SALIENCE IN SECOND LANGUAGE ACQUISITION

Salience in Second Language Acquisition brings together contributions from top scholars of second language acquisition (SLA) in a comprehensive volume of the existing literature and current research on salience. In the first book to focus exclusively on this integral topic, the editors and contributors define and explore what makes a linguistic feature salient in sections on theory, perpetual salience, and constructed salience. They also provide a history of SLA theory and discussion on its contemporary use in research. An approachable introduction to the topic, this book is an ideal supplement to courses in SLA, and a valuable resource for researchers and scholars looking for a better understanding of the subject.

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To the salient little ones in our lives

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14

TASK MODALITY, NOTICING, AND THE CONTINGENCY OF RECASTS

Insights on Salience From Multiple Modalities

Nicole Ziegler

Introduction

The Role of Noticing in SLA

The importance of noticing for second language acquisition (SLA) is well-attested, with a number of scholars proposing different frameworks to explain the role of attention and awareness of L2 learning and development. Schmidt's Noticing Hypothesis (Schmidt, 2001), for example, posits that noticing, defined as attention plus awareness, is a necessary condition for SLA, stating that "noticing requires of the learner a conscious apprehension and awareness of input" (p. 26). In other words, although second language (L2) learning without intention or understanding is possible, awareness at the level of noticing—in which learners consciously register a form—is necessary for L2 development to occur. Robinson (1995, 2003) also suggests that noticing is a necessary condition for SLA, but extends the operationalization to include detection plus rehearsal in short-term memory, in which activation due to the allocation of attentional resources takes place. Similarly, Gass (1997) highlighted the role of apperception as the first stage in processing input, in which "the apperceived input is that bit of language which is noticed by the learner because of some particular features" (p. 202), and then consciously relating this to "some prior knowledge" (p. 201). These processes are what facilitate the transformation of input into intake, allowing for internalization and the restructuring of a learners' interlanguage (IL).

In addition, the construct of noticing has featured prominently in the interaction approach to SLA (e.g., Long, 1996; Gass & Mackey, 2007), playing a critical role in terms of negotiation and feedback as part of the interaction-driven L2 learning process (Mackey, 2012). For example, receiving feedback and participating in negotiation may support learners' L2 development by providing both positive and negative evidence, which as Gass and Mackey (2006) point out, can aid learners in

noticing their erroneous utterances and focusing their attention on the target language, thereby preparing learners to be more observant regarding future instances of linguistic input and the testing of their linguistic hypotheses. In addition, production of output may also promote noticing, by offering learners opportunities to reflect on their and their interlocutors' language. Furthermore, forms that are more salient—that is, more visually, auditorily, or communicatively prominent—may be more likely to be noticed and acquired over more non-salient forms or features (Leeman, 2003). However, as Leeman (2003) points out, the salience of a form does not ensure that it will be noticed by learners, nor do learners attend to only salient forms. The degree to which learners actively attend to—or direct their cognitive resources to—features in the input is affected by a wide range of factors, including developmental readiness (Mackey, 2012), task conditions (e.g., Robinson, 1995; Skehan, 1996), and individual differences (e.g., Long, Inagaki, & Ortega, 1998; Mackey & Sachs, 2012). Previous research has suggested that corrective feedback, such as recasts, may enhance the salience of target forms by juxtaposing a learner's erroneous utterance with the correct utterance (the recast) (Leeman, 2003), facilitating learners' noticing and possibly leading to restructuring of their interlanguage and subsequent L2 development (Schmidt & Frota, 1986).

Recasts, Salience, and Noticing

Recasts can be defined as the reformulation of all or part of a learner's immediately preceding utterance in which one or more nontarget-like item(s) are replaced by the corresponding target form, and where the focus is on meaning rather than form or object (Long, 2007). Research has shown that recasts may facilitate L2 development as they enhance the salience of the target feature and direct learners to contrast their erroneous utterances with their interlocutors' reformulations (Doughty & Varela, 1998; Goo & Mackey, 2013; Leeman, 2003; Long, 1996, 2007), thereby focusing learners' attentional resources on the target form. Research also suggests that recasts may be more salient for adult learners due to their increased cognitive capacity for linguistic analysis and more intentional approach to learning (Muñoz, 2010). However, research has also demonstrated that the salience of recasts—specifically the extent to which they are consciously attended to and noticed by learners (Mackey, 2012), and thus the impact of recasts on learning—may be affected by a variety of factors, such as target feature (Egi, 2007), setting (Oliver, 2000), and task characteristics (Révész, Sachs, & Mackey, 2011). For example, studies indicate that the salience of the target linguistic feature may mediate the positive benefits associated with recasts, as learners' attention and uptake of L2 forms may be mediated by the relative communicative importance of those forms in expressing and interpreting meaning (VanPatten, 1996). Drawing on theories of associative learning, N. Ellis (2006) outlines how experience attending to common non-redundant linguistic cues to make meaning may lead learners to overlook other cues which may be relevant to utterance interpretation. In terms of corrective feedback, including recasts as well as negotiation, learners might more readily recognize feedback that targets more salient forms (e.g., lexis and phonology) compared to less salient features (e.g.,

morphosyntax) (Mackey, 2012; Mackey, Gass, & McDonough, 2000). Recasts may also be provided more often in response to the erroneous production of non-salient forms (morphosyntax), despite the contention that they may not always constitute sufficient negative evidence (e.g., Mackey et al., 2000; Nicholas, Lightbown, & Spada, 2001; Leeman, 2003). Furthermore, some scholars have questioned how frequently learners correctly recognize recasts as feedback and integrate the correction into their own language output (Lyster & Ranta, 1997). In other words, because recasts are thought to fall on the more implicit end of the continuum of explicitness (Mackey, 2012), recasts as a form of corrective feedback may be less salient to learners than other forms, such as metalinguistic feedback. Despite these potential challenges with the salience of recasts, Long (2007) advocates that recasts are beneficial regardless of error type, arguing instead that it is their contingency and juxtaposition to non-targetlike utterances that drives their efficacy.

The importance of contingency has also been highlighted by other scholars (e.g., Gass, 2003; Lai, Fei, & Roots, 2008; Saxton, 1997), with research suggesting that the corrective potential of negative evidence is affected by the "proximity of the response to an error" (Saxton, 1997, p. 145). For example, according to Saxton's Direct Contrast Hypothesis, when a child produces an erroneous utterance that is immediately responded to with the correct form, the child may then perceive this form as being in contrast with the previously uttered and deviant form. Recognition and awareness of this contrast may then form the foundation for the child to understand the provided form as the correct alternative to the original form. As Gass (2003) points out, this is similar to the idea of learners 'noticing the gap' between their erroneous production and the target form. Similar to the role of contingency in the development of a child's first language (L1), the adjacency of the correct and incorrect forms is thus helpful in creating a conflict or contrast, thereby drawing the learner's attention to the erroneous form. Because this contrast can be enhanced using corrective feedback, such as recasts, contingency may play a substantial role in the salience of feedback (Lai et al., 2008).

Overall, although some studies have found that recasts may be unlikely to lead to acquisition (e.g., Lyster, 2004; Lyster & Ranta, 1997), research has empirically demonstrated the effectiveness of recasts on learners' L2 development (see Mackey and Goo [2007] for a review). However, despite the growing interest in technology and tasks (Ziegler, 2016a), few studies have empirically examined the extent to which the salience and noticing of recasts are affected by modality (Gurzynski-Weiss & Baralt, 2015; Lai et al., 2008).

The Impact of Computer-Mediated Communication on Salience and Noticing

A growing body of research has proposed advantages for salience and noticing, and thus subsequent L2 development, in interaction in computer-mediated contexts (e.g., Smith, 2004, 2010). For example, researchers have argued that because text-chat provides learners with a written record of their interactions, they are afforded more opportunities to reflect on the discourse (Beauvois, 1992), to notice new target items as well as the gaps in their IL (Kelm, 1992), and enhance incidental noticing

(Warschauer, 1997), than might be found in traditional face-to-face (FTF) environments. For instance, Pellettieri (2000) argues that the additional time for monitoring and processing in synchronous computer-mediated communication (SCMC), in which learners interact in real time through text, video, or multimodal chat, facilitates learners' noticing, thereby enabling their L2 development. Numerous scholars have argued that the unique characteristics of SCMC, specifically within the written mode of text-chat, provide learners with enhanced salience in terms of input and feedback, as learners are provided with additional chances to review the output of both interlocutors and longer processing times than might be found in FTF interaction (Smith, 2004). These potential benefits may then lead to increased opportunities for learners to focus on form, providing improved chances for L2 development (Salaberry, 2000). In their study examining the relationship between learners' verbalizations, gestures, and scrolling, Smith and Gorsuch (2004) found an increased attention to form, while Smith's (2010) study used eye-tracking technology to examine the relationship between recasts, noticing, and uptake, providing tangible evidence of what learners attended to in the input and feedback. In addition, Payne and Whitney (2002) found that learners reported noticing their mistakes more frequently in SCMC chat environments than in FTF interaction, suggesting that mode may have played a role in improving noticing and self-monitoring.

In particular, text-chat has been argued to enhance the salience of target forms and corrective feedback (e.g., Long, 2007; Smith, 2004, 2010; Yilmaz, 2012), with research demonstrating advantages for computer-mediated contexts. For example, the results of Yilmaz and Yuksel (2011) indicate improved L2 development following recasts provided in SCMC contexts compared to FTF contexts. More recently, Yuksel and Inan (2014) compared SCMC and FTF, finding that learners noticed negotiation for meaning more often in the SCMC condition than in FTF, suggesting that modality may have played a role in enhancing noticing and the salience of feedback. Seeking to provide empirical evidence for the hypothesis that SCMC supports enhanced salience and greater opportunities for noticing, Lai and Zhao (2006) employed stimulated recall (SR) protocols, finding that learner-learner interaction in text-chat promoted noticing more than in FTF contexts, particularly in regards to learners' monitoring and noticing of their own errors.

In addition to the noticing of corrective feedback, research has examined the relationship between noticing and modified output, a critical component for L2 development as it allows for the comparison of structures and deeper processing than might be found in only receptive learning (Swain, 2005). Gurzynski-Weiss and Baralt (2015) investigated the relationship between learners' noticing of corrective feedback, production of modified output, and communication mode. Results demonstrated that there were no significant differences across mode in terms of noticing feedback or the target of feedback. However, after accounting for error type, findings indicated that partial modified output resulted in greater noticing in the SCMC condition, suggesting that modality may have helped to make target forms more salient for the learners than in the FTF condition. Not all research indicates positive benefits for technology, however. For example, Gurzynski-Weiss and Baralt (2014) found significantly fewer opportunities for learners to modify output

and significantly less modified output produced in text-chat when compared to FTF, suggesting that there may be fewer available opportunities for noticing and its subsequent developmental benefits. However, little research has addressed the relationship among feedback, modified output, noticing, and modality (although see Baralt, 2010; Gurzynski-Weiss & Baralt, 2014, 2015; Smith, 2010). In addition, the majority of the research has focused on the (dis)advantages of written text-chat, highlighting the need for further research examining the role of other modalities, particularly oral SCMC (Pellettieri, 2000; Smith, 2003; Toyoda & Harrison, 2002; Ziegler, 2016b).

In addition, although results regarding the enhanced salience of feedback in computer-mediated contexts are encouraging, scholars have highlighted the possible negative impact of non-contingent recasts provided during split negotiation routines on salience (e.g., Lai et al., 2008; Smith, 2012), a common occurrence in CMC. For example, because the juxtaposition of non-targetlike utterances and corrective feedback may occur multiple turns apart, thereby potentially reducing the contrast between forms (Saxton, 1997), the salience of the feedback may be reduced (Sauro, 2009). Empirical evidence demonstrating that learners notice contingent recasts significantly more often than non-contingent recasts (Lai et al., 2008) seems to support these claims. Importantly, because the developmental benefits associated with recasts are thought to stem from their ability to enhance the salience of target forms (Leeman, 2003), further research examining whether there are indeed negative impacts on salience due to the contingency of recasts is needed.

Research Questions

The current research aims to address these gaps in the literature by investigating the following research questions:

RQ1: What are the effects of modality (FTF, text-chat, video-chat) on learners' noticing of recasts?
RQ2: What impact does the contingency of recasts have on learners' noticing?
RQ3: What is the relationship between mode, modified output, and learners' noticing?

Methodology

Participants

Participants in the study were 14 intermediate-advanced learners of English enrolled in two sections of an advanced listening and speaking course within an English for Academic purposes program at a large Pacific university in the United States. The average TOEFL score of the participants was 83.9 (*SD* = 9.0) out of a possible score of 120. Considering that the minimum TOEFL score required for admittance to many English-speaking universities is usually in the 60–80 score range, learners

in this study were considered to be at an advanced level of proficiency. The L1 backgrounds of the participants included Chinese (n = 7), Japanese (n = 6), and Vietnamese (n = 1). All had an average of 10.9 (*SD* = 2.42) years of experience studying English in foreign language contexts. The activities in the course typically consist of small group and pair interaction, and all participants had prior exposure to the type of information-gap task used in the study. The average length of residence in years of the participants was 1.01 (*SD* = 1.41 years), with little other prior experience living in or visiting English-speaking countries, indicating that most had recently had their first major exposure to the L2 learning context (though two participants had been living in the United States for approximately three years each). Participants also reported high familiarity and comfort with using technology on a daily basis, though none of the participants reported previous experience using SCMC for English language learning purposes.

The interlocutor was a researcher assisting with the project, a 28-year old L1 English PhD student at the university whose research focus was task-based language teaching and interaction, and who had more than five years of foreign and second language teaching experience with young adults, university-aged students, and non-university adults. The researcher-interlocutor was comfortable using technology for language teaching purposes, and at the time of the project, had more than three years of experience conducting private English lessons using video-conferencing and text-chat.

Materials

Materials in the study included three versions of a spot-the-difference task, chosen because of its potential to provide the ideal conditions for negotiation of meaning and opportunities for feedback to occur (Pica, Kanagy, & Falodun, 1993). Each version contained two pictures containing at least 10 differences. Though participants were familiar with this type of task, they were nevertheless reminded that the goal of the task was to find as many differences as possible. The pictures selected for the study were specifically chosen to be balanced in terms of scene familiarity (a kitchen, park, or hill scene), number of elements, distribution of differences, and visual density (number of elements per quarter of the picture). All three tasks were counterbalanced for both version (A or B) and scene (kitchen, park, or hill), and evenly delivered across the FTF, video-chat, and text-chat modes. The tasks were piloted with participants from the same class sections that were not part of the current research project in order to determine how long each task took. Both the FTF and video-chat conditions took approximately 8 minutes while the text-chat took approximately 17 minutes. These times were used as guidelines for completion of the tasks in order to minimize fatigue and boredom, and to make sure the entire session was completed within a reasonable time frame (approximately 45–50 minutes). Similar to Gurzynski-Weiss and Baralt (2014), the extra time in the text-chat mode was not assumed to lead to differential amounts of feedback, given that the participants were observed to take this extra time to formulate and prepare their descriptions, as well as review their output prior to message transmission.

Stimulated Recall Protocol

To measure the salience and noticing of recasts provided across the three modes, the current study adopted stimulated recall protocols (SR), a commonly used retrospective measure of cognitive processes (Gass & Mackey, 2000, 2017) in which participants are presented with stimuli (in the case of this study) via video (i.e., their task performance) and asked to comment on their thought processes during the original interaction, either at specific points pre-selected by the researcher or whenever they felt it was pertinent to do so (see the upcoming "Procedure" section for more information). Specific questions were adapted from Gurzynski-Weiss and Baralt (2014), and were designed to elicit the participants' introspective thoughts at the time of the interaction. Following Gass and Mackey (2000), care was taken during the protocols not to "lead" the participants into analyzing past actions in the present; rather, through a series of prompts (e.g., "*What were you thinking about your participation at that time?"; "What were you thinking about the interaction between you and your partner?*"; Gurzynski-Weiss & Baralt, 2014, p. 37) participants were encouraged to verbalize their thoughts during the interaction itself, focusing on the time of the recall. Additionally, at the end of the stimulated recall, participants were encouraged to report on their preference of mode, the relative advantages/disadvantages they saw in each, and other comments related to task-based performance across modes.

Background and Exit Questionnaire

A two-part questionnaire (background and exit) was administered to the participants before (background) and after (exit) the task-based interaction. The background questionnaire contained questions asking about computer use habits/comfort, native language, language learning experience, length of residence in English-speaking countries, standardized test scores, and time spent using English with native/non-native speakers in their daily life. To obtain information regarding students' perceptions of the benefits/drawbacks of each mode, an exit questionnaire examined which mode was more enjoyable, preferred, perceived to be more beneficial for learning, and which mode was most difficult. However, because much of this information was also addressed during the SRs, the results of the exit questionnaire are not reported in this paper.

Procedure

Each participant met with the researcher-interlocutor in a quiet office to conduct the three interactive tasks. Following an explanation of the purpose of the research, participants signed consent forms and filled out the background information questionnaire. The participants then proceeded to complete the interactional tasks with the researcher-interlocutor. The FTF tasks were conducted with the researcher-interlocutor and participant seated facing each other in desk-matching chairs. Neither the researcher-interlocutor nor participant showed the other their picture during the task, but the close-quarters FTF interaction did allow for gestures to be used to help communicate meaning. Feedback was provided in a variety of ways by the researcher-interlocutor (including negotiation triggers, explicit correction, and recasts)

wherever it seemed natural and appropriate, addressing a range of errors including lexis, morphosyntax, phonology (in FTF and video-chat), and orthography (unique to text-chat). Both the video-chat and text-chat were completed on separate PCs in separate rooms (with the researcher-interlocutor moving to a separate office) using the Skype video-conferencing software. The FTF interaction and video-chat interactions were recorded using a Sony PCM-M10 audio recorder and Sony Handycam CX-160 positioned over the shoulder of the researcher-interlocutor (FTF) and participant (video-chat). The text-chat was recorded via the open-source screen capture program ShareX. These videos were subsequently used as the stimulus input for the stimulated recalls. Following the tasks, the participants completed the exit questionnaire. Within 24 hours, the participants returned to the same quiet research office and met with the researcher to participate in the stimulated recall protocols. The SRs were conducted in the same order in which the tasks were administered to maintain consistency. The participants were told that the purpose of the video-watching procedure was to understand what the participants were thinking while performing a task in different modes. They were then informed that the researcher would be stopping the video recording at various points to elicit commentary, but that the participants were free to pause the video and comment at any time. In order to avoid listener fatigue and to complete the SR session within a reasonable time frame (approximately 60 minutes), the text-chat video was viewed at 2x speed, and the participants were instructed to inform the researcher if the video was progressing too fast for them to process; no learners reported having any problems with the increased speed of the video.

Coding and Analysis

The dataset for the current study consisted of the recorded interaction in all three modes (FTF, text-chat, video-chat) and comments from the stimulated recalls. The interaction data were transcribed and then examined in terms of the nature/type of student errors (morphosyntax, lexis, phonology, and orthography); interlocutor feedback (recasts); contingency of recasts (following Lai et al., 2008); opportunities for modified output (MOO); and actual modified output (MO). The stimulated recall data were coded in terms of noticing.

Error Type/Recasts

Participant errors were coded for morphosyntax and lexis (in all modes), phonology (in FTF and video-chat), and orthography (text-chat). Examples and definitions of each error type are provided in Examples 1–6.

Lexical Errors

Lexical errors we operationalized as the inappropriate use of a word in a given context, or words directly transferred over from their L1 and misapplied to L2 use. An example (1) of a lexical error is given below:

(1) Lexis *And he might have been bitten by a bee.*

Error: Use of 'bitten' instead of 'stung.'

Morphosyntax Errors

Morphosyntax errors were operationalized as the incorrect inflection of verbs for tense, possession, plurality, etc.; the omission/inappropriacy of article use, prepositions, etc.; and errors in word order. An example (2) of a morphosyntactic error is given below:

(2) Morphosyntax *I have her in left side.*

Error: Incorrect use of preposition (in → on).

Phonological Errors

Phonological errors were operationalized as the non-targetlike pronunciation in terms of segmental errors including stress placement and non-targetlike consonant/vowel sounds and clusters. An example (3) of a phonological error is given below:

(3) Phonological *And wear a [sleɪpər]*.*

Error: Incorrect vowel sound in the word 'slipper.'

Orthographic Errors

Orthographic (or spelling) errors occurred uniquely in the text-chat mode (the only written mode). They were distinguished from lexical errors when it was evident that the participant knew the correct word but provided the correct spelling, often (but not always) a phonological transfer of L1-influenced pronunciation of the word into the written mode. Example (4) illustrates this:

(4) Orthographic *So there is a CD hanging from a ramp?*

Error: 'lamp' misspelled as 'ramp'; participant was L1 Japanese, which has notable difficulty with the /r-l/ contrast in speech.

Recasts

Following previous research (e.g., Gurzynski-Weiss & Baralt, 2014), recasts were provided wherever and whenever it seemed natural and appropriate to do so, with an overall priority on maintaining communicative flow; as such, not every error produced by the participants were subject to corrective feedback. Recasts were coded in accordance with the oft-referenced operationalization found in the task-based language teaching and focus-on-form literature. According to Long (2007), recasts are:

> reformulation(s) of all or part of a learner's immediately preceding utterance in which one or more non-targetlike items is/are replaced by the corresponding target language form(s) and where, throughout the exchange, the focus of the interlocutors is on meaning, not language as object.
>
> *(p. 77)*

A distinction was not made between partial and full recasts in this study. Full recasts were defined as a reformulation of the entire preceding utterance, error, while partial recasts were coded as instances where the native-speaking interlocutor provided a reduced recast which only contained some of the information in the preceding utterance, specifically the targetlike reformulation of the erroneous error segment (Loewen & Philp, 2006). Two examples (5, 6) of recasts are given below:

Full Recast

(5) Participant: *So (.) the left bottom part.*
Researcher: *The bottom left part, okay*

Partial Recast

(6) Participant: *On the right corner there are a man and a woman.*
Researcher: *In the right corner, yeah.*

In coding the transcripts, each recast was reviewed in reference to the video-records in order to: 1) ensure that recasts were coded that addressed a form-based (not meaning-based) problem; and 2) distinguish them from confirmation checks, a common signal used to indicate comprehension difficulty and initiate negotiation for meaning in interaction (Pica, 1987). In addition, recasts were coded as being contingent or non-contingent (non-contingent recasts were coded as those which were separated from non-targetlike utterances by discussion or comment about a different point or element of the picture, and which were non-adjacent; see Lai et al., 2008). An example of each of these is presented below in (7) and (8).

Contingent

(7) Participant: *What is the color of the chair which the man sit on?-*
Researcher: *That the man is sitting on? Red.*

Non-Contingent

(8) Participant: *A man taking a picture* → error
Participant: *A bird in front of his camera*
Researcher: *There is a man taking a picture?* → non-contingent recast (separated by meaning and position)

Modified Output Opportunities/Modified Output (MOO/MO)

Following Gurzynski-Weiss and Baralt (2015) and Oliver (2000), MOO was operationalized as instances following recasts when there was time and space for learners

to produce modified output in the turn following the feedback. Affirmative and negative opportunities for output are shown in examples (9) and (10):

(9) Participant: *Yeah and gl- (1.0) old man wear glasses?*
Researcher: *He's wearing glasses?* → + MOO
Participant: *Yeah*

(10) Participant: *What is the color of the chair which the man sit on?*
Researcher: *That the man is sitting on* → – MOO
Researcher: *It's red*
Researcher: *How about the empty chair*

MO was coded binarily: as either the presence or absence of modified output (+/– MO). Following standards in SLA research, MO was operationalized as a participant's complete or partial correction of the error identified in their non-targetlike utterance in the preceding turn, which could be more or less targetlike; this decision was made given the importance ascribed to the psycholinguistic *processes* behind as opposed to the linguistic *product* of MO (e.g., McDonough & Mackey, 2006). Examples of +/– MO are shown in examples (11) and (12).

(11) Participant: *There is a man (.) hurting? hurting: his feet?*
Researcher: *Holding his foot?*
Participant: *Yeah (.) holding both his feet- Uh one- left feet- left foot* → + MO

(12) Participant: *Yeah uh biting the pen and*
Researcher: *Yeah she's holding a paintbrush in her mouth*
Participant: *Uh huh* → – MO

Noticing in Stimulated Recalls

The stimulated recall comments were coded by the researcher binarily according to whether or not they reported conscious awareness of their error in response to the researcher-interlocutor's feedback. An example of noticing is found in example (13):

(13) P4 Mmm, there are two (.) uh there are one (2.0) old man?
R1 Mmm
P4 And also there is a one elderly- elder woman
R1 Yep, one elderly woman
P4 Yeah and also . . .

SR Comment

Researcher: *What do you remember thinking of our interaction at this?*
Participant: *Yeah I said "elder woman" but that's not- that's incorrect so he corrected me.* → + Noticing

In contrast, comments which were classified as not noticing generally related to the participants' perception of the interaction between themselves and the researcher-interlocutor as being due to a *meaning* not *form* problem; a lack of any specific thoughts about that point in the interaction; or other comments not related to perception of one's own error. Example (14) demonstrates an example of non-noticing:

(14) P1 So like a uh ceiling there's a-
R1 Mhmm
P1 -a light, and has a CD like hang there
R1 So on the ceiling there's a light and there's a CD hanging from it?
P1 Yeah

SR Comment

Researcher: *So what were you- what were you thinking at this time.*
Participant: *At this time?*
Researcher: *Yeah*
Participant: *I was just describing what I see. [The research-interlocutor] was just listening to me and what I said, trying to figure out differences.* → – Noticing

Analysis

Because salience refers to a psychological construct, it can be difficult to define and measure. In order to facilitate a quantitative analysis, this paper follows Mackey's (2012) suggestion that salience depends on a learner's level of noticing. Thus, the primary dependent variable of interest in the current study was participants' (binary) noticing. Independent variables and analysis differed based on the research question. For RQ1, examining learners' noticing across mode, a repeated-measures design was adopted with three levels (FTF, text-chat, video-chat). For RQ2, examining the contingency of recasts and noticing, logistic regression was run with contingency as the independent variable. For RQ3, examining the relationship between mode, modified output, and noticing, multiple regression analysis was conducted, with mode and modified output as predictor variables for learners' noticing of feedback. Finally, descriptive statistics on error type according to noticing and mode are presented to provide a more detailed picture of how noticing varies according to linguistic target of feedback in FTF, text-chat, and video-chat interactions.

Results

RQ1: *What are the Effects of Modality (FTF, Text-Chat, Video-Chat) on Learners' Noticing of Recasts?*

To examine the effects of different modes of interaction on learners' noticing of recasts, the proportional scores (the frequencies of noticing divided by the number of received recasts) across three modes of interaction were analyzed using a one-way

TABLE 14.1 Descriptive statistics for noticing, mode, and recasts

N = 14	*FTF*	*Video*	*Text*
Total recasts provided	74	74	87
Total recasts noticed	24	32	30
Mean (*SD*) % noticing	0.29 (0.26)	0.39 (0.27)	0.37 (0.31)
Mean (*SD*) recasts provided	5.29 (2.40)	5.29 (2.49)	6.21 (1.78)
Mean (*SD*) recasts noticed	1.71 (1.62)	2.29 (2.19)	2.14 (1.60)

repeated measures ANOVA after checking for all the statistical assumptions. The results indicate that there was no statistical difference across the three modes ($F(2, 26) = .443$, $p = .647$, $\eta^2 = 0.33$), suggesting that learners' noticing of recasts is not modulated by the modes of interaction. Descriptive statistics for noticing levels across modality are presented in Table 14.1.

RQ2: *What Impact Does the Contingency of Recasts Have on Learners' Noticing?*

To examine the claim that the noticing of recasts in text-based SCMC may be mediated by their contingency with the triggering error (Lai et al., 2008), the text-chat transcripts were examined in further detail. Results indicate that the vast majority of recasts delivered by the researcher-interlocutor (89.7%) were contingent. A total of 78 such recasts were identified, 28 of which (36%) were reported as being noticed in the SR protocols. Only nine instances of non-contingent recasts could be identified in the transcripts, however—two of which (22%) were noticed. Because there was a marked difference between the number of contingent and non-contingent recasts provided overall, inferential analyses were not conducted due to violations of variance. Rather, descriptive statistics are reported in Table 14.2.

RQ3: *What is the Relationship Between Modality, Modified Output, and Learners' Noticing?*

First, to ensure that the amount of modified output was not influenced by the number of modified output opportunities (MOO) following interlocutor feedback, opportunities were coded and compared across all three modes. Results of a one-way repeated measures ANOVA revealed no significant differences between the amount of MOO provided in FTF ($M = 5.36$, $SD = 2.62$), video-chat ($M = 5.29$, $SD = 2.58$), or text-chat ($M = 4.43$, $SD = 2.38$) conditions ($F(2, 26) = 0.476$, $p = .627$). After checking the statistical assumptions, a logistic regression was performed to examine the relationship between learners' modified output and noticing of recasts

TABLE 14.2 Descriptive statistics for noticing and contingency

	Total number	*Percent of total*	*Number noticed*	*Percentage Noticed*
Contingent RC	78	89.7%	28	36%
Non-contingent RC	9	10.3%	2	22%

across the three modes of interaction (FTF, video-chat, and text-chat). The data were set up in such a way that the participants' binarily-coded MO and noticing were respectively combined for each mode. In doing this, individual participants were discarded as the focus of the analysis, and emphasis was placed on individual recasts; thus, the total number of cases of both MO and noticing in each mode was equal to the total number of recasts delivered in that mode (74 for FTF and video-chat, and 87 for text-chat). In other words, for each participant and for each recast, we coded both MO and noticing as either 0 (–) or 1(+), and aligned them in vertical columns according to mode. These data were then submitted to logistic regression analysis.

Results indicate that for the face-to-face interaction, the logistic regression model was statistically significant, $\chi^2(1) = 23.51$, $p < .01$. The output modification explained approximately 40% (Nagelkerke R^2) of the variance in the participants' noticing of recasts and correctly classified 77.5% of cases. In other words, when learners modified their output it was 17.55 times more likely that they accurately noticed recasts than when they did not modify their production following the provision of feedback (odds ratio = 17.55). Similarly, the logistic regression model was also statistically significant in the video-chat with $\chi^2(1) = 15.07$, odds ratio = 8.5, $p < .01$. In other words, when learners in the video-chat condition produced modified output, they were 8.5 times more likely to notice recasts. The variance in learners' noticing can be 25.6% explained by their modified output (Nagelkerke $R^2 = 0.256$), and the model correctly classified 73.2% of cases. Thus, for FTF and video-chat, the results suggest that modified output was significantly predictive of learners' noticing. However, the relationship between modified output, recasts, and noticing in the text-chat interaction was less clear, with results indicating that the model was not statistically significant, $\chi^2(1) = 3.68$, odds ratio = 3.37, $p > .05$, and Nagelkerke $R^2 = 0.058$. Table 14.3 provides detailed descriptive information on mode of interaction, modified output, and noticing.

TABLE 14.3 Learner noticing in relation to modified output and mode

	Modified Output		
	– MO	*+ MO*	*Totals*
	FTF (74 recast episodes)		
– Notice	40 (80.0%)	10 (20.0%)	**50**
+ Notice	4 (16.6%)	20 (83.4%)	**24**
Totals	44 (59.5%)	30 (40.5%)	**74**
	Video-chat (74 recast episodes)		
– Notice	39 (92.9%)	3 (7.1%)	**42**
+ Notice	15 (46.9%)	17 (53.1%)	**32**
Totals	54 (73.0%)	20 (27.0%)	**74**
	Text-chat (87 recast episodes)		
– Notice	53 (91.4%)	4 (8.6%)	**58**
+ Notice	23 (76.7%)	7 (23.3%)	**30**
Totals	76 (87.4%)	11 (12.6%)	**87**

The table is binarily organized according to two categories: provision of modified output (+/– MO), and presence of noticing (+/– Notice). Numbers in the cells of the table indicate the frequencies of co-occurrences of the two categories, with the numbers in parentheses dictating the proportion of a cell's contents in relation to the total number of recasts provided. Descriptive information in the table corroborates the statistical analysis, in that there was comparatively more noticed-modified output in the FTF and video-chat conditions compared to the text-chat condition. It should also be noted here that the FTF condition seemed to have a relatively greater amount of noticed-modified output compared to the video-chat condition as well.

Discussion

The present study investigated the role of mode of interaction in influencing the salience and noticing of recasts in task-based interaction. Using SR protocols, the analysis investigated the noticing reports of fourteen participants interacting in FTF, video-chat, and text-chat. Results indicate that in terms of noticing according to mode of interaction, there were no significant differences in proportion of noticing across any of the modes, indicating that there were no substantial differences in terms of noticing of recasts across FTF, video-chat, and text-chat interaction conditions, suggesting that the proposed advantages of text-chat, in particular, did not result in enhanced salience of target features or feedback. This result partially corresponds to previous research demonstrating a lack of differences in the noticing of recasts in FTF and text-based SCMC (Lai & Zhao, 2006). These findings seem to run counter to the claim that because of the slower-paced, permanent nature of text-based SCMC, the cognitive burden on learners may be reduced to a sufficient degree that more attention can be directed towards attending to language form, and specifically interlocutor feedback (Pellettieri, 2000; Yilmaz & Yuksel, 2011). However, there were some notable differences between the present study and previous empirical work on noticing in SCMC environments that may have influenced the current results. First, it is important to note that previous work has included different operationalizations of feedback, measures of noticing, and overall modes of interaction. For example, the positive benefits for SCMC found in Lai and Zhao (2006) were primarily realized in the form of learner self-corrections or noticing in response to negotiation sequences. The focus of the current study, on the other hand, was the salience, noticing, and contingency of recasts, and the production of modified output as variables of interest. Thus, the definition of what constitutes noticing and salience might vary across these studies, making direct comparisons more challenging.

In addition, recasts have been differentially operationalized across previous research. For instance, recasts were defined in Smith (2012) as "always sentence-length and often involved more than one linguistic change" (p. 62), and were thus labeled "explicit" recasts. The recasts delivered in the present study consisted of both partial and complete reformulations of learner utterances, which may have been less explicit, and thus less salient to learners, than those in Smith (2012). As highlighted in previous research (e.g., Mackey et al., 2000; Sheen, 2004), the varied nature of the recasts delivered in the present study may have had an influence in triggering

the participants' awareness that a correction had actually occurred, given that partial reformulations may be mistaken for non-corrective repetitions naturally occurring in interaction, thus impacting both the noticing and salience of the feedback.

Although no statistically significant differences for noticing were found across modalities, qualitative data from the SRs provides support for learners' perceptions of the positive benefits of SCMC for L2 learning, particularly in terms of whether this might have enhanced the salience of target forms or recasts for learners. Analysis of interview questions at the end of the SRs indicate that learners perceived text-chat as enhancing the salience, and thus subsequent noticing, of recasts, with several participants commenting on the affordances of text-chat and its utility for checking corrections (Excerpt Set 1):

Excerpts 1

1a. P2 (SR): "In technology (referring to text-chat) you can have like a record, you can go back and to review the text you type and maybe find there are some errors."
1b. P8 (EQ): "Best aspect: We can check in the history."
1c. P11 (SR): "Typing you can see exactly what he want to say."
1d. P15 (SR): "Maybe I learned most from the text because he corrected my mistakes many times."

Furthermore, although previous research has highlighted these potential benefits for text-chat (e.g., Pellettieri, 2000; Smith, 2012), it is interesting to note the slightly greater amounts of noticing in the video-chat condition, an area of SCMC which has received relatively little research attention (Parlak & Ziegler, 2016; Yanguas, 2010, 2012). Both of these oral modes involve aural/oral processing abilities, and to some extent a potentially similar reliance on non-verbal cues to assist in negotiation of meaning (Faraco & Kida, 2008). Indeed, comments from the SRs and interviews reveal that learners perceived little to no difference between these two modes (Excerpt Set 2):

Excerpts 2

2a. P1 (EQ): "It's similar to face to face. You could see the other person and talk to him/her."
2b. P6: (SR): "It's similar to face to face, there is no big difference between face to face and video."

Importantly, although L2 development was not investigated in the current study, several comments made by the participants regarding the differential affordances of the FTF and video-chat modes indicate that there might be unique characteristics of video-chat that may support L2 learning. For example, two commonly recurring themes regarding video-chat (in a negative sense from the view of the participants) was that the audio quality was worse in the video-chat mode compared to FTF, and

that the ability to use non-verbal cues for communication was limited due to the constrained field of view of the video-conferencing tool (for all sessions, participants only saw the upper bust and head of the researcher-interlocutor in the video-chat window). Comments pertaining to these points are presented in Excerpt Set 3:

Excerpts 3

3a. P3: (SR): "I prefer face-to-face . . . because the communication was most smooth and the voice was more clear than Skype."
3b. P4 (EQ): "I couldn't hear [his] voice clearly compared to face-to-face."
3c. P2 (SR): (About video-chat) "You can see each other but you cannot recognize or aware the facial expression, cannot see."
3d. P9 (SR): "I think Skype is hardest. Compare to face to face, I feel- I think we use Skype just like use the phone, we don't see each other, we don't use body language to describe things."

Due to the lack of non-verbal information from gestures and the diminished audio quality, learners may be directed to attend more carefully to their interlocutors' speech, thereby potentially increasing the salience of corrective feedback (i.e., recasts). Yanguas (2012), who compared two modes of oral CMC (audio and video) with traditional FTF interaction for their potential to enhance L2 Spanish vocabulary development, proposes similar effects for oral SCMC. Results indicate that the audio CMC group outperformed the video CMC group (but not the FTF group) in terms of listening comprehension, although no benefit was found for production or vocabulary measures. Yanguas (2010) posits that the lack of visual support during the interaction encouraged learners to allocate attention to language form, with learners self-reporting a greater focus on language use in both oral and written CMC modes compared to FTF interaction. SRs revealed similar results for the current research, suggesting that the reduced quality of speech and access to visual support may have led to increased attentional focus and greater salience in terms of target features and feedback (Excerpt 4):

Excerpt 4

4a. P4: (SR): "Also, if we use video sometimes the voice is not clear, so I also focused on listening to what [he] was saying in the video."

The second research question related to contingency of recasts and noticing in text-based interaction, in particular. Results indicated that the majority of recasts were delivered contingently (89.7%), a finding that stands in contrast to previous research and predictions (e.g., Lai et al., 2008; Smith, 2008). One explanation for these conflicting results may be that the researcher-interlocutor completing the task in the current study was highly experienced and comfortable with teaching and performing interactive tasks via text-chat. As such, in the delivery of recasts in a "natural" and "appropriate" manner, the researcher-interlocutor likely defaulted to entrenched

feedback patterns which center around providing feedback as immediately as possible to ensure its relevance to the interaction. This corresponds with observations made by Gurzynski-Weiss (2016) on how prior teaching and context experience can exert a strong influence on in-the-moment feedback decisions. Additionally, the slow-paced nature of the text-based interaction, characterized by slow, methodical typing out of complete descriptions by the participants of their picture, provided ample time for the researcher-interlocutor to prepare for feedback provision. This notion supports previous findings by Ziegler and Smith (2016), which indicated that experienced teachers reported having plentiful time to respond to their interlocutor in text-based SCMC interactions, treating the interaction as a "turn-taking exercise."

The last research question sought to deepen our understanding of the relationship between modified output, recasts, and noticing across FTF, video-chat, and text-chat. Supported by the fact that there were no significant differences in terms of modified output opportunities across modes, thus adding support to the findings of Lai and Zhao (2006), results indicate that when modified output was produced, learners were significantly more likely to have noticed the preceding recast. This finding, however, was not consistent across text-chat, a finding that corresponds to previous research demonstrating that learners tend to produce less MO (and especially fully-formed MO) under SCMC conditions (Baralt, 2010; Gurzynski-Weiss & Baralt, 2015). Although Long (2007) highlights the potential for text-chat to increase the salience of feedback, and thus potentially the usability of the feedback in terms of leading to modified output and subsequent L2 development, the current results do not seem to support this hypothesis. However, the current study did not differentiate between fully and partially MO, a factor that may have affected the findings given that previous research has suggested that partially MO is predictive of noticing in both FTF and SCMC environments (Gurzynski-Weiss & Baralt, 2015). In other words, the relationship between type of modified output and mode may need further exploration at a more nuanced level in order to further develop our understanding of the role of text-chat in supporting (or not) enhanced salience and noticing. Finally, the lack of a significant relationship between noticing and modified output in the text-chat condition may have been impacted by learners' perceptions of the necessity in producing MO in SCMC interactions. For example, Gurzynski-Weiss and Baralt (2015) suggest that MO—particularly full MO—may be produced for social rather than developmental reasons. In text-chat, in which there is a written record of the contrast between the original erroneous form and the corrected form already available on screen, the production of MO may serve more as an acknowledgement of feedback rather than evidence of noticing or deeper levels of processing. Rather, learners might produce MO to explicitly indicate that they were aware of receiving a correction, regardless of whether the salience of the target form was enhanced or whether it was accurately noticed (Gurzynski-Weiss & Baralt, 2015).

Limitations and Future Research

Overall, the current results seem to suggest a complex relationship among salience, noticing, production of modified output, and mode of communication. In contrast

to previous research suggesting that the additional processing time of text-chat, as well as the more permanent nature of the feedback, would result in increased salience and noticing (e.g., Lai & Zhao, 2006), the current results indicate no significant advantages for text-chat when compared to FTF or video-chat interactions. However, due to the small sample size of the current research, these results should be interpreted cautiously. More research drawing on larger samples of learners, as well as with learners in diverse contexts, is needed. Results also indicated that modified output was a significant predictor of noticing in FTF and video-chat, potentially due to modified output serving more social rather than attention-related functions (Gurzynski-Weiss & Baralt, 2015), suggesting that modality does affect the interaction and the potential benefits learners may derive from feedback. Future research should seek to further investigate the role of modality on the salience and noticing of feedback, particularly in terms of controlling for type and explicitness of recasts provided. In addition, the current research focused on contingency as a binary variable. In order to obtain a more nuanced understanding of the role of contingency on the salience of corrective feedback, future research should examine the effects of distance between learners' errors and the feedback response, particularly in SCMC conditions. Furthermore, the current study did not discriminate between different types of modified output, providing a broad rather than narrow perspective. Future research might address different types of modified output, as well as conduct further qualitative investigations, in order to obtain a more nuanced understanding of how modality might affect the developmental benefits available to learners in traditional and different computer-mediated contexts. Lastly, the current research relied on SRs to investigate learners' noticing and the salience of feedback and target features. Future research should consider using additional methodologies, such as eye-tracking, in order to obtain a more comprehensive understanding of the relationships among recasts, noticing and salience, modified output, and mode of communication.

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