Think Aloud Modeling: Expert and Coping Models in Writing Instruction and Literacy Pedagogy

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Recommended Citation

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and

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Abstract

The purpose of this paper is to review the utility of think alouds in writing instruction and highlight the function of think-aloud modeling in the development of cognitive and metacognitive strategies that support learners' independence. For these purposes, modeling with coping is also explained. Coping models, in which teachers encounter challenges and show how to resolve them using specific strategies, are more effective than expert models according to which tasks are completed at a level of mastery. The paper reviews learning theories and focuses on specific practices that can support learners' self-regulation through the use of models that verbalize and make visible both the use of strategies and problem-solving applications on behavior and use of procedural facilitators that support strategy use. Specific recommendations for teachers' classroom application are included as well as examples to guide their work.

Keywords: *self-regulation, observation, modeling, think-aloud, writing*

Think Aloud Modeling with Coping: Supporting Writers' Independence

The function of think-aloud modeling has been well documented in reading instruction, and this practice is widely used (Olshavsky, 1977; Wilhelm, 1997). Thinking aloud, as the phrase implies, is the process of verbalizing thoughts and making audible to listeners and observers the decisions and the reasoning behind actions in using strategies (Davey, 1983). For example, when teachers begin to read a book, they may comment on the need to form an educated guess or prediction about what is to take place in the book. In order to develop this educated guess, they will look at the title, examine the pictures, and use their knowledge about this information to make an inference and form their prediction. Think alouds are used by teachers across grade-levels as they model the use of cognitive processes. This modeling demonstrates strategies that readers can apply, such as developing a prediction or hypothesis for the content of the text (Bruce & Rubin, 1981), monitoring meaning making (Myers & Paris, 1978; Paris & Myers, 1981), and using fix-up strategies to resolve comprehension challenges (Brown et al., 1981).

Such modeling practices are also applicable in writing and can be part of explicit and systematic instruction of writing strategies and processes as well as metacognitive techniques for students' independent use. The following section first explains learning processes and situates think-aloud practices. Next, it explains the function and utility of think aloud modeling and specifically comments on think aloud with coping while it elaborates on how this approach supports beginning writers' ability to problem solve when they encounter difficulties, monitor their progress, and retain their engagement without giving up. Finally, an example is included with recommendations for classroom application and adaptations.

Learning Processes and Theories

Learning, in general terms, refers to the acquisition of skills that were previously unknown and the ability of a learner to independently apply them. Across time, theories about learning were developed that attempted to explain how the transition from novice to expert occurs and how learning happens. One of the theories that dominated thinking in psychology until the 1980s was behaviorism, which considered learning as a function between a stimulus and a response (e.g., Skinner, 1953). Thus, in the context of behaviorism, first, learning was the result of an environmental stimulus that led to a specific response while future responses would be anticipated by specific consequences experienced by a learner (reinforcing versus punishing). When a response was reinforced, it would be more likely to be repeated in the future and punishing consequences would result in the response being abandoned. Secondly, learning did not involve cognitive processes, and questions about how thinking happened could not be answered as these were not observable and not possible to access.

Cognitive science, though, with its birth in the 1960s was interested in mental processes-that were not observable and utilized think-aloud protocols to access learners' thinking and problem-solving practices. Learning, from this perspective, was highly influenced by the individuals—their perspectives and experiences in relation to environmental stimuli. Thus, in the context of learning, teacher explanations and demonstrations with guided practice and student application are important. In addition, the processes of learning that involve learners' interests, beliefs, attitudes, and goals can further influence the learning outcome by affecting attention, effort, and learners' persistence.

The social learning theory of Bandura (1986, 1988) examines how both cognitive and environmental factors influence behavior and learning, overall. Thus, once a teacher explains

information and asks for students' responses, an inaccurate response will lead to reteaching or

the provision of a new example to better illustrate the learning point. In this instance, the

interaction between the environment is evident from the response of the teacher who adjusted

instruction based on students' responses. In the social learning theory, learning occurs either

through vicarious experiences (observations of others and of their actions) or through enactment

(consequences of actions). However, challenging tasks can include a combination of acting out

the tasks and observing models. The observation of models can support learning (Horner, 2004)

and modeling of cognitive processes makes thinking audible as the model verbalizes the thinking

maneuvers they make as well as the reasons for those decisions (Pressley & Afflerbach, 1995).

Indeed, the process of learning is not accidental but rather sequential; Bandura (1986)

shared:

> Another distinctive feature of social cognitive theory is the central role it assigns to self-
> regulatory functions. People do not behave just to suit the preferences of others. Much of
> their behavior is motivated and regulated by internal standards and self-evaluative
> reactions to their own actions. After personal standards have been adopted, discrepancies
> between a performance and the standard against which it is measured activate evaluative
> self-reactions, which serve to influence subsequent behavior. An act, therefore, includes
> among its determinants self-produced influences. (p. 20)

Schunk & Zimmermann (1997) and Zimmerman (2000) explain that the learning process

and development of writing self-regulation involves observation, emulation, self-control, and

self-regulation. Observation as well as emulation involve the environment and a social influence

as the observer watches how a task needs to be completed. In the case of writing, this might refer

to the observation of combining sentences using a conjunction. Emulation would involve applying this same task but in a relevant context that is similar to the one the learner observed. Self-control refers to the application of the task in a different situation by following the steps of the strategy or process that is taught while the motivation to perform effectively may involve matching the level of performance by the initial model. The latter stage is the one of self-regulation in which the learner performs at a level that allows them to monitor effort, behaviors, and performance. A study by Zimmerman and Kitsantas (2002; also see Zimmerman & Risemberg, 1997; Zimmerman, 2001) shows the type of observations that can better support learners' emulation at a higher degree of success. Thus, in writing instruction, think-aloud modeling and modeling with coping with use of self-explanations can support learners' ability to complete a task using a strategy or a combination of strategies while they also retain their motivation. In the next section, modeling for writing instruction and its principles are further explained.

Writing, Skill-Acquisition Process, and Self-Regulation

Writing is a social process that occurs in social settings involving audience and purpose that influence the specific requirements in a given discourse (e.g., opposing position and rebuttal in an argumentative essay). Writing stimuli can be socially meaningful and authentic even within a classroom setting (e.g., writing a letter to the Board of Directors to request better computers when the majority malfunctions in the classroom). But writing is also a cognitive task, as it involves cognitive processes that can be and are challenging to learners, who depending on their previous experiences may be discouraged by a task and give up. The use of models in teaching can effectively support learners' application of tasks and use of effective strategies; modeling is a

practice that is applied in several instructional practices such as the Cognitive Strategy
Instruction in Writing (Englert et al., 1991).

Models were part of instruction in making speeches and orations in ancient Greece, as
learners were provided with good models to imitate (mimesis) in the process of learning public
speaking and civil engagement (Pressley & Afflerbach, 1995; Rosenthal & Zimmerman, 1978).
The use of modeling came to be applied in instruction as a way to provide examples or practices
for observers to follow and imitate when working independently. Expert models will guide
learners through a process by demonstrating its application. For example, a teacher may tell
students that they will be planning for a story, may share that they will be thinking of ideas, may
develop ideas, request the contributions of students, and proceed with the writing of a story.
Even though expert models allow for demonstration and observation, they do not show novices
how to handle cognitive, procedural, or motivational roadblocks. Thus, as novices encounter
challenges during independent application, they lack problem-solving skills and strategies,
become overwhelmed, and give up.

The goal of instruction is student learning. After teacher modeling, students will emulate
how teachers used the strategy. However, students are not experts and will face problems; thus,
teachers need to model how to problem solve when they get "stuck" (as their students are very
likely to do) by using the strategy to resolve a challenge. If modeling is at an expert level,
students are more likely to think, "*They are the teacher and can do it, but I will not be able to do
it like that.*" In a coping model, contrary to an expert model, teachers begin by explaining how
challenging the task is, and how it can be managed by identifying and applying a specific
strategy. Then teachers apply that strategy while verbalizing the steps taken, explaining how they
use it, monitoring its use, making a mistake and showing to students how to resolve it by using

the taught strategy. This coping process— as the phrase implies—allows observers and listeners to learn how to think and what tools to use when they encounter challenges as they work independently.

In the context of teaching a writing strategy such as sentence combining, instead of simply combining two sentences using the conjunction *because,* the model may create a less successful combination, explain their thinking and correct themselves (see Figure 1). In this process, the strategies are better explained; the teacher can also demonstrate the use of procedural facilitators (e.g., poster with conjunctions or phrases to indicate cause-effect relationships).

Figure 1

 Combination of Sentences

Kostas ate the entire bag of chips.

Kostas was hungry.

Teacher: "I will now try to combine those two sentences. Before I do so, I need to read them so I understand their meaning and possible relationship between the two" (teacher reads aloud).

Teacher: "I will combine them using *and.*"

Teacher writes: **Kostas was hungry *and* ate the bag of chips.**

"I think that there is a cause-effect relationship between those two sentences. Kostas ate the entire bag of chips in this case. Probably he did so because he was hungry. I will use *because* instead."

Teacher writes**: Kostas ate the entire bag of chips *because* he was hungry.**

"This is an effective combination as it connects the meanings between the two tasks. It is

important I carefully read the sentences then beforehand to better clarify the relationship

between the meanings and the best possible combination to retain the meaning and

making it clearer to the reader."

A similar example can be observed when teachers instruct learners on the writing process

and explain the development of ideas. For instance, in procedural writing, a teacher who applies

think-aloud modeling may comment on the ideas and model how to develop ideas by

dramatizing the task to determine the materials as well as the steps and the explanations

(Philippakos & MacArthur, 2020; Traga Philippakos, 2019) (See Figure 2).

Figure 2

Think Aloud in Procedural Writing for Ideation

"I need to come up with some ideas about how to properly wash my hands to avoid

spreading germs. Let me think of this! I will need hand soap and water. Probably, I will

need a towel. I will wash them in the sink. Let me write those items."

Teacher writes: **soap, water, towel**.

"I think that is fine to get me started, but it would be helpful perhaps to dramatize my

actions as if I was washing my hands to better understand what I need to do first, second,

third, and how exactly I need to complete each step. Perhaps I need to give some

explanations to make sure the reader does not make a mistake."

The teacher mimics washing hands while verbalizing the actions.

"I will go to the sink and put my hands under the faucet. Well, I should remember to move up my sleeves, so I do not wet them. I should include that in my notes! I will need to open the faucet. Well, I need to probably have lukewarm water. I should write that in my notes."

Coping models have been found to be more effective than expert models in writing instruction (Hidi & Boscolo, 2006; Zimmerman & Kitsantas, 2002). Zimmerman and Kitsantas (2002) conducted a study in which they included expert and coping models with and without social feedback in revision. All students observed an experiment, but the students in the coping group observed the experimenter making errors, correcting them, and, gradually, minimizing them through self-corrections and monitoring of strategy use. The control group was asked to study the tasks on a projector and prepare to work on revisions. When students practiced, one group received positive feedback by the instructor on the use of the strategy. The results showed that students who were in the coping model group outperformed those who were in the expert modeling one while their interest and self-satisfaction were higher. The application of coping with self-regulatory talk supported learners' ability to more effectively apply the taught approach than the observation alone of an expert.

Promoting Self-Regulation

Zimmerman and colleagues (Zimmerman & Kitsantas, 1997; Zimmerman & Risemberg, 1997) explain that self-regulation involves a triadic relationship between the environment, the behavior, and a person. Environmental self-regulation refers to the ability of the learner to utilize provided messages and feedback from the environment (e.g., processing and using comments for revision). Internal self-regulation refers to the learner's ability to manage their affect including stress and effort as well as the use of cognitive strategies and procedures. Behavioral self-

regulation refers to their ability to observe their behavior and make needed adjustments for the completion of a specific goal. Since learning is a social and cognitive practice that is demanding and can affect motivation, it is imperative for learners to be supported to develop self-regulation.

Modeling is common in teaching practice and is connected with the gradual release of responsibility as teachers support learners through the paradigm of "I do; We do; You do" (Pearson & Gallagher, 1983; Pearson et al., 2019). Modeling with a think aloud on how the strategies are used is common in reading practice as teachers explain and model the use of strategies for decoding and meaning making. Modeling with coping is part of strategy instruction in writing and is connected with self-regulation. The Self-Regulated Strategy Development (SRSD) model promotes the development of self-regulation through systematic transition from the expert to the novice who gradually develops expertise (Harris & Graham, 2009; Harris et al., 2006; Harris et al., 2007). The instructor models through thinking out loud the completion of a task in front of students while also commenting on goals for the writing task, monitoring progress, and commenting on the use of strategies and on ways learners managed their behavior and emotions without giving up. Later, explanations are provided to students for them to recognize the use of such self-statements on the model's work and are supported to develop personal self-statements that guide them as they go through the writing process (e.g., What can I say to think of good ideas?; What may I say while I work?; What shall I do to check my work?). The goal of those self-statements is to function as procedural facilitators that learners can refer to in order to best apply behavioral and internal self-regulation. Thus, when a writer feels discouraged and does not know how to begin the writing task, they may look at the statement (e.g., I can use my strategy for planning), verbalize the action, remind themselves and proceed with the process.

In *Developing Strategic Writers* (Philippakos & MacArthur, in press; Philippakos & MacArthur, 2020; Philippakos et al., 2015) (DSW) and in *Supporting Strategic Writers* (MacArthur et al., 2015; MacArthur et al., under review; Traga Philippakos & MacArthur, 2019) (SSW) curricula, that draw from the principles of SRSD, teachers model how to complete the writing process for a specific genre and how to navigate from ideation to organization of ideas, from the organizer to drafting, from drafting to rereading for evaluation in order to revise, to editing, and sharing using genre elements as a guide for planning and evaluation for revision (e.g., Traga Philippakos, 2020; Traga Philippakos & MacArthur, 2020; Traga Philippakos, 2019). Teachers think aloud and write aloud during the drafting stage making the process of sentence development audible and visible to learners. They also model how to analyze writing samples, writing assignments, and readings for learners to better understand how to perform a rhetorical task analysis to determine the purpose, audience, and genre elements that can support writing and comprehension. Finally, teachers model strategies for goal setting (for short-term and long-term goals), selection of strategies for planning, drafting, evaluation to revise, and editing, management of time, monitoring of progress, and reflection on what worked well and what leaners would consider setting as a goal in their next writing task (see Traga Philippakos, in press; Traga Philippakos, 2020). This reflection takes the form of collaborative conversations with teachers and students and among students about how strategies are used and when and what are learners' best practices for the completion of writing tasks. Further, reflection is part of journal writing as writers comment on present and future strategy use or modification of behavior (Philippakos & MacArthur, 2020).

The think aloud modeling with problem-solving and coping practices is prominent in those strategic approaches. When teachers model how to plan, draft, evaluate to revise and edit

their work, their think aloud illustrates both the application of the cognitive strategies, the use of

procedural facilitators, and the use of managing techniques. As the excerpt below indicates,

teachers explain the task, refer to its challenges, comment on their affect and utilize specific

strategies to initiate the task and proceed through it (see Figure 3).

Figure 3

Excerpt from Think Aloud Modeling

Teacher: "Today you will observe me thinking out loud and making my thinking audible so you

can see how I use specific strategies to complete my writing. I will be writing out loud while

thinking out loud. As I complete the task, you will hear me asking questions to myself. You do not

need to answer those questions; instead observe the ways I unfold my thinking and use our

strategies to complete this writing.

Writing may come easy to some people; it is not as easy for me. Writing requires

knowledge of spelling and typing, and knowledge about the topic as well as the type of writing

we do. Sometimes it can be challenging and as challenging that as a learner I may be confused

and may want to give up. Well, it is okay to get stuck, but it is not okay to quit. So, I will need to

keep on using my strategies to improve as a writer and communicate with my readers. Okay!

Even though it is challenging, I know I can be successful in completing this work if I use my

strategies. And first of all, I need to understand the assignment so I will first read it. My

assignment reads:

Cell phones have become a common aspect of our daily lives. People use cell phones to

call friends (audio or video), text, take pictures, video record moments of life. Some people find

that cell phones should be allowed in classrooms. Others say that cell phones should remain out of class. Write a paper in which you explain whether cell phones should be allowed in classrooms or not. Provide clear reasons and examples to support your response.

I like cell phones. I would like to use my cell phone to take pictures of the board when the teacher writes and solves problems. I can write that on my paper and write it now. But No. I should not begin to write! I should first plan what I think I will say so I can better organize my paper and develop my meanings in a way that the reader will clearly understand.

I should first analyze the assignment, so I better understand the question, the audience, and the purpose. It is important I identify the audience as this knowledge will help me think of ideas but also carefully consider the vocabulary I will use. And I definitely need to consider the purpose so I can identify the genre and how to work on my plan. How do I analyze the assignment? I should first reread the topic and use Form, Topic, Audience, Author, Purpose (FTAAP) to examine each component. [Teacher rereads.] This FTAAP is a mnemonic device that helps me remember to examine each component of a paper to better understand it. I am sure other writers have other devices, but this works for me well. I also like it because I can also use it when reading. In order to use it effectively, I need to read the paper looking for the answers to the mnemonic's components.

I read the topic again, but I think I should read and underline each of the components of FTAAP so I know I clearly understood what the assignment asks. Sometimes I may get all excited about a specific part of the topic and think that this is what I am supposed to write, but then I am off topic because I misunderstood the assignment. [Teacher rereads, and underlines the information while completing the task analysis components.]

*Cell phones have become a common aspect of our daily lives. People use cell phones to call friends (audio or video), text, take pictures, video record moments of life, play videogames, listen to music, watch videos. Some people find that cell phones should be allowed in classrooms. Others say that cell phones should remain out of class. Write a **paper** in which you explain whether **cell phones should be allowed in classrooms or not**. Provide **clear reasons and examples** to support your response.*

F: Paper (essay with Beginning, Middle, End)

T: Should students be allowed to bring their cell phones to class?

A: Teachers, principal, Superintendent, classmates, parents

A: I

P: Persuade

Genre: Argument

Elements: Beginning-Issue and Position; Middle-Reasons, Evidence, Opposing position, Rebuttal; End-Restate Position, Message for the reader to think."

"I did well! I used the rhetorical task analysis process to identify the type of writing I will be doing, and I feel much better compared to how I felt when we began. Using the task analysis helped me be effective in my response and make me feel better about what it is I should be doing. I have determined that I need to write an argument and address the opposing position. I can now proceed with the paper. What do I do next? What is my strategy?"

In this excerpt the teacher commented on the challenges of writing and on ways that a learner can get confused (by not reading carefully or by not carefully rereading a topic). Further,

they explained why beginning to write was not as effective and how rhetorical analysis could better help the writer determine how to proceed with the planning of the paper. In this excerpt the teacher commented on behaviors (taking a break but not quitting), on the internal work for self-regulation (managing the challenge and its stress with the use of a strategy), and on the environment (assignment and expectation to perform). Coping in this excerpt was evident from the reading of the assignment and the recognition that reading alone without underlining and completing the FTAAP was not effective. The model repeated the process using the optimal practice while explaining why this alternative route was deemed ineffective.

Further, in this process of modeling, the application of the cognitive, strictly thinking processes for the completion of the task was combined with self-regulatory processes of goal setting, progress monitoring, evaluation, and new goal setting. The teacher verbalized the challenges and even gave a motivational statement sharing that "it is okay to get stuck, it is not okay to quit," explaining how the use of the strategy supported problem solving.

This application of self-regulatory and cognitive processes can be clearer if depictured in an outline:

Introduction

- State the task

- Explain the function of the think aloud

- Explain the role of students in the process

Application

- Ask question about the process

- Identify the strategy

- Use the strategy with coping by

    o showing how to problem-solve, how to set goals, how to monitor progress, how to

       decide next step, how to celebrate your progress,

    o stressing the value of using the strategy as expected and explaining affordability of

       variations

    o explaining consequences of misuse on success and completion of task or on learner's
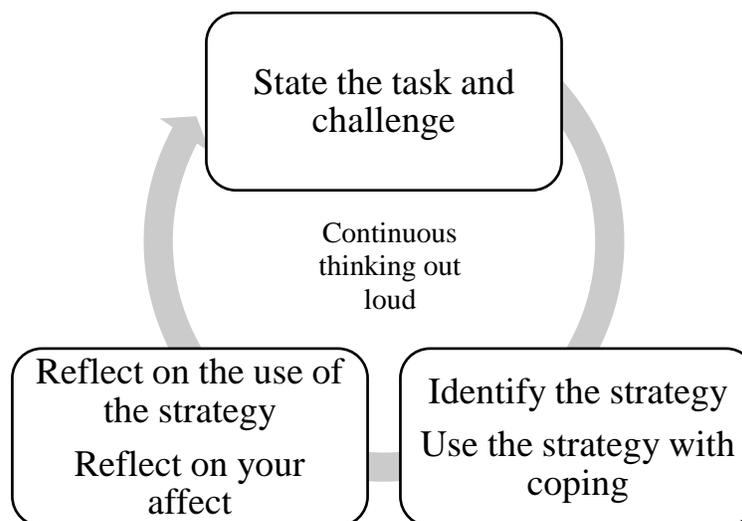
       motivation

Conclusion

- Reflect on your use of the strategy

- Reflect on the value of using the strategy

- Reflect on your affect and set a goal for future performance

Continue the application cycle (see Figure 4).

Figure 4

Cycle for Modeling Self-Regulation and Cognitive Processes

Overall, the process includes not only the identification and use of a strategy but explanations about what the strategy is (declarative knowledge), how the strategy is used (procedural knowledge), and why the strategy is helpful for the learner and can be used in future tasks (conditional knowledge) (Atkinson & Shiffrin, 1968). Further, the process includes *talk* that strives to regulate the behavior, the learner, and their affect and motivation (Traga Philippakos, 2020).

What Could Interfere in Thinking Out Loud Modeling

The reader may consider the process simple and self-explanatory or intuitive. Despite the *simplicity* that the process may invoke, several factors can affect the outcome and overall effectiveness of the think-aloud modeling. A common challenge is the shift in the instructional talk from explanation of thinking to demonstration without any reference to the task, the steps, the process, and the overall thinking of the model. The model may use the strategy and complete all its parts in silence or by descriptively stating the task (*I will now use the FTAAP mnemonic. The Form is a paper.* VS *What shall I use first? I will use the FTAAP mnemonic that examines Form, Topic, Audience, Author, Purpose. I will not reread the assignment*, etc.)

This shift may also indicate a change from "I" that the model uses to model their thinking process (e.g., *I need to use the FTAAP to analyze the assignment and better understand what the expectations and requirements are*) to "you" referring to students ("you need to use the FTAAP to analyze the assignments and better understand what the expectations and requirements are."). This shift, though removes the model/teacher from the learning and think-aloud modeling space and transitions them to an almost evaluative role.

Further, the model may gradually ask students to think (or guess) what the next part of a strategy would be and significantly contribute to the Brainstorming ideas section of planning and

lead it; Thus, the attention is no longer on the use of the strategies but only on the development of ideas. An additional challenge can be an absolute reference to the cognitive strategies only without any reference to affect or presence of reflection on the use of the strategies ("I feel very well. I completed the FTAAP and know I need to write an argument. This rhetorical task analysis helped me better understand the writing purpose and determine the genre. I feel good!").

Also, the model may avoid making mistakes or "getting stuck." However, in the process of supporting students' emulation of effective strategy application, it is important that teachers face challenges and show students how they resolve those using the strategy and strategies. It should be noted that it is highly likely that while modeling live teachers will "get stuck." This is expected and actually, it is wonderful as they will show to students how to manage their effort and motivation and get back on the task using specific strategies.

Finally, the coping process and overall modeling can be interrupted and made less effective if the process stops being 'live.' For example, instead of modeling live in front of learners the process of drafting a paper, the teacher might present a completed version of a graphic organizer and a completed version of the essay. However, without explaining and making observable the process of turning phrases from a graphic organizer to sentences in drafting the essay, the teacher does not show students how to place words in a syntactically and grammatically manner that clearly communicates with readers the intended meaning. Thus, they do not model for students how to problem-solve and manage the challenge of turning words and phrases into cohesive sentences (see Philippakos & MacArthur, 2020).

Preparation for Think-Aloud Modeling in Writing

Several publications provide guidelines on preparation for modeling and tasks to be completed before, during, and after reading. There are some principles that would be applicable

in writing and perhaps they echo *best practices* across literacy tasks. First, in order to complete

the modeling, the instructor needs to have a clear understanding of the strategies they teach, their

purpose, their use, and challenges. Second, teachers need to practice the strategy beforehand so

they can be certain that they know its components. This can also help them identify specific

challenges that they can later comment on when they complete the think aloud modeling with

coping. In addition, this practice can help them better identify needed resources (e.g., a computer

to draft the essay or a board to record thoughts) and be time efficient. Third, they should make

sure that they incorporate questions not only about the use of the strategies but about the use of

the self-regulatory questions and talk (e.g., *What did I complete so far? Where am I in the*

process? What is next? How do I feel so far?). Most importantly, they should perform the

modeling at their students' level, anticipating challenges they will encounter and explaining how

to overcome them using their strategies.

Applying Modeling with Coping in Online Settings

The need to transition to virtual learning because of Covid-19 conditions affected

teachers' instruction and students' learning (Powell, et al., 2020). We have yet to identify the

specific challenges that this pandemic has on learners' developmental trajectory and learning

outcomes. However, in the process of shifting to online instruction what came at the center of

controversy was whether instruction can take place virtually. Within this context, teachers

provided (and do as I write this work) their instruction online in synchronous or asynchronous

formats. Regarding the use of think-aloud modeling with coping, I argue that synchronous

instruction may not be necessary. Teachers can record their think aloud with coping and can post

it online for learners to watch. If they need to assure that students have watched the video, they

may include exit tickets with questions about the process of specific self-regulatory practices

teachers used to initiate the task, monitor progress, and reflect. Further, it can be helpful for

learners to return to the video and observe anew how a teacher overcame a specific challenge

they also later face. I do not claim that recording of practices and posting online for students to

watch can substitute for the rich classroom environment; however, technology can support the

effective delivery of high-quality instruction through recordings of modeling with coping.

Closing Thoughts

Thinking out loud for modeling purposes is considered to be a powerful pedagogical

approach as it is a cognitive *eavesdropping* on an expert's thinking process. The practice is

common in reading (Davey, 1983) with significant positive outcomes on learners. In this paper, I

have argued that think aloud modeling and problem-solving using coping practices should be

applied in writing, avoiding the use of expert models of demonstration. Thus, the goal of

modeling should not only be the application of cognitive strategies for the completion of a task,

but also the application of metacognitive strategies to support learner's independence. For the

latter the development of self-regulation is necessary so writers can manage the task, respond to

the environmental demands, and keep under functional control the process and their affect

without developing feelings of inadequacy or poor self-efficacy (Schunk, 1983, 1990; Schunk &

Zimmerman, 1997). Teaching students to self-regulate includes reflecting on the use of strategies

and on their progress using those strategies, which can significantly affect learners' future goals.

"When students reflect on their progress and on the ways they reached success, apprehension

about the task can decrease, and students can develop the belief that progress is attainable"

(Traga Philippakos, 2020, p. 16). Developing think alouds for modeling with coping can be a

challenging but rewarding process for teachers as their students internalize their thinking

processes and make the thinking pathway they observe their own while they modify it to achieve

their learning goals.

References

Atkinson, R. C., Shiffrin, R. M. (1968). Human memory: A proposed system and its control

    processes. In K. W. Spence, J. T. Spence (Eds.). *The psychology of learning and*

    motivation. Academic Press. pp. 89–195.

Bandura, A. (1986). *Social foundations of thought and action: A social cognitive theory.*

    Prentice-Hall.

Bandura, A. (1988). Self-regulation of motivation and action through goal systems. In V.

    Hamilton, G. H. Bower, & N. H. Frijda (Eds.), *Cognitive perspectives on emotion and*

    motivation (pp. 37–61). Kluwer Academic Publishers.

Brown, C., Campione, J. C. & Day, J. D. (1981). Learning to learn: On training students to learn

    from texts. *Educational Researcher*, *10*(2), 14–21.

Bruce, B. C., & Rubin, A. D. (1981). Strategies for controlling hypothesis formation in reading.

    In J.Flood (Ed.), *Promoting reading comprehension* (pp. 97-112). International Reading

    Association. Also as Reading Education Report No. 22 (1981, June). University of

    Illinois, Center for the Study of Reading.

Davey, B. (1983). Think-aloud: Modeling the cognitive processes of reading

    comprehension. *Journal of Reading*, 27(1), 44-47.

Englert, C. S., Raphael, T. E., Anderson, L. M., Anthony, H. M., & Stevens, D. D. (1991). Making

    strategies and self-talk visible: Writing instruction in regular and special education

    classrooms. *American Educational Research Journal, 28*, 337-372.

Harris, K. R., & Graham, S. (2009). Self-regulated strategy development in writing: Premises,

    evolution, and the future. *British Journal of Educational Psychology Monograph*

    Series II, 6, 113-135.

Harris, K., Graham, S., MacArthur, C., Reid, R., & Mason, L. (2011). Self-regulated learning

    processes and children's writing. In B. J. Zimmerman & D. H. Schunk (Eds.),

    Handbook of self-regulation of learning and performance (pp. 187-202). Routledge.

Harris, K. R., Graham, S., & Mason, L. (2006). Improving the writing, knowledge, and

    motivation of struggling young writers: Effects of Self-Regulated Strategy

    development with and without peer support. *American Educational Research Journal,*

    43, 295-340.

Myers, M., Paris, S. G. (1978). Children's metacognitive knowledge about reading. *Journal of*

    Educational Psychology, *70*(1), 680–690.

MacArthur, C. A., Traga Philippakos, Z. A., May, H., & Compello, J. (under review). Self-

    regulated strategy instruction for basic college writers: results from a randomized

    experiment.

MacArthur, C. A., Philippakos, Z. A. & Ianetta, M. (2015). Self-regulated strategy instruction in

    college developmental writing: *Journal of Educational Psychology*, *107*(3), 855-867.

Olshavsky, J. E. (1977). Reading as problem-solving: An Investigation of Strategies. *Reading*

    Research Quarterly, 12(4), 654-674.

Paris, S. G., & Myers, M. (1981). Comprehension monitoring, memory, and study strategies of

    good and poor readers. *Journal of Reading Behavior, 13*(1), 5–22.

Pearson, P. D., & Gallagher, M. C. (1983). The instruction of reading comprehension.

    Contemporary Educational Psychology, 8, 317-344. https://doi.org/10.1016/0361-

    476X(83)90019-X

Pearson, P. D., McVee, M. B. & Shanahan, L. E. (2019), In the beginning: The historical and

    conceptual genesis of the Gradual Release of Responsibility, M. B. McVee, E. Ortlieb,

    J. S. Reichenberg, & P. D. Pearson, P.D. (Eds.) *The Gradual Release of Responsibility*

in literacy research and practice (*Literacy research, practice and evaluation, Vol. 10*), Emerald Publishing Limited, pp. 1-21.

Philippakos. Z. A., & MacArthur, C. A. (2019). *Developing strategic, young writers through genre instruction: Resources for grades K-2.* Guilford Press.

Philippakos. Z. A., MacArthur, C. A. & Coker, D. L. (2015). *Developing strategic writers through genre instruction: Resources for grades 3-5.* Guilford Press.

Powell, H. Hebert, M., & Hughes, E. (2020). How educators use mathematics writing in the classroom: a national survey of mathematics educators. *Reading & Writing.* https://doi.org/10.1007/s11145-020-10076-8

Pressley, M., & Afflerbach, P. (1995). *Verbal protocols of reading: The nature of constructively responsive reading.* Lawrence Erlbaum Associates, Inc.

Schunk, D. H. (1983). Goal difficulty and attainment information: Effects on children's behaviors. *Human Learning, 25*(1), 107-117.

Schunk, D. H., (1990). Goal setting and self-efficacy during self-regulated learning. *Educational Psychologist,* 25 (1), 71-86.

Schunk, D. H. & Zimmerman, B. J. (1997). Developing self-efficacious readers and writers: The role of social and self-regulatory processes. In J. T. Guthrie & A. Wigfield (Eds.), *Reading engagement: Motivating readers through integrated instruction* (pp. 34–50). International Reading Association. https://doi.org/10.1080/10573569.2012.632729.

Skinner, B. F. (1953). *Science and human behavior.* Macmillan.

Traga Philippakos, Z. A. (in press). Supporting students and teachers' goal setting to develop self-regulated, strategic learners. *American Reading Forum Yearbook.*

Traga Philippakos, Z. A. (2020). Developing strategic learners: Supporting self-efficacy through

      goal setting and reflection. *The Language and Literacy Spectrum. 30*(1), 1-24.

Traga Philippakos, Z. A, & MacArthur, C. A. (in press). Examination of genre-based strategy

      instruction in middle school English language arts and science. *The Clearing House: A*

      Journal of Educational Strategies, Issues and Ideas.

      https://doi.org/10.1080/00098655.2021.1894082

Traga Philippakos, Z. A., & MacArthur, C. A. (2020). Integrating collaborative reasoning and

      strategy instruction to improve second graders' opinion writing. *Reading & Writing*

      Quarterly. 36(4), 379-395. https://doi.org/10.1080/10573569.2019.1650315

Traga Philippakos, Z. (2019). Effects of strategy instruction with an emphasis on oral language

      and dramatization on the quality of first graders' procedural writing. *Reading & Writing*

      Quarterly, 35(5), 409-426. https://doi.org/10.1080/10573569.2018.1547233

Traga Philippakos, Z. A. & MacArthur, C. A. (2019). Writing strategy instruction for low-skilled

      postsecondary students. In D. Perin (Ed.). *Wiley handbook of adult literacy* (pp. 495-516).

      Wiley.

Wilhelm, J. D. (2001). Improving comprehension with think-aloud strategies. Scholastic Inc.

Zimmerman, B. J. (1986). Development of self-regulated learning: Which are the key

      subprocesses? *Contemporary Educational Psychology, 16* (1), 307-313.

Zimmerman, B. J. (2001). Theories of self-regulated learning and academic achievement: An

      overview and analysis. In B. J. Zimmerman & D. H. Schunk (Eds.), Self-regulated

      learning and academic achievement: Theoretical perspectives (2nd ed., pp. 1–37).

      Erlbaum.

Zimmerman, B. J. & Kitsantas, A. (2002). Acquiring writing revision and self-regulatory skill

through observation and emulation. *Journal of Educational Psychology, 94* (2), 660–668.

Zimmerman, B. J., & Risemberg, R. (1997). Becoming a self-regulated writer: A social cognitive

perspective. *Contemporary Educational Psychology, 22*(1), 73–

101. https://doi.org/10.1006/ceps.1997.0919