This is an open access article under the
Creative Commons Attribution 4.0 International License

PROBLEMS
OF EDUCATION
IN THE 21st CENTURY
Vol. 84, No. 5, 2026
802

THE REWARD MODEL FOR ACADEMIC WRITING IN HIGHER EDUCATION IN THE AGE OF GENERATIVE AI: STUDENT EXPERIENCES AND TEACHER EVALUATIONS

Riikka Partanen
Lapland University of Applied Sciences, Finland
E-mail: riikka.ilona.partanen@gmail.com

Outi Kallionpää
University of Lapland, Finland
E-mail: outi.kallionpaa@ulapland.fi

Abstract

Generative artificial intelligence (AI) raises questions about how students demonstrate understanding through academic writing in higher education. This qualitative study provided a preliminary pedagogical evaluation of the REWARD model, which links reading, collaborative writing, application, peer-led activities, and discussion and reflection. The aim was to identify reported strengths, implementation difficulties, and priorities for development, including teachers' perspectives on generative artificial intelligence (AI). Open-ended questionnaire responses were collected from 24 pre-service teachers who participated in a course implementation and five higher education teachers who evaluated a written and visual presentation of the model. Responses were analysed using inductive qualitative content analysis, and the findings were subsequently presented according to the model's phases. Student responses described benefits from connecting literature, writing, and pedagogical application, alongside concerns about workload, unequal contributions, and uneven peer feedback. Teachers identified reading and writing as potentially vulnerable to AI-supported shortcuts and viewed application, presentation, and discussion as opportunities for students to demonstrate and explain their understanding. The evaluation concerns participants' reported experiences and judgements; it does not establish effects on learning or academic writing performance.

Keywords: *academic writing, higher education, AI, teacher education*

Introduction

The rapid emergence of generative artificial intelligence (AI) is transforming academic writing in higher education. AI tools can now generate texts that have traditionally demonstrated learning, such as essays, summaries, and reflective texts, in whole or in part. As a result, higher education faces a fundamental pedagogical question: How can educators ensure that students actively engage with disciplinary knowledge and demonstrate their understanding when text production itself can be increasingly automated?

This challenge is relevant in teacher education, where academic writing supports not only academic achievement but also the development of pedagogical thinking and professional expertise (Konst, 2022; Kostiainen et al., 2026). However, the teaching of writing often remains disconnected from disciplinary learning and professional practice (Schillings et al., 2023; Wingate, 2012, 2014). Consequently, there is growing interest in pedagogical approaches that

https://doi.org/10.33225/pec/26.84.802 ISSN 1822-7864 (Print) ISSN 2538-7111 (Online)

PROBLEMS
OF EDUCATION
IN THE 21st CENTURY
Vol. 84, No. 5, 2026

emphasise collaboration, reflection, dialogue, and the application of knowledge rather than the production of written texts alone (Bovill, 2020; Cook-Sather et al., 2014; Fullan & Langworthy, 2014).

The REWARD model connects reading and collaborative academic writing with the design and facilitation of pedagogical activities and discussion. The model requires evaluation of how these connections work in practice: a sequence intended to integrate learning may also create workload, coordination, and feedback difficulties. Students' accounts of a completed implementation can identify such difficulties, while experienced higher education teachers can assess the proposed design and consider its future development. These complementary perspectives provide a basis for refining the model.

The empirical focus was a preliminary pedagogical evaluation of REWARD. Students reported experiences of participating in its activities, whereas teachers evaluated a presentation of the model and considered the implications of generative AI for writing pedagogy. The evaluation concerned reported strengths, implementation problems, and development priorities.

Academic Writing as a Social, Disciplinary, and Reflective Learning Process

Academic writing has traditionally been taught as a set of transferable study skills, including grammar, referencing, and academic conventions. However, this approach, which treats writing as a decontextualised activity detached from disciplinary knowledge and authentic academic practices, has been criticised (Lea & Street, 1998).

Alternative perspectives conceptualise writing as a disciplinary and social practice through which students participate in academic communities, construct knowledge, and develop expertise (Bizzell, 1982; Lea & Street, 1998; Wingate, 2006, 2014). Similarly, writing-to-learn approaches emphasise that writing supports learning by encouraging learners to organise ideas, connect concepts, evaluate evidence, and reflect on their understanding (Emig, 1977; Russell, 2002).

Contemporary research further highlights the importance of collaborative and dialogic approaches to the teaching of writing. Discussion, peer feedback, collaborative writing, and opportunities to apply theoretical knowledge support both academic literacy development and deeper conceptual understanding (Anisah & Suryati, 2025; Wingate, 2006). Consequently, academic writing can be understood not only as a means of communication but also as a socially mediated process through which disciplinary understanding, professional expertise, and academic identity are developed.

Academic Writing in the Age of Generative AI

Generative AI is changing how academic writing is taught, practised, and assessed. AI can support idea generation, source engagement, feedback, revision, and text production, but it also creates a pedagogical challenge: students may produce fluent texts without fully engaging in the intellectual processes that academic writing is intended to cultivate (Anson & Cole, 2026; Qian, 2025; Wang, 2025). These developments raise questions about which writing activities students undertake themselves and how teachers can support those activities.

This challenge is significant because academic writing is more than a finished product. It is a cognitive, epistemic, and social process through which students interpret sources, construct arguments, transform knowledge, and participate in disciplinary communities (Bereiter & Scardamalia, 1987; Flower & Hayes, 1981; Hayes, 1996; Lea & Street, 1998; Wingate, 2006, 2014).

Generative AI can be understood as a form of shared agency that participates in knowledge construction by suggesting ideas, structures, and revisions (Partanen & Kyykkä,

PROBLEMS
OF EDUCATION
IN THE 21st CENTURY
Vol. 84, No. 5, 2026

2026; Wang, 2025). However, the human writer remains responsible for evaluating suggestions, making authorial decisions, and justifying scholarly claims (Miao & Holmes, 2023; Partanen & Kyykkä, 2026; Watson, 2025).

AI's pedagogical significance depends on the role it assumes in the writing process. AI may function as a scaffold that supports thinking or as a substitute that performs key learning processes on the student's behalf (Qian, 2025; Sørhaug, 2026). Consequently, the challenge is not simply whether students use AI, but whether they remain actively engaged in the processes through which they develop academic writing and disciplinary understanding.

Process-oriented teaching aims to make learning visible by requiring students to interpret, apply, discuss, and justify knowledge rather than relying solely on written products.

The REWARD Model for Academic writing in the age of AI

The theoretical perspectives presented above suggest that academic writing pedagogy should integrate disciplinary literacy, collaborative knowledge construction, reflection, and opportunities to demonstrate understanding. These principles become increasingly important in educational environments where generative AI can support or partially automate writing processes.

The process-oriented REWARD Model was developed to connect five phases: Reading, Writing, Applying, Real-life drills and presentations, and Discussion and reflection. Its pedagogical rationale draws on constructive alignment and transformative learning: engagement with literature connects to written synthesis, practical application, and reflection on the activity (Biggs, 1996; Mezirow, 1991, 2000). In this study, we present the students' evaluation of the model.

In the age of Generative AI, the student's shared agency with AI shifts attention to the learner's responsibility to evaluate suggestions and justify knowledge when AI contributes to the process (Partanen & Kyykkä, 2026). Process-oriented pedagogy and assessment likewise highlight how activities and assessment practices may need to adapt (Montebello, 2025; Pireci Sejdiu & Sejdiu, 2026; Webb & Galamba, 2026). These perspectives informed how we interpreted the teachers' suggestions for future versions of REWARD.

Research Questions

The research problem concerned how students experienced a sequence linking academic writing, collaborative work, and pedagogical application, and how its design could be improved. The aim was to identify students' reported experiences of REWARD and teachers' evaluations of its strengths, challenges, and development needs. Teachers' reflections on generative AI formed a prospective strand of this evaluation. The following research questions guided the analysis:

RQ1: What benefits and challenges did students report from participating in the REWARD model for academic writing and learning?

RQ2: What pedagogical strengths, challenges, and development needs did higher education teachers identify in the REWARD model?

RQ3: What implications of generative AI did higher education teachers identify for writing pedagogy and the future development of REWARD?

https://doi.org/10.33225/pec/26.84.802 ISSN 1822-7864 (Print) ISSN 2538-7111 (Online)

PROBLEMS
OF EDUCATION
IN THE 21st CENTURY
Vol. 84, No. 5, 2026

Research Methodology

General Background

The student component was conducted within a Finnish language and literature didactics course in teacher education at the University of Lapland, Finland. The course connected disciplinary understanding with the planning of teaching activities (Hankala et al., 2024). A separate questionnaire invited higher education teachers to evaluate a presentation of the model. The design combined an evaluation of one course implementation with prospective feedback from experienced writing teachers.

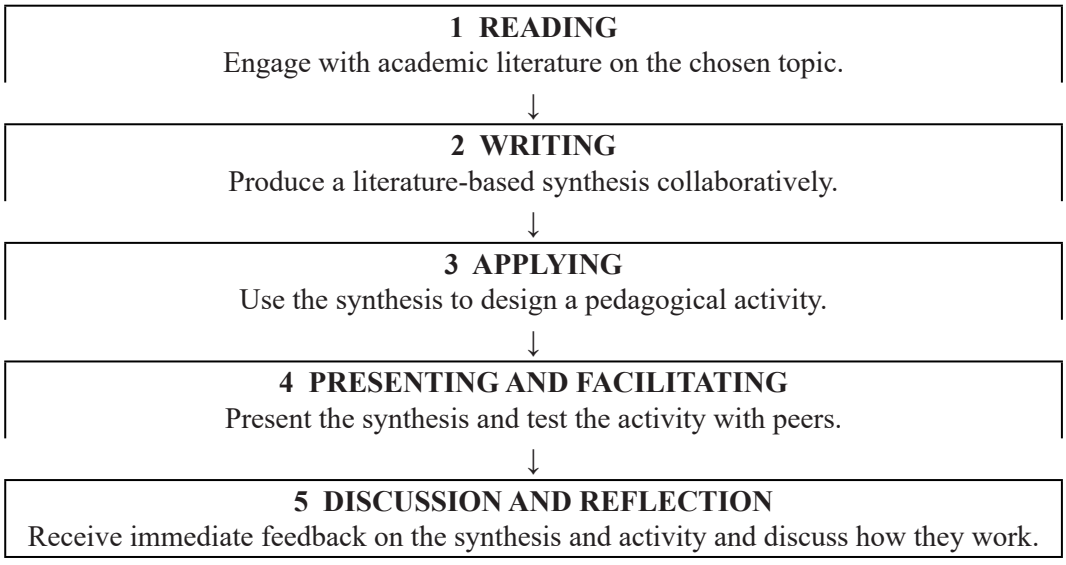
The REWARD model was developed to integrate academic literacy, collaborative learning, and pedagogical application. The acronym refers to five interconnected phases: Reading, Writing, Applying, Real-life drills and presentations, and Discussion and reflection (Figure 1). The model guides students from engagement with academic literature towards practical application, presentation, and reflective dialogue.

In the REWARD model, a 'real-life drill' refers to a pedagogical activity that students design collaboratively on their chosen topic and facilitate for their peers. Students test the activity in practice with their peers in a real classroom interaction and receive immediate feedback on how it works. This enables the group to consider the activity's feasibility and how it might be improved. The activity connects the preceding literature-based academic writing task on the chosen topic to practical application. For example, a group focusing on a dialogic teaching method designs an activity using that method and leads the activity for the other students. The term 'pedagogical activity' is used below to describe this component of the model.

In the spring 2025 implementation, students read academic literature, collaboratively produced written syntheses, designed pedagogical activities, and, in small groups, presented their synthesis and tested the pedagogical activity, followed by discussion and reflection. At the end of the course, students evaluated their learning experiences through an online questionnaire.

Although the 2025 model did not explicitly incorporate generative AI, the teacher questionnaire conducted in 2026 included questions about its potential role in academic writing and learning.

Figure 1
Five Phases of the REWARD Model



ISSN 1822-7864 (Print) ISSN 2538-7111 (Online) https://doi.org/10.33225/pec/26.84.802

PROBLEMS
OF EDUCATION
IN THE 21st CENTURY
Vol. 84, No. 5, 2026

Sample

Two sets of open-ended questionnaire responses were used. Student responses concerned the spring 2025 course implementation at the University of Lapland, and teacher responses were collected in spring 2026 to inform further development of the model.

Of the 93 course participants invited to the voluntary questionnaire, 24 responded (26%). They were pre-service teachers who had participated in the REWARD activities. Seventeen respondents were aged 18–23 years, four were aged 24–29 years, and three selected the over-30 category.

Twenty-five teachers of academic writing at Finnish universities of applied sciences and universities were invited by email, mainly through the authors' professional networks. Five teachers from two higher education institutions responded (20%). Teaching academic writing in higher education was the inclusion criterion. We invited teachers with relevant experience across the two higher education sectors; no comparison between institutions was intended. Participation was voluntary, and the sample was not intended to represent all higher education writing teachers.

Instrument and Procedures

The authors developed both questionnaires for the evaluation, based on the REWARD model they designed. Both authors read and trialled the questionnaires before distribution, and revised the questions through successive rounds in an internal review and trialling process. Open-ended questions sought descriptions and evaluations rather than scores on a standardized scale. Their coverage of the model's phases supported the evaluation's focus.

The student questionnaire was administered through Webropol, an online survey platform. Seven open-ended questions addressed literature and reading time; reading strategies; responsibility and collaborative writing; guiding questions and development of thinking; academic writing practices and perceived skill development; presenting, facilitating, and participating in activities, discussion, and feedback; and general course feedback. A consent item preceded the questions, and age was collected using three categorical response options. All 24 respondents consented; 21–24 answered each open-ended question.

The student questionnaire did not ask about AI use. During the spring 2025 course, the institution had not arranged AI access for students. For this reason, it would not have been responsible or ethical to require students to experiment with AI during the model's pilot implementation. However, the instructor recalled that some students mentioned using AI independently during REWARD classroom presentations. These informal classroom accounts were not collected as research data and were not included in the analysis.

The teacher questionnaire presented a brief written description and an image of REWARD. Four open-ended questions asked about the model and its phases; how AI should be considered, with reasons and phase-specific examples; possible changes to the concept and significance of writing skills; and suggested model improvements. It also requested permission to use the responses anonymously in a research article. The questionnaire did not include demographic questions.

Data Analysis

A qualitative approach was used to evaluate student-reported experiences and teachers' assessments of REWARD. Open-ended responses were analysed using qualitative content analysis (Elo & Kyngäs, 2008; Vaismoradi et al., 2016). Coding and theme development were grounded in the responses. Findings were interpreted as accounts of perceived benefits and difficulties.

https://doi.org/10.33225/pec/26.84.802 ISSN 1822-7864 (Print) ISSN 2538-7111 (Online)

PROBLEMS
OF EDUCATION
IN THE 21st CENTURY
Vol. 84, No. 5, 2026

Both authors familiarised themselves with the student and teacher datasets. The first author conducted the initial coding of each dataset separately, reading responses repeatedly and marking expressions relevant to the research questions in Word. Codes were developed from the content of the responses and related expressions were brought together into themes. The analysis addressed participants' accounts of pedagogical value, challenges, and development needs, alongside teachers' reflections on generative AI and writing pedagogy.

Both authors examined the coding and the developing interpretations. The second author commented on and questioned the coding and interpretations, and contributed to their revision. Through discussion, the authors refined the analysis and considered how the interpretations reflected participants' responses. Student experiences and teacher assessments were compared while retaining the distinction between participation in the model and evaluation of its presentation.

Once the themes had been developed and reviewed, the authors chose to present the findings according to the REWARD phases. This structure was considered the clearest way for readers to relate participants' accounts to the model's activities. The phases therefore provided a framework for reporting the findings.

Repeated engagement with the data and critical discussion between the authors supported scrutiny and refined interpretations. Illustrative quotations make the relationship between participants' accounts and the reported findings available to readers. The analysis thus combined initial coding by one researcher with joint examination and critical review by both researchers. The first author translated the quotations from Finnish into English, and the professional language editor reviewed the manuscript.

Student quotations are identified by question and response position in the Webropol report. For example, SQ1-R12 denotes response 12 to the first substantive open-ended question; the seven substantive questions are numbered in their questionnaire order, excluding consent and age items. These codes identify responses, not individual students. Responses were not linked across questions, and no student-level trajectories were inferred. Teacher quotations retain identifiers TP1–TP5: each identifier consistently denotes the same teacher across all four questions, which all five teachers answered.

Ethical Considerations

The study adhered to established ethical principles for research involving human participants. Participation was voluntary, informed consent was obtained, research responses were treated confidentially, and quotations were anonymised. The student questionnaire was distributed after course grades had been assigned. Participation was voluntary and could not affect course assessment. All quotations were anonymised and translated from Finnish to English. The original meaning of participants' responses was preserved while protecting their identities. No data were collected on individual students' use of generative AI. Under the Finnish National Board on Research Integrity (TENK) guidelines, the study did not meet the criteria requiring prior ethical review; therefore, ethics committee approval was not required.

Research Results

Step 1: Reading Academic References

The first step of the REWARD model focuses on engaging with academic literature. Analysis of the student and teacher data revealed three central themes: the role of reading as a foundation for learning, the use of individual and collaborative reading strategies, and the opportunities and challenges posed by AI.

PROBLEMS
OF EDUCATION
IN THE 21st CENTURY
Vol. 84, No. 5, 2026

Students generally considered the assigned literature to be relevant, diverse, and supportive of their learning. Although some participants found reading five to seven academic references for each of six assignments demanding, responses varied in their assessment of the workload. Students reported that reading helped them connect scientific knowledge to the assignment topics and provided a foundation for subsequent group work. In response SQ1-R12, a student explained, "I often spent 3–4 hours on literature before the actual writing process."

Response SQ1-R21 noted, "We familiarised ourselves with the literature well, which made producing the text smooth." Despite the overall positive experiences, some students reported practical challenges, such as difficulties accessing or reading certain articles.

Students reported using a variety of reading strategies. Responses described note-taking while reading, which helped them organise information, compare sources, and prepare for collaborative writing. Participants also described selective reading, skimming, rereading difficult sections, and dividing references among group members.

Response SQ2-R14 described the reading strategy: "I read the literature carefully once; I also skimmed the text and read it through quickly."

Response SQ2-R19 described a note-taking strategy: "I took notes on the lecture topics, and when necessary, I also looked up additional information on the topic. The idea is to return to the notes when needed."

In several groups, students read individually, then discussed, allowing them to share insights and build understanding together. These collaborative discussions were often perceived as productive and rewarding.

Teachers viewed reading as the foundation of the REWARD model and as a key mechanism for developing research-based thinking, expertise, and evidence-informed decision-making. However, they also saw reading as the stage most vulnerable to AI's influence. Teachers expressed concern that students might replace direct engagement with academic literature with AI-generated summaries and syntheses.

As teacher participant TP3 observed, "It's very easy to feed an article into AI and ask it to produce a synthesis. Many students would probably do exactly that unless the process is somehow guided differently."

This concern reflected a broader belief that reading is not merely a means of acquiring information but an essential component of intellectual development. As teacher participant TP2 stated, "In the euphoria of convenience, a novice academic writer doesn't have time to think about anything."

At the same time, teachers acknowledged that AI could support reading by helping with information retrieval, concept clarification, and interpreting complex academic texts.

Step 2: Writing in a Small Group

The second step of the REWARD model focuses on collaborative academic writing. Analysis of the student and teacher data revealed four central themes: collaborative responsibility, challenges of coordination and academic writing, writing as a tool for thinking, and teachers' anticipated implications of AI for writing practices.

Students generally viewed collaborative writing positively and emphasised clear task allocation and shared responsibility. Groups described as successful established common working practices early and distributed writing tasks based on members' interests, expertise, or availability. Participants appreciated flexibility in workload distribution and described their groups as supportive and effective learning environments. As one participant explained:

> Responsibility was divided evenly; sometimes someone did less, and the next time more, for example, because of work, but on the scale, everyone had the same amount of work and

https://doi.org/10.33225/pec/26.84.802 ISSN 1822-7864 (Print) ISSN 2538-7111 (Online)

PROBLEMS
OF EDUCATION
IN THE 21st CENTURY
Vol. 84, No. 5, 2026

> responsibility. The areas to be written were divided among us. Good practices included taking a brisk amount of time together to do the assignment. The challenge we faced was that there were a lot of these, so it was sometimes challenging to fit everyone's schedule. (SQ3-R2)

Similarly, in response to SQ3-R14, a student noted, "We divided the responsibility equally among everyone, and everyone had their section to write about in the learning assignment. We also divided the sections by subject area to ensure that the sections of the assignment were of high quality."

Despite these positive experiences, coordinating schedules was a reported challenge. Many groups struggled to find suitable times for collaborative work, and some relied on individual writing, then compiled it into a single document. Participants also reported challenges related to academic writing itself, condensing large amounts of information into concise texts and developing a coherent academic style. One participant reflected:

> There was a lot of literature compared to the amount of text I was allowed to write in the assignment. The meetings were held quite quickly, so I didn't always have time to familiarise myself with everything as well as I would have liked. (SQ1-R16)

Another student participant highlighted the difficulties associated with uneven participation:

> The challenge with the group was that the workload was not always evenly distributed, and not everyone did their part by the deadline. It was difficult to organise time together to do tasks in our free time due to different life situations, and it never happened that all of us in the group were doing learning tasks in the same place at the same time. (SQ3-R12)

Teachers viewed the writing phase as the most challenging stage of the REWARD model in terms of AI. While they acknowledged the value of collaborative writing, they questioned how writing could remain a meaningful learning activity as AI tools become increasingly capable of generating coherent syntheses and academic texts. As teacher participant TP5 observed:

> In the second phase, AI is a challenge: I suspect that students could try to complete this phase using AI, whereas the later phases are more difficult to outsource. If you feed the articles into AI and ask it to produce a synthesis, the result will probably be quite acceptable.

This concern was closely linked to the view that writing serves as a cognitive tool rather than merely a method of producing text. Teacher participant TP2 explained, "In academic writing, writing has traditionally been regarded as a tool for thinking. Previously, we have 'forced' students to process at least some ideas and conclusions by requiring them to express, for example, their research work in writing."

Although AI was perceived as reducing the importance of the technical aspects of writing, teachers suggested that it simultaneously increases the importance of understanding, argumentation, reflection, and critical evaluation.

Step 3: Applying Knowledge to a Pedagogical Activity

The third step of the REWARD model focuses on applying acquired knowledge to design a pedagogical activity. Analysis of the student and teacher data revealed three central themes: the role of writing as preparation for application, collaborative knowledge construction, and teachers' views of application as an opportunity to demonstrate understanding.

PROBLEMS
OF EDUCATION
IN THE 21st CENTURY
Vol. 84, No. 5, 2026

Students generally reported that their understanding of the topic developed gradually during the writing process, which then helped them design the pedagogical activity. Participants frequently described the writing task as a prerequisite for successful application, helping them process the literature, deepen their understanding, and generate ideas for practical implementation.

Participants viewed the guiding questions in the assignments as valuable for directing attention to essential issues and supporting knowledge construction. In response to SQ4-R13, a student explained, "The help questions were really good; without them, the writing and planning would have been much more challenging. I feel that my thinking developed a lot during the writing processes of the learning tasks."

Similarly, in response to SQ4-R19, a student noted, "They made it easy to start looking for suitable sources and composing the text. The writing process has increased understanding of the themes discussed and added many new ideas for practical drills."

A second theme concerned collaborative knowledge construction. Students emphasised the importance of discussion and shared reflection when planning the pedagogical activities. Students described group discussions as helping them exchange perspectives, clarify ideas, and connect theoretical knowledge to practical situations. Response SQ4-R7 stated, "The guiding questions helped focus on the essential issues in relation to the course objectives. Thinking is developed especially through joint discussion, which provides new perspectives and approaches to the task."

Another participant described how simultaneous collaboration supported the planning process:

> We divided the responsibilities so that two did the writing task, two did the drill, and one wrote the goals. We did the work simultaneously in the same place, which allowed us to discuss. We found this method to work. (SQ3-R24)

Teachers viewed the application phase largely positively and considered it a strength of the REWARD model. They saw the application as shifting the focus from text production to knowledge use, making students' understanding more visible. As teacher participant TP5 noted, "If a student uses AI as a tool, the outcome no longer measures the student's writing skills but rather their ability to use different tools. That's why it's beneficial to include application and personal reflection."

Teachers felt that this phase was well suited to the university of applied sciences context, where applying research-based knowledge to real-life professional situations is a central learning objective. At the same time, several teachers expressed a need for more concrete examples of the types of practical applications students are expected to produce and how the application phase connects to the preceding stages of the model.

Step 4: Presenting and Facilitating the Pedagogical Activity

The fourth step of the REWARD model focuses on presenting the written synthesis and facilitating the pedagogical activity for peers. Analysis of the student and teacher data revealed three central themes: the perceived contribution of presenting to learning, peer interaction as a source of learning, and teachers' views of presenting as an opportunity to demonstrate understanding.

Students initially described presenting and facilitating the pedagogical activities as demanding and, in some cases, intimidating. However, as the course progressed and routines became established, some responses described increased confidence and perceived educational value in these activities. Students described presenting as encouraging them to organise their

https://doi.org/10.33225/pec/26.84.802 ISSN 1822-7864 (Print) ISSN 2538-7111 (Online)

PROBLEMS
OF EDUCATION
IN THE 21st CENTURY
Vol. 84, No. 5, 2026

thoughts and communicate their understanding. In response to SQ6-R7, a student explained, "I think this was the most rewarding part of the course, as I was able to gather my thoughts and present them. The students' feedback was also significant for my learning."

Similarly, another participant emphasised the motivational effect of presenting:

> Since I had to present my presentation, I also wanted to invest in my accumulated knowledge. It was nice to listen to other people's presentations, but sometimes I missed some of it when I was focused on giving my presentation, for example. (SQ6-R14)

A second theme concerned the social and collaborative dimensions of presenting. Many students described group discussions, peer interaction, and participation in peer-led pedagogical activities as valuable learning experiences. Students described presenting and observing others' work as helping them compare approaches, refine ideas, and connect theory to practice. One participant described the learning environment as follows:

> The presentations were good, but there was a lot of overlap, and you could hear the same thing many times. But that wasn't a problem. Our group was flexible, wonderfully functional, and conversational. These moments spent with others were the best gift. (SQ6-R5)

Another participant highlighted the value of practical testing:

> The tasks presented in the group meetings supported my learning, for example, by allowing me to try out how the drill works in practice. The practical exercises also supported learning, as I was able to learn the subject through doing in addition to theoretical knowledge. In the presentations, only the theory part was often very similar across groups, so I wondered whether it would be enough in a teaching situation to go through the theory only once and supplement it only if the groups had something to add? (SQ6-R15)

Despite these positive experiences, some students expressed concerns about repetition, declining audience engagement, and limited peer feedback. Several participants reported difficulties maintaining concentration during presentations, particularly when similar topics were repeatedly discussed. One participant stated:

> Presenting was quite pointless, and watching presentations was even more pointless. It would be nice to learn; but especially towards the end, the focus on the presentations was lost. While giving the presentation itself, I noticed that no one was really following along, and the constant repetition of similar exercises was boring. The only sensible feedback on the output and presentation came from the teacher. Peer feedback would also be important, especially for the followers themselves. (SQ6-R2)

Another participant similarly noted:

> At first, the idea made me nervous, but towards the end it became routine. Sometimes it was difficult to concentrate on listening to the other topics because I felt restless. Feedback was necessary. These learning activities could be developed by involving the listeners more, which would help maintain their interest. (SQ6-R3)

Teachers viewed the presentation phase as a potential opportunity to examine students' understanding. They anticipated that presentations could provide opportunities to explain and discuss understanding alongside written work, including when AI was used in earlier phases.

PROBLEMS
OF EDUCATION
IN THE 21st CENTURY
Vol. 84, No. 5, 2026

As teacher participant TP3 noted, "Presenting is already one solution that forces students to become familiar with their own topics." Teacher participant TP4 similarly emphasised, "If a student is able to engage in a meaningful discussion about the topic, they have most likely become familiar with it rather than simply outsourcing the work to AI."

Teachers thus regarded presentations as a possible means of examining engagement with research-based knowledge, rather than as a guarantee of such engagement. At the same time, teachers highlighted the growing importance of dialogue and human interaction in AI-supported learning.

According to one teacher, "The spread of AI has made me think that encounters between teachers and students are more important than ever."

However, teachers also noted practical challenges, particularly in large groups where meaningful opportunities for presentation, discussion, and feedback may require substantial teaching resources.

Step 5: Discussing and Giving Feedback

The fifth step of the REWARD model focuses on following other groups' presentations, participating in pedagogical activities, discussing course themes, and providing feedback. Analysis of student and teacher data revealed three central themes: learning from peers, the benefits and limitations of feedback discussions, and teachers' views of discussion as an opportunity to examine understanding when AI is available.

Students generally perceived observing other groups' presentations and pedagogical activities as a valuable learning opportunity. Students reported that exposure to diverse approaches, teaching ideas, and practical solutions broadened their perspectives and provided ideas for future professional practice. Many participants identified the discussions and feedback sessions as among the most rewarding elements of the model. As one participant explained:

> Watching other presentations broadened my perspectives on different topics, and I got several tips, especially from the book-based teaching. Giving and receiving feedback was nice and developmental. Taking breaks during classes could promote learning by maintaining concentration until the end of the class. (SQ6-R1)

Similarly, in response to SQ6-R20, a student noted, "Watching other people's presentations gave me insights into how this could be done as well as ideas for my lessons. The feedback was encouraging and constructive on both sides."

A second theme concerned the strengths and limitations of discussion and feedback sessions. Students generally described feedback as constructive and supportive, and many valued the opportunity to exchange ideas and perspectives with their peers. However, some participants felt that the discussion sessions became lengthy and that the balance between discussion and practical activities could be improved. One participant stated:

> The development could focus on more concrete activities; of course, there should be theory as well, but there were not many student-led exercises in the classes, and mainly they just went through what was supposed to be done. I think the exercises are educational when you can put yourself in the child's shoes, and the subject is taught in a certain way or style. (SQ6-R16)

Others highlighted challenges related to concentration and engagement during extended presentation sessions. As one participant explained:

> The lessons were so long that I couldn't concentrate on the presentations as well as I needed to. Each group presented for about 15–20 minutes, so for a really long time of the lesson, I had to just

https://doi.org/10.33225/pec/26.84.802 ISSN 1822-7864 (Print) ISSN 2538-7111 (Online)

PROBLEMS
OF EDUCATION
IN THE 21st CENTURY
Vol. 84, No. 5, 2026

> watch and listen. I missed a lot of things, even though I tried to concentrate. I didn't get much out of the others' presentations or learn anything. (SQ6-R13)

Teachers viewed discussion and feedback as important in AI-supported learning environments. They also regarded discussion as one of the most reliable ways to assess students' genuine understanding.

As teacher participant TP4 noted, "At the moment, it feels that discussion with the student is still one of the best ways to see what they actually understand and what they have learnt."

At the same time, teachers perceived AI as a potentially useful complement to feedback processes. Teacher participant TP2 suggested, "AI could be trained to provide feedback on a text from a different perspective than the teacher or the group."

Rather than replacing human interaction, AI was therefore viewed as complementing teacher and peer feedback. Teachers viewed discussion and feedback as potential opportunities for reflection and for examining students' understanding when AI is available. These views do not establish the reliability of such assessment.

Summary of Findings in Relation to the Research Questions

In relation to RQ1, students described perceived benefits from linking reading and collaborative writing to pedagogical application, presentation, and discussion. They also reported difficulties with workload, uneven participation, coordination, repetitive presentations, and limited peer feedback.

Regarding RQ2, teachers regarded application, presentation, and dialogue as the model's pedagogical strengths. Their assessments also identified a need for clearer examples, scaffolding, and sufficient resources for interaction and feedback.

Regarding RQ3, teachers anticipated that AI could both support writing-related activities and enable shortcuts in reading and text production. They viewed explanation, application, and discussion as possible ways to examine understanding beyond written products.

Table 1 summarises these reported strengths, challenges, and teacher perspectives.

PROBLEMS
OF EDUCATION
IN THE 21st CENTURY
Vol. 84, No. 5, 2026

Table 1
Reported Strengths and Challenges of the REWARD Phases and Teachers' Perspectives on AI

REWARD phase	Reported learning role	Reported strengths	Reported challenges	Teachers' perspectives on AI
Reading	Engagement with disciplinary knowledge	Foundation for writing and discussion	Workload, access, uneven reading	May clarify concepts or replace direct reading
Writing	Synthesis and expression of thinking	Collaborative meaning-making	Coordination, unequal workload, academic style	May support revision or generate a synthesis
Applying	Connecting theory to pedagogical activity	Theory–practice connection	Need for examples and criteria	May support ideas; students explain decisions
Presenting and facilitating	Explaining and applying understanding	Ownership and practical application	Repetition, anxiety, passive audiences	May offer additional opportunities to examine understanding
Discussion and reflection	Reflection and exchange of perspectives	Feedback and alternative perspectives	Time and uneven participation	May complement feedback; human dialogue remains important

Discussion

This study explored students' experiences of participating in REWARD and teachers' assessments of its pedagogical value and development needs. Students valued the connections between writing, discussion, and practical application, while teachers highlighted the importance of scaffolding and collaboration.

For RQ1, students' accounts of connecting sources, writing, and pedagogical activities are consistent with the case for embedding academic writing in disciplinary work rather than treating it as a transferable technical skill (Lea & Street, 1998; Wingate, 2006, 2012). Yet the reports of dividing tasks and assembling separately written sections expose a limitation in the design: a shared product need not involve shared reasoning. Constructive alignment helps explain the problem (Biggs, 1996). If understanding is a goal, group organisation and assessment must give each student a reason to engage with the whole task. The present data therefore support a design requirement for explicit shared review and individual explanation, rather than a claim that collaboration itself improved academic literacy.

The reported value of using writing to organise ideas also connects with writing-to-learn perspectives (Emig, 1977; Russell, 2002) and cognitive accounts of composing (Bereiter & Scardamalia, 1987; Flower & Hayes, 1981; Hayes, 1996). These perspectives locate learning in the work of formulating and revising meaning, rather than in the completed text alone. They help explain why dividing a synthesis into separate contributions may reduce opportunities for each student to reconsider the overall argument. REWARD's five teaching phases should therefore not be equated with a linear cognitive writing process: planning, reading, drafting, and reviewing may recur within and across phases. The results indicate how students experienced these arrangements, but do not directly trace their composing processes.

For RQ2, the teachers' positive evaluations of application and dialogue must be read alongside students' reports of repetition and limited audience engagement. Schillings et al.

PROBLEMS
OF EDUCATION
IN THE 21st CENTURY
Vol. 84, No. 5, 2026

(2023) found that students often valued feedback dialogue, but its effectiveness depended on how it was organised, and they called for further research. The REWARD responses similarly suggest that scheduling discussion does not ensure useful feedback. A practical revision would be to ask listeners to identify a link to the literature, comment on one aspect of the activity's functioning, and suggest one change.

For RQ3, teachers anticipated that AI could assist with reading and revision while also letting students bypass work intended to support understanding. Wang (2025) examined actual AI-assisted writing practices in a US higher education setting. His findings support guided experimentation with AI and asking students to document and explain their own decisions during the writing process. In line with Wang (2025), the teachers' concerns identify a question for REWARD's future design: which decisions and explanations should students undertake and report when AI tools contribute to the written product? Process-oriented assessment proposals offer a rationale for examining that question (Montebello, 2025; Webb & Galamba, 2026), but the present evaluation cannot determine which arrangement sustains learning.

The shared-agency perspective in the framework helps specify what should remain attributable to the learner when AI contributes to writing (Partanen & Kyykkä, 2026). Responsibility for evaluating suggestions and justifying claims also links teachers' concerns to guidance on responsible AI use and scholarly authorship (Miao & Holmes, 2023; Watson, 2025). These perspectives inform the following proposals for developing REWARD in the age of AI.

In a future version, AI could be incorporated differently across the five phases. During Reading, students could request explanations of difficult concepts and compare them with the assigned literature. During Writing, AI could offer feedback on a draft's structure or clarity, with students deciding which revisions are warranted. During Applying, groups could use AI to generate alternative activity designs and justify their selection through the literature. During Presenting and facilitating, students would test their chosen activity with peers and explain their reasoning, including any AI contributions. During Discussion and reflection, they could compare tool-generated feedback with peers' responses and consider what to revise. These are possible uses for a subsequent REWARD implementation in the age of AI.

Teachers would need to specify permitted uses and the purpose of AI at each phase, arrange access, and explain expectations for source verification and authorship. One option would be explicit phase-specific guidance; another would allow students to choose their uses within agreed requirements for disclosure and justification. In either case, a brief process record could state the tool used, its purpose, the relevant suggestion, the student's decision to accept, modify, or reject it, and the reason for that decision. Students could also indicate phases in which they did not use AI. Selected drafts and examples of revisions could support discussion of these records. A later study would need to evaluate the feasibility and pedagogical value of these arrangements, including the workload created by reporting.

Conclusions and Implications

The contribution of this preliminary evaluation of the REWARD model is a set of development priorities grounded in student-reported implementation problems and teachers' evaluations of the design. The central issue is how to organise the connections between phases so that reading, collaborative writing, application, and feedback remain meaningful to participants. Positive evaluations identify reasons to develop the model; they do not establish that its intended learning functions have been achieved.

Further implementations should make group responsibilities explicit, build in shared review of written syntheses, reduce repeated theoretical presentations, and structure audience participation and feedback. The usefulness of these changes should be evaluated through

PROBLEMS
OF EDUCATION
IN THE 21st CENTURY
Vol. 84, No. 5, 2026

student accounts together with examination of the work and classroom interaction. This would allow a later study to move from reported pedagogical value towards evidence of what students actually demonstrate. AI-related development of the model should be treated as a further design cycle. Teachers could compare explicit guidance for AI use at each phase with student-directed use accompanied by phase-specific reporting. The REWARD model's usefulness in the age of AI in other disciplines and institutions remains to be examined.

The findings of this study should be interpreted in light of the study's limitations. The student responses came from one course at the University of Lapland, and five teachers from two institutions contributed prospective evaluations. Invitation to participate sent mainly through the authors' collegial networks may have influenced willingness to participate and the tone of responses. In addition, teachers assessed REWARD based on a written description and an image rather than their experience implementing the model. Furthermore, although the study explored teachers' perspectives on the implications of generative AI, students were not instructed to use AI, and individual AI use was not systematically documented. The current data consist of self-reported experiences and prospective assessments rather than observed learning outcomes. The student report did not allow responses to different questions to be linked to the same respondent; therefore, the findings reflect patterns across responses rather than individual students' trajectories.

The authors' involvement in developing the model and the first author's teaching role may have influenced responses and interpretation. Both researchers familiarised themselves with the data and critically reviewed the coding and interpretations; this collaborative procedure did not include independent parallel coding or participant validation of the interpretations.

We consider the findings a preliminary evaluation of the model, based on reported experiences and judgments. Future research should examine the REWARD model's implementation across disciplines, educational contexts, and cultural settings, while also exploring how students use generative AI at different stages of the learning process. Such studies would deepen understanding of how pedagogical models can continue to support meaningful learning and academic literacy as AI becomes increasingly integral to higher education.

Declaration of Generative AI Use

During the preparation and revision of this manuscript, the authors used ChatGPT (OpenAI) to assist with language editing, clarifying expression, British English checks, and APA formatting. The English manuscript was also reviewed by an external professional language editor, who did not have access to the original Finnish questionnaire responses. The first author translated the quotations. ChatGPT was not used to collect or code the research data. The authors remain responsible for the final manuscript.

Declaration of Interest

The authors declare no competing interests.

References

Anisah, S., & Suryati, N. (2025). Understanding university students' perceptions of the group work-based activity to enhance collaborative problem-solving skills and its impact on academic writing performance. *Journal on English as a Foreign Language*, *15*(1), 213–236. https://doi.org/10.23971/jefl.v15i1.9653

Anson, C. M., & Cole, K. (2026). Empirical studies of writing and generative AI: Introduction to the special issue. *Journal of Writing Research*, *17*(3). https://doi.org/10.17239/jowr-2026.17.03.01

Bereiter, C., & Scardamalia, M. (1987). *The psychology of written composition.* Lawrence Erlbaum.

Biggs, J. (1996). Enhancing teaching through constructive alignment. *Higher Education*, *32*(3), 347–364.

Bizzell, P. (1982). College composition: Initiation into the academic discourse community. *Curriculum Inquiry*, *12*(2), 191–207.

Bovill, C. (2020). *Co-creating learning and teaching: Towards relational pedagogy in higher education.* Critical Publishing. https://doi.org/10.4324/9781041054597

Cook-Sather, A., Bovill, C., & Felten, P. (2014). *Engaging students as partners in learning and teaching: A guide for faculty.* Jossey-Bass.

Elo, S., & Kyngäs, H. (2008). The qualitative content analysis process. *Journal of Advanced Nursing*, *62*(1), 107–115. https://doi.org/10.1111/j.1365-2648.2007.04569.x

Emig, J. (1977). Writing as a mode of learning. *College Composition and Communication*, *28*(2), 122–128.

Flower, L., & Hayes, J. R. (1981). A cognitive process theory of writing. *College Composition and Communication*, *32*(4), 365–387.

Fullan, M., & Langworthy, M. (2014). *A rich seam: How new pedagogies find deep learning.* Pearson.

Hankala, M., Torvelainen, P., Aalto, E., Kauppinen, M., Mustonen, S., & Tarnanen, M. (2024). Luokanopettajaopiskelijat kielellisiä havaintojaan selittämässä [Pre-service class teachers explaining their linguistic observations]. *AFinLAn vuosikirja*, 17–44. https://doi.org/10.30661/afinlavk.143449

Hayes, J. R. (1996). A new framework for understanding cognition and affect in writing. In C. M. Levy & S. Ransdell (Eds.), *The science of writing: Theories, methods, individual differences, and applications* (pp. 1–27). Lawrence Erlbaum.

Konst, T. (2022). Kestävää tulevaisuutta rakentava korkeakoulupedagogiikka [Higher education pedagogy for building a sustainable future]. In K. Mäki & L. Vanhanen-Nuutinen (Eds.), *Korkeakoulupedagogiikka – Ajat, paikat ja tulkinnat* (pp. 99–110). Haaga-Helia.

Kostiainen, E., Nousiainen, T., & Näykki, P. (2026). From a bitter start to meaningful learning in online teacher education. *Scandinavian Journal of Educational Research*, *70*(1), 32–49. https://doi.org/10.1080/00313831.2025.2459404

Lea, M. R., & Street, B. V. (1998). Student writing in higher education: An academic literacies approach. *Studies in Higher Education*, *23*(2), 157–172. https://doi.org/10.1080/03075079812331380364

Mezirow, J. (1991). *Transformative dimensions of adult learning.* Jossey-Bass.

Mezirow, J. (2000). *Learning as transformation: Critical perspectives on a theory in progress.* Jossey-Bass.

Miao, F., & Holmes, W. (2023). *Guidance for generative AI in education and research.* UNESCO.

Montebello, M. (2025). Rethinking pedagogy and assessment in the age of generative AI. In Artificial intelligence in education: Creating an equitable, creative, and effective learning environment. IntechOpen. https://doi.org/10.5772/intechopen.1012982

Partanen, R., & Kyykkä, T. (2026). Miten tekoälyn kanssa jaettu toimijuus vaikuttaa korkeakouluopetukseen? [How does agency shared with AI influence higher education teaching?] *Lumen – Lapin ammattikorkeakoulun verkkolehti*. https://blogi.eoppimispalvelut.fi/lumenlehti/2026/02/05/miten-tekoalyn-kanssa-jaettu-toimijuus-vaikuttaa-korkeakouluopetukseen/

Pireci Sejdiu, N., & Sejdiu, S. (2026). Generative AI in education: Process-aware pedagogy, assessment integrity and institutional governance. *Open Research Europe*, *6*, Article 161. https://doi.org/10.12688/openreseurope.23343.1

Qian, Y. (2025). Pedagogical applications of generative AI in higher education: A systematic review of the field. *TechTrends*, *69*(5), 1105–1120. https://doi.org/10.1007/s11528-025-01100-1

Russell, D. R. (2002). *Writing in the academic disciplines: A curricular history* (2nd ed.). Southern Illinois University Press.

Schillings, M., Roebertsen, H., Savelberg, H., & Dolmans, D. (2023). A review of educational dialogue strategies to improve academic writing skills. *Active Learning in Higher Education*, *24*(2), 95–108. https://doi.org/10.1177/1469787418810663

Solak, E. (2024). Exploring the efficiency of ChatGPT and artificial intelligence in advancing academic writing pedagogy. *International Journal of Education in Mathematics, Science, and Technology*, *12*(6), 1525–1537. https://doi.org/10.46328/ijemst.4373

Sørhaug, J. O. (2026). Prompting for scaffolding: A thematic analysis of K–12 students' use of educational chatbots for writing support. *Journal of Writing Research*, *17*(3), 453–481. https://doi.org/10.17239/jowr-2026.17.03.04

Vaismoradi, M., Jones, J., Turunen, H., & Snelgrove, S. (2016). Theme development in qualitative content analysis and thematic analysis. *Journal of Nursing Education and Practice*, *6*(5), 100–110. https://doi.org/10.5430/jnep.v6n5p100

Wang, C. (2025). Exploring students' generative AI-assisted writing processes: Perceptions and experiences from native and nonnative English speakers. *Technology, Knowledge and Learning*, *30*, 1825–1846. https://doi.org/10.1007/s10758-024-09744-3

Watson, S., Brezovec, E., & Romic, J. (2025). The role of generative AI in academic and scientific authorship: An autopoietic perspective. *AI & Society*, *40*(5), 3225–3235. https://doi.org/10.1007/s00146-024-02174-w

Webb, M., & Galamba, A. (2026). Transforming pedagogy with GenAI-supported formative assessment: Challenges for teacher education. *British Journal of Educational Technology*, *57*, 690–706. https://doi.org/10.1111/bjet.70051

Wingate, U. (2006). Doing away with 'study skills'. *Teaching in Higher Education*, *11*(4), 457–469. https://doi.org/10.1080/13562510600874268

Wingate, U. (2012). Using academic literacies and genre-based models for academic writing instruction: A 'literacy' journey. *Journal of English for Academic Purposes*, *11*(1), 26–37. https://doi.org/10.1016/j.jeap.2011.11.006

Wingate, U. (2014). Approaches to acculturating novice writers into academic literacy. In A. Łyda & K. Warchał (Eds.), *Occupying niches: Interculturality, cross-culturality and aculturality in academic research* (pp. 103–118). Springer. https://doi.org/10.1007/978-3-319-02526-1_7

Zhai, X., Gao, Y., Yuan, Y., & Yin, C. (2025). Navigating the landscape of AI literacy education: A bibliometric and content analysis. *Humanities and Social Sciences Communications*, *12*, Article 113. https://doi.org/10.1057/s41599-025-04583-8

Received: *August 31, 2026* Revised: *October 14, 2026* Accepted: *October 20, 2026*

Cite as: Partanen, R., & Kallionpää, O. (2026). The REWARD model for academic writing in higher education in the age of generative AI: Student experiences and teacher evaluations. *Problems of Education in the 21st Century*, *84*(5), 802–818. https://doi.org/10.33225/pec/26.84.802

Riikka Partanen *(Corresponding author)*	PhD, Senior Lecturer, Lapland University of Applied Sciences, Rovaniemi, Finland. E-mail: riikka.ilona.partanen@gmail.com ORCID: https://orcid.org/0000-0002-5430-5876
Outi Kallionpää	PhD, University Lecturer, Faculty of Education, University of Lapland, Rovaniemi, Finland E-mail: outi.kallionpaa@ulapland.fi ORCID: https://orcid.org/0000-0002-1983-9063