

Prompting to Support Reflection: A Workplace Study

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Abstract. Reflection is an activity which needs facilitation in order to motivate users to engage in it regularly. In a study we analyzed how prompts can support reflection in a workplace setting. Results show that prompts might be beneficial to stimulate users to write new topics. Our results show that if user generate own prompts, user reply more often in comparison to our generic prompts.

Keywords: reflection, collaborative reflection, prompting, informal learning, community of practice

1 Introduction

Reflection can be understood as returning to experiences, re-assessing them and deriving insights for future behavior [1], making it a mechanism that transforms experiences into learning. While reflection has long been understood as a purely individual activity, research shows that reflective learning benefits from social influence and support such as sharing experiences, making sense of them together and drawing conclusions for the future together [2]. While such collaborative reflection is desirable to create among employees, it often does not happen as ideally planned: many people have no practice in systematically reflecting together (and using tools for it), urgent tasks and other constraints interrupt reflection and create a need for reflection over a longer period of time [2, 3]. Thus, there is a need to support collaborative reflection.

This paper describes work done in a field study of supporting collaborative reflection in a community support tool used in a medium sized (about 900 employees) public administration in Europe in order to facilitate experience exchange. To support reflection in the tool, we used prompts to stimulate reflective interaction.

2 Collaborative Reflection, Communities and Prompts

Communities are a good place for collaborative reflection to happen [4, 5], as they provide opportunities for people to meet and support each other emotionally [6] and professionally, and to learn from each other [7]: It has been shown that activities like relating own experiences to other statements and experiences, and proposing solutions based on what was discussed significantly increase the occurrence of learning outcomes in discussion threads [2], and it is exactly this reflective interaction that is supposed to amplify learning in communities [8]. In practice, however, this potential is

often not used, as reflective interactions do not occur to an extent needed [9]. Facilitation has been shown to be beneficial to initiate and sustain interaction in communities [10], and may therefore also foster activities that increase reflection.

Work on human facilitation of reflection in face-to-face settings shows that asking good questions and adapting questions to different phases of reflection such as problem elicitation, discussion and deriving resolutions facilitates and amplifies face-to-face reflection [3, 11]. While this shows the possibility to positively influence reflection, human facilitation is strongly dependent on the availability of facilitators when reflection happens. Therefore, on the level needed for reflection, it is hard to scale in larger groups, and prompting was suggested as a technical complement (e.g., [12]).

The term prompt usually refers (often) to text-based queues, which are presented to a user to stimulate certain behavior. This can be done by presenting sentence starters to be completed [13], or by using questions as prompts [12]. A key aspect of all types of prompts is that they do not force the user to act in a specific way and leave it to the recipient whether or how to respond [14]. Prompts have been used to guide learners in applying learning techniques [15] or to support individual reflection [16].

Besides the potential of prompts, there is no work available on the effect of prompting for reflection in professional communities.

3 The Case Study

To support the needs mentioned above, we created a reflective community platform for peer exchange and informal learning. In the platform, prompts are used to facilitate reflection. Each prompt was focused on a different aspect of reflection like recommending the user to write about personal experiences, which we identified from literature and our own work (e.g., [2]). We implemented the prompts, based on our earlier work on prompting for reflection [17]. Prompts helped users to phrase an initial discussion entry (topic prompts, see Fig. 1 No. 1 and 2). We differentiate between *topics*, which are used to start a new discussion and *replies* which are answers to an existing topic or reply. Both topics and replies are summarized as *posts*. Within a discussion different prompts (reply prompts) are aimed at helping users to phrase a reply (see Fig. 1 No. 4 and 5). Prompts were shown directly above the text input box with the aim to be visible while the user phrases her post.

In addition to system generated prompts, users were able to select questions after writing down a new topic to ask others for specific reactions (prompts replaced by users, see Fig. 1, No. 3). We created this feature based on existing research showing that asking personal questions is beneficial to reflection [3]. When selecting a custom question at the end of their post, our generic prompt was overridden by the user prompt so that the custom question of the user was graphically highlighted (see Fig. 1, No. 5). In addition, the selected prompt was integrated into the post as its last sentence, creating the impression that the user wrote it as a personal question.

To be able to evaluate whether prompts actually helped facilitating reflection, we conducted a quantitative analysis to check whether the prompts lead to a difference in behavior. For this, we first needed to operationalize whether a prompt was recognized by a user.

Therefore, we differentiate between whether the system displayed (that is, *rendered*) a prompt somewhere on the community website and whether the prompt was actually in the viewing area of a user (prompt *visible*). Being able to see a prompt on the website and having actually read and understood the prompt are two very different things, and we recognize this. As there is no way to automatically verify that the user read the prompt, we interpret it as read if it was visible to the user.

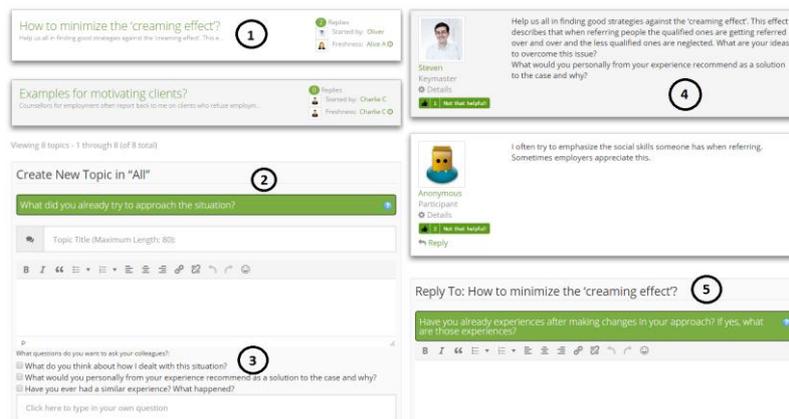


Fig. 1 Prompts (2, 5) are located below the list of discussions (left, 1) and within a thread (right, 4). Prompts are visually highlighted above the editor box (2, 5) where users create new topics. Upon creating new topics, users can choose different questions (3), and type in own questions, which in turn override the generic prompts within threads (5).

In this study users were randomly experienced a phase in which they received prompts and also a phase in which they did not receive prompts. The starting phase varied for each user. As new users registered every day, each user found a different environment as the community and the amount of content increased. Thus, in this paper, we compare the results of the data from the phase in which users were receiving prompts to the phase in which they did not.

As this was a study conducted during day to day activity within a public organization and we had to control for larger external interventions. In order to remove influences which highly skewed the data, we removed users who contributed exceedingly often, and we removed data from special events which gained a lot of attention.

4 Results

We analyzed the activity of users in both conditions (see Table 1) in terms of reading or writing. Table 1 lists how often the list of threads (Forum-Reads) has been read and how often an individual thread has been read. This way we can differentiate between users who had a look at the list of topics and users who went further and had a look at the actual content of a discussion. Additionally, the table contains the number of how many topics (the start of a new discussion) and replies (an answer in a discussion) have been written. Comparing the quote of how many topics respectively replies were

written per read event, we can see that for both topics (see Table 1) and replies, while prompts are being displayed, the rate of posts per read event is higher. This might indicate that prompts have a positive influence on the amount of posts written in the community platform, although the difference in the quote is rather small. The higher difference in the forum read-write quote between the *No Prompts* and *Prompts* condition might indicate that prompts worked better at facilitating new topics.

Table 1. Activity during the time of February 2016 to January 2017 of all users. The quote represents a read-write quote for both the forum (F) and the threads (T).

Condition	#Forum-Reads	#Thread-Reads	# Topics	#Replies	Forum-Quote F	Thread-Quote T
No Prompts	427	616	7	28	1,64%	4,55%
Prompts	657	996	18	47	2,74%	4,72%

Furthermore, we analyzed how often each prompt was being picked up. We differentiated in our data between the cases in which a prompt was just rendered on the website and cases in which the prompt was actually visible to the user. As can be seen in Table 2 prompts were visible in 62-76% of all page views.

Table 2. Distribution per prompt type showing how often a prompt was answered.

	%	% prompt visible
Topic Prompt visible to user	58,79%	
User wrote a topic	3,17%	61,96%
Reply Prompt visible to user	62,38%	
User wrote a reply	3,17%	65,56%
Replaced Prompt visible to user	71,91%	
User wrote a reply	4,49%	76,40%

When users overwrote the generic prompts with custom questions, we could observe that users wrote more replies than when generic prompts were visible (see Table 2).

5 Discussion

The results of the study show that reactions of users on our prompts differed between the types of prompts. As Table 1 shows, prompts worked most when users were browsing the list of discussion topics in the community platform, resulting in more topics created per view in the prompting condition. For the number of written replies per read event, we only found a minor difference, which means that these prompts were not (as) successful in terms of increasing user activity. We may attribute this to different reasons. First, there may be a threshold perceived by users of a community platform, which inhibits the creation of initial topics compared to commenting on

topics may be higher. Second, the prompts for replies were shown at the bottom of the page (see Fig. 1), so it is difficult to see prompt and topic simultaneously.

As our results indicate, user who generate prompts might receive more replies than the generic prompts (see Table 2). This may be attributed to the prompts being phrased differently. More likely, this happened because prompts were added both to the content of a topic and to the prompting area rather than shown in the promoting area only. It also seems likely that because it users chose the prompts, these prompts fitted a little bit better to the content of their posts. This makes user generated prompts seem worth pursuing further in the future, as they may help to create more activity.

The study was conducted in the regular day to day work of a public administration, and there were some variables influencing our results as previously mentioned, like new users finding different environments than users who registered previously, highly active moderators and the issue that it is difficult to measure whether a prompt was actually read. Despite this, our data is still likely to be polluted, and therefore further work with our platform in different places needs to approve our results to make them generalizable.

In addition, our paper focused on quantitative analysis of reactions on prompts rather than looking into these reactions. Further work needs to include content analysis to evaluate whether the intention of the prompt is reflected in its content.

6 Conclusion and Outlook

The present paper used prompts in a community of practice platform to facilitate reflection efforts of user. The study was conducted during a time span of almost one year in the day to day work of a public administration. Our results indicate that our prompts have worked to stimulate users to start new topics, and that this worked better for new topics than for stimulating replies in threads. We also saw an increase in replies per read event in cases where the person who created the thread overwrote our generic prompt. To our knowledge, there is no work looking at these effects in community systems so far, and therefore we regard these insights as contributions to the TEL community and as work to build on – we also recognize that these are initial insights that need to be built on rather than standing alone.

We plan to further analyze how user generated prompts can work in a community of practice setting. Additionally, we plan to conduct an analysis on content coding to evaluate, whether the text of the prompt really influenced the written discussion posts.

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