttest B for the locative. In each of the posttests, learners had 24 opportunities to produce the target structures. Posttest A provided 12 contexts for the use of each allomorph, and Posttest B provided six contexts for the use of each allomorph. The pictures in the posttests were similar to the pictures that appeared in the treatment tasks. Eight of the pictures that appeared in each posttest were carried over from the treatment tasks (feedback items), and 16 pictures were new (novel items) (for the composition of items, see Appendix 4).

5 Procedure
Learners were asked to visit an instructional module designed for the study at www.quia.com and follow the instructions to learn the vocabulary items. They were allowed to study the words at their own pace and convenience in their preferred location. The instructions on the webpage asked them to familiarize themselves with the words through the flashcard activity, carry out the matching activity to practice the words and then take the screening test. Learners who scored at or above 60% qualified for the study and met with the researchers at a computer lab. After signing the consent forms, learners were asked which words they had difficulty with, and then these were reviewed with one of the researchers orally. The review continued until the researcher ensured that learners were comfortable with these words.

Next, the participant and the researcher were paired up to form a dyad to carry out the treatment tasks. Throughout the study, the same researcher interacted with all the participants during the treatment. The dyad carried out two tasks, each through a different communication mode. In the F2FC task, the task was carried out orally. In the SCMC task, the task was carried out using Windows Live Messenger. The learner and researcher logged onto separate Windows Live Messenger accounts and carried out the task by chatting with each other. The recast on the relevant target morpheme was provided through the chat window using the default font type and size. Each task provided recasts for only one target structure. It was explained to learners that they would carry out two tasks with the researcher and that their goal was to describe the picture in their slide with two-word utterances in order for the researcher to choose the same picture in his slide from a
selection of three pictures. Task specific instructions indicated how the pictures should be described. In the plural task, learners were told they would see 16 pictures showing more than one unit of the same object and that they needed to describe the colour of these objects. In the locative task, learners were asked to describe the pictures that showed one object on top of another. To avoid non-targetlike use of word order, task specific instructions made it clear that in the plural task, the name of the objects should be first, followed by the colour word, and, in the locative task, the name of the circled object should be first, followed by its location. Learners’ non-targetlike utterances were corrected through recasts (see Table 4). A recast was operationalized as the targetlike reformulation of the erroneous segment of the learner’s utterance. Any other non-targetlike usage was ignored (for the number of recasts learners received, see Appendix 5). Each recast was followed by a question on content in order to keep the overriding focus of the task on meaning. The administration of the treatment tasks took around 30 minutes including task instructions (for on-task time, see Appendix 5). After the second treatment task, learners carried out two untimed oral picture description tasks as posttest, one for each target structure. The researcher and the learner sat facing a computer screen. Learners were asked to describe the pictures that they would see shortly afterwards with two-word utterances, as they had done in the corresponding tasks during the treatment. The researcher showed the pictures one by one and told learners not to use the glossary.

6 Scoring

The recorded oral data from the posttests were coded for correct suppliance in obligatory contexts, suppliance in non-obligatory contexts, and misformations in obligatory contexts. Correct suppliance was defined as the provision of the correct allomorph of the relevant morpheme. Misformations in obligatory contexts were defined as the suppliance of one of the incorrect allomorphs of the relevant morpheme. Suppliance in non-obligatory contexts was defined as the provision of the incorrect morpheme. Next, each learner’s Adjusted Target-Like Use (ATLU) was calculated following the formula used in Ono and Witzel (2002).

\[
\text{ATLU} = \frac{(n \text{ correct suppliance in obligatory contexts}) \times 2 + (n \text{ of misformations in obligatory contexts})}{(n \text{ obligatory context}) \times 2 + (n \text{ suppliance in non-obligatory contexts})}
\]

Table 4 Recast episodes

<table>
<thead>
<tr>
<th>Locative (less salient)</th>
<th>Plural (more salient)</th>
</tr>
</thead>
<tbody>
<tr>
<td>(L: \text{Bardak masa})</td>
<td>(L: \text{Kalem mavi})</td>
</tr>
<tr>
<td>‘The glass [is] the table’</td>
<td>‘The pencil [is] blue’</td>
</tr>
<tr>
<td>(R: \text{masada})</td>
<td>(R: \text{kalemler})</td>
</tr>
<tr>
<td>table-loc</td>
<td>pencil-plural</td>
</tr>
<tr>
<td>‘on the table’</td>
<td>‘pencils’</td>
</tr>
<tr>
<td>(R: \text{masa beyaz?})</td>
<td>(R: \text{2 or 3?})</td>
</tr>
<tr>
<td>‘Is the] table white?’</td>
<td></td>
</tr>
</tbody>
</table>
Two researchers independently scored the totality of the data. The interrater reliability score (Cohen’s kappa) was .91 for the plural, and .95 for the locative. All the disagreed items were identified, reviewed, and recoded.

### VII Results

Table 5 shows the descriptive statistics for the scores for each target structure by communication mode. The total column presents learners’ total posttest scores for each target structure regardless of the levels of communication mode. The total row presents the combined posttest scores grouped according to communication mode. Learners scored higher on the locative than on the plural when they received recasts through F2FC and when both communication modes were considered together. In addition, the learners who had received SCMC recasts on the plural scored only slightly higher than the learners who had received SCMC recasts on the locative. Table 5 also shows the descriptive statistics for learners’ scores on each target structure by communication mode. In general, learners obtained higher scores on receiving recasts through SCMC than recasts through F2FC.

We could not assume normality because our data showed a slightly platykurtic kurtosis, although the skewness was within the normal range (skewness: .57; Kurtosis: –1.40). For this reason, we reported the results of various non-parametric tests to find out whether our hypotheses were supported. The alpha level was set at .05.

#### Hypothesis 1: Learners will score higher on receiving recasts through SCMC than recasts through F2FC

In order to find out whether the extent to which learners benefited from recasts changed depending on communication mode, three statistical comparisons were made. The first comparison was made by using learners’ overall posttest scores, grouped according to communication mode. A Wilcoxon signed-ranks test, a non-parametric analogue of the paired samples t-tests, indicated that learners’ scores were significantly higher when they received SCMC recasts \((n = 24)\) than their scores when they received F2FC recasts \((n = 24)\) \((z = –2.32, p = .02, r = –.34)\). This demonstrates that the communication mode through which recasts were provided made a difference to learners’ overall scores.

The second comparison was made between the locative scores of the learners who had received F2FC recasts \((n = 12)\) and the locative scores of those who had received SCMC recasts \((n = 12)\). A Mann–Whitney test, a non-parametric analogue of the independent samples \(t\)-tests, showed no significant difference between the scores \((U = 60.50, p = .50, r = .34)\).
This means that communication mode did not make a difference in the effectiveness of recasts on the locative. The final comparison was made between the plural scores of those who had received SCMC recasts \((n = 12)\) and the plural scores of those who had received F2FC recasts \((n = 12)\). The scores of those who had received recasts through SCMC were significantly higher than the scores of those who had received recasts through F2FC \((U = 30.50, p = .009, r = –.53)\). This indicates that the plural post-test scores changed depending on communication mode.

**Hypothesis 2: Learners will score higher on the more salient target structure than the less salient target structure after being exposed to recasts on both target structures**

We run a series of non-parametric statistical tests using learners’ total ATLU scores for each target structure to find out if learners’ scores changed depending on the salience of the target structure. A Wilcoxon signed-ranks test showed that learners’ scores for the locative \((n = 24)\) did not differ significantly from their scores for the plural \((n = 24)\) \((z = –.92, p = .35, r = –.13)\). This indicates that when the communication mode was not factored in, there was no difference in the extent to which the structures benefited from recasts.

A second comparison was made between the scores of the learners who had received F2FC recasts on the plural \((n = 12)\) and the scores of those who had received F2FC recasts on the locative \((n = 12)\). A Mann–Whitney test showed that the difference was not significant, but it was approaching the significance level \((U = 42.00, p = .053, r = –.40)\). The final comparison was made between the scores of the learners who had received SCMC recasts
on the plural \((n = 12)\) and the scores of those who had received SCMC recasts on the locative \((n = 12)\). A Mann–Whitney test showed that there were no significant differences between plural and locative scores when recasts were provided through SCMC \((U = 61.00, p = .51, r = -.13)\). This indicates that when learners received recasts through SCMC, the structures did not differ in the extent to which they benefited from recasts. Overall, the salience of the target structure did not change the extent to which learners benefited from recasts.

**Discussion**

**Hypothesis 1: Learners will score higher on receiving recasts through SCMC than recasts through F2FC**

We investigated whether the communication mode through which recasts were provided changed the extent to which learners benefited from recasts. We predicted in Hypothesis 1 that learners would score higher on receiving recasts through SCMC than recasts through F2FC. Hypothesis 2 was largely confirmed. The results of the inferential statistics revealed that SCMC scores were statistically significantly higher than F2FC scores only for the plural and when no distinction between morphemes was made. For the locative, the difference between scores, although in the predicted direction, was not statistically significant. It is possible that with a greater sample size and after a longer treatment period, this difference may prove significant as well. Considering the higher SCMC scores in the overall and within-plural analyses, one could suggest that communication mode changes the extent to which learners benefit from recasts. This finding is in line with the claim that text-based chat can increase the effect of focus on form instances (Choi, 2000; Salaberry, 2000; Smith, 2004). However, further research should combine measures of noticing with performance measures in order to shed light on the question of whether the difference in performance between the two communication modes is due to differences in quantity or quality of noticing.

It is also essential to understand which specific features of SCMC facilitated the process through which learners took advantage of recasts. It seems that the re-readability of
both current and previous messages plays a role in facilitating this process. Carroll (2001) claims that learners need to notice the corrective intent in recasts in order to take advantage of them. Drawing on Grice’s (1975) Cooperative Principle, she states that the discovery of corrective intent is the result of a failure to relate the feedback to the ongoing topic of the conversation. In SCMC, the greater processing time resulting from the re-readability of the messages could have facilitated the detection of corrective intent. This feature may have allowed the learners to consider alternative interpretations of the message before deciding what it meant, an opportunity F2FC cannot provide. Being able to view all the utterance-feedback pairs using the scrolling feature of the software program might have also decreased the burden on learners’ working memory and, therefore, made it easier for them to notice the regularities in the changing forms. It is important to note that the relatively greater importance we attach to the re-readability of messages should be taken as suggestive given that our study has not provided any evidence about the process through which learners took advantage of recasts. It should also be noted that learners took almost twice as much time to complete the SCMC task than to complete the F2FC task. The difference between communication modes in on-task time was also observed in other studies of SCMC and L2 learning (e.g. Lai & Zhao, 2006). A possible reason for this typical finding could be that the cost of production is higher for typing than speaking. An implication of the longer time spent for task completion in SCMC could be that, in contexts where time is controlled, a similar result may not be observed because learners in SCMC cannot receive as many feedback instances as in F2FC.

**Hypothesis 2:** Learners will score higher on the more salient target structure than on the less salient target structure after being exposed to recasts on both target structures

We investigated whether the salience of the target structure changed the extent to which learners benefited from recasts. In Hypothesis 2, we predicted that the more salient morpheme, the plural, would be affected by recasts to a greater extent than the less salient morpheme, the locative. However, this prediction was not borne out. The overall and within-SCMC comparisons showed that the plural and locative scores were not statistically significantly different from each other. The within-F2FC comparison revealed that a trend towards a difference between locative and plural scores with locative scores being higher. Below we speculate on factors that could explain why salience did not play a role in the extent to which learners benefited from recasts.

With regard to the finding concerning SCMC, it is possible that recasts were not differentially effective on the two structures because some features of SCMC had diminished the difference in salience. More specifically, permanence of messages may be responsible for this finding. It could be suggested that the availability of all feedback instances at any point during the treatment provided learners with abundant processing time to match surface forms to an underlying meaning, and therefore attenuated the differences between the morphemes due to salience.

The result that learners obtained higher scores in F2FC on the less salient morpheme than the more salient morpheme was unexpected. One explanation for this could be the position of errors in learners’ two-word utterances. In the locative task, the potentially
erroneous element was the second word, whereas, in the plural task, it was the first word. Assuming that a direct comparison between input (feedback) and output (the learner’s own utterance) is possible, and that learners can cognitively compare (Doughty, 2001) target and non-targetlike forms in their working memory, it could be suggested that the plural was at a disadvantage in this process because of the distance between the non-targetlike and the targetlike forms to be compared. On the other hand, this sort of distance did not prove an obstacle in SCMC. Learners did not have to rely on any temporarily stored information in their memory since all the target/non-targetlike pairs were available on-screen throughout the relevant treatment task (see Figure 3). It is important to note that these comments should be taken as suggestive given the fact that the difference between locative and plural scores is based on a trend towards significance.

**IX Limitations and further research**

The most important limitation of the study was the low sample size. Future studies should increase the sample size in order to increase the power of the statistical tests. In addition, the arbitrary threshold level used to screen participants into the study may not be considered high enough to be certain that learners’ incorrect responses to the posttest items were due to insufficient knowledge of the target structures. Even though learners were given other
opportunities to increase and reinforce their vocabulary knowledge after the screening test (i.e. by reviewing the words with one of the researchers before the study, and using the glossary to refresh their memory during the treatment), because their resulting level was not measured with a subsequent test, we cannot definitively state that learners benefited from this practice. Future studies should increase the threshold score to ensure that learners’ vocabulary knowledge is sufficient to benefit from the subsequent treatment.

Two additional points one needs to pay heed to when interpreting the results are the low levels of learning and high standard deviations in the scores. The fact that learners’ scores were low in general might be an indication that the exposure to the target structures was too limited. It could be that differences between target structures were not clearly reflected by the results due to limited exposure. An important contributing factor to high standard deviations was the fact that not all learners were able to benefit from the treatments. In fact, six learners scored zero on both structures in the posttest. This may be related to the nature of the posttest. The posttest in this study was an oral production test. Considering that this was the first time learners were exposed to the Turkish target structures, it could be that being required to produce them after a short treatment might have proved too demanding for some learners. Future first-exposure feedback studies that include tests measuring learners’ receptive skills (e.g. comprehension) can add to our understanding as to which levels of knowledge can be affected by recasts.

A word is in order about the operationalization of salience. Three subfactors contributed to the construct of salience in this study. This compound nature of the construct does not allow one to point out the exact subfactor that could have been responsible for any possible difference in learners’ scores. Ideally, structures that differ in only one of these dimensions (subfactors) should be compared. However, it is a challenging task to find structures that only differ in one of these dimensions in natural languages. Therefore, future research should consider the advantages of using artificial and semi-artificial languages to compare structures varying in only one of the salience dimensions.

Finally, it is important to note that Turkish has a very close grapheme-to-phoneme correspondence and, as a result of this feature, the phonologically alternating parts of the allomorphs of both morphemes were represented by distinct characters in orthography. Because of this, the results of this study cannot be extended to include languages in which allomorphy cannot be traced in the orthography. This could prove an important consideration when using SCMC with languages such as English to introduce allomorphic variation in some structures. For example, two of the allomorphs (i.e. [s] and [z]) of the English plural form, although pronounced differently, are not distinguishable in orthography because they are both represented by an -s.

**Conclusions**

In this study, we investigated whether communication mode and target structure salience produced any difference in the extent to which learners benefited from recasts. The first factor we investigated was communication mode. Results have shown that recasts through SCMC lead to a better oral production performance in the overall and within-plural analyses. We speculated that the re-readability of messages in SCMC could have facilitated the cognitive processes that involve the noticing of corrective intent as well as making accurate form–meaning connections. Based on our results, SCMC feedback can
be superior to F2FC feedback in the initial stages of language acquisition. One should bear in mind, however, that this study was conducted in a lab, where contingency between error and feedback was tightly controlled. It has been shown that, in naturalistic SCMC environments, recasts may not be contingent on errors (Lai et al., 2008). Therefore, one should be cautious about generalizing the results of the present study to naturalistic SCMC. Before we can claim a substantial role for SCMC in making recasts more salient, further research comparing SCMC and F2FC recasts using different target structures and different learner groups is required.

Our findings also indicated that salience was not a major factor in distinguishing between learners’ scores. This finding should be interpreted within the context of the two communication modes compared in this study. We can suggest with relatively greater confidence that the effect of salience is minimal for SCMC, whereas care needs to be taken when interpreting this finding for F2FC. The importance of this finding for F2FC should be tempered by the fact that the positions of the two morphemes were different in the initial two-word utterances.

Acknowledgements

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References


Ono, L. & Witzel, J. (2002). Recasts, salience, and morpheme acquisition. Scholarly Paper, University of Hawaii, Manoa, HI, USA.


**Appendix 1** Perceptual salience scores by morpheme

<table>
<thead>
<tr>
<th>Subcategory</th>
<th>Explanation</th>
<th>/-lAr/</th>
<th>/-DA/</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phonetic substance</td>
<td>number of phones in allomorphs/number of allomorphs</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Syllabicity</td>
<td>number allomorphs with a vowel/number of allomorphs</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Sonority</td>
<td>Sum of sonority scores for each phone in each allomorph/number of allomorphs</td>
<td>18.5</td>
<td>9.5</td>
</tr>
<tr>
<td>Suffix length</td>
<td>number of orthographic characters in allomorphs/ number of allomorphs</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Total perceptual</td>
<td>Sum of all the subcategory scores of perceptual salience</td>
<td>25.5</td>
<td>14.5</td>
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<td>salience score</td>
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Appendix 2  Plural treatment item

Appendix 3  Locative treatment
Appendix 4  Composition of treatment and posttest items

<table>
<thead>
<tr>
<th>Structure</th>
<th>Allomorph</th>
<th>Treatment</th>
<th>Posttest</th>
<th>Novel</th>
<th>feedback</th>
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<tr>
<td></td>
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<td></td>
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<td></td>
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<tr>
<td>Plural</td>
<td>[-ler]</td>
<td>8</td>
<td></td>
<td>8</td>
<td>4</td>
<td>12</td>
</tr>
<tr>
<td></td>
<td>[-lar]</td>
<td>8</td>
<td></td>
<td>8</td>
<td>4</td>
<td>12</td>
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<tr>
<td>Locative</td>
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<td>6</td>
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<tr>
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<td>6</td>
</tr>
<tr>
<td></td>
<td>[-te]</td>
<td>4</td>
<td></td>
<td>4</td>
<td>2</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>[-ta]</td>
<td>4</td>
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<td>4</td>
<td>2</td>
<td>6</td>
</tr>
<tr>
<td>Total</td>
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<td>16</td>
<td>8</td>
<td>24</td>
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Appendix 5  On-task time and number of feedback instances

<table>
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<th>Structure</th>
<th>M</th>
<th>SD</th>
<th>Valid N</th>
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<tr>
<td>F2FC on-task time:</td>
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<tr>
<td>Plural</td>
<td>6:49</td>
<td>1:21</td>
<td>7</td>
</tr>
<tr>
<td>Locative</td>
<td>6:43</td>
<td>1:05</td>
<td>7</td>
</tr>
<tr>
<td>Subtotal</td>
<td>6:46</td>
<td>1:11</td>
<td>14</td>
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<tr>
<td>SCMC on-task time:</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Plural</td>
<td>12:03</td>
<td>1:38</td>
<td>9</td>
</tr>
<tr>
<td>Locative</td>
<td>15:41</td>
<td>4:04</td>
<td>11</td>
</tr>
<tr>
<td>Subtotal</td>
<td>14:04</td>
<td>3:39</td>
<td>20</td>
</tr>
<tr>
<td>Number feedback in F2FC:</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Plural</td>
<td>16.00</td>
<td>0.00</td>
<td>7</td>
</tr>
<tr>
<td>Locative</td>
<td>15.43</td>
<td>1.51</td>
<td>7</td>
</tr>
<tr>
<td>Subtotal</td>
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<td>1.07</td>
<td>14</td>
</tr>
<tr>
<td>Number feedback in SCMC:</td>
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<td></td>
</tr>
<tr>
<td>Plural</td>
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<td>1.19</td>
<td>9</td>
</tr>
<tr>
<td>Locative</td>
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<td>3.56</td>
<td>11</td>
</tr>
<tr>
<td>Subtotal</td>
<td>14.53</td>
<td>2.86</td>
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Note: Ten audio files and four chat scripts containing treatment data were corrupted