

Exploring the Effect of Writing-to-Learn Practices on Critical Thinking in a Graduate Teacher Education Program

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ABSTRACT

This project investigates the impact of writing-to-learn practices on the critical thinking skills of first-year students in a graduate teacher preparation program in the Kyrgyz Republic. For this purpose, multiple writing-to-learn strategies (such as Focused Freewriting, Loop Writing, Private Freewriting, Writing in the Zones, Dialectical Notebooks, and others) were integrated into the academic writing course instruction. The analysis of student responses at the beginning and end of the course demonstrated a movement from general statements towards richer responses with evidence of perspective taking, metacognitive reflection, and synthesis. Additionally, student reflections revealed that writing-to-learn practices provided space to overcome writing anxiety, organize and analyze thoughts, and engage more deeply with the course material. The findings suggest that integration of writing-to-learn practices into a course design facilitates the development of critical thinking skills and also promotes a safer, more supportive learning environment where students feel more comfortable taking intellectual risks.

1 CRITICAL THINKING

1.1 WHY CRITICAL THINKING IS IMPORTANT

Critical thinking skills are essential in higher education.¹ Mastering these skills allows learners to move beyond mechanical memorization and instead apply knowledge in new situations, making informed decisions based on analysis and evidence. Additionally, as part of twenty-first-century skills, critical thinking is essential for success in both personal and professional lives,² as well as a core component

of promoting democratic values in rapidly evolving global communities,³ enabling individuals to become reflective citizens who make rational judgments based on evidence.⁴ The skill of processing and sifting through relevant and irrelevant data becomes especially important in a world filled with enormous amounts of available information⁵ and AI-generated materials. Thus, besides helping learners to succeed academically, thinking critically empowers them to navigate complex life situations and engage in more responsible and reasonable decision-making processes that affect their daily lives, professions, and communities locally and globally.

1.2 DEFINING CRITICAL THINKING

When defining critical thinking, it is important to consider that it is not a single skill, but rather a set of higher-order skills and thinking processes that are developed through regular application and practice. Ennis (1989) defines critical thinking as “reasonable reflective thinking focusing on what to believe or do”.⁶ Building on this broader definition, Thomas-EL (2025) provides a more detailed description of critical thinking skills, pointing to individual higher-order skills involved in critical thinking, such as “...the ability to analyze evidence, create connections, and evaluate solutions,” and “...to think logically, build hypotheses, and understand information in a balanced, rational way.”⁷ He also emphasizes that critical thinking is “the type of reasoning we use to ask questions, find answers, and most importantly, apply these answers to challenges facing us in our lives.”⁸ Another important aspect associated with critical thinking skills is metacognition, which allows learners to reflect on and assess their understanding and self-awareness.⁹ As a result, critical thinking skills allow students to make their own decisions based on evidence rather than memorize ready-made answers.¹⁰ These skills also enable learners to evaluate the quality of their own positions from different perspectives and change them if necessary.¹¹

1.3 HOW TO TEACH CRITICAL THINKING

Critical thinking skills are not innate and can be developed through curriculum and instruction. It is quite evident that educators need to possess a high level of critical thinking skills themselves in order to model and teach them effectively.¹² Moreover, Cole et al. (2015) claim that teacher awareness of critical thinking and specific pedagogy greatly affects students’ learning outcomes. Through their research, Cole et al. concluded that educators need instructional guidance on how to integrate critical thinking into their lessons. Similarly, Williams (2005) argues that teachers play a crucial role in student critical thinking development. Therefore, it is essential to

include specific training in teacher education so that they are able to demonstrate effective critical thinking and apply appropriate approaches and strategies for their students' higher-order thinking growth.¹³

To address the question of how to teach critical thinking skills, Ennis (1989) identified four approaches: general, infusion, immersion, and mixed-method approaches. These approaches vary in the extent to which subject-matter content is used and how explicitly critical thinking skills are taught. The general approach focuses on teaching critical thinking skills independent of the course content, e.g., through a dedicated course and subject content becomes secondary; the infusion approach involves explicit teaching of critical thinking skills within the course content; the immersion approach entails implicit integration of critical thinking instruction through a well-thought-out course design that promotes the development of critical thinking skills as a result of the subject being learned; the mixed-method approach combines the general approach with either infusion or immersion approaches, e.g., the course consists of a combination of sessions that are focused around the course content and either more explicit or implicit critical thinking instruction and sessions that are solely focused on critical thinking development and may incorporate some other content.¹⁴ Research (e.g., Golden 2023; Williams, 2005) emphasizes that it is imperative for educators to model critical teaching through their own practice, especially when it is taught indirectly, i.e., implicitly. However, the immersion approach, which involves implicit critical thinking instruction, was found to have the lowest effects on student critical thinking growth.¹⁵ Moreover, other researchers also believe that explicit instruction is more effective compared to general or implicit approaches and results in better long-term student outcomes.¹⁶ Furthermore, Williams (2005) claims that critical thinking skills are developed more effectively not in isolation but when infused with content.

Although there is still debate in the literature about which of the teaching approaches listed by Ennis (1989) is more effective, research identifies many teaching strategies that can be utilized across all four approaches. Among those are group work and collaboration,¹⁷ questioning techniques,¹⁸ class discussions and debates,¹⁹ inquiry-based learning activities,²⁰ research-based activities,²¹ authentic problem-solving,²² role-plays,²³ and writing practices and assignments.²⁴ These strategies may be used separately or in combination, supporting each other. For example, a research-based activity may be focused on an authentic problem and can be scaffolded through the use of questions, individual and group work, discussions, and writing, which can complement any activity. It is also worth noting that merely using these techniques does not guarantee that students' critical thinking will improve. The common agreement among researchers is that the development of critical thinking skills also requires a safe, supportive environment in which stu-

dents are actively involved in the learning processes and feel comfortable enough to take intellectual risks.²⁵

While many of the strategies listed above may facilitate critical thinking development, writing-based learning practices hold a prominent role. Scholars such as Emig (1977) and Elbow (1983) have long argued that the process of writing allows students to slow down, explore their ideas, and make their thinking visible, which creates opportunities for revision, reflection, and critical engagement with the ideas. Furthermore, regular short in-class writing assignments are claimed to foster deeper thinking about the course content and promote building a mental habit that involves analytical and synthetic thinking, allowing for more active student engagement.²⁶ In fact, as opposed to one final written assignment, a series of smaller scaffolded writing tasks that allow for regular revision are claimed to lead to the development of a complex skill set such as writing and critical thinking.²⁷ Additionally, writing techniques help practice reasoning, inquiry, and reflection, while also strengthening the course objectives and sparking curiosity and creativity through critical engagement with the material.²⁸

2 CONTEXT

2.1 REGIONAL EDUCATIONAL CONTEXT

Despite wide recognition of the importance of critical thinking skills, supporting graduate students with the development of such skills still poses challenges, especially due to students' previous educational backgrounds.²⁹ This challenge is particularly pronounced in post-Soviet contexts, such as Kyrgyzstan, which has inherited the “teacher/expert approach” from the Soviet education system.³⁰ Even with the positive educational reforms since the Kyrgyz Republic gained its independence in 1991, the legacy of the Soviet education system still lingers thirty-four years later. Although current educational standards are competencies-based and are also targeted at promoting higher-order and critical thinking skills,³¹ many educators still use heavily teacher-centered classrooms, where teachers lecture and students listen and take notes, which are later memorized and regurgitated.

Additionally, reading and analyzing texts in various subjects across the curriculum, as well as producing generative writing that investigates one's own thinking about learning material, is a commonly neglected teaching methodology in post-Soviet contexts. This is a legacy of Soviet teaching methods, which required students to read lengthy texts with little to no engagement with the ideas or reasons behind them, to rewrite the texts, and to memorize them to be fact-tested by

the teacher.³² In some classrooms, there is still only one unquestionably correct “answer” transmitted to students through an authoritarian teacher figure.³³ This might be due to the backgrounds of educators who were not taught critical thinking skills at schools or universities, and who were not trained (or sufficiently trained) in critical thinking pedagogies. All this results in students at all educational levels struggling to engage with the learning material on deeper levels, leading to underdeveloped critical thinking skills and a lack of critical reflection on the information received, as well as its practical application to real-life situations.

2.2 PROGRAM CONTEXT

This project was conducted in a graduate teacher-preparation program. The usual population of the program is pre-service and in-service educators who teach at schools and universities in Central Asia and beyond. They have varied experiences in teaching, education, and academic skills. The vast majority of students have received their education in post-Soviet countries and thus come from backgrounds of rote learning. Skills such as questioning, interacting with texts, analysis, evaluation, critique, reasoning, and decision-making based on evidence were likely neither regularly taught nor supported at the schools and universities where they studied. As a result, it is quite challenging for these teacher-students to study in a program that encourages them to reflect, conduct research, and problem-solve. This led me to consider integrating critical thinking instruction explicitly into the courses I teach (particularly for first-year graduate students) using writing-to-learn practices.

2.3 COURSE CONTEXT

The course this project focuses on is an academic writing class; the first in a series of research-related classes. This course aims to prepare students for an academic research course that students take in their second semester, and thus, beyond basic writing strategies, I decided to integrate writing-to-learn practices that encourage critical engagement with texts. I should also mention that our program has six semesters over two years, meaning that we have a summer, fall, and spring semester. Spring and fall are online with a one-week face-to-face intensive, while summers are fully offline. This design allows for in-service teachers to study and work at the same time.

The academic writing class is a two-credit course that is required for all year-one students in their first semester, which takes place in the summer. Within this course, students attended five face-to-face sessions. The students who took this

course this year are of various ages, ranging from mid-twenties to forties. They also have varied teaching experiences. Some have previous degrees in pedagogy, while others do not have any formal education in teaching. Additionally, English is a foreign language to all of them.

3 WRITING-TO-LEARN PRACTICES USED IN THE COURSE

The course employed a range of writing-to-learn techniques designed to foster critical thinking skills and deeper engagement with texts and ideas. Even though it was a very brief course, each session introduced several writing-to-learn practices, such as Private Freewriting, Focused Freewriting, Pointing, Dialectical Notebook, Loop Writing, assigned roles reading, Writing in the Zones, Process Writing, and peer review (see the sequence below). I will proceed to describe some of the practices and provide some screenshots of the slides and worksheets with the tasks.

Day 1	Private Freewriting; Focused Freewriting (FFW); Double-Entry Journal <i>See Figures 1, 2, 11</i>
Day 2	Private Freewriting; Peer Revision; FFW; Loop Writing; Dialectical Notebook <i>See Figures 1, 3, 5, 11, 12</i>
Day 3	Private Freewriting; Loop Writing; Writing to Read in the Zones <i>See Figures 1, 6, 7, 9a</i>
Day 4	Private Freewriting; Writing to Read in the Zones Cont'd; Peer Revision <i>See Figures 1, 9b, 9c</i>
Day 5	Private Freewriting; Text Rendering; FFW; Assigned Role Reading; Process Writing <i>See Figures 1, 4, 8a–8d</i>

Private Freewriting

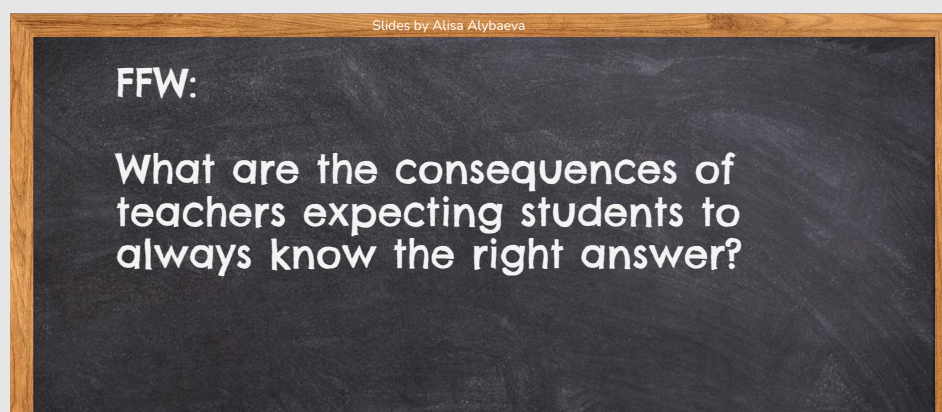
Private Freewriting is “a nonstop writing, synchronized writing and thinking, or stream-of-consciousness writing.”³⁴ It is a five to ten-minute writing that is not shared with anyone and is aimed at grounding students,³⁵ providing them with an opportunity to put their worries and thoughts on paper so that they can better focus on the class. See Figure 1.



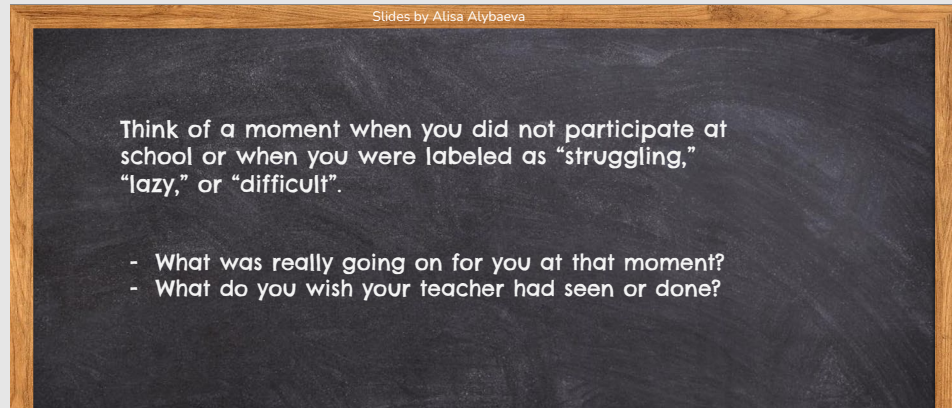
1 Screenshot of Google Slides with Private Freewriting task

Focused Freewriting

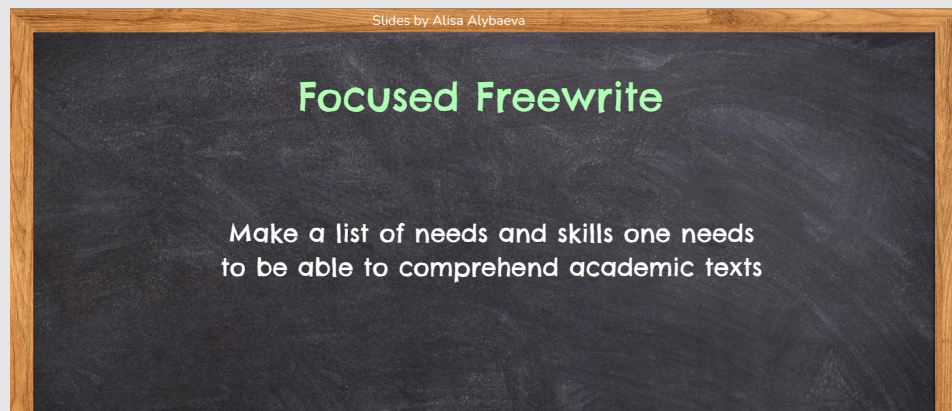
Focused Freewriting (FFW) is a short in-class writing in response to a teacher’s prompt or question that is shared with peers, instructor, or the whole group.³⁶ It is “reflective, probative, speculative writing, free written yet focused, that explores a term, problem, issue, question open endedly.”³⁷ FFW can be used for multiple pedagogical purposes; for example, as a springboard for a focused class discussion, as a way to engage with readings, and to reflect on processes.³⁸ See Figures 2–4.



2 Screenshot of Google Slides with Focused Freewriting task, Session 1



3 Screenshot of Google Slides with Focused Freewriting task, Session 2



4 Screenshot of Google Slides with Focused Freewriting task, Session 5

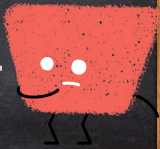
Loop Writing

Loop Writing is “a sequence of interconnected focused Freewrites that aim to approach a single topic or inquiry from a range of different angles.”³⁹ It can be used to structure longer pieces of writing, generating more content that can be revised and polished. It is recommended to order prompts that will encourage more exploratory kinds of writing first and then progress to more critical writing.⁴⁰ See Figures 5–7.

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Loop Writing:

1. What is one belief you have about how students learn or do not learn?
2. Add one clarification to say what you do not mean: This is not to say that...
3. Add a restatement of what you mean: In other words, ...
4. Summary/result: Ultimately, ...



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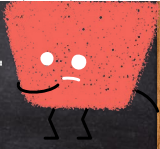
5 Screenshot of Google Slides with Loop Writing task, Session 2

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Let's write a paragraph

Look back your writing. Use the ideas to write a paragraph:

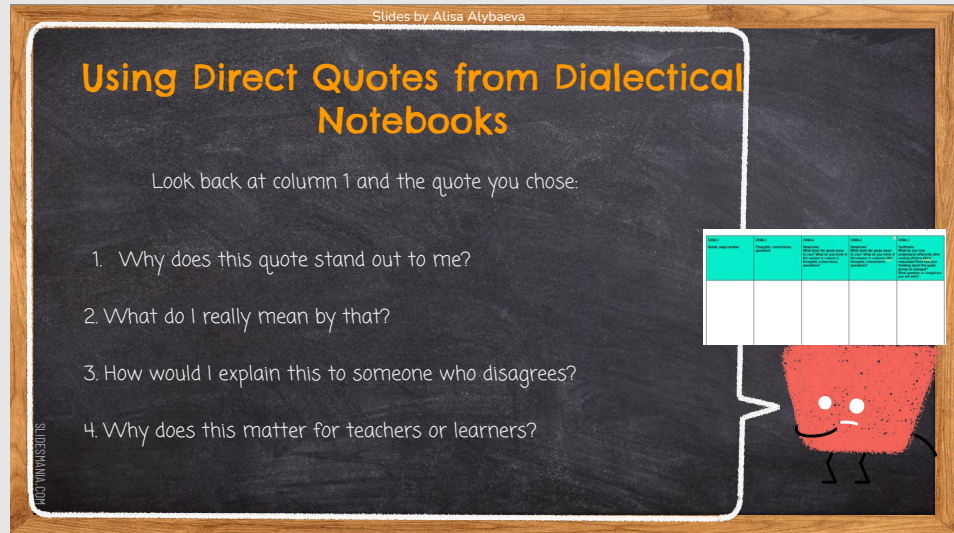
1. **Topic sentence:** What do I believe about this idea?
2. **Commentary:** Why do I believe this? What examples or logic support my thinking?
3. Integration of the **quote** from Kohl (2004)
4. **Metacommentary:** What do you want the reader to understand about this quote?
5. **Metacommentary:** How does this quote support or challenge my idea (in sentence 1)
6. **Conclusion:** Based on what I've said in sentences 1-5, what logical conclusion can I make?



Topic sentence	Commentary	Quote	Metacommentary	Conclusion

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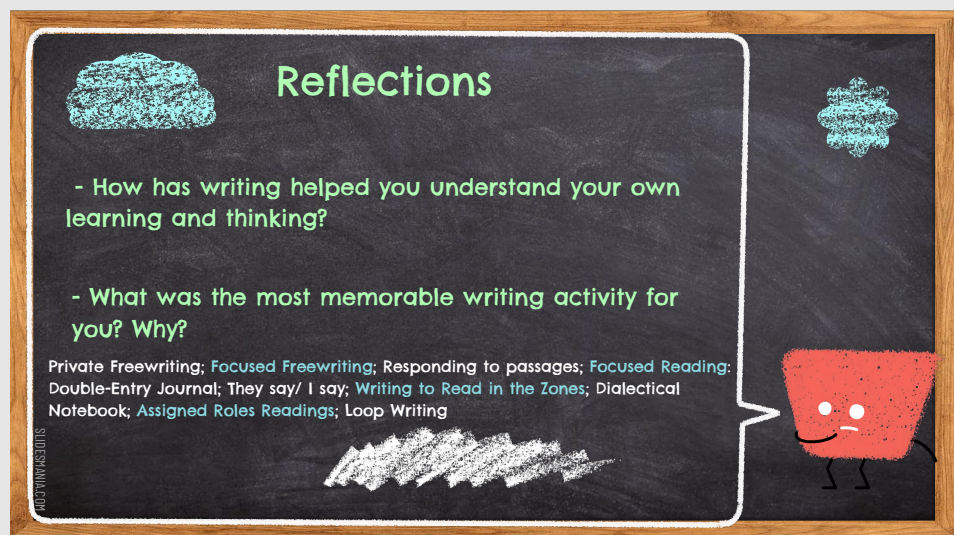
6 Screenshot of Google Slides with Loop Writing task, Session 3



7 Screenshot of Google Slides with Loop Writing task, Session 3

Process Writing

Process Writing is “a practice of using writing to step back from an activity and assess how that activity is going.”⁴¹ It is used for metacognitive purposes to promote autonomy and deeper understanding.⁴² I used reflective prompts throughout the course to help students track how certain activities affected their learning and understanding, and also in the last session to collect student feedback on the writing-to-learn activities. See Figures 8a–8d.



8a Screenshot of Google Slides with Process Writing task, Session 5

- 1 Writing activities helped me realize that before I was too overwhelmed with buzzing thoughts. But when it came to the activities we were required to write in sections it helped me to organize my thought and derive deeper thoughts within the specific theme. The second thing is it helped me realize that when I speak first imagining that I'm retelling a story to my friend or a teacher, it works better with paraphrasing.
- 2 The most memorable writing activity for me were:
 - Private free writing – for making me write despite anything
 - loop writing – for analysis and synthesis
 - Reading and writing in zones – for making me focused only on one specific topic, to be productive and effective without distractions to any other thoughts.

8b Sample of a student's reflection, Session 5. *Originally written by hand. All punctuation, spelling, and grammatical features are preserved as in the students' original work.*

- 2 The most memorable writing activity for me was Private Free Writing. Before I have never practiced this type of writing. Why was it meaningful to me? Because every day I could reflect on some personal topics. For example, as I am away from my family, in my private writing I reflected my feelings and how I miss my family. Or I also reflected on my achievements. This type of exercise was a kind of mindfulness activity where I could talk to myself through writing dealing with some challenges and achievements.

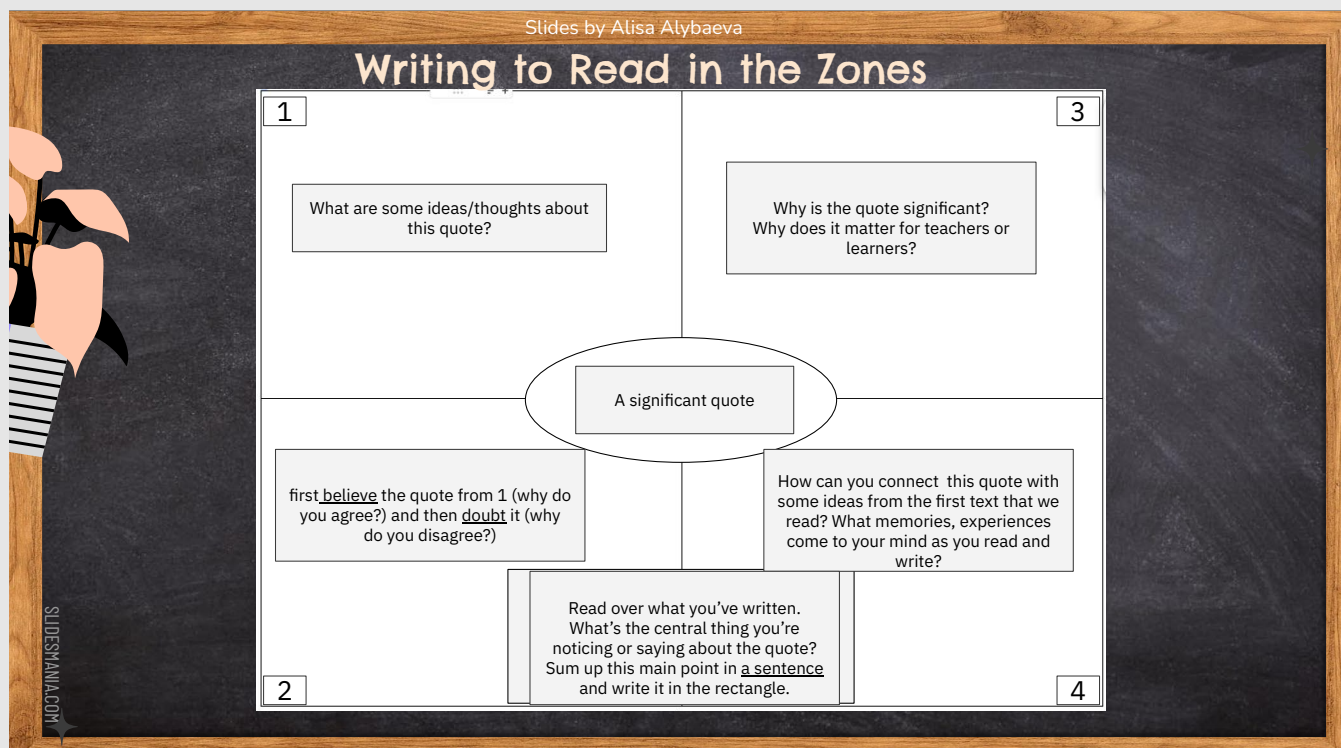
8c Sample of a student's reflection, Session 5. *Originally written by hand. All punctuation, spelling, and grammatical features are preserved as in the students' original work.*

- Generally I am writing some paragraphs of a paper and reading articles almost every day. So most key academic concepts were familiar to me. But after our course, I realized the importance of writing by hand. After our free writing activity in each class, I had some kind of free space in my mind. I put all of thoughts that were worrying me into the paper and it helped me to focus on the rest of the class.
- I loved reading in zones activity. It led to a better understanding of the idea from the text and improved my synthesizing skills. I remember at first it was tough to reflect on the quote from the circle, but zone by zone I got engaged with the activity as it helped me take a look at the quote from different perspectives. It also helped me in combining two sources. My growth area is the ability to logically and coherently synthesize ideas from different sources as I usually just list ideas. This activity helped me to expand my growth area.

8d Sample of a student's reflection, Session 5. *Originally written by hand. All punctuation, spelling, and grammatical features are preserved as in the students' original work.*

Writing in the Zones

Writing to Read in the Zones is “an adaptable activity that invites students to examine a text from several angles and to spatially organize their thinking on the page.”⁴³ It can be used to scaffold students’ thinking and promote a deeper understanding of the material. I used it as a tool to dive deeper into the ideas of articles that students read and to help them find connections between them (see Figures 9a, 9e). After completing the zones, students used their responses to work with the quotes and write a synthetic paragraph with the help of Loop Writing prompts (see Figure 9f).



9a Screenshot of Google Slides with Writing to Read in the Zones, Session 3

² Minor things that teachers don't pay attention can be meaningful for their students. For instance, calling s/s by their names, asking about their mood, (How are you doing today) or even a warm, pleasant smile make (them) students to feel attacked or motivated to learn.

It has a big influence on the classroom ³ culture. Students can feel the attitudes not toward the teachers specifically towards the subject that they teach. This classroom culture can motivate students to do well on their studies.

Small things - comments, questions, responses, phrases, tone - often make big differences in student attitudes p 153

I agree with the given statement that small things make greater results in learning, even though it is just one pleasant phrase.

However, teachers with their workload and responsibilities, try to just focus on lesson delivery by neglecting minor things.

It is quite possible to ⁴ help children develop virtues.

Teachers can provide such occasions as accepting surprise, excitement, experimentation, patience, caution, honest attempts can be important elements of learning & leads to further development. (p 69)

Classroom culture plays a big role in learning process.

Classroom culture is an important element of learning & leads to further development.

9b Sample of a student's Writing to Read in the Zones work, Session 3

Gained knowledge after learning and its application is more important than striving to get a good passing grades on the test, which, again is only textual knowledge, solely reliable on memorization of a correct answer, without putting a thought on the answer.

The quote is significant in broader context ³ because, with the technological improvement and a big shift in the learning and teaching in 21st century, we cannot rely only on factual learning, memorization and which tests are designed to assess. Therefore it is significant that we develop in our students, learners a strong foundation

Knowledge and intelligence is more important than conformity to the norms of testing. (p. 149)

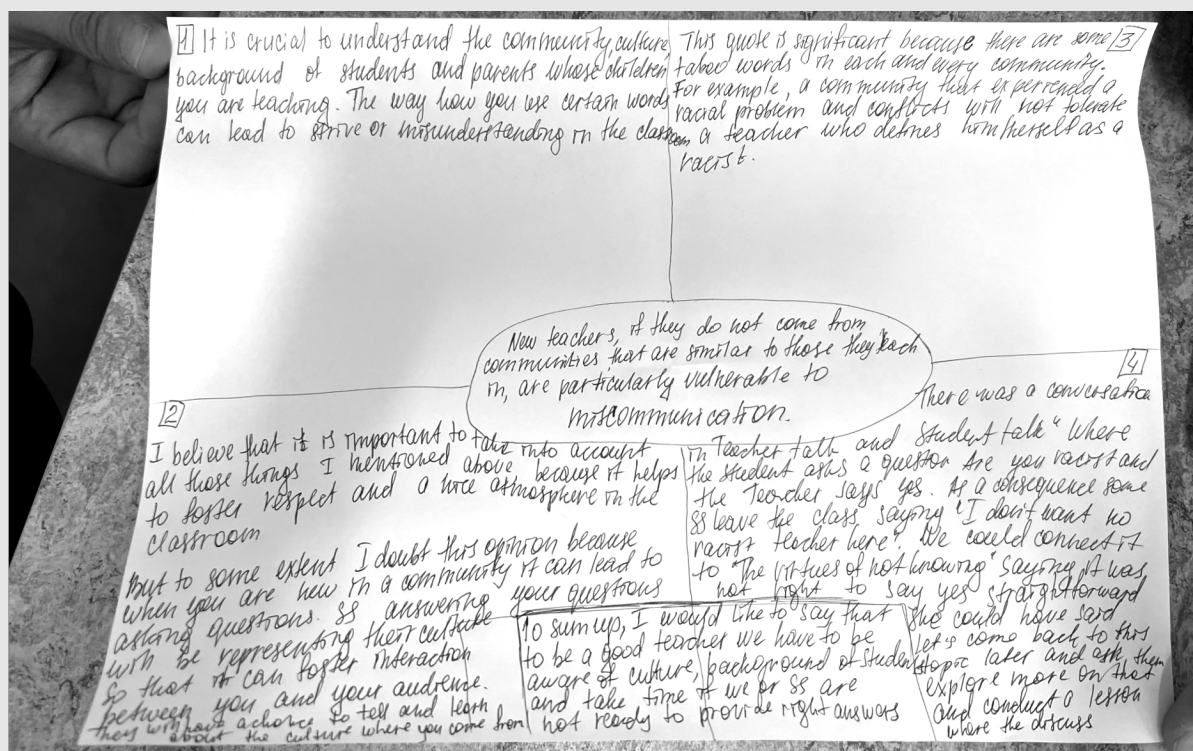
I strongly believe that it is ⁴ important to put knowledge over the conformity to norms and of testing, as knowledge is long-term memorized answers for tests short term.

Doubt that it could be more important, as tests are main part and sometimes the only way to evidence that you the student is capable to apply to the university, and we cannot ignore that part.

Knowledge and intelligence contributes to the long-term memory, which can be applicable in any case, is more important than striving to get good grade on a test.

To connect this quote with ideas in first text, I see a similar approach to learning. In first text the author gave us understanding of nonpassive traits, which are, not knowing the answer, brings you to a nonpassive stage, where brain practices activates and, knowing right answers and the passive traits, which requires no active engagement (Duckworth, 2014, p. 64). Where conformity to the test norms is similar to idea of quick right answers.

9c Sample of a student's Writing to Read in the Zones work, Session 3



9d Sample of a student's Writing to Read in the Zones work, Session 3

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Writing to Read in the Zones (1)

1

What are some ideas/thoughts about this quote?

3

Why is the quote significant?
Why does it matter for teachers or learners?

A significant quote

2

first believe the quote from 1 (why do you agree?) and then doubt it (why do you disagree?)

How can you connect this quote with some ideas from the first text that we read? What memories, experiences come to your mind as you read and write?

4

Read over what you've written. What's the central thing you're noticing or saying about the quote? Sum up this main point in a sentence and write it in the rectangle.

Paraphrase the quote you wrote in the central oval

Look at Zone 4,
Paraphrase the second quote that is connected or contrasted to the central quote

How do these quotes support each other? Offer different perspectives?

Reread your writing. Underline something important.

9e Screenshot of Google Slides with Writing to Read in the Zones, Session 4

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Writing to Read in the Zones (2)

1 What are some ideas/thoughts about this quote?

2 first believe the quote from 1 (why do you agree?) and then doubt it (why do you disagree?)

3 Why is the quote significant? Why does it matter for teachers or learners?

4 How can you connect this quote with some ideas from the first text that we read? What memories, experiences come to your mind as you read and write?

A significant quote

Read over what you've written. What's the central thing you're noticing or saying about the quote? Sum up this main point in a sentence and write it in the rectangle.

Look at the rectangle, **This is your topic sentence.** Revise it if necessary

First Idea (from Duckworth or Kohl) - Paraphrase, citation, metacommentary

Second Idea (from Duckworth or Kohl) - Paraphrase, citation, metacommentary

Commentary: what is the relationship between the two ideas?

Conclusion: synthesize or raise a further question

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9f Screenshot of Google Slides with Writing to Read in the Zones and Loop Writing task, Session 4

Assigned Role Readings Assigned Role Readings is a collaborative writing-to-read activity that enables learners to approach texts from different angles. I used it as a scaffolding tool that can help analyze the text through various lenses. See Figure 10.

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Assigned Role Readings

Group 1	Group 2	Group 3
Key Concepts; Definitions	Key Sources that the authors rely on	Substance of the reading

Present your findings on a flipchart

10 Screenshot of Google Slides with Assigned Role Readings task.

Double-entry Journal Double-entry journal is a note-taking tool for learners to interact with texts. They can respond to passages, quotes, or ideas from texts by writing down their first thoughts, making connections to their experiences or other texts, and asking questions. See Figure 11.

First thoughts and connections	Confusions and questions
Passage starts with	Passage starts with
Passage starts with	Passage starts with
Passage starts with	Passage starts with
Passage starts with	Passage starts with
Passage starts with	Passage starts with

11 Screenshot of a Double-Entry journal worksheet, Session 1

Dialectical Notebook A dialectical notebook is an activity that allows students to “interact with a difficult text and with one another as a mode of critical thinking.”⁴⁴ Students write a quote or a passage from a given text, leave a comment or a question, and pass their page to a classmate to respond to the comments and questions left before. The procedure is then repeated as many times as necessary. The final stage of the activity usually involves synthesis or final reflection. See Figure 12a.

Writer 1	Writer 1	Writer 2	Writer 3	Writer 1
Quote, page number	Thoughts, connections, questions	Response: What does the quote mean to you? What do you think of the answer in column 2 - thoughts, connections, questions?	Response: What does the quote mean to you? What do you think of the answers in columns 2&3 - thoughts, connections, questions?	Synthesis: What do you now understand differently after reading Writers 2&3's responses? How has your thinking about the quote grown or changed? What questions or insights are you left with?

12a Screenshot of a Dialectical Notebook worksheet, Session 2

				grown or changed? What question or insight are you left with?
Teaching is a performance. (p.153)	The teachers should be aware of the major challenge of understanding how they are heard (52) Teaching is a matter of art (thoughts) Connections: I have always felt like I was about to go on a stage, every time I was given a completely new group of students. I had to think about my script, voice, intonation, clothes and tools.	It means that the teachers are like actors or performers This quote is a succinct explanation of what teaching is. A teacher not only explains content, but she thinks of ways of presenting it. The way how we instruct is as important as what we instruct. I totally agree with you that teaching feels like performing on a stage. I always had the same feeling. In addition to your statement I would say that a teacher's mood and their way of walking/circulating is also important.	We need to be confident I imagine how a teacher is the best actor of the play, which calls "life". I think that through the own example of being enthusiastic and passionate about teaching, teachers can help students to be more motivated to learn. I agree with writer 1 and writer 2 that teachers teach about the script and the techniques what techniques should be used to help students in the learning of the class.	Now I am positive of the opinion that I am a performer on a stage. My thinking has just been developed. Both writers agreed that teaching job is like a performing job. Now I have to consider thoroughly what I say, do, put on, actions I take.

12b Sample of a student's Dialectical Notebook work, Session 2

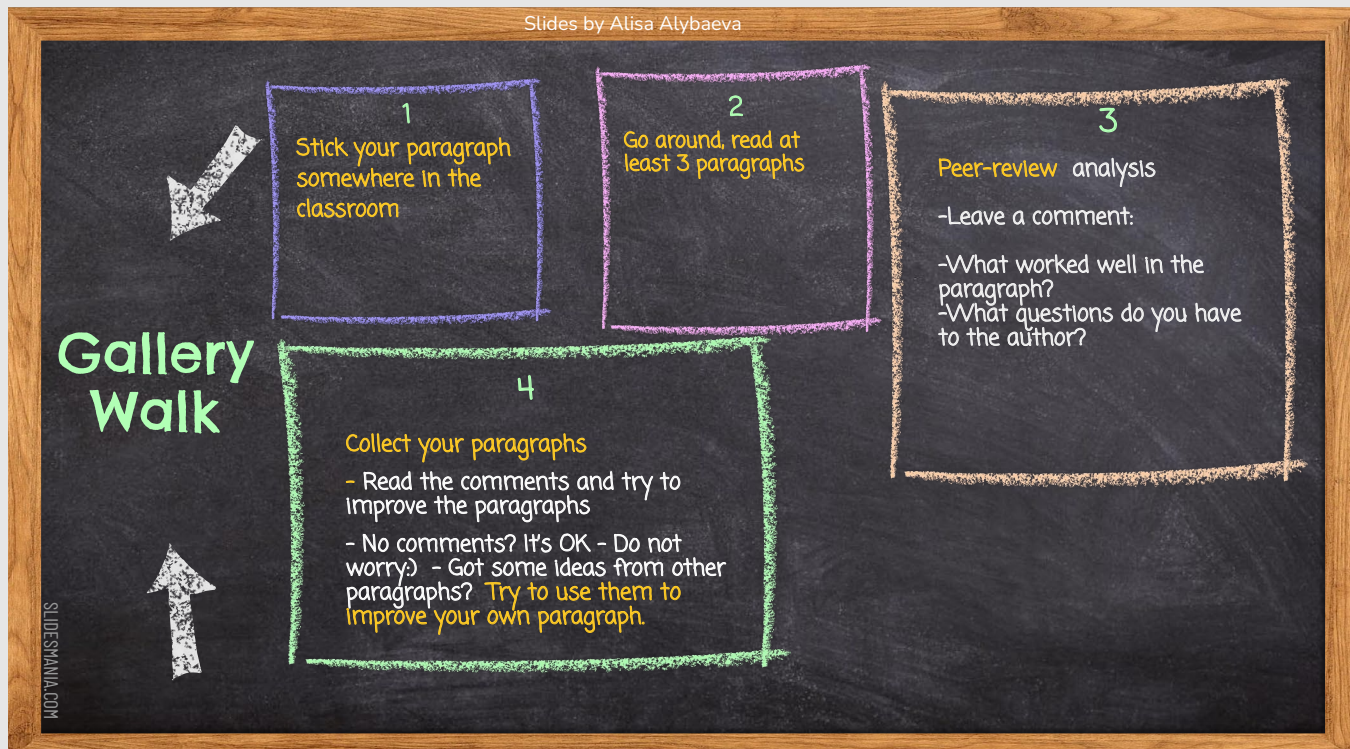
		to you? What do you think of the answer in column 2 - thoughts, connections, questions?	to you? What do you think of the answer in columns 2&3 - thoughts, connections, questions?	What do you think you understand differently after reading Writers 2&3's responses? How has your thinking about the quote grown or changed? What question or insight are you left with?
① "Teaching is a performance" (p. 153)	Teaching is not only about what, it is also about how. Simply stating and lecturing does not count for effective teaching. On the other hand, the way a teacher delivers the instruction can be crucial in promoting students' understandings.	throughout my life, I had very different teachers, with different approaches, but I remember only few of them because only they could grab my attention. Through their verbal performance, I was so interested to learn and come to class. To me, with the author that understanding happens, when a teacher performs performs makes deliberate choices in delivering ideas and knowledge, the ultimate understanding happens.	Teaching is not only direct approach, and also showing the right way to the people. The answer of the 2 is connected to the teaching as for promoting students' understanding, and it is really shows that it is performance. The answer 3 shows the experience of people about teaching.	I realized that students perceive their teachers' mood, tone, and the way of introducing the topic better than the content itself. They remember the content that was communicated in a way they other than mundane. While reading the responses of authors 2&3, I understood that performing is essential in making students understand the topic and reach learning outcomes.
② "Language is an everyday matter and nuances of inflection, tone, modulation, and vocabulary are constantly at play in the interaction of students and teachers" (p. 1)	Language plays a crucial role in a communication between teachers and students.			

12c Sample of a student's Dialectical Notebook work, Session 2

				What do you think you understand differently after reading Writers 2&3's responses? How has your thinking about the quote grown or changed? What question or insight are you left with?
School was about being right and if you weren't right then you'll be punished. (148) I told her and it took a while for her to accept it, that intelligent guessing was more important than avoidance of learning. (148)	I chose this quote because I disagree, no one should be punished by making to being wrong. Students come to school to gain their knowledge, explore new things but not to be punished.	It's not right correct to punish students for the wrong answer. I can have several negative results. It's unmotivated, it is not confident, and fear to study. Nowadays, being right approach is practiced in most of public schools and ss are closed and afraid to be wrong.	School has its own rules you must obey and be considerate about other participants. But I don't think it is about providing wrong answers. To my mind it's more about behavior. School is a social institution, therefore there must be regulation to deal with inconsiderate actions. As for the wrong answers, wrong answers should be praised and developed. Effort should be praised.	Based on W2/3's responses, I am thinking probably this part is not about wrong answers, but mostly student's behavior. School has own rules that must obey and deal with issues. * Based on W2/3's responses, we need to highlight that right answers on no one should be punished by giving wrong answers Student should be praised.

12d Sample of a student's Dialectical Notebook work, Session 2

Peer Revision Peer Revision is a collaborative strategy in which students share their written work to give and receive feedback. This feedback is then used by students to revise their writing.⁴⁵ It is helpful for students to analyze someone else's work to see the strengths and weaknesses, to practice giving constructive feedback, and to learn from each other. In my academic writing course, we have gone through several rounds of peer revision processes throughout the course. It was organized in a gallery walk format but also as a chain passing. See Figure 13.



13 Screenshot of Google Slides with Gallery Walk aimed at Peer Review/Revision

Text Rendering Text Rendering is a collaborative reading strategy that “provides a way of speaking about a text using the words of the text itself.”⁴⁶ In this sequence of classes that I describe in the project, I asked the learners to select the most significant or meaningful word, phrase, or sentence from the text to read it out loud as a way to share, synthesize, and bring the author into the room through different voices.

4 COURSE OUTCOMES

While I was collecting some of the students' work during the whole course (see Figures 9b, 9c, 9d, 12b, 12c, 12d), to measure the effects of writing-to-learn practices on their thinking, a pre- and post-assessment method was used. At the beginning of the first (Session 1) and last (Session 5) sessions, I asked students to write in response to a Focused Freewriting (FFW) prompt on chosen passages from the texts that we read during the course. The FFW prompt was the same for both excerpts: *Write in response to this passage. What does it make you think about in your own learning or teaching?* The first passage came from Eleanor Duckworth's essay "The Virtues of Not Knowing" (1976), while the passage that students responded to in the final session was from Peter Elbow's essay "Teaching Thinking by Teaching Writing" (1983). The passages were assigned for the given session; that is, Duckworth (1976) was assigned for session 1, and Elbow (1983) was assigned for session 5. The work that I collected in this project was anonymous, hence cannot be traced back to particular students. As a result, I analyzed the development of critical thinking of this group of students in general.

The *Critical Thinking Assessment Rubric* developed by the Organisation for Economic Co-Operation and Development,⁴⁷ as part of the Centre for Educational and Innovation (CERI) project, was used for analysis. This rubric was developed through international cooperation among educational institutions in 11 countries to help educators across disciplines and in diverse educational contexts to more explicitly integrate the instruction and assessment of creative and critical thinking skills.⁴⁸ The *Critical Thinking Assessment Rubric*⁴⁹ is open-access and includes practical, easy-to-use criteria that align well with the types of writing produced in this study, making it an appropriate tool for analyzing student work.

The rubric allows for assessing the *Process* and *Product*. Since I was not fully documenting the *Process*, I only used the *Product* criteria. It "refers to a visible final student work."⁵⁰ Although not specifically stated, it might be summarized that the Product rubric assesses the ability to identify and present your position, connect and synthesize your reasoning with "alternative theories or perspectives," evaluate and support it with good evidence, as well as reflect on and question your position on a given topic.⁵¹ There are four measurement levels of "effort in exercising critical thinking" in the *Product* rubric: 1–Dormant, 2–Emerging, 3–Flourishing, and 4–Outstanding.⁵² Accordingly, the highest level of critical thinking is scored as 4 and refers to the Outstanding descriptor, and the lowest level is scored as 1–Dormant descriptor.⁵³ Additionally, I was paying attention to student language that could signal analysis, evaluation, synthesis, and reflection.

Eleven students participated in the course. One student was absent on day one and therefore did not complete the pre-assessment activity, resulting in 10 responses on day one. However, this same student was fully involved in all the subsequent sessions, including session five, which resulted in 11 responses. Overall, day one responses were mostly on level 2 (Emerging) of the OECD Product rubric (7 out of 10), with some students on level 3 (1 out of 10) (Flourishing), and a few being on level 1 (Dormant) (2 out of 10). While some students could personalize the topic (2 out of 10) and synthesize information from various courses they had completed to present their position (1 out of 10), most students (7 out of 10) presented general positions towards the ideas in the passage, providing some analysis, evaluation, and evidence or elaboration in support with limited synthesis, various perspective taking, reflection and personalization (levels 2 and 3 of the OECD Product rubric). For instance, one student wrote,

Agree with the statement. Teachers should know how to evaluate and improve their students' knowledge not only collect right answers. For example, [teacher asks students] when World War II started. And students say 1939. It is a right response. But do the students know the causes or problems...?... how students figured out the right answers often more important than the right answer itself (Session 1, R4).

Another student repeated Duckworth's point with minimal elaboration or analysis,

Here we can notice that the real facts that we know require no decisions and [they are] automatic. But in some situations even if we know the right answer, we get confused and it takes us more time to come up with the right idea (Session 1, R7).

Another response read,

When students in the classroom know the right answer immediately after they were asked, the process of learning is becoming predictable and [loses] its value. It is better for teachers to create learning environment where students do not know the right answer and need to figure it out and find the answer by themselves. This knowledge will go to the life-long memory (Session 1, R5).

While this student evaluated and analyzed the problem to state the general position, there is no reflection, synthesis, or personalization.

By session five, however, there is a movement from level 2 (Emerging) responses to level 3 (Flourishing) responses (6 out of 11), with only a few (2 out of 11) remaining at level 2 (Emerging) and with several being at level 4 (Outstanding) (3 out of 11) (according to the OECD rubric). Most students presented richer responses that were more personal and reflective, often connecting broader contexts with personal or professional experiences, and considering different perspectives. For example, one student wrote,

This passage totally resonates with my learning and teaching experience. ...the fear of doing something wrong restrains us from thinking creatively. While studying at school, earning my bachelor's degree and sometimes even [here], I used to think that some ideas that I generated do not align [with the] norms which is why I denied them and made myself think in a conformist way. But over time, I am realizing that the fear of being wrong restricts my imagination and my capacity. And while teaching I noticed that some students also face this dilemma. I guess nurturing the culture and celebrating non-conformist, brand-new, and original ideas will help students get rid of the habit of fear to do something wrong (Session 5, R3).

Another student reflected on their learning journey, making connections to the theory that they had studied previously in the semester,

Throughout my learning journey I've always had a fear of looking silly or making mistakes... I know that it shows how fixed-mind[ed] I am but it's difficult to struggle with... (Session 5, R11).

Another student linked Elbow's ideas to their personal experience and teaching practices,

In my teaching context, I have encountered many cases [when] students block themselves just because of the fear to seem foolish... The worry of insignificance of their work or incapability to complete the task, makes students vulnerable and hinders their skills. Teachers should provide a space where students can feel comfortable to share their ideas... (Session 5, R9).

It is striking that while the prompts for both Duckworth and Elbow were the same and asked students to write what the given passage makes them think about in their own learning or teaching, most responses on the first day present rather general statements about education, rote learning, and what teachers should and

should not do (8 out of 10). In contrast, most responses from day five (10 out of 11) are deeply personal and contain *I*, *my*, and *my own*, showing great improvement in metacognitive and reflective aspects. To sum up, even though there were only five sessions that introduced students to using writing-to-learn practices to promote critical thinking, noticeable shifts in student writing and thinking can already be observed. A lot of students moved away from general thoughts and statements towards more critical and personal engagements with the ideas.

5 STUDENT PERSPECTIVES

In their reflections (see Figure 8a for prompts; Figures 8b–d for sample student responses), students expressed very positive opinions about writing and its effects on their learning. Among those, they described writing as a tool to structure their thoughts, analyze and synthesize information, which leads to better understanding. Students noted an emotional dimension of writing practices that helped them maintain focus, overcome fear, build confidence, and reflect on personal and professional issues. Students also pointed out that collaborative writing and peer revision allowed for a different way to communicate with peers and helped them see various perspectives on the topic and learn from each other. Moreover, several students started to think about how to use similar writing practices with their own students, suggesting possible transfer of some of the writing-to-learn techniques into their practice (see table on the following page for student quotes).

Interestingly, the most memorable activity for students was Private Freewriting. They highlighted that it helped them overcome a fear of an empty page and start “writing despite anything” (S1). It also gave them a space to reflect, put their worries on paper, and focus on the lesson. One student described Private Freewriting as a “mindfulness” (S10) tool, and the other one called it “a holiday from thinking” (S7). Several students also mentioned Loop Writing as a useful tool for analysis and synthesis, while Dialectical Notebooks were described as a “powerful” practice to communicate with peers and receive feedback.

Emerging Topics

Student Quotes *

Focus;
Organization;
Analysis;
Understanding

- S1** We were required to write in sections. It helped me organize my thoughts and derive deeper thoughts.
- S3** I loved reading in zones activity. It led to a better understanding of the idea from the text and improved my synthesizing skills.
- S6** the most memorable activity was loop writing to synthesize.
- S9** It helped me...to think deeper, to analyze whatever I learn and the way I learn. ...writing with step-by-step instructions kept me structured, focused and fast because of the time limit.
- S11** I have more time to think, then I write my thoughts and in this way I understand the information better. ...I liked to write about a specific topic, explore it in depth, and generate ideas.

Emotional and
Personal Dimensions

- S2** it was only for myself, that's why I didn't have any fear...
- S3** I put all of thoughts that were worrying me into the paper and it helped me to focus on the rest of the class
- S5** we tried to explore our thoughts
- S7** The more I write, the freer my memory gets. It feels like a holiday from thinking.
- S8** these activities...helped me remove psychological barriers
- S10** I could reflect on some personal topics...This type of exercise was a kind of mindfulness activity where I could talk to myself through writing, dealing with some challenges and achievements.

Perspectives,
Collaboration;
Feedback;
Revision

- S2** feedback from others helped me a lot during my writing ... Responding to passages and getting feedback on my own writing [was useful for me].
- S3** it helped me take a look at the quote from different perspectives.
- S4** We had dialectical notebook, when we were silently writing than passing it to others and they were contributing with their thoughts and ideas. This was so powerful because we have been like discussing topics through writing.
- S5** it helped realize that we have different opinions even when we have one quote
- S9** When I write, every time, I come back to my writings, I identify my mistakes and drawbacks, and it helps my learning and thinking.

Future Implications

- S5** It makes me think how I can apply these strategies to my classes with my students.
- S7** This course helped me not only with my own writing but also have ideas how I can improve my student writing...I will definitely practice it by myself and with my students.

* All punctuation, spelling, and grammatical features are preserved as in the students' original work

6 CONCLUSION

This project investigated how writing-based practices may foster critical thinking development of first-year students of a graduate teacher preparation program. The analysis of student responses shows a noticeable shift in student writing – from stating and restating general comments to deeper critical connections to personal and professional experiences. While such data is not generalizable due to the limited number of classes and sample size, the course outcomes and student reflections highlight the positive impact of writing-to-learn activities on developing habits of learning and thinking by providing students with tools to promote this development. This is especially significant within the context of the participants' educational background being influenced by the former Soviet Union educational system. In the future, I plan to continue using the writing-based practices with the same group of students in other courses within the program to track their progress as critical thinkers and reflective practitioners.

NOTES

- 1 Behar-Horenstein & Niu, 2011; Golden, 2023
- 2 Batdi et al., 2024
- 3 Golden, 2023
- 4 Behar-Horenstein & Niu, 2011
- 5 Behar-Horenstein & Niu, 2011; Çavdar & Doe, 2012; Leggette, 2015
- 6 P 4
- 7 P 77
- 8 P 77
- 9 Behar-Horenstein & Niu, 2011; Cole et al., 2015; Golden, 2023; Fisher, 2001; Walker, 2003
- 10 Thomas-EL, 2025
- 11 Behar-Horenstein & Niu, 2011
- 12 Williams, 2005
- 13 Williams, 2005
- 14 Ennis, 1989
- 15 Behar-Horenstein & Niu, 2011; Fisher, 2001
- 16 Cole et al., 2015; Fisher, 2001; Williams, 2005
- 17 Cole et. al., 2015; Thomas-EL, 2025
- 18 Walker, 2003
- 19 Cole et al., 2015; Golden, 2024; Walker, 2003
- 20 Behar-Horenstein & Niu, 2011; Cole et. al., 2015
- 21 Cole et. al., 2015
- 22 Behar-Horenstein & Niu, 2011; Golden, 2023
- 23 Golden, 2023; Thomas-EL, 2025
- 24 Butcher, 2021; Çavdar & Doe, 2012; Elbow, 1983; Emig, 1977; Kayaalp et. al., 2020; Leggette et. al., 2015; Vilardi & Chang, 2009; Walker, 2003
- 25 Golden, 2023; Thomas-EL, 2025
- 26 Butcher, 2021
- 27 Çavdar & Doe, 2012; Leggette et. al., 2015
- 28 Vilardi & Chang, 2009
- 29 Golden, 2023
- 30 de la Sablonnière et al., 2009
- 31 *Kabinet Ministrov Kyrgyzskoy Respubliki*, 2025; *Ministerstvo obrazovaniya i nauki Kyrgyzskoy Respubliki*, 2015
- 32 Burkhalter & Shegebayev, 2012
- 33 Burkhalter & Shegebayev, 2012
- 34 Marshall, 2009, p.8

- 35 Marshall, 2009
- 36 Wallack, 2009
- 37 Connolly, & Bard College Institute for Writing and Thinking, 2012a
- 38 Wallack, 2009
- 39 Bard College Institute for Writing and Thinking, n.d.
- 40 *ibid*)
- 41 Guy Jr., 2009
- 42 Connolly & Bard College Institute for Writing and Thinking, 2012a; Guy Jr., 2009
- 43 Bard College Institute for Writing and Thinking, 2018
- 44 Connolly & Bard College Institute for Writing and Thinking, 2012b
- 45 Kaufman & Bard College Institute for Writing and Thinking, 2015
- 46 Connolly & Bard College Institute for Writing and Thinking, 2012c
- 47 OECD, 2019
- 48 Organisation for Economic Co-operation and Development [OECD], n.d.
- 49 OECD, 2019
- 50 OECD, 2019, p. 1
- 51 OECD, 2019, p. 4
- 52 OECD, 2019, p. 4
- 53 OECD, 2019, p. 1

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