

Corrective Feedback and Noticing in Text-Based Second Language Interaction

Therese Örnberg Berglund*

Linköping University, Department of Culture and Communication, Linköping, Sweden

Abstract. This paper discusses the concept of ‘noticing’ (Schmidt, 1990; cf. Smith, 2010) in relation to text-based second language interaction (instant messaging). Data has been collected at an upper secondary school, where students of English as a foreign language interact with the researcher, providing feedback on language and content. In addition to chat logs and screen recordings, data from keystroke logging and eye tracking have also been collected, enabling analysis of both verbalized and non-verbalized signs of noticing (cf. O’Rourke, 2008; Smith, 2010). The focus of this paper is on how signs of noticing can be defined in this context, and preliminary results concerning the relationship between noticing and different types of corrective feedback are presented.

Keywords: SCMC, noticing, eye tracking, keystroke logging, corrective feedback, repair.

1. Introduction

In some theories of language learning, it is argued that learners need to notice the difference between one’s linguistic production and the patterns of the target language (Schmidt, 1990). Such *noticing* has primarily been addressed and discussed in psycholinguistic accounts of SLA, but has also received attention in interactional research, with a focus on how certain features are brought to the students’ attention and how the students then verbally account for their noticing of particular phenomena (Markee, 2000; Seedhouse, 2004).

The current study is part of a larger project aiming to merge psycholinguistic and interactional approaches on language learning by investigating text-based interaction. Text-based interaction provides particular affordances for language learning, and it also provides opportunities for the researcher to get a more detailed view of language learning processes than in face-to-face interaction, for instance through the employment of keystroke logging and eye-tracking equipment (cf. O’Rourke, 2008).

* Contact author: therese.ornberg.berglund@liu.se

The study presented here builds on a study by Bryan Smith (2010), which is one of the few examples of eye-tracking technology being employed to investigate language learning in text-based synchronous computer-mediated communication (SCMC) (cf. also O'Rourke, 2008). While Smith (2010) focused on fixations of recasts, the current study aims to empirically explore patterns indicative of noticing both in relation to recasts and to metalinguistic feedback. As a first step in identifying relevant gaze patterns, the focus is on cases where noticing is also verbalized.

2. Method

The setup of the current study is adapted from Smith (2010). Participants ($N = 8$) were students of English at a Swedish upper secondary school, who were given the option to participate in a chat task with a teacher (the researcher). The participants were shown a short animated video clip (no verbal content), and were then asked to retell the story in the text chat with the researcher, located in the other room, providing feedback on content and language. The researcher restricted herself to providing two types of feedback: recasts and metalinguistic feedback. The students were then asked to retell the story once more in a word document, and this post-chat writing task was used for triangulation. Throughout the session, the gaze of the participants was tracked (using a SMI remote eyetracker with a 60Hz sampling rate), and their keystrokes were logged (using Inputlog). The chat sessions lasted about 10-15 minutes each.

The verbal data in the chat logs were coded for errors and feedback (of different types), and the chat logs together with the post-chat writing task were coded for uptake/repair and continuous errors. Only the errors in the chat log that received feedback and that resulted in uptake/repair or in continuous errors were included for further analysis. These sequences of errors and feedback were then analyzed in more detail, and in this process, data from both eye tracking and keystroke logging were considered. Due to lack of space, the current paper will focus on exemplifying gaze patterns potentially indicative of noticing, as identified through the coding of relevant Areas of Interest (AOIs) in the analysis software BeGaze.

3. Signs of noticing in gaze patterns

While exploratively and empirically identifying gaze patterns of relevance, certain expectations have guided the analysis. When the correct form is given, through a recast, it is hypothesized that extra long gaze fixations on the recast should be indicative of noticing. This is in line with Smith (2010), who defines noticing as a fixation on the correct form for more than 500 ms. It is further hypothesized that another sign of noticing in relation to recasts would be if participants were to compare the correct form with the incorrect form in the chat log visible (cf. the *noticing the gap hypothesis*,

Schmidt, 1990). When no correct form has been given, but metalinguistic feedback has been provided instead, being able to re-identify the error is hypothesized to be a sign of noticing (and of understanding, cf. Schmidt, 1990).

Preliminary results indicate that these predictions do seem relevant when distinguishing signs of noticing, and in the current paper, I will exemplify patterns of noticing through a qualitative excerpt, involving repair/uptake in relation to both metalinguistic feedback and a recast.

The following chat log excerpt (Table 1) shows interaction between a student and the researcher. Only errors that receive feedback have been highlighted, as well as the feedback itself and later correct usage.

Table 1. Exemplifying verbalized noticing of recast and metalinguistic feedback in SCMC

Time	Nr.	From	Message
04:17:050	M8	Student	It was a apple to, who fell down from a tree. Then a girafi was in it too! have I missed something?
04:55:530	M9	Teacher	Please note the form of the indefinite article there.
05:18:430	M10	Teacher	A giraffe and a penguin, I believe.
06:02:480	M11	Student	indefinite article? whats that?
06:12:720	M12	Teacher	Good question!
06:37:800	M13	Teacher	It is the word that comes before "apple" in the previous sentence.
06:56:960	M14	Teacher	So you say you didn't understand the message, but what was the male turtle trying to do?
08:27:410	M15	Student	should it be an apple maybe? hmm, I don't now actually, I don't remember. I'm sorry
08:49:200	M16	Teacher	Yes, that is correct, an apple.
09:00:921	M17	Teacher	Can you tell me about the episode with the boat?
10:13:321	M18	Student	Yeah, that I remember for sure! The giraffe was driving the boat and he didn't watch up, so they hit a stone in the water, and some animals fell in the sea.

3.1. Noticing in relation to recast: extra long fixations and comparison between incorrect and correct forms

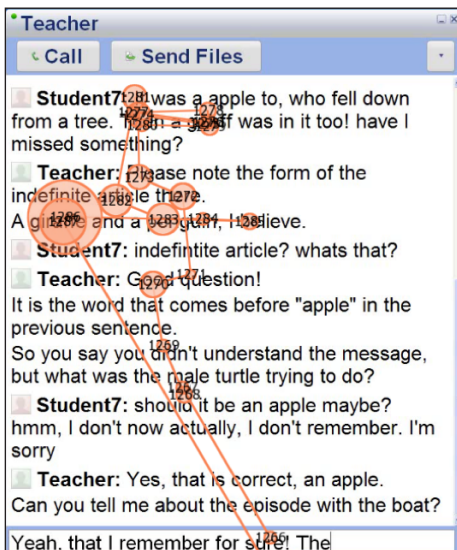
The first fixation on the recast “giraffe” in M10 is only 298 ms long. However, before attempting to write it again in M18, the recast is revisited ten times, and one of these revisits is over 500 ms long. According to Smith’s (2010) threshold, this would be a sign that the recast has been noticed. Furthermore, when attempting to type it again, the participant is clearly scanning for the recast. This we can see in Table 2, where it is shown that less time is spent on irrelevant messages during scanning, and more time on the relevant messages (M8 and M10), including the crucial words, with a special focus on the correct form in the recast (this is in line with eye tracking measures used to investigate global text processing, cf. Hyönä, Lorch, & Rinck, 2003).

Table 2. Glance duration, glances count and fixation count in “giraffe” retyping sequence (00:09:05:680 – 00:10:13:321)

AOI	Glance duration total (ms)	Glances count	Fixations count
M8	1551.5	1	8
<i>Error</i>	<i>636.4</i>	<i>3</i>	<i>4</i>
M9	1093.9	3	4
M10	2844.5	2	7
<i>Recast</i>	<i>2108.6</i>	<i>3</i>	<i>4</i>
M11	258.6	1	1
M12	556.9	2	3
M13	298.4	1	1
M14	238.6	2	2
M15	218.7	1	1
M16	0	0	0
M17	616.5	1	2

The most crucial part of the same sequence can be illustrated through a visualization from the BeGaze software provided by SMI (Figure 1).

Figure 1. Scan path visualization from BeGaze: re-identifying previous erroneous spelling and recast in “giraffe” retyping sequence



- Visualization of fixations at 00:09:29:081
- Trailer: 7 seconds
- Raindrop fixations: 80px = 500 ms

The numbers within the circles here illustrate the order of the fixations. Furthermore, the larger the circles, the longer the fixation. A drawback with this type of visualization is that it can only be made as long as the background stays stable. Furthermore, it can be difficult to distinguish the details due to the many layers. If we compare this visualization with details concerning the individual fixations in the analysis software, we can see that 14 subsequent fixations move from the crucial M8 (8 fixations, of which 3 are on the crucial word) via M9 (1 fixation) to M10 (5 fixations, of which the two final, long ones are on the crucial word). This illustrates that the two spellings of the word are, in fact, compared.

3.2. Noticing in relation to metalinguistic feedback: re-identifying the error

As for the metalinguistic feedback, Table 3 below shows that the metalinguistic feedback (M9) is not successful when first delivered, since the participant is not able to re-identify the error, but instead fixates the metalinguistic feedback itself. After the clarification (M13), the student is able to re-identify the error. This example also illustrates the importance of clarification requests.

Table 3. Glance duration, glances count and fixation count for metalinguistic feedback and related error (03:36:120 -10:13:320)

AOI	Glance duration total [ms]	Glances count	Fixation count
<i>a apple (in M8)</i>			
After metalinguistic feedback (M10)	0	0	0
After clarification (M13)	2605.8	3	4
Metalinguistic feedback (M10)			
Before clarification (M13)	31487.7	31	87
After clarification (M13)	3958.3	6	11

4. Conclusions

The preliminary results of the current study suggest that certain gaze patterns are indicative of noticing in text-based interaction, and such patterns have been qualitatively described in the current paper. Through a more systematic comparison of patterns which result in correct usage (uptake/repair), to those that result in incorrect usage, future publications will contribute to confirming these suggested non-verbalized signs of noticing in SLA.

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