

## **The Think-Aloud Method in EFL Writing: A Study with Two Bulgarian Students**

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**ABSTRACT:** *Writing today has become an important medium of interpersonal interaction and an essential competence in the field of work and studies. This fact gives grounds for reconsidering the significance of this skill and highlights the need of improvement in its instruction. The work presents a study exploring two Bulgarian students' writing through the use of the think-aloud method in EFL instruction for developing their writing skills by focusing on their approach to a foreign language writing task. The goal was to examine both students' writing processes and strategy use and stimulate them to reflect on their writing. The think-aloud protocol analyses provide insight on the influence of various factors on students' writing processes such as their individual characteristics and writing habits, the role of L1 use in composing in a foreign language, the choice of a writing medium.*

**KEYWORDS:** think-aloud method, EFL writing, protocol analysis, students' writing processes, verbalization.

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### **INTRODUCTION**

Writing is a skill that should be considered very important as it is a social and communicative activity more than ever, and therefore it is worth refocusing researchers and educators' efforts upon, particularly to find efficient ways to improve its instruction both at school and later at university. One of the reasons for the need of developing students' good writing skills is the growing tendency towards written communication in almost all social spheres. The advancement of technology and Internet, which made communication direct and possible at all times, has additionally encouraged the use of written form as an interaction medium. As a result, writing has become a key ability to exchange information and communicate both formally and informally, and developing this competence has gained wider significance for individuals' studies, personal and work routines.

There are different research methods of studying writing and its mechanisms, and scholars have done extensive research in their attempts to uncover what factors and variables influence the production of a written text and what strategies are employed by writers in the process. Among the conventional research methods for studying the nature of writing, FL writing included, are direct or video-taped observation, different types of questionnaires and interviews, reports and the think-aloud (TA) method

(concurrent verbal or retrospective verbal protocols) and think-aloud protocol analysis (Valfredini 2015: 907).

The current article focuses on providing an overview of the think-aloud method and presenting some empirical studies on its use in exploring writing in L1 and L2, some general concerns about the method and its applicability, as well as some suggestions about possible ways the method can be employed in EFL writing in Bulgarian educational setting and the expected effect from it. The work describes a study using the TA method to examine two Bulgarian students' writing processes and presents the conclusions drawn from the analysis of the protocol data. The aim is to direct the respondents' attention to the process of composing rather than the product, and raise their conscious awareness of their own strategic approach to writing. The factors that would be of importance when using the method such as the cultural context, the participants' language of verbalization, writing medium, strategy use, and level of language competence will be an object of consideration.

## LITERATURE

The method of thinking aloud was originally used in cognitive psychology and social sciences to study and analyze individuals' cognitive processes while performing cognitive tasks of different nature or being involved in problem-solving activities. The method was based on the techniques of protocol analysis by K.A. Ericsson and H.A. Simon (1993). The purpose is to collect data from verbal reports and the procedure requires the participants to verbalize their thoughts and feelings while doing a certain task. The verbalizations can be audio- and/or video-recorded and later analyzed. As this method has the potential to provide valuable information about the participants' thought processes and behaviors it has been employed in research in other domains such as reading comprehension, translation, solving math problems, web-based learning, etc. (Bereiter & Bird 1985; Rankin 1988; Young 2005; Jääskeläinen 2010; Abu Raihan 2011).

The think-aloud method is referred to as an "online" method (Schellings et al. 2013; Vandeveldt et al. 2015) as it is applied simultaneously to a current task performance. However, this definition seems more suitable for the concurrent type which is one of the two types of verbalizations used for collecting think-aloud reports along with the retrospective report. In an attempt to compare both types, it is worth mentioning that as in the retrospective procedure the participants are asked to describe and give account for their steps after they have completed the task, the validity of the data depends on whether they do it immediately after that or after a certain period of time. A reason for that is that there are a number of fully automated processes that the participants go through and they do not report them, so the think-aloud method is efficient in providing 'information about activities or behaviors that are not (yet) automatized and so occupy space in working memory' (Schellings et al. 2013: 968). The concurrent type is considered much more reliable in following the mental steps and activities the participants are verbalizing while they are engaged in a task (Kumar 2005: 17).

Apart from the temporal aspect verbal protocols can be differentiated according to the conditions under which they are collected. The first type requires the participants to merely verbalize their thoughts and scholars define it as non-metalinguistic, and the second type is referred to as metalinguistic as it requires the participants to verbalize adding information such as explanations and justifications of their decisions and actions (Ericsson and Simon 1984, 1993). M. Bowles uses “the broader terms non-metacognitive and metacognitive” to describe both types in her book in which she makes a thorough analysis of think-alouds (Bowles 2010: 13).

In EFL teaching and learning the TA method can be highly productive, especially if it is integrated in strategy instruction of reading and writing. There is a large corpus of in-depth research of using TA in exploring these two language skills. C. Alderson defines the process of reading as “very silent, internal and private” (Alderson 2000: 4), but this definition seems quite acceptable to describe the nature of writing as well, as both reading and writing involve processes difficult to follow. When it comes to reading, thinking aloud gives the teacher insight how learners approach a text to read, what obstacles and difficulties they expect to encounter, their previous knowledge related to the topic and headline, their expectations and predictions concerning the text.

Writing both in one’s first and foreign language is a skill that is not only complex but also challenging to develop and master. A number of researchers consider it a problem-solving activity or task (Flower and Hayes 1980; Sharples 2003; Kumar 2005). The act of producing a text is the problem the writer has to solve for which they have to plan, establish goals, select strategies and make decisions (Farahian 2015: 40).

In the context of studying writing, regardless if it is in L1, L2 or FL, TA is one of the most efficient research methods as it provides evidence and richer and more detailed data about the cognitive processes in composing than other methods such as observation, questionnaires and reports that reveal some aspects of writing. As a process-tracing method TA facilitates studying sub-processes in writing which are generally difficult to observe such as the order of generating ideas (Hayes and Flower a 1981: 212). Generating ideas is an example of a sub-process of planning which is one of the three main processes in Hayes and Flower’s cognitive process model of writing along with translating and reviewing. Both scholars define writing as a goal-directed process which is guided by a hierarchical network of goals. They also point out that retrospection does not reveal what think-aloud protocols do, because composing involves working goals which people very often forget of once they have achieved them (Hayes and Flower b 1981: 377).

The majority of research presents results from empirical studies using TA as a research tool as protocols, the writer’s notes or draft and the manuscript give a comprehensive picture of the writer’s composing process (Hayes and Flower b 1981: 368). However, it can be more than that. Along with methods of cognitive research and retrospective interviews, verbal protocols are important tools that can be used in design of instruction (Sitko 1998: 98). Think-aloud composing can be incorporated in a writing class as it provides useful information both to the teacher and the student about him/herself as a

writer and the finished product, placing special emphasis on the process of writing (Raimes 1985: 251). In the context of student-centered instruction, using TA is a way to work with students individually and get to know their personal approaches to writing. Thus, the teacher could help them develop their writing skills as they would have another opportunity to reflect on their writing and become aware of what they need to work on and refine. The method could be employed not in order to search for trends or build up profiles but merely as a diagnostic tool and a way to find out what strategies students employ or not in their writing, and help them realize the complexity of the composing process and its significance for the final product. For years L1 writing instruction and EFL writing instruction (in Bulgaria as well) have been mainly focused on the product of writing and not so much on the writing process, and this educational approach directs students to give attention mainly to text language and structure (Harmer 2004: 11). That is a good reason to focus on the way students write and the resources they use, and thus help them improve their writing.

Engaging students in collaborative writing tasks is another way to collect data for investigating the FL writing process using recordings of dialogues between participants during the task (Valfredini 2015: 910). Apart from giving the instructor an idea of students' cognitive processes when tackling a particular task, TA provides the opportunity for the learners to further organize their thoughts and ideas, and arrange actions in logical steps to accomplish the task.

In an EFL setting the method can be introduced to learners by their instructor through modelling in accordance with their level, foreseeing the difficulties they might face and being ready to suggest strategic solutions (Zoi 2021: 20). However, the actual use of TA demands fairly good language competence, so that they could express their thoughts fluently and coherently in case verbalizing in the foreign language is a requirement or the participants' preference. Even if learners' level of verbal competence may not allow them to fluently express their thoughts in the foreign language, the method can still be used and prove its effectiveness as the study results show.

Think-aloud protocols can also be a very effective pedagogical tool to strengthen metacognitive awareness (Anderson and Vandergrift, 1996; Anderson, 2004) especially within the context of writing. Hacker, Keener and Kircher (2009) define writing as "applied metacognition" (p.160) outlining metacognitive monitoring and control as essential components of writing. Some scholars state that success in writing performance can be attributed to the writer's metacognitive abilities (Díaz Larenas et al. 2017: 89) and Chong singles out writing as the language skill which is "the most significantly influenced by learners' metacognition" (Chong 2021: 4). Being aware of one's composing process is a prerequisite of being an effective writer. Through the verbalization, learners become more aware of their strategies and what changes they need to make for improvement. Reflecting on the use of particular strategies to write is an essential ability and fosters the development of students' metacognitive awareness of their processes (Hyland 2004: 12). Reflection serves a double function as, on the one hand, "writing involves both engagement and reflection" (Sharples 2003: 10), and on the other hand, reflecting on the whole process of composing and the result from it –

the produced text – is an important metacognitive skill that is a distinctive characteristic of good writers.

### Some concerns about TA

Undoubtedly, the method has its merits, which is evident from the extensive empirical research in many areas, some of them mentioned above. However, as most methods are imperfect, this one has also been criticized for its limitations. Scholars direct their attention to the reliability of the method. The two theoretical concerns that are interrelated and a number of works focus on are **reactivity** and **veridicality** in the interpretation of think-aloud protocols data (Hayes and Flower 1981; Janssen et al. 1996; Bowles 2010; Kumar 2017). In psychology *reactivity* broadly refers to “the condition in which a participant being observed is changed in some way by the act of observation” (<https://dictionary.apa.org/>). In survey research “reactivity occurs when the subject of the study (e.g. survey respondent) is affected either by the instruments of the study or the individuals conducting the study in a way that changes whatever is being measured” (Lavrakas 2008). This should be taken into account while conducting research using introspective methods such as TA, as this change in the participants’ behavior might raise doubts about the validity of the results. According to Young (2005) there are three effects when an individual is asked to think aloud. First, it is their ability to be engaged in multi-tasking as they have to perform a task and think out loud about it concurrently. Second, there are the effects of it as usually cognitive processes are internal and silent. Therefore, in a sense “the situation is unnatural” (Armengol and Cots 2009: 260) and the method is said to have an “intrusive character” (Latif 2009: 539). The third effect Young outlines is that it requires the participants to focus their attention on “the cognitive processes underlying the task being undertaken” (Young 2005: 24). Veridicality refers to the extent to which the data from the verbalization actually reflects the cognitive processes that take place while the thinking-aloud participant is performing. The two aspects related to it are validity and completeness of verbal reports (Kumar 2017). Their incompleteness can be the result of the fact that on the one hand, protocol data is provided by the conscious processing only and not the unconscious processes that also take place, and on the other, the difficulty the participants might encounter to recall what they were thinking and retrace their actions to describe the steps they took, especially in retrospective verbal reports (Ericsson & Simon 1980; Hayes & Flower, 1981; Young 2005; Bowles 2010).

Another interesting aspect of consideration, when collecting data with verbal protocols, is the participants’ individual ability to verbalize their thoughts as opposed to their skills in expressing in written form (Young 2005: 24). Additionally, there are further variables to take into account as Pressley and Afflerback (1995) point out – the participants’ verbal, reading, and writing abilities, their level of language competence, when using the method in foreign language writing, their personalities, the fact that the procedure is new and they are not used to verbalizing their thoughts, the task itself, the instructions, multitasking as it might appear to be challenging, focus and attention on either or both activities, the uncertainty participants might feel. In that respect, it seems reasonable to discuss with them what they have learned from the experience of thinking aloud while composing and whether it has encouraged their reflection on writing.



Other serious concerns about the application of the method from instructional perspective are that TA is difficult to administer, especially with large groups of participants, and it is time-consuming as it demands time for preparation (modelling, clear instructions, warm-up), execution and analysis of the results (Schellings et al. 2013; Jordano & Touron 2018).

## METHODOLOGY

### *Research questions*

The present study was aimed and designed to explore the following questions:

1. What information did the TA protocols provide about the participants' writing skills and strategy use?
2. What effect (should any) has verbalization/TA while writing had upon them?

### *The procedure*

The study was conducted in the spring of 2022 and uses data from two TA protocols to explore what strategies the participants employed to compose short essays on different topics.

The respondents Alexander and Maria (the names are fictitious for ethical reasons) were required to say out loud everything that came to their minds while composing. Due to the reason that the procedure was unfamiliar to them, they were allowed to write on an essay topic of their choice. They had a 40-minute time limit to complete the task. The respondents were given clear instructions, the method was modelled to them and they were reminded of the need of warm-up time to prepare for the execution of the task. There were no specific requirements about the writing medium – they could decide between writing on paper or word processor. The verbalizations were audio-recorded only and each has duration of approximately 33 minutes. Some researchers state that thinking aloud requires more time for the completion of the task (Schellings & et al. 2013: 967). However, in this case the respondents managed to fit quite well within the set time frame.

### *The participants*

The participants in this study were one male school student, aged 18, and one female university student, aged 38. The male participant studies English intensively as a first foreign language at a language school, and the female participant is doing her Bachelor's degree in Russian Studies and Tourism, and studies English as a foreign language at the University of Shumen. They both have studied English for more than 10 years but they differ in their level of language competence and experience in writing in English. They both were invited and gave their explicit consent to participate in the study. One of the reasons for the selection of respondents from different levels of education is to make a comparison between the use of the TA method in school and university educational environments. Moreover, the university participant has opted for teacher qualification, so getting acquainted with the method was both a way for her to gain first-hand experience of applying it and possibly adopt it as a potential methodological strategy in her own work as a future teacher.

#### *Data collection and analysis*

The principal method used in the study was the think aloud method and protocol analysis which was combined with direct observation and post-experiment interviews. The data was triangulated by the use of the three methods. Triangulating research data is a method to support the credibility of the study as it provides further information (Güss 2018: 3).

The participants were interviewed for the purpose of reflecting on their writing performance and strategy use and sharing their impressions of the thinking-aloud experience.

There is a difference between collecting data in both cases because Maria had online seminars at the time she was invited to take part in the study and was asked to write her essay and audio-record her verbalization at home, so the method of direct observation was not applied with her. Her essay and recording were received and analyzed later. Alexander's verbalization was recorded in real time in a face-to-face setting. Thus, the data on his writing performance was obtained from the TA protocol, direct observation and the interview which provided extra information.

#### *Alexander's TA protocol*

When Alexander was asked to take part in the study he seemed quite reserved which appeared to be a natural reaction to an unusual situation. Nevertheless, he agreed to try. He chose to write an essay from his English student's book for a blog post on the topic *Pros and cons of being an astronaut*, and preferred to write it on paper. Alexander's first language is Bulgarian but he did not have any difficulty in verbalizing his thoughts almost entirely in English due to his very good command of the language. For this reason he was asked to think aloud in English if he felt comfortable. He only resorted to using Bulgarian in a case when he had doubts about the style and was trying to make a choice of a word that would be appropriate for this type of essay. Bowles assumes that verbalizing entirely in the L2 might have influence on the thinking aloud and researchers should be cautious about such a requirement although she states that there is not sufficient empirical evidence about the effects of thinking aloud in L1 vs. L2 (Bowles 2010: 116). It can be assumed that in spite of his fluency in the foreign language, it might have been much more natural to him to think aloud in Bulgarian.

The verbalization revealed that he had done some research for information on the topic beforehand which means that he could not rely solely on his prior knowledge about it. In the planning stage he used a plan for the essay from the textbook and that is why he did not make his own plan before he started writing. He followed the plan closely but later shared that if there had not been a ready-made plan to use, he would have definitely made his own by making notes, and that it is something that he is in the habit of doing. He relied on his mental images related to the topic, and made corrections in the text in the process of writing. In the final part he began reviewing his work and made changes. Revising helped him pay attention on word choice, rephrase certain parts and avoid repetitions. It appeared he had forgotten to include some ideas that came to his mind while verbalizing and added them while rereading the text. It provides a clear evidence

for the recursive nature of the writing process (Hayes & Flower 1981; Raimes 1985; Hyland 2004) and once again emphasizes the significance of the last major process of writing – reviewing.

The direct observation of Alexander's writing and the interview that was conducted with him after the TA procedure shed further light on the reasons for some of his decisions and preferences. Asked about his choice to write with pen and paper, he explained that he normally typed his essays on his computer but in this case he deliberately preferred not to in order to avoid distraction, which was a strategic decision he had made before he started writing. He was certain that composing on the computer would prevent him from staying focused and would extend the implementation of the task. The fact that he was not in front of his computer somehow restrained him from using references such as dictionaries to look up a particular word meaning, collocation or spelling when he was not sure, so he depended entirely on his language knowledge. As he was put in an atypical situation he thought he was not supposed to consult additional sources although he could have, especially since it is part of his strategy repertoire when writing, as he explained at the interview.

The interview questions were also aimed at finding out whether thinking aloud while producing a written text encouraged Alexander to reflect on the way he composed and what his impressions of the experience were. He shared that he would not like to take part in the procedure again as he is not used to verbalizing his thoughts and it made him feel uncomfortable, but it did provoke thought. It has become clear that doing preliminary research (if necessary), planning, generating ideas, drafting and note-taking, monitoring his performance and editing and reviewing at the end are strategies he usually employs in his writing. However, prior to the study he had not fully realized that they have had such significance for his good results in writing.

#### *Maria's TA protocol*

Maria readily gave her consent to participate in the study and she did not find the task of verbalizing her thoughts while composing intimidating or unnatural because she reported that self-talk has always accompanied her writing process regardless of the language she writes in. The data on Maria's writing process was collected from the analysis of the TA protocol based on her self-recorded verbalization and the interview with her which was done two days after she had completed the task.

The task she had was to write a short essay on a topic she chose – *Are smaller towns better to live in than big cities*. Similarly to the other participant in the study, Maria preferred to write on paper rather than on her PC, but she used online sources for reference on several occasions. Later, at the interview she explained that writing with pen and paper instead on the computer facilitated her editing and revising the text.

Maria is Ukrainian by origin but she has been living in Bulgaria for 18 years. Her native languages are Russian and Ukrainian as these are her mother's and father's ethnicities respectively. Bulgarian is her second language and she is very fluent in it. She also speaks English and Italian as foreign languages. She studied English for more than 10



years at school but later as she did not have enough opportunities to practice it, her personal conviction is that she is not as confident and competent as before and finds her knowledge of English insufficient to speak and write without difficulties.

In all stages of composing she verbalized her thoughts, questions and doubts almost entirely in Bulgarian which did not seem to hinder her writing process in English. In fact, a similar experiment of using TA in composing in English reveals that there are benefits of L1 use in L2 writing as participants developed their ideas in L1 and then transferred them in their L2 writing (Alkhatnai 2016: 5). A plausible explanation for the choice of language she verbalized her thoughts in is that English was too challenging for her to use and Bulgarian would be the most appropriate for the purpose of the study. It is noteworthy though that the analysis of her TA protocol indicated that her cognitive processes in writing took place in three languages as she resorted to using Russian at times. In the planning stage while she was generating ideas and making a mental plan about what to write in her essay she used the Russian word for *point* (“punkt”) and then gave herself the instruction to look up a word in “slovarik” which again is the Russian word for *dictionary*. Additionally, she used 13 times the word “tak” meaning *so*, which is the Russian equivalent of the Bulgarian “taka”, used 31 times also as a transition word in her verbalizing. There were two occasions on which she switched into using Russian in whole phrases and sentences. In the first case she was thinking out loud in Bulgarian, turned into Russian and then back to Bulgarian when she reviewed and reread what she had written up to the current moment. In the second case she was verbalizing in English, switched into Russian attempting to clarify a thought and then continued in Bulgarian, which is a reason to assume that formulating a particular sentence in English appeared to be a very demanding cognitive task for her at that moment. It indicates that students’ first language can be a very influential factor in the decision making processes while writing (Cumming 1989: 128).

In the course of writing Maria gave herself instructions to perform a series of actions such as rewriting, making changes and rephrasing parts of the text, looking up words in the dictionary to check their spelling, meaning and even pronunciation as it could be heard in the recording. She also asked herself a number of questions about how to express better in English or how to write a particular word trying to recollect either its meaning or spelling. Self-questioning is on the list of cognitive strategies in Díaz Larenas, Leiva & Navarrete’s classification of the main writing strategies – rhetorical, metacognitive, and cognitive strategies (2017: 91). However, the questions Maria asked herself refer to the way she monitored her performance of the task which should be classified as a metacognitive rather than a cognitive strategy.

Even if Maria carefully monitored her writing and used an online reference for support there were three occasions on which she voiced her doubts about making language mistakes:

- I don’t know if it is correct...
- I hope I won’t misspell it...
- It might be wrong, but I’ll write it....

The last of the above mentioned phrases from Maria's verbalization might point to the fact that she expected feedback from her instructor and would rely on it to help her see the mistakes she made and correct them. Raimes states that unskilled writers are aware of being language learners and as such they know they do not use the language perfectly. She assumes that the reason their editing is not as thorough is because the thought of error does not intimidate them (Raimes 1985: 247). However, it is evident from Maria's TA protocol that she was concerned about making language mistakes and there were such in her text, because even if she engaged in revising throughout the whole process of composing, she focused mainly on structure and argumentation.

The most serious matter for consideration about Maria's writing process is that she did not reread and revise the whole text after fulfilling the task. The recording provided no evidence for it, and the final product – the text she submitted – further suggested that she did not go through this significant stage of composing. At the interview she explained that she usually revises the text after writing it but in this case she did not have the time. She realized the importance of this major process and talking about it during the interview gave her a reason to reflect on the experience and her approach to writing.

## **STUDY RESULTS AND DISCUSSION**

The findings address both research questions that were raised for the study. The use of the TA method in exploring the two participants' writing provided valuable data on what strategies they employed in the process. Even though the direct observation and the interviews gave additional information it was definitely not as detailed as the data from the concurrent protocols.

As the procedure of thinking aloud was used only once, it can only be hypothesized whether it would cause changes in the participants' writing processes in the future but the method encouraged their reflections on the way they write, what strategies are useful and what strategies they still need to put regularly in use to improve their writing performance. The interviews provided explanations for the respondents' strategy use or what strategies they did not implement and why, as well as their writing medium choices which were deliberately made. C. Haas' research outlines the influence the choice of writing medium has on planning as a major process of writing (Haas 1989: 6). However, in the present study the writing medium preferred by both participants does not appear to be related to planning but rather to the monitoring of their composing processes as Alexander wanted to avoid distraction and Maria – to be able to revise and edit the text more easily in the course of composing.

The use of the first language while thinking aloud in both cases was in situations in which the participants experienced uncertainty or difficulty to continue writing. Assumingly, the first language use is significant for the cognitive processes when respondents encounter a problem, and switching from L2/FL to L1 can be considered an "emergency" strategy that writers use unconsciously.

## CONCLUSION

The use of TA method in foreign language writing instruction has a serious potential as it can provide students with valuable feedback on their process of writing, encourage them to think about their approaches with the main purpose of developing their writing competence. In spite of its main disadvantage of being time-consuming and laborious, the method is one of the best ways to collect information about an individual's cognitive processes and strategy repertoire in EFL writing and use the data to directly influence their writing skill progress.

## Future Research

The study is an attempt to probe the use of the TA method in Bulgarian educational environment with the purpose of giving the students feedback not on the product but on the process of their writing and provoke them to think about it in strategic manner emphasizing not only on *what* they write, but *how* they do it. Further research would be devoted to answering the questions the study posed such as the role of the language of verbalization in thinking aloud while composing in a language different from L1, the influence of the writing medium preference and the reasons for it, as well as what the effect of using the method would be if the procedure were repeated.

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