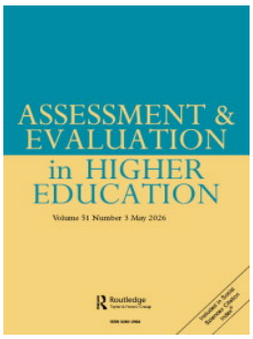

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Teacher feedback, rubrics, and annotated exemplars: examining the effects on Italian psychology university students' performance on writing assignments

Ligia Tomazin[a], Arianna Bentenuto[a], Silvia Perzolli[a], Paola Venuti[a], Anna Serbati[a], Federica Picasso[b] and Anastasiya A. Lipnevich[c]

[a]Department of Psychology and Cognitive Science, University of Trento, Trento, Italy; [b]Pegaso University, Naples, Italy; [c]Assessment, National Board of Medical Examiners (NBME), Philadelphia, PA, USA

ABSTRACT

Despite the critical role of feedback in improving learning and performance, providing high-quality feedback in higher education is a complex and time-consuming task for instructors. Therefore, it is essential to explore alternative feedback approaches that are both effective and sustainable. This experimental study examined the impact of rubrics, annotated exemplars, and teacher comments on college students' writing performance. Participants were 71 second-year Master's students in Clinical Psychology (56 women) from an Italian university. Students completed a writing assignment in class and submitted it *via* Moodle platform before being randomly assigned to one of three feedback conditions: rubric, annotated exemplars, or teacher comments. They then revised their assignments in class using the feedback received. Findings revealed no statistically significant differences among groups ($p = 0.654$), suggesting that rubrics and annotated exemplars can produce performance improvements comparable to those achieved through teacher feedback.

KEYWORDS

Formative assessment; teacher feedback; rubrics; annotated exemplars

Student learning and performance are influenced by a variety of internal and external factors, ranging from cognitive abilities and personality characteristics (Meyer et al. 2023; Peng et al. 2021) to broader elements like school climate and teaching approaches (Klik, Cárdenas, and Reynolds 2023; Roth et al. 2015). Among these, feedback has emerged as a critical component in fostering learning and improving performance during the educational process. Effective feedback provides students with actionable information to bridge the gap between their current and desired performance levels, enhancing their ability to self-assess, regulate learning, and meet learning objectives (Carless 2016; Lipnevich and Panadero 2021; Morris, Perry, and Wardle 2021; Nicol 2021).

CONTACT Ligia Tomazin ligiatfm@gmail.com Department of Psychology and Cognitive Science, University of Trento, Corso Bettini, 84, 38068 Trento, Italy.

The raw data supporting the conclusions of this article as well as the code will be made available by the authors, without undue reservation.

Building on this understanding, the current study investigates the impact of three specific feedback strategies: individualised teacher comments, rubrics, and annotated exemplars on undergraduate students' performance on a writing task. Each tool is uniquely designed to promote formative learning opportunities, enhance self-assessment capabilities, and support students in refining their work based on explicit criteria and standards. Thus, this research aims to evaluate whether those three different feedback sources have different impact on improving students' performance on a written task.

Exploring the potential of these alternative forms of feedback is crucial, as providing individualised comments in students' written tasks is highly time consuming for instructors (Ackerman and Gross 2010; Gibbs and Taylor 2016; Tomazin, Lipnevich, and Lopera-Oquendo 2023) and teachers have reported reducing writing practices in their lessons due to their limited availability to provide formative feedback in students' work (Graham et al. 2014). Despite the strong need to explore and validate those forms of feedback, there is still limited exploration of those educational tools such as rubrics and exemplars in the field of writing development (Lipnevich 2025; Van der Kleij 2024).

Instructional feedback

Feedback is widely regarded as a very powerful educational intervention because it supports students' learning and performance improvement (Hattie and Timperley 2007; Wisniewski, Zierer, and Hattie 2019). Instructional feedback refers to information that can come from any source such as teachers, peers, and educational tools and it can facilitate learning and performance improvement (Lipnevich and Smith 2022). Feedback may provide learners with information about their current performance level and/or guidance on how to close the gap between their current and desired levels of achievement.

Although feedback is widely acknowledged as critical to learning, its effectiveness depends on students' active engagement with it (Lipnevich and Panadero 2021; Winstone et al. 2017). To benefit from feedback, learners must interpret and apply feedback, connect it to prior knowledge, and reflect on their progress. Through this process, they internalise external input by comparing it with their own understanding and generating new insights (Nicol and McCallum 2022). Thus, learning gains stem not from the feedback message itself but from the cognitive and metacognitive processes it activates (Nicol and Selvaretnam 2022). Feedback is therefore not a simple passive transmission of information but a dynamic process shaped by how students interpret and act upon it (Price, Handley, and Millar 2011; Winstone et al. 2017).

When students engage deeply with feedback, they generate what is referred in literature as internal feedback (Nicol 2021) or self-feedback (Lipnevich and Smith 2022), which refers to the internal insights that arise as they interpret external information and evaluate their own performance. The generation of self- or internal feedback depends on how learners process the information they receive. Feedback processing is multidimensional, involving cognitive, affective, and behavioural components: students must understand and evaluate the message (cognitive), manage

their emotional responses (affective), and decide whether and how to act on it (behavioural) (Lipnevich et al. 2025a). These dimensions interact dynamically to shape whether feedback leads to meaningful learning and improvement. Importantly, this processing is influenced by several interconnected elements: the feedback message itself, the feedback source, the learner characteristics, and the context (Lipnevich and Smith 2022).

The source of feedback is a central component of the Student-Feedback Interaction Model (Lipnevich and Smith 2022) as students' perceptions of the source strongly influence how they interpret and act upon feedback. For instance, students are more likely to engage with feedback when they perceive the source as credible. When trust in the source is lacking, students may disregard potentially valuable information (Lipnevich et al. 2025b). Research consistently shows that learners tend to prefer teacher feedback over other forms (Van Der Kleij and Lipnevich 2021; Zacharias 2007). For instance, students rated feedback as more trustworthy and useful when they believed it a teacher rather than a computer was the provider (Lipnevich and Smith 2009). They also favoured teacher feedback over peer feedback even when the latter was more informative and conducive to change (Lopera-Oquendo et al. 2025). Nevertheless, despite the frequently reported preference for teacher feedback, meta-analytic findings demonstrate that feedback from diverse sources such teachers, peers, computers, AI, or instructional tools has positive effects on student learning and performance (Fleckenstein, Liebenow, and Meyer 2023; Graham, Hebert, and Harris 2015; Kingston and Nash 2011; Wisniewski, Zierer, and Hattie 2019).

Rubrics and exemplars as sources of feedback

Rubrics are tools designed to make explicit the components of complex competencies by breaking them down into distinct dimensions, defining evaluation criteria, and translating these into operational elements such as performance indicators and descriptive levels (Brookhart 2013; Taylor, Kisby, and Reedy 2024). In this way, rubrics provide a structured framework that articulates what quality performance looks like and how it can be assessed. Rubrics promote fairness in assessment practices by making assessment criteria transparent, thereby clarifying the intended learning outcomes and supporting performance improvement. Despite the growth in the interest on research concerning assessment rubrics (Dawson 2017; Nkhoma et al. 2020), the use of rubrics as a form of feedback is still underexplored.

Exemplars, which are templates that aim to indicate a certain level of proficiency (Sadler 1989; To, Panadero, and Carless 2022), have been widely recognised as an effective means of helping students understand assessment criteria and disciplinary standards. By illustrating what quality work looks like, they serve as concrete benchmarks that clarify expectations and guide students towards desired performance levels (Lipnevich et al. 2014; Orsmond, Merry, and Reiling 2002; Sadler 1989). The primary purpose of exemplars is to expose learners to samples of varying quality, allowing them to compare their own work against examples of both successful and less successful performances. Through this comparison process, students develop a deeper understanding of the key features of high-quality work and gain greater awareness of strengths and areas for improvement in their own products

(Carless and Chan 2017; Lipnevich, Panadero, and Calistro 2023; Nicol and Rose 2025). Annotations make the comparison process more intentional by highlighting key features and criteria. This explicit guidance helps students move beyond surface-level differences and recognise deeper structural similarities between examples (Nicol 2021).

Building on Lipnevich and Smith (2022) definition of instructional feedback as information from any source that can be used to improve performance or learning, rubrics and exemplars can be conceptualised as valid sources of feedback. In this sense, when provided after students complete an initial draft, these tools supply external reference points against which learners can evaluate their own work. By comparing their performance with the criteria outlined in a rubric or the quality demonstrated in exemplars, students generate self-feedback (internal insights that inform their understanding of strengths, weaknesses, and next steps for revision). In this sense, rubrics and exemplars not only communicate evaluative information but also may prompt the reflective processes that drive self-regulated learning and improvement (Lipnevich and Smith 2022; Nicol 2021).

Comparisons between different feedback sources

Several studies have attempted to compare the effectiveness of different instructional tools as sources of feedback (Lipnevich et al. 2014; Price, Smith, and Berg 2017; Tomazin, Lipnevich, and Lopera-Oquendo 2023). For instance, Serbati et al. (2022) explored how self-assessment, peer assessment, and exemplars impacted students' rubric design. Conducted with 165 first-year education students at an Italian university, the project involved developing an assessment rubric and then engaging in one of three feedback-based activities aimed at improving their product. Although no significant differences emerged in overall rubric quality, analyses of specific dimensions revealed that students in the exemplar group outperformed those in the self-assessment group on the Structure subscore. Moreover, survey responses indicated that the exemplar group reported the most positive learning experiences, suggesting that exposure to high-quality examples may provide valuable reference points that enhance both students' understanding of task expectations and their engagement with feedback.

Both Price, Smith, and Berg (2017) and Tomazin, Lipnevich, and Lopera-Oquendo (2023) examined the relative effectiveness of teacher comments and annotated exemplars as forms of feedback on the revision of writing assignments and reported no significant differences in students' performance across conditions. In Price et al.'s experimental study with New Zealand secondary students, participants completed two writing cycles that included drafting, receiving feedback, and revising their work. Students were randomly assigned to receive either individualised teacher comments or annotated exemplars in the first cycle, with conditions switched in the second. In addition, both groups engaged in feedback discussions (individual meetings with the teacher in the comment condition and group discussions in the exemplar condition). Although students expressed a preference for teacher comments, performance gains did not differ significantly between groups. Similarly, Tomazin, Lipnevich, and Lopera-Oquendo (2023) compared teacher comments, annotated

exemplars, and a combination of both among middle school students in Brazil. Results again revealed comparable effects across conditions, indicating that receiving multiple forms of feedback did not yield greater performance gains than receiving a single type.

Lipnevich et al. (2014) and Lipnevich, Panadero, and Calistro (2023) compared the effects of two educational tools: rubrics and exemplars. In the 2014 study, college students writing brief research proposals were randomly assigned to receive a detailed rubric, exemplars, or a combination of both. All groups demonstrated significant improvements from first to second draft, with the rubric-only condition producing the strongest gains. Extending this line of research, Lipnevich, Panadero, and Calistro (2023) examined similar feedback formats with high school students, introducing the idea of encouraging learners to generate their own feedback using these tools. Across four conditions: control, rubric, exemplars, and combined, students again improved their writing, with rubrics yielding the largest benefits, followed by exemplars and the combined condition. Importantly, after targeted training, students' ability to use rubrics and exemplars for self-feedback improved, especially in the exemplar condition. Similarly, Burnell et al. (2023) also compared the effectiveness of rubric and exemplars with Chinese L2 learners in Macau, while also adding two additional conditions: a control groups (non-guided self-assessment) and a guided self-assessment (which received a set of scoring criteria). They found a positive effect of both rubrics and exemplars in enhancing students' writing performance relative to both the control condition and the guided self-assessment. Together, these studies demonstrate that standardised feedback tools can effectively support students' writing development while reducing teachers' workload by promoting self- feedback generation.

The current study

In response to the need for scalable feedback alternatives that can promote learning and performance gains comparable to teacher comments while addressing teachers' time constraints, this study examined the effectiveness of three instructional support tools: teacher comments, rubrics, and annotated exemplars in improving students' writing performance. Moreover, considering the importance of the context in students' feedback processing, our goal is to explore the extent to which those forms of feedback are effective with the Italian higher education context. Our goal is to answer the following research question:

Are there differences in students' performance on a writing task depending on the type of feedback they received?

Based on the results of Tomazin, Lipnevich, and Lopera-Oquendo (2023), Price, Smith, and Berg (2017), and Lipnevich et al. (2014, Lipnevich, Panadero, and Calistro 2023), we formulated the following hypotheses:

H1: Students who receive teacher feedback, rubrics, or annotated exemplars will demonstrate significant improvement in writing task performance compared to their draft performance.

H02: There will be no significant differences in performance improvement among the three feedback modalities (teacher feedback, rubrics, and annotated exemplars).

Method

Participants

Participants were 71 second year Master of Clinical Psychology students (15 men, 56 women) enrolled at a University in North Italy.

Power analyses were conducted a-priori using G*Power version 3.1 (Faul et al. 2009) to estimate the required sample size for detecting a within x between interaction in a mixed (repeated measures) ANOVA with three conditions and two measurement time points. Based on a medium effect size of $f = 0.25$, an alpha level of 0.05, desired power of 0.95, a nonsphericity correction (ε) of 1, and an assumed correlation of 0.50 among repeated measures, the analysis indicated a minimum total sample size of $N = 66$ participants. This sample size yields an actual power of 0.95 to detect the specified interaction effect.

Procedure

The experiment took place during the second semester of the 2023/2024 academic year and was implemented in three phases (Figure 1). Ethical approval for this study was obtained from the institutional review boards (Protocol: 2022-046). All materials (including the rubric, and annotated exemplars) are provided in the Supplementary Materials.

Phase 1: initial assignment and draft scoring

During an in-class session, students received the following assignment:

> Identify the elements that contribute to the structuring of personality and explain when these elements may result in a disorder. Additionally, clarify the differences between the DSM and PDM concepts of personality.

Students were given one hour to complete a one-page response essay in-class, which they required to upload to Moodle. All students' assignments were graded on a scale from 18 to 30 (a standard grading scale in Italy) by one instructor using the following criteria: (a) general coherence of the product, (b) in-depth and appropriate knowledge of the subject, and (c) critical analysis and explanation of the topic.

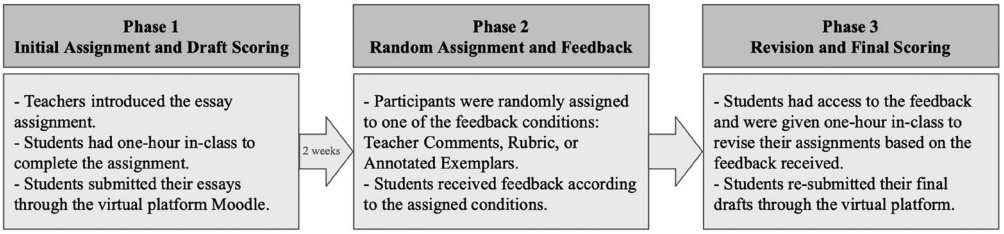

Figure 1. Procedure flowchart.

To estimate interrater reliability, a second instructor independently graded a randomly selected subsample of approximately 40% of the assignments ($n = 30$). Krippendorff's alpha indicated high agreement between raters ($\alpha = 0.89$).

Phase 2: random assignment and feedback

Upon submission, students were randomly assigned to one of three experimental conditions designed to support revision of their work:

Teacher Comments: Students received individualised written comments through Moodle, including both general and specific suggestions aimed at improving the quality of their work.

Rubric: Students received a detailed rubric outlining dimensions, criteria, and performance levels essential for a high-quality product.

Annotated Exemplars: Students were provided with three annotated exemplars of varying quality (poor, medium, high) to encourage comparison and reflection. Participants were aware of the level of excellence of each exemplar.

Feedback was posted two weeks after the initial submission. The release of all feedback materials was synchronised to ensure that every student had access to it in class, so they all had equal time to analyse the information and plan revisions, regardless of condition.

Phase 3: revision, resubmission, and final scoring

Students were given one in class hour to revise and improve their work based on the feedback materials from Phase 2. They then uploaded their revised essays to Moodle for summative evaluation. After resubmission, all students received individualised feedback on their final products, independent of the experimental condition, along with a final grade.

As in Phase 1, one instructor graded all assignments on a scale from 18 to 30. A second instructor independently graded approximately 40% of the assignments ($n = 30$) to assess interrater reliability; Krippendorff's alpha showed excellent agreement between raters ($\alpha = 0.94$).

Analytic plan

First, descriptive statistics were calculated. Then, to answer our research questions, we conducted a two-way mixed ANOVA with one repeated or within-subject factor (draft score and final score) and one between-subjects factor (feedback condition). Assumptions about outliers, normality, and homogeneity of variances were tested. Post-hoc analyses, with Bonferroni correction were also conducted. All analyses were conducted in JASP Team (2025).

Results

Descriptive statistics of student's grades according to each feedback condition are shown in Table 1.

Table 1. Descriptive statistics of participants scores in first and final drafts.

	Draft			Final		
	N	M	SD	N	M	SD
Teacher comments	24	26.38	1.41	24	29.00	1.10
Rubric	24	26.17	1.52	24	28.83	1.05
Annotated exemplars	23	26.26	1.39	23	28.52	1.20

Table 2. Two-way mixed ANOVA results.

	Source	SS	df	MS	F	*p*	η^2p
Within-subjects effects	Time	224.90	1	224.90	265.07	< .001	0.80
	Time x Group	1.16	2	0.58	0.69	.507	0.02
	Error (Time)	57.70	68	0.85	–	–	–
Between-subjects effects	Group	2.12	2	1.06	0.43	.654	0.01
	Error	168.77	68	2.48	–	–	–

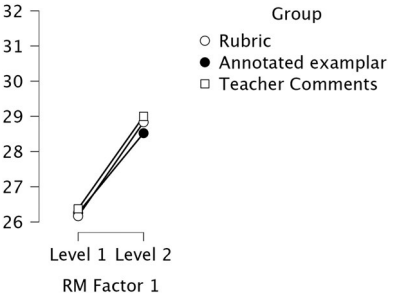

Figure 2. Plot of students' draft and final grades by condition.

Effect of feedback, rubric, and teacher feedback on grades

A two-way ANOVA (Table 2) was used with feedback conditions as between-subject factors and students' scores in time 1 and time 2 as within-subject variables. Homogeneity of variance and normality distribution were tested. The Shapiro-Wilk test was computed for the grade difference for each group to check normality. Results indicated deviations from normality for the rubric ($W = 0.90$, $p = 0.019$) and annotated exemplar ($W = 0.84$, $p = 0.002$) conditions, but not for teacher comments ($W = 0.92$, $p = 0.052$). Given the approximately equal group sizes and the robustness of ANOVA to moderate violations of normality, the analysis proceeded using the parametric test. Levene's test was also conducted to test variance's homogeneity and in this case the assumption was met for both Draft $F(2,68) = 0.011$; $p = 0.989$ and Final $F(2,68) = 0.479$; $p = 0.622$.

As seen in Table 2, results showed no statistically significant differences in students' scores among the three experimental conditions $F(2,68) = 0.43$; $p = 0.654$ as well as no statistically significant interaction between time and condition $F(2,68) = 0.69$; $p = .507$. However, as seen in Figure 2, there is a significant effect of time in the three experimental conditions $F(1,68) = 265.07$; $p < .001$. This indicates that the time trend is consistent across all groups, but the experimental conditions do not affect how the dependent variable changes over time.

Discussion

In this experimental study, we compared the effects of teacher comments, rubrics, and annotated exemplars on Italian university students' revision of their writing exams. Our results showed that students in all three conditions significantly improved their essays from the first draft to the final. Interestingly, no significant differences among the three experimental conditions were found.

These findings suggest that even without direct teacher guidance, access to annotated exemplars or rubrics enabled students to engage in productive comparison processes that support metacognitive monitoring and the generation of self-feedback (Lipnevich and Smith 2022; Nicol 2021; Nicol and Rose 2025). By comparing their own drafts against explicit criteria or model responses, students were able to evaluate the quality of their work, identify discrepancies between their current performance and expected standards, and make targeted revisions. In this way, rubrics and exemplars likely functioned not only as external sources of information about performance expectations but also as tools that supported students' evaluative judgement and self-assessment during the revision process. By using these tools as reference points for the expected level of performance, students improved the quality of their revisions and overall performance. Even though teacher comments are traditionally seen as essential for guiding revisions, our results indicate that feedback tools such as exemplars and rubrics can be equally effective. This finding aligns with previous studies showing comparable effects across feedback sources, including research with middle school students in Brazil (Tomazin, Lipnevich, and Lopera-Oquendo 2023) and in New Zealand (Price, Smith, and Berg 2017), where no significant differences were found between teacher comments, annotated exemplars, or their combination.

These results also raise an important point for discussion. Over the past decade, there has been a marked growth in research examining students' perceptions of feedback (Van Der Kleij and Lipnevich 2021), with many studies consistently reporting students' preference for teacher feedback. However, despite these preferences, evidence from the present study and other empirical investigations (Lipnevich et al. 2014, Lipnevich, Panadero, and Calistro 2023; Serbati et al. 2022; Tomazin, Lipnevich, and Lopera-Oquendo 2023) demonstrates that instructional tools such as rubrics and exemplars can serve as equally effective feedback sources. In line with Van Der Kleij and Lipnevich (2021) recommendation, it is therefore crucial that performance outcomes be considered alongside perception data, as students may not always favour the feedback practices that most effectively enhance their learning.

A strength of this study lies in the high level of control maintained over students' engagement with the feedback, writing, and revision processes. Because the entire experiment was conducted in person during class sessions (writing, viewing feedback, and revising), we were able to closely monitor students' participation and ensure consistent exposure to the assigned feedback conditions. This controlled environment minimised potential confounding factors such as the use of external feedback sources, including AI tools or peer feedback, which strengthened the internal validity of the results.

Practical implications

These findings present an important implication for educational practice: the need to balance the quality and individualisation of feedback with its scalability. While teacher feedback is traditionally seen as the most effective means of supporting student learning due to its individualised nature, it is also highly time-consuming and difficult to sustain in large classes. As noted by Tomazin, Lipnevich, and Lopera-Oquendo (2023), grading a single assignment can take approximately fifteen minutes, while creating and annotating exemplars can require about thirty minutes each. Once developed, however, rubrics and exemplars can be reused and refined over time. Our results, consistent with prior research (Carter et al. 2019; Lipnevich et al. 2014) show that more standardised forms of feedback, such as rubrics and annotated exemplars can produce comparable improvements in learners' writing performance.

Thus, the use of those standardised feedback tools offers significant opportunities to reduce teachers' workload while maintaining the quality and consistency of feedback. The time saved through these practices can be redirected towards enhancing teaching quality, mentoring, or research-related activities. For students, alternative and more sustainable feedback practices can afford them additional opportunities to practice their skills, while also supporting the development of autonomy and self-regulatory abilities, helping them become more active participants in their own learning process.

Limitations and future directions

A limitation of the present study is the absence of a control group, as student performance was compared only across the three experimental conditions. This decision was intentional to preserve ecological validity and ensure ethical treatment of participants, given that the assignment formed part of students' regular coursework. Withholding feedback from any group would have been unfair and inconsistent with the course's instructional goals. Moreover, previous research has shown that students who receive no feedback typically do not improve between draft and final submissions (Lipnevich and Smith 2009). Nonetheless, future studies should consider incorporating control groups, where feasible, to strengthen causal inferences and further validate these findings.

A further limitation concerns the scope of the outcome measures used in this study, as student learning was assessed exclusively through improvements in writing performance between the first and final drafts. While this approach provides a clear indicator of revision success and it is appropriate to answer our research question, it does not allow for a deeper understanding of the processes through which students engaged with the feedback tools. That is, we are unable to capture students' metacognitive experiences when using rubrics, exemplars, or teacher comments. Future research should incorporate additional measures of feedback engagement, such as think-aloud protocols or reflective journals to better understand the cognitive and metacognitive mechanisms through which different feedback formats influence student learning.

Another limitation of the study concerns the composition of the sample, which included only university students from Northern Italy, thereby limiting the generalisability of the findings beyond higher education contexts. In addition, the sample was unbalanced in terms of gender, preventing us from examining potential gender effects. Future research should recruit larger and more diverse samples, ensure a balanced gender distribution, and explicitly account for gender in the analytic design to enhance the robustness and applicability of the results.

Conclusion

In conclusion, while acknowledging the study's limitations, our findings suggest that standardised feedback tools serve as an effective alternative to traditional personalised teacher feedback. These tools demonstrate potential for both streamlining instructional practices and supporting student learning processes. Importantly, however, they should be viewed as complements rather than replacements for teacher feedback. When thoughtfully integrated into the curriculum, standardised feedback tools can provide students with more frequent opportunities to practice, reflect, and learn from feedback, thereby enhancing students' learning. This evidence supports the inclusion of structured feedback mechanisms, particularly when immediate assessment intervention is required, while also emphasising the continued value of teacher involvement in guiding students' learning. Further research is needed to validate these findings across different educational contexts and student populations.

CRediT authorship contribution statement

Ligia Tomazin: Conceptualisation; Formal analysis; Data curation; Writing - original draft; Writing - review & editing.

Arianna Bentenuto: Conceptualisation; Data curation; Investigation; Writing - review & editing.

Silvia Perzolli: Data curation; Formal analysis; Writing - review & editing.

Paola Venuti: Conceptualisation; Supervision; Writing - review & editing; Project administration.

Anna Serbati: Conceptualisation; Supervision; Writing - review & editing.

Federica Picasso: Conceptualisation; Writing - original draft; Writing - review & editing.

Anastasiya A. Lipnevich: Conceptualisation; Supervision; Writing - review & editing.

Disclosure statement

No potential conflict of interest was reported by the author(s).

Declaration of generative AI and AI-assisted technologies in the writing process

During the preparation of this work the author(s) used Chat GPT in order to improve language and syntax. After using this tool/service, the author(s) reviewed and edited the content as needed and take(s) full responsibility for the content of the publication.

ORCID

Ligia Tomazin http://orcid.org/0000-0002-9753-3246
Arianna Bentenuto http://orcid.org/0000-0002-6737-5742
Silvia Perzolli http://orcid.org/0000-0002-8878-932X
Paola Venuti http://orcid.org/0000-0002-1827-0549
Anna Serbati http://orcid.org/0000-0002-3528-2488
Federica Picasso http://orcid.org/0000-0002-8381-6456
Anastasiya A. Lipnevich http://orcid.org/0000-0003-0190-8689

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