LEARNING HOW TO WRITE AN ACADEMIC TEXT: THE EFFECT OF INSTRUCTIONAL METHOD AND REFLECTION ON TEXT QUALITY

Janneke van der Loo, Emiel Krahmer and Marije van Amelsvoort
Tilburg center for Cognition and Communication, Tilburg University, The Netherlands

ABSTRACT

In this paper we present preliminary results on a study on the effect of instructional method (observational learning and learning by doing) and reflection (yes or no) on academic text quality and self-efficacy beliefs. 56 undergraduate students were assigned to either an observational learning or learning-by-doing condition, with or without reflection. The participants were tested on academic text quality, self-efficacy beliefs and satisfaction with the instructional method. Our preliminary results suggest that there is no main effect of instructional method on academic text quality and self-efficacy beliefs. Observational learning and learning by doing seem equally effective for learning how to write a large and complex writing assignment, even though participants who learned by doing were more satisfied with the method than participants who learned by observing models. We found no effect of reflection. However, there appears to be an interaction between instructional method and reflection: in observational learning reflection seems to have a negative effect on academic text quality while in learning by doing it appears to have a positive effect. We will repeat the experiment in September 2016.

KEYWORDS

Observational learning, Reflection, Academic Text Quality

1. INTRODUCTION

Writing a coherent and effective text is a complex and demanding task. A writer has to plan ideas, translate these ideas into sentences, and type the sentences on a word processor while monitoring these activities at the same time (Kellogg, 2008). This implies that writers have to carry out different processes, and pay attention to many textual characteristics simultaneously and therefore may lose track of their own thoughts during the process. This applies especially to those who are learning to write: the learner becomes so closely involved in the writing process that hardly any cognitive energy is left for learning from that process. A method that allows for a distinction between writing and learning to write is observational learning (Braaksma, et al., 2004). Observational learning is the process of learning a new task by watching and/or listening how someone else performs this task. Learners should be able to infer others' intentions from action observation, process others' action outcomes and combine these sources of information in order to select behaviors leading to desired outcomes later on (e.g. Monfardini, et al., 2013; Rak, et al., 2013). Various studies have shown the effectiveness of observational learning in the writing domain (e.g. De Wachter, et al., 2015; Rijlaarsdam et al., 2008; Raedts, et al., 2007). Braaksma, et al. (2004) suggest that the effectiveness of observational learning in learning to write is a result from the observers' strong engagement in metacognitive activities. Observers internalize, apply, and develop criteria for effective writing by observing the models' writing, identifying and conceptualizing the writing strategies, evaluating the performance of the models and reflecting on the observed performances.

In the current study we want to investigate whether observational learning would be a suitable method for university students to learn how to write an academic text. Only a handful of studies, all by Raedts and colleagues, have asked this question (e.g., Raedts, et al., 2007). These studies investigated the effects of observational learning with undergraduate students on self-efficacy beliefs and text quality by comparing observational learning with learning without a model (learning by doing). The studies showed that observational learning helped students to bring their self-efficacy beliefs regarding a new writing task to an

accurate level. With regards to text quality, the studies showed that students in the observational learning condition outperformed those in the learning-by-doing condition: they linked the source material more often, and wrote better organized literature reviews compared to the students in the learning-by-doing condition (Raedts, et al., 2007). In Raedts, et al. (2007) and most other studies on observational learning, learning through modeling, is compared with learning by doing. In learning by doing, learners put their own knowledge and beliefs on how a certain task should be done into practice, without observing someone else performing the task (Bandura, 1977). The main difference between observational learning and learning by doing is the absence of a model in the latter. However, closer inspection of the methods suggests that there might be a confounding factor; reflection. In observational learning, reflection is often encouraged by asking participants questions about the model's performance. In learning by doing, reflection is not an intrinsic part of the process. Adding reflection to learning-by-doing could therefore make these two types of learning more comparable. Could reflection account for the differences found between observational learning and learning by doing? Reflection within observational learning in the writing domain has been studied by Braaksma, et al. (2002). In their experiment participants observed two models performing a writing task. One group started with the writing task immediately after the observation, whereas two other groups reflected upon the models. Both reflection groups outperformed the no reflection group on the writing tasks. However, this was not compared to learning-by-doing. Additionally, the influence of reflection on learning in general has been studied. Reflection is found to be beneficial under certain circumstances (see i.e. Bulman and Schutz, 2013). Asking learners to monitor or record their performances during their learning process enables them to detect, attribute and correct their errors (Zimmerman and Kitsantas, 2002).

The common belief in educational research seems to be that both observational learning and reflection have a positive effect on learning. However, how reflection interacts with observational learning and learning by doing is not clear yet. This raises the question whether reflection causes the differences between observational learning and learning by doing. In the current study we investigate the effect of instructional method (observational learning, learning by doing) and reflection on academic text quality and writing self-efficacy beliefs. We hypothesize that observational learning positively influences academic text quality and self-efficacy beliefs compared to learning by doing. Secondly, we expect reflection to lead to higher academic text quality and self-efficacy beliefs than no reflection. Thirdly, we hypothesize that reflection reduces the effect of instructional method on academic text quality and self-efficacy. If observational learning proves to be at least as effective as learning by doing, educators could consider this method as part of a flipped classroom environment in which students gather information largely outside of class (Berrett, 2012).

2. METHOD

2.1 Design

A 2 x 2 design was used in this experiment, with instructional method (observational learning, learning by doing) and reflection (yes or no) as the independent variables. In the posttest the effect of instructional method and reflection on academic writing performance, self-efficacy and satisfaction were measured. In this paper we only report preliminary results. Due to the small sample size, we will repeat the experiment in September 2016.

2.2 Participants

The participants were recruited from an obligatory introductory course on academic writing for undergraduate students at a Dutch University. The sample consisted of 56 participants (male = 13, female = 43). The average age was 18,6 years (SD = 1.41). The participants were divided into four tutorial groups. Each group was assigned to one of four conditions: observational learning with reflection (n = 9), observational learning without reflection (n = 10), learning by doing with reflection (n = 19) and learning by doing without reflection (n = 18).

2.3 Materials and Procedures

The interventions took place during the first two tutorials of the academic writing course. All four conditions consisted of two interventions. In the observational learning conditions five videos were shown: two during the first intervention and three in the second intervention. The participants received a handout that contained the introduction to the videos and three index cards that were used in the videos by the actors. The index cards contained a summary of a scientific article, which consisted of the full reference of the article; the research question, the type of research and data; and a summary of the most important findings of the study. The first and third index card represented a similar viewpoint. The second index card contained an opposing view point.

In each video the participants saw two peer models writing an introduction to an academic paper based on these three index cards. Each video focused on a certain aspect of writing an introduction to an academic research paper. See Table 1 for the content of the videos.

Table 1. Content of the Videos and Exercises

Intervention (duration)	Video / Exercise	Content
1 (45 minutes)	1	Reading, selecting, organizing and paraphrasing the information on the index cards
	2	Planning the content and main structure
2 (45 minutes)	3	Writing the body of the introduction
	4	Adding an opening and scientific / social relevance
	5	Revising the text at text, sentence and word level

The models in the videos were student actors who had received a script for each exercise and had been instructed to think aloud during the exercise. One of the models used effective writing strategies to complete the assignments (strong model), the other model used counterproductive strategies (weak model). Each fragment contained a recording of the model working on the computer, the model's voice and the computer screen the model was working on. In the observational learning with reflection condition participants were asked after each video to reflect on what they had seen. They answered questions as: which differences between the two writers did you observe and who do you think was the better writer and why? In the observational learning without reflection condition the instructor started the next video immediately after the previous one. The learning-by-doing condition took place in a computer room. Each participant had access to a computer. The instructor told the participants that they would be writing an introduction to an academic paper based on three index cards by executing five pre-structured exercises: two during intervention 1 and three during intervention 2. The exercises the participants executed were the same as the tasks the student actors performed in the videos. The participants received a handout with the introduction to the exercises and the three index cards they had to use during the exercises. These index cards were identical to the ones the student actors in the videos used. The five exercises were displayed one by one on a screen. In the learning-by-doing condition with reflection participants were asked to reflect on their activities after each exercise. They answered questions such as: How did you handle the last exercise? What would you do differently next time? In the learning-by-doing condition without reflection each exercise was followed immediately by the next one.

2.4 Measures

To measure the participants' academic writing performance after the interventions the first author scored the introduction section of the first paper the participants had to write for the academic writing course. The participants were provided with three index cards similar to the ones used in the interventions. The studies on index card 1 and 3 showed similarities in their results, while the study on index card 2 displayed an opposing viewpoint. The participants were instructed to write an opening for their introduction, to include all three index cards in the body of the introduction and to make sure that the introduction would lead to the research question and hypotheses. The texts were scored on (1) opening paragraph (2) similarity between index card 1 and index card 3 (3) contradiction between index card 1/3 and index card 2 (4) mentioning of scientific relevance (5) mentioning of social relevance and (6) structure in general. For each item two or three points could be appointed which resulted in a possible maximal score of fifteen points. Self-efficacy was measured with ten items of which the participants had to indicate on a scale from 0 (not confident at all) to 100 (very confident) how confident they felt that they were able to perform a certain task. An example of an item is: "I

am able to paraphrase information from index cards." The average score (Cronbach's Alpha .88) was used as the participants' self-efficacy score. We also measured the participants' satisfaction with the instructional method with five items of which they had to indicate on a scale from 1 to 5 to what extent they agreed (1 = not at all, 5 = very much). The average score (Cronbach's Alpha .76) was used as the participants' satisfaction score.

3. PRELIMINARY RESULTS AND CONCLUSION

The score on the posttest has been evaluated with an analysis of covariance (ANCOVA) with Instructional Method (learning by doing), observational learning) and Reflection (yes, no) as the independent factors. Due to the small sample size, we only report mean scores here. First, we investigated the effect of instructional method and reflection on academic writing quality. The preliminary results indicate that there are no main effects for instructional method (M_observational learning = 8.17, M_learning by doing = 7.88) and reflection (M_reflection = 8.08, M_no reflection = 7.89) on academic text quality. However, there seems to be an interaction between instructional method and reflection. In observational learning reflection appears to have a negative effect (M = 7.13) compared to no reflection (M = 9.00). In learning by doing the opposite seems to be the case. Reflection appears to have a positive effect (M = 8.56) compared to no reflection (M = 7.24). Secondly, we investigated the effect of instructional method and reflection on self-efficacy beliefs. The preliminary results indicate that there are no main effects of instructional method (M_observational learning = 71.86, M_learning by doing = 70.07) and reflection (M_reflection = 70.05, M_no reflection = 71.36). Also, there seem to be no interactions. Thirdly, we looked at the satisfaction scores. The preliminary results suggest that participants who learn by doing (M = 3.94) are more satisfied with the instructional method than participants who learn by observation (M = 3.35). Reflections seems to have no effect on satisfaction (M_reflection = 3.75, M_no reflection = 3.73). Our preliminary results appear not to support our first two hypotheses. Observational learning does not lead to higher academic text quality or higher self-efficacy beliefs than learning by doing, and neither does reflection compared to no reflection. We have found some evidence for the third hypothesis. There appears to be an interaction between instructional method and reflection. In observational learning reflection seems to have a negative effect on text quality. This is not in line with Braaksma, et al. (2002). In learning by doing however reflection appears to have a positive effect on academic text quality. We hope to be able to draw more founded conclusion after we repeat the experiment.

REFERENCES

Bandura, A., 1977. Self-efficacy: toward a unifying theory of behavioral change. *Psychological Review*, 84(2), p.191.

Berrett, D., 2012. How 'flipping' the classroom can improve the traditional lecture. *The chronicle of higher education*, 12, pp.1-14.

Braaksma, M. A. et al., 2002. Observational learning and the effects of model-observer similarity. *Journal of Educational Psychology*, 94(2), p.405.

Braaksma, M. A. et al., 2004. Observational learning and its effects on the orchestration of writing processes. *Cognition and Instruction*, 22(1), pp.1-36.

Bulman, C. and Schutz, S. ed., 2013. *Reflective Practice In Nursing*. West-Sussex: John Wiley & Sons.

De Wachter, L. et al., 2015. Meaningful and enjoyable writing tasks in an academic writing workshop through observation of peers. *Proceedings of the International CALL Research Conference*. Tarragona, Spain, pp. 223-225

Kellogg, R.T., 2008. Training writing skills: A cognitive developmental perspective. *Journal of Writing Research*, 1(1), pp.1-26

Monfardini, E. et al., 2013. Vicarious neural processing of outcomes during observational learning. *PloS one,* 8(9), e73879.

Rak, N. et al., 2013. Empathy and feedback processing in active and observational learning. *Cognitive, Affective, and Behavioral Neuroscience*, 13(4), pp.869-884.

Raedts, M., et al., 2007. Observational learning through video-based models: impact on student's accuracy of self-efficacy beliefs, task knowledge and writing performances In: G. Rijlaarsdam, Series Ed. and P. Boscolo and S. Hidi, Volume Eds. 2007. *Studies in Writing, Volume 19, Writing and Motivation*. Oxford: Elsevier. pp.219-238.

Rijlaarsdam, et al., 2008. Observation of peers in learning to write, Practice and Research. *Journal of Writing Research,* 1(1), pp.53-83

Zimmerman, B. J., and Kitsantas, A., 2002. Acquiring writing revision and self-regulatory skill through observation and emulation. *Journal of Educational Psychology*, 94(4), p.660.