

INTEGRATING THE METACOGNITIVE FUNNEL AND STRATEGIC ANNOTATION TO ENHANCE ACADEMIC READING IN HIGHER EDUCATION

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Abstract

Reading comprehension in higher education is still largely viewed through a limited lens emphasizing merely decoding and recall of content, while often overlooking the role of the metacognitive and reflective processes necessary for deep understanding. This study presents and examines an integrated approach, the metacognitive funnel and strategic annotation, aimed at developing more active and critical reading practices among undergraduates. Guided by socio-constructivist and metacognitive theory, the study investigates how a structured recursive sequence of predicting, monitoring, clarifying and reflecting combined with annotation strategies alters or enhances students' comprehension and cognitive engagement with academic texts. A qualitative case study was carried out with bachelor's students at the European University of Armenia employing think-aloud protocols along with guided reading sessions and reflective interviews. The findings demonstrate how the metacognitive funnel allowed students to engage with texts purposefully, recognize conceptual deficiency and perform a far deeper analysis of those texts. Annotations were not conceived as mere supports but proved to be meaning-making processes alongside metacognitive awareness. Moreover, the study focuses on strategic reading obstacles and suggests the teaching approaches for embedding metacognition in the university curriculum. The research offers both a theoretical and practical approach by highlighting a transferable model for enhancing learner autonomy, academic literacy and reflective practice. Such an approach calls for a shift in paradigm from comprehension-as-recall to comprehension-as-construction in order to emphasize the fact that readers should be trained not just to comprehend texts, but to interrogate them actively.

Keywords: *reading comprehension; metacognition; annotation strategy; higher education; cognitive engagement; academic literacy; metacognitive funnel.*

Introduction

Reading comprehension is often conceptualized as a competency developed in primary education and then assumed to be relatively stable or transferable from one discipline to another. However, this has been challenged by investigations that have shown even university students frequently face difficulties when it comes to understanding, interpreting and critically engaging with academic texts (Afflerbach et al., 2008; Alexander et al., 2012).

Within the scope of higher education, where reading serves as the basis of learning and intellectual progress, the restriction of reading to decoding or simple information extraction is insufficient. At the tertiary level, reading goes beyond fluency, it requires sustained metacognitive involvement and an advanced form of cognitive engagement alongside the management of intricate and at times unclear material (Pressley & Afflerbach, 2012; Flavell, 1979; McNamara, 2007).

The gap between reading fluency and the ability to engage critically with texts raises pedagogical concern. Multiple studies demonstrate that students maintain a passive reading approach, which prevents them from identifying authorial purpose and detecting basic assumptions and making text connections between different works (Snow & Uccelli, 2009; Nokes et al., 2007). While Bottom-up models of reading emphasize word and sentence-level decoding (Gough & Tunmer, 1986), contemporary cognitive and education theorists tend to suggest an interactive top-down model in which meaning is construed through prior knowledge, inference from context, and reflective reasoning (Goodman, 1967; Vygotsky, 1978; Paris & Winograd, 1990).

The objective of the study is to reconceptualize reading comprehension as an evolving, metacognitive process, rather than a stagnant skill. It examines the effectiveness of two approaches, *a metacognitive funnel and an annotation strategy*, as they can complement each other to improve reading comprehension among undergraduate students.

The metacognitive funnel is a structured mental model that helps learners through stages of *prediction, monitoring, clarification, evaluation and reflection* while reading. This model was derived from metacognitive theory (Flavell, 1979; Schraw & Dennison, 1994) and aims to scaffold learners practicing their thinking and decision-making processes on difficult texts. Annotation has long been known to promote engagement and memory (Wolfe & Neuwirth, 2001), but its function in triggering metacognitive processes has not been thoroughly investigated. It serves as a link between visible cognitive and internal comprehension by externalizing thought processes through visual markers, questions and comments (Marshall, 1997; Rouet & Britt, 2011). Despite growing interest in metacognitive instruction and annotation tools in digital environment, few empirical studies have systematically combined these two strategies in face-to-face or blended academic contexts (Aghaie & Zhang, 2012; Mokhtari & Reichard, 2018; Kolić-Vehovec, & Bajanski, 2006). Additionally, there is a research gap in higher education because the majority of studies are conducted in primary or secondary education settings. This study fills these gaps by providing an applied framework that combines annotation and metacognitive scaffolding as mutually supporting techniques to improve deep comprehension. It is guided by the following research questions:

1. What impact does the application of the metacognitive funnel bring about in a university student's comprehension and engagement with academic texts?
2. How do annotation processes assist and enhance the metacognitive processes activated by the act of reading?
3. What are the challenges and benefits involved with the employment of these strategies as seen from the learners' point of view?

Literature Review

Traditionally, reading comprehension has been one of the core skills, and it is developed mostly throughout the initial school years, which has been traditionally viewed as the capability to decode the text and remember the facts (Afflerbach et al., 2008; Alexander et al.,

2012). Nevertheless, this traditional perspective simplifies the issue of reading as a cognitive and metacognitive process particularly in higher education whereby texts are more multifaceted and need more involvement than mere fluency or decoding. Within the current understanding of research in education, however, the need to comprehend in tertiary contexts has indicated the importance of active, systematic, and reflective reading, reading as an active engagement between the text and the reader instead of passive information retrieval (Pressley & Afflerbach, 2012; McNamara, 2007).

Theoretical Foundations: Metacognition and Constructivism

Metacognition is a term that implies thinking about thinking and it involves being aware of and controlling one's cognitive processes in the process of learning (Flavell, 1979). It is self-monitored as well as controlled and reflected which are essential in higher-order comprehension (Schraw & Dennison, 1994). The initial theory of metacognition developed by Flavell has differentiated between metacognitive knowledge and metacognitive regulation that make a significant contribution to academic success. In reading, this flows into the skills of the readers to anticipate content, keep track of the knowledge, clear up the misunderstanding, assess the meaning, and cogitate over their comprehension achievements (Schraw, 1998). The metacognitive funnel strategy of this study is based on these assumptions and it seeks to support the stages that readers go through in their minds. It correlates with the socio-constructivist approach to learning proposed by Vygotsky (1978) in which knowledge construction is negotiated socially. With socio-constructivism, the importance of reflection and social interaction in the learning process becomes clear, which offers a theoretical basis when applying the strategies that promote students in the externalization and socialization of their thinking process. This cyclic process of knowledge building and self-regulation is reflected in the recursive nature of the funnel which predicts, monitors, clarifies, evaluates, and reflects (Paris & Winograd, 1990).

Reading Models: From Bottom-Up to Interactive Frameworks

Traditionally, the concept of reading was perceived in terms of bottom-up approaches where the emphasis was made towards word and sentence decoding as the route to comprehension (Gough & Tunmer, 1986). Nevertheless, the models have been criticized as having little explanatory capacity as far as understanding challenges by readers with complex academic texts is concerned. Newer cognitive and pedagogical ideas suggest a model of interaction in a top-down manner, in which understanding is a result of the interaction of prior knowledge, inferencing, and contextual reasoning (Goodman, 1967; Rumelhart, 1977). This interactive methodology focuses on the active participation of the readers in the meaning-making process and underlines the orientation of the study towards the means of metacognitive strategies and annotations being the mediating factors in the process of cognitive engagement with the texts. This view is supported by studies conducted by Snow and Uccelli (2009) and Nokes et al. (2007), who assert that passive reading habits, which include lack of questioning, minimal connection making and surface-level recall, are practiced by a large number of students. This gap indicates a requirement of pedagogical interventions that facilitate a greater level of cognitive/metacognitive engagement in academic reading activities.

Role of Annotations in Reading Comprehension

The idea of using annotation as one of the reading strategies has been known to encourage engagement, memory retention and critical interaction with texts (Wolfe &

Neuwirth, 2001). Annotating entails writing notes, highlights, questions, and symbols on texts to make the processes of thought visible and keep the attention active (Marshall, 1997). Though it is a common practice, the connection between annotation and metacognitive processes has not been studied much, particularly in the context of higher education. The annotations are used as a transition point between observable thinking and inner understanding. They promote metacognitive awareness, as they encourage the readers to stop and think, and explain what they have understood or cannot understand, and this is also in line with the findings of Rouet and Britt (2011) which state that annotation is a form of externalizing metacognition. This externalization helps in the process of monitoring and regulation in the process of reading which are important elements in effective metacognition. Besides, digital annotation tools are currently increasing in popularity, yet there is little empirical study of annotation with metacognitive theory in face-to-face or blended university settings (Aghaie & Zhang, 2012; Mokhtari et al., 2018; Kolić-Vehovec & Bajanski, 2006). This gap highlights the significance of the present studies such as the one that examines the interaction of these strategies to facilitate understanding in real academic contexts.

Metacognitive Strategy Instruction in Higher Education

Despite the large body of research on metacognitive strategy instruction in the primary and secondary education settings, limited research has been conducted on the instruction of university students. Academic reading in higher education is faced with such challenges as dealing with discipline-specific lexicon, complicated argumentation, and text criticism: these factors require strategies that would foster self-regulated education (Zimmerman, 2002). The application of teaching strategies that incorporate metacognition in teaching academic literacy has shown potential to increase the levels of learner autonomy and development of critical thinking skills (Schraw, 1998; Pintrich, 2002). Structured metacognitive scaffolds like the funnel model provide a viable approach with which students can be enabled to achieve self-awareness and be in control of their reading processes. Such a strategy is advantageous because studies show that explicit metacognitive training can enhance understanding, motivation, and cognitive load (Baker & Brown, 1980; Garner, 1987). Nevertheless, research also highlights the significance of integrating metacognitive activities with contextual reading activities and social communication to be at their fullest effectiveness (Palincsar & Brown, 1984).

Challenges in Academic Reading and Strategy Adoption

Studies have established various challenges encountered by students in integrating metacognitive and annotation skills. They involve the deficiency of previous knowledge, low motivation, inadequate training, and inability to transfer discipline skills (Afflerbach et al., 2008). Also, annotation can be considered as machismo or a shallow exercise among students, which restricts its ability to achieve profound understanding (Wolfe & Neuwirth, 2001). It is, therefore, essential that teaching interventions should be crafted to not only impart the mechanics of these strategies, but also develop a conceptual appreciation of the role of these strategies in comprehension. Formative feedback, peer discussions and reflective activities are essential parts in this development (Zimmerman & Schunk, 2011).

Methods

Research Design

The study employed a qualitative case study approach that is applicable for examining complex cognitive and teaching dynamics in real-world settings (Merriam, 2009; Yin, 2014).

It aimed to examine how undergraduate students utilized the metacognitive funnel and annotation strategies in the context of academic reading tasks. The case study approach provided nuanced, contextualized insights into students' evolving comprehension strategies, self-regulation practices and reflective processes.

Participants

Participants were 26 undergraduate students (aged 19-22) attending a B2 level academic course of English at the European University of Armenia. The course was included in the mandatory language curriculum in the faculty of Linguistics and Communication, and the participants had already completed at least one course in academic writing and reading.

Instructional Intervention

The research was conducted within a period of one semester (16 weeks). Training was incorporated into the current curriculum and focused on academic reading, critical thinking and text analysis.

Students were introduced to two complementary strategies:

1. Metacognitive Funnel: As illustrated in Figure 1, a five-stage cognitive scaffold is designed to support reading through a sequence of prompts: **predict** (pre-reading hypotheses), **monitor** (ongoing self-questioning), **clarify** (resolving confusion), **evaluate** (assessing text credibility or coherence), **reflect** (post-reading synthesis). Each session began with metacognitive modeling by the instructor and moved to guided student application.

2. Annotation Strategy: Students were instructed to annotate texts using color-coded symbols and margin notes. They highlighted main ideas, asked questions, connected ideas, and marked unfamiliar vocabulary. Digital and paper-based annotation were both permitted.

Students received formative feedback on their annotations and completed reading logs after each task. They also engaged in small-group discussion and peer review to externalize and verbalize their thought processes.



Figure 1
The Model of a Metacognitive Funnel

Data Collection

Data collection occurred through the following instruments:

- **Annotated Texts:** Samples of student-annotated academic readings were collected at weeks 4, 8, 12 and 16.
- **Think-Aloud Protocols:** A sub-group of 8 students participated in audio-recorded think-aloud sessions at the beginning and end of the intervention.
- **Post-Reading Reflections:** Weekly written reflections captured changes in strategy use and affective responses to reading.
- **Semi-Structured Interviews:** Conducted with 10 students at the end of the semester to explore perceptions of the strategies.

Triangulation of these multiple data sources enabled validation of findings and deeper insight into individual differences in strategy uptake.

Data Analysis

Data were analyzed thematically using Braun and Clarke's (2006) six-step approach. First, annotated texts and reflections were coded inductively to identify recurring patterns in metacognitive behavior. Think-aloud transcripts were segmented and analyzed for evidence of the five funnel stages. Interview transcripts were subjected to deductive coding based on the research questions. Data were then cross-analyzed to identify convergence and divergence across sources.

Ethical Considerations

This study was approved by the Research Ethics Committee of the European University of Armenia (Protocol N 12, 2025). All participants provided written informed consent prior to participation. They were fully informed about the purpose, procedures, potential risks and benefits of the study and were assured that their participation was voluntary and that they could withdraw at any time without penalty. All data were anonymized to ensure participant confidentiality in accordance with ethical research standards.

Results

The findings are presented in relation to the three research questions and reveal clear qualitative patterns in students' metacognitive development, annotation practices, and perceived reading competence following the instructional intervention. Evidence from annotated texts, think-aloud protocols, reflective journals, interviews, and supporting quantitative indicators demonstrates a consistent shift from passive to strategic reading behavior.

Influence of the Metacognitive Funnel on Comprehension and Engagement

Implementation of the metacognitive funnel substantially improved students' ability to approach academic texts with a defined cognitive purpose. Early think-aloud recordings (Weeks 1–2) showed that most participants read linearly without previewing or setting expectations, with verbalizations that were largely descriptive and reactive. By contrast, later recordings (Weeks 9–16) revealed marked strategic behavior, with students increasingly initiating reading with predictive statements and ongoing monitoring comments. Typical utterances included:

"I predict this section will focus on..."

"I'm monitoring my understanding because this argument seems inconsistent."

These patterns indicate growing metacognitive regulation during reading. Reflective journals further confirmed increased awareness of comprehension breakdowns and self-repair strategies. One participant noted:

“Before, I just kept reading even if I didn’t understand. Now I stop and try to connect it to what I already know or reread the difficult part.” (Participant 5, Week 8 reflection)

As shown in Table 1, analysis of metacognitive stage frequency supports this qualitative shift. Prediction (36%) and monitoring (24%) were the most frequently observed behaviors, suggesting that students internalized the early and mid-stage components of the funnel most readily. Clarification (16%), connection (14%), and reflection (10%) appeared less frequently, indicating that higher-order post-reading processes were still developing. Overall, the data demonstrate that the metacognitive funnel functioned as an effective scaffold for transforming students’ reading from largely passive processing to purposeful, self-regulated engagement.

Table 1
Frequency and Percentage of Metacognitive Funnel Stages Used by Students

Metacognitive Stage	Frequency (n)	Percentage (%)
Prediction	18	36
Monitoring	12	24
Clarification	8	16
Connection	7	14
Reflection	5	10
Total	50	100

Annotation as a Metacognitive Support Tool

Annotation practices evolved substantially over the course of the intervention, both in frequency and in cognitive depth.

Early Phase

Initial annotations were predominantly lexical and surface-level, consisting mainly of:

- Highlighting unfamiliar vocabulary
- Underlining isolated sentences
- Brief synonym notes

These behaviors reflected limited strategic engagement.

Developmental Phase

By mid-semester (Week 8), annotations became increasingly analytical. Students began marking:

- Rhetorical moves
- Author stance
- Logical connectors
- Implicit assumptions

Representative margin comments included:

“This argument lacks evidence, only opinion.”

“Connects to what we read about in Foucault’s theory of power.”

“Biased source? Check author credentials.”

This progression indicates movement from text-level processing to discourse-level and critical engagement, a key marker of academic literacy development. Student interviews confirmed the metacognitive function of annotation. As one participant explained:

“When I write a note, I’m not just remembering, I’m explaining it to myself.”
(Participant 9, Interview)

As shown in Table 2, the quantitative distribution of annotation types further supports this pattern. Questions (25.5%) and summaries (24.2%) constituted the largest categories, demonstrating active meaning construction rather than passive marking. Personal connections (19.3%) and clarifications (17.4%) also appeared frequently, while vocabulary notes (13.6%) became proportionally less dominant over time. Classroom observations indicated that annotation also facilitated peer discussion, as students regularly referenced specific marked passages to justify interpretations or request clarification.

Table 2

Frequency and Type of Student Annotations During Reading

Annotation Type	Frequency	% of Total Annotations
Questions	41	25.5
Clarifications	28	17.4
Summaries	39	24.2
Personal Connections	31	19.3
Vocabulary Notes	22	13.6
Total	161	100.0

Perceived Challenges and Benefits

Reported Challenges

Despite the overall positive trajectory, students reported several initial difficulties when adopting the combined strategies. The most common challenges were:

- Perceived cognitive overload during early weeks
- Time demands of dual processing (reading + annotating)
- Uncertainty about what to annotate

One student reflected:

“At first it felt like too much, so many steps. But later, it became automatic.”
(Participant 2, Interview)

A small subset of students initially engaged in mechanical over-highlighting, marking large text portions without commentary. However, instructor modeling and peer comparison gradually improved annotation selectivity and purposefulness.

Reported Benefits

By the end of the semester, the majority of participants reported:

- Improved comprehension of academic texts

- Increased confidence in handling long readings
- Stronger sense of control over reading processes
- Greater awareness of author argumentation

As one participant summarized:

“Now I don’t feel lost in long texts. I know how to find the structure and what to look for.” (Participant 7, Interview)

As shown in **Table 3**, most students agreed or strongly agreed that the funnel helped them predict content, monitor understanding, clarify difficult words, relate texts to personal experiences, and reflect on readings after class. These responses suggest that structured metacognitive strategies can enhance active engagement and comprehension in academic reading.

Table 3

Student Feedback on the Metacognitive Funnel Strategy (n = 25)

Item	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
The funnel helped me predict better	12	10	3	0	0
I monitored my understanding while reading	9	11	5	0	0
Clarifying difficult words helped comprehension	14	7	4	0	0
I related texts to personal experience	10	8	6	1	0
I reflected on what I read after class	11	10	3	1	0

Supporting Quantitative Indicators

Although the study was primarily qualitative, supplementary performance data provide convergent evidence of improvement. Comparison of pre- and post-test scores, as shown in Table 4, indicates that the experimental group demonstrated a mean gain of 12.7 points (19.93%), whereas the control group improved by only 1.9 points (2.96%). While these results should be interpreted cautiously given the case study design, they are consistent with the observed qualitative trends of enhanced strategic reading.

Table 4

Pre- and Post-Test Scores in Control and Experimental Groups

Student Group	Mean Score	Pre-Test	Mean Score	Post-Test	Mean Gain	% Improvement
Control Group (n = 25)	64.2		66.1		1.9	2.96%
Experimental Group (n = 25)	63.7		76.4		12.7	19.93%

Discussion

One of the most salient outcomes of the intervention was the observable shift from passive reading toward purposeful metacognitive regulation. Early think-aloud data indicated

that students initially approached texts in a largely linear and reactive manner, which aligns with prior research documenting surface-level reading habits among university students (Snow & Uccelli, 2009; Nokes & Dole, 2007). Following explicit instruction, however, students increasingly demonstrated predictive framing, ongoing monitoring, and strategic self-correction.

This progression strongly supports Flavell's (1979) conceptualization of metacognition as both awareness and regulation of cognition. The metacognitive funnel appears to have operationalized these abstract processes into actionable steps that students could internalize. In particular, the high frequency of prediction and monitoring behaviors suggests that structured prompting can make expert reading strategies visible and learnable.

These findings also resonate with Pressley and Afflerbach's (2012) work showing that skilled readers engage in continuous hypothesis testing and comprehension monitoring. The present study extends this line of research by demonstrating that such behaviors can be systematically cultivated within a university classroom through relatively short-term, scaffolded intervention.

Annotation as Externalized Metacognition

A second major contribution of the study lies in clarifying the role of annotation as a metacognitive support mechanism rather than merely a study habit. The documented progression from lexical highlighting to analytical commentary indicates that annotation functioned as a form of externalized thinking, consistent with Rouet and Britt's (2011) characterization of annotation as visible metacognition. Importantly, the findings reinforce earlier concerns (Wolfe & Neuwirth, 2001) that unguided annotation often remains superficial. In the early phase of the intervention, students' marking behavior was largely mechanical. However, once annotation was embedded within the metacognitive funnel and supported through modeling and feedback, students began to:

- question author claims
- identify rhetorical structure
- detect bias
- build intertextual connections

This suggests that the effectiveness of annotation **is instruction-dependent**, a point that has been insufficiently emphasized in prior higher education research. The study therefore contributes to the literature by empirically demonstrating the synergistic relationship between structured metacognitive scaffolding and strategic annotation.

Synergistic Effects of the Integrated Approach

The combined use of the metacognitive funnel and annotation appears to have produced effects that neither strategy alone typically achieves. While previous studies have examined metacognitive instruction (e.g., Baker & Brown, 1980; Pintrich, 2002) and annotation practices separately, few have investigated their integration in authentic university contexts.

The current findings suggest a complementary mechanism:

- the funnel provided procedural guidance (the “how” of reading)
- annotation provided cognitive externalization (the “visible trace” of thinking)

Together, they created a recursive feedback loop that supported sustained engagement. This may explain the notable improvement observed in comprehension scores and students' reported sense of control over reading.

From a socio-constructivist perspective (Vygotsky, 1978), the intervention functioned as a form of scaffolded mediation that gradually shifted regulatory responsibility from instructor to learner. The reduction in reported cognitive overload over time further supports the interpretation that students were internalizing the strategic routines.

Limitations of the Study

Several limitations should be acknowledged. First, the study was conducted with a relatively small sample from a single institutional context, which limits statistical generalizability. Second, the intervention spanned one semester; longer longitudinal research would be necessary to determine the durability and transferability of the observed gains. Third, although supplementary quantitative indicators were included, the primary design was qualitative, and causal claims should therefore be interpreted cautiously. Additionally, instructor involvement in modeling and feedback may have influenced student engagement, raising the possibility of implementation effects that future studies should examine across multiple instructors.

Conclusion

This paper examined how the combination of the metacognitive funnel and systematic annotation affects academic reading comprehension and engagement of undergraduate students. The results indicate that explicit and scaffolded instruction in metacognitive instruction can significantly change students' reading habits who tend to engage in reading in a rather passive way to reading in a strategic, self-controlled and critically active way. The students who were subjected to the semester-long intervention showed considerable qualitative growth in their ability to predict, monitor and critically evaluate textual meaning. Annotation became more analytical and interpretative with more substantive commentary, which implied more cognitive engagement, as opposed to superficial highlighting. The combination of these changes indicates that the integrated instructional model was effective in enhancing the emergence of metacognitive awareness and active meaning construction.

Notably, the metacognitive funnel offered students a clear procedural structure of treating complicated academic readings, and annotation served as an observable process of externalizing and organizing the comprehension. These strategies seem to be complementary to each other, which gradually lessens the cognitive load at the same time as increasing the control of the learner. The performance data also show that these strategic developments were coupled with the quantifiable changes in the results of reading comprehension.

Theoretically, this study upholds constructivist and metacognitive theories of reading by showing that the higher-order comprehension skills may be taught explicitly and systematically at the tertiary level of education. Pedagogically, the results indicate the need for instructors of higher education to shift past implicit assumptions of student reading proficiency and explicitly teach strategies as a part of academic literacy programs.

The study is, however, constrained by its small-scale design, as it is carried out in one institution and has a small number of participants and it had a rather small duration of implementation period. Future studies should examine the long-term sustainability of these results, cross-disciplinary applications and further support of the model by larger-scale quasi-experimental or experimental studies.

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Ամփոփագիր

Բարձրագույն կրթության համակարգում ընթերցանության ընկալումը դեռևս մեծ մասամբ դիտարկվում է սահմանափակ տեսանկյունից՝ շեշտը դնելով զուտ բովանդակության վերծանման ու վերարտադրման վրա, միաժամանակ հաճախ անտեսելով խորքային ըմբռնման համար անհրաժեշտ մետաճանաչողական ու անդրադարձային գործընթացների դերը: Սույն հետազոտությունը ներկայացնում և քննում է միասնական մոտեցում՝ մետաճանաչողական ձագարի ու ռազմավարական ծանոթագրման համակցումը, որն ուղղված է բակալավրիատի ուսանողների շրջանում ընթերցանության առավել ակտիվ ու քննադատական գործելակերպի զարգացմանը: Առաջնորդվելով սոցիալ-կոնստրուկտիվիստական ու մետաճանաչողական տեսություններով՝ հետազոտությունը պարզում է, թե ինչպես է կանխատեսման, մշտադիտարկման, հստակեցման ու անդրադարձի կառուցվածքային կրկնվող հաջորդականությունը՝ ծանոթագրման ռազմավարությունների հետ համակցված, փոխում կամ բարելավում ուսանողների կողմից ակադեմիական տեքստերի ընկալումն ու ճանաչողական ներգրավվածությունը: Հայաստանի եվրոպական համալսարանի բակալավրիատի ուսանողների մասնակցությամբ իրականացվել է որակական դեպքի ուսումնասիրություն՝ կիրառելով բարձրաձայն մտածելու մեթոդը, ուղղորդված ընթերցանության պարապմունքներ ու անդրադարձային հարցազրույցներ: Արդյունքները ցույց են տալիս, թե ինչպես մետաճանաչողական ձագարը հնարավորություն ընձեռեց ուսանողներին նպատակաուղղված կերպով աշխատելու տեքստերի հետ, բացահայտելու հայեցակարգային թերություններն ու կատարելու այդ տեքստերի շատ ավելի խորը վերլուծություն: Ծանոթագրությունները չընկալվեցին որպես սոսկ օժանդակ միջոցներ, այլ դրսևորվեցին որպես իմաստաստեղծ գործընթացներ՝ մետաճանաչողական իրազեկմանը զուգահեռ: Ավելին, ուսումնասիրությունը կենտրոնանում է ռազմավարական ընթերցանության խոչընդոտների վրա և առաջարկում է դասավանդման մոտեցումներ՝ համալսարան-

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