

AI-ASSISTED WRITING TOOLS FOR STUDENT SELF-ASSESSMENT. INVESTIGATION ON TEACHERS' PERCEPTIONS AND PRACTICES

STRUMENTI DI SCRITTURA AI-ASSISTED PER L'AUTOVALUTAZIONE DEGLI STUDENTI. INDAGINE SU PERCEZIONI E PRASSI DEGLI INSEGNANTI



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ABSTRACT

The proposal aims to reflect on the potential of AI-assisted writing tools in school assessment practice. The results of a questionnaire on the perceptions and practices of 549 teachers regarding the tools - such as ChatGPT, CoPilot and DeepLWrite - used for the self-correction of written composition errors by students are presented. A varied picture emerges, a 'mixture of sentiments' ranging from 'fear' due to lack of knowledge to 'certainty' of the usefulness of their use.

La proposta mira a riflettere sul potenziale degli strumenti di scrittura assistita dall'IA nelle pratiche di valutazione scolastica. Vengono presentati i risultati di un questionario sulle percezioni e le pratiche di 549 insegnanti riguardo agli strumenti - come ChatGPT, CoPilot e DeepLWrite - usati per l'autocorrezione degli errori di composizione scritta da parte degli studenti. Emerge un quadro variegato, un mix di sentimenti che vanno dalla "paura" per mancanza di conoscenza alla "certezza" dell'utilità del loro utilizzo.

KEYWORDS

AI-assisted writing tools; Students' writing skills; Teachers' perceptions

Strumenti di scrittura assistiti dall'intelligenza artificiale; Competenze di scrittura degli studenti; Percezioni degli insegnanti

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Introduction – debate on AI-assisted tools for education and assessment

AI-assisted tools are progressively transforming the way everyday activities are carried out, are having a growing impact across numerous domains of social and professional life (Chakraborty et al., 2022). In particular, within educational settings, these tools are facilitating a substantial transformation of teaching and learning processes and strategies (Markauskaite et al., 2022), and, more specifically, of assessment practices (Swiecki et al., 2022).

The academic literature reflects a broad and complex debate about the use of AI-assisted tools for the creation, transfer and validation of knowledge and academic learning (Miller, 2023; Wang et al., 2024). A ‘human-centred’ approach is increasingly being advocated (Alfredo et al., 2024), particularly in relation to school-based teaching and learning processes (UNESCO, Miao & Holmes, 2023).

Although often dismissed as a ‘stochastic parrot’ (Bender et al., 2021; Thorp, 2023), AI-assisted tools are being increasingly used to support learning and assessment, also thanks to the potential implementation of technologies and practical strategies that enable their relatively safe use — such as shared labelling systems (European Commission, 2022; Gašević, 2023), watermarked and detectable synthetic texts (Kamaruddin et al., 2018) — which, however, require effective national policies to regulate their use.

Computer science research has investigated the potential risks associated with the use of AI-assisted technologies and has made several recommendations, such as «assessing environmental and financial costs beforehand, investing resources in the careful curation and documentation of datasets rather than ingesting everything on the Web, and conducting pre-development exercises to evaluate how the planned approach aligns with learning and development goals» (Bender et al., 2021, p. 610).

Concerns also remain around the protection of student privacy and the security of educational data (Viberg et al., 2022), as well as fears that algorithms may perpetuate stereotypes, bias, and systemic discrimination (Uttamchandani & Quick, 2022). The use of AI-assisted tools inevitably raises issues concerning school-based assessment practices: «they may (...) provide only discrete snapshots of performance rather than nuanced insights into learning; be unsuitable for the specific knowledge, skills, and backgrounds of participants» (Swiecki et al., 2022, p. 1).

Studies focusing on the support provided by Intelligent Tutoring Systems (ITS) for

the acquisition of knowledge and skills have confirmed that such systems provide personalised instructional support and automated feedback for students (Maier & Klotz, 2022; Cavalcanti et al., 2021), new means for teachers to monitor students' progress (Williamson & Kizilcec, 2022), as well as different forms of user interfaces (Mavrikis & Cukurova, 2021).

Other studies have explored the link between the lack of involvement of students and teachers in the design and development of AI-assisted systems and tools and the resulting lack of understanding and trust in the technology (Alzahrani et al., 2023).

In this context is situated the study conducted by Perla et al. (2025), which used a questionnaire to investigate the relationship between personal factors (such as age, teaching experience, and duration of technological training) and teachers' attitudes (including perceived usefulness, risk perception, trust, and resignation) towards the use of AI-assisted tools in educational practice.

The results show that, when asked general questions, teachers display cautious attitudes, accompanied by lukewarm or ambivalent trust, reflecting a precarious balance between perceived risks and benefits. However, when asked to comment on potential concrete applications — such as learning assessment or the personalised adaptation of teaching resources — more positive expectations and an open attitudes emerge. The study also found a weak correlation between these attitudes and personal variables such as age or type of technological training received.

1. Background - AI-assisted writing tools for student self-assessment

Writing skill refers to the ability to communicate effectively through the written word (Cornoldi et al., 2018) and is linked to sub-skills – grammar, access to vocabulary, spelling, sentence construction, text structure, accuracy and clarity of expression – that transcend the specific writing task.

The development of natural language processing (NLP) systems and the progressive implementation of increasingly large language models are now being harnessed for the development of tools aimed at learning and assessing written language — such as the various iterations of BERT, GPT-2/3, and others — also thanks to architectural innovations and the use of pre-trained models for sometimes highly specific tasks (Bender et al., 2021; Wang et al., 2023).

In terms of AI-assisted writing tools, the benefits of real-time student modelling during self-assessment are already well documented (Papamitsiou & Economides, 2017), as is their support for comprehension and the resolution of complex problems (Greiff et al., 2015).

Educational research has also explored teachers' perceptions and dispositions towards AI-assisted tools for language learning support. The study conducted by Cardon (2023), based on a questionnaire administered to a sample of 343 communication teachers, found that the main perceived challenges included a reduced capacity for critical thinking and a lack of authenticity in writing; while the main perceived benefits included increased efficiency and improved idea generation in the writing process.

The study by Zimotti et al. (2024), also conducted by questionnaire, investigated the perceptions of 100 second language (L2) teachers regarding the potential impact of large language models (LLMs) — such as ChatGPT — on their teaching, particularly in relation to assignment assessment methods. The results revealed “conflicting feelings”, ranging from enthusiasm for the pedagogical support offered by ChatGPT to concerns about potential academic dishonesty. Notably, teachers' levels of enthusiasm — or apprehension — appear to be closely related to their personal experience with the tool: the more familiar a teacher is with the tool, the more favourable—and even enthusiastic—they are towards its use in the classroom. Conversely, there were no significant differences in teachers' attitudes across different age groups or years of teaching experience.

The qualitative study carried out by Marzuki et al. (2023), through the use of semi-structured interviews, identified, on the one hand, the most commonly used AI-assisted writing tools in academic contexts — such as Quillbot, WordTune, Jenni, ChatGPT, Paperpal, Copy.ai, and Essay Writer — and, on the other, language teachers' perceptions regarding their impact on writing skills, particularly in relation to content development and the structural organisation of texts, showing unanimous agreement on their influence.

2. Method – Investigation on teachers' perceptions of AI-assisted writing tools

The exploratory investigation was conducted in the period January - February 2025. It was resorted to a mixed embedded design (Creswell & Plano Clark, 2007; Taddie

& Tashakkori, 2009) for which qualitative and quantitative data are collected simultaneously.

The aim of the present research was to provide in an in-depth reflection on the potential of AI-assisted writing tools in the context of school-based assessment practices. Specifically, the study sought to explore and understand the perceptions expressed by school teachers, as well as to describe the practices they adopt in relation to the use of AI-assisted tools — both in terms of assessing students' learning and in terms of students' self-assessment of their learning processes.

The research questions posed in the survey conducted were:

- *What prevailing perceptions do teachers express towards AI-assisted writing tools?*
- *What practices do teachers report regarding the use of AI-assisted writing for student self-correction?*

The survey involved a non-representative convenience sample of teachers enrolled in the qualifying course for secondary school teaching at the Pegaso Telematic University. The following Table 1 shows the sociometric-professional characteristics of the teachers involved.

Characteristic	Answers	N. (Tot. 549)	% (Tot. 100%)
Gender	F	428	78 %
	M	121	22 %
	other	0	0 %
Age (years)	20-25	17	3,1 %
	26-30	48	8,7 %
	31-35	67	12,2 %
	36-40	104	18,9 %
	41-50	194	35,3 %
	51-60	105	19,1 %
	61-70	14	2,5 %
Qualification	Master degree	272	49,5 %
	Post-graduate	192	35 %
	PhD title	20	3,6 %
	other	65	11,8 %
Length of service (years)	1-5	83	15,1 %
	6-10	209	38 %
	11-20	198	36 %
	21-over	59	10,7 %

Table 1. Socio-professional characteristics, n. and % of responses.

The population of teachers involved was mostly female (n. 428; 78%), with an average age of 43 years, with a master degree already acquired in the teaching class (n. 272; 49,5 %), mainly more than 10 years of service in the school.

A mixed, open- and close-ended 'ad hoc' questionnaire was used as quantitative (perceptions on the use) and qualitative (usage practices) data collection tool. The questionnaire is divided into 4 sessions – socio-professional data, general knowledge about AI-assisted tool, use of AI-assisted tool in own teaching practice, perceptions and practices regarding the use of AI-assisted tools in students' self-assessment of writing skills. Table 2, below, describes topics, questions and data types from the last session, which is the focus of this work.

The questionnaire was administered remotely via Google Moduli. The text accompanying the questionnaire ensured anonymity as well as the use of the data for the sole purpose of research, to which the teachers expressed their agreement. The questionnaire was administered to 700 teachers; 549 responses were collected, equal to 78,42 % of the total.

Section IV	Questions (Q)	Data types
Use of AI-assisted tools in students' self-assessment of writing skills	How useful are IA-assisted writing tools for the students' self-assessment? (a)	quantitative
	Which IA-assisted writing tool is useful for the students' self-assessment? (b)	quantitative
	For which specific writing skills are useful AI-assisted tools for student self-assessment? (Qc)	quantitative
	Describe an example of AI-assisted writing tool used in your practice for student self-assessment? (Qd)	qualitative

Table 2. Questionnaire sections, questions and data types.

To answer the first research question – relating to teachers' attitudes towards AI-assisted writing tools – a descriptive statistical analysis of the quantitative data obtained was firstly carried out. The following Table 3 reports questions, answer options, number and percentage of response.

Questions (Q)	Answers	(Tot. n. 549)	(Tot. 100%)
How useful are IA-assisted writing tools for the students' self-assessment? (Qa)	Not useful	53	9,7%
	Little useful	113	20,6%
	Quite useful	266	48,5%
	A lot useful	90	16,4%
	Most useful	27	4,9%
Which IA-assisted writing tool is useful for the students' self-assessment? (Qb)	ChatGPT	312	56,8%
	CoPilot	81	14,8%
	DeepLWrite	46	8,4%
	None of the previous	110	20%
For which specific writing skills are useful AI-assisted tools for student self-assessment? (Qc)	Graphomotor	25	4,6%
	Orthographic	266	48,5%
	Textual composition	184	33,5%
	None of the previous	74	13,5%

Table 3. Questions, n. and % of answers.

In response to a general question about the perceived usefulness of AI-assisted tools for student self-assessment, the majority of teachers (No. 266; 48.5%) shared a cautious perception of usefulness, followed by a fairly significant number (No. 113; 20.6%) of teachers who instead communicated a perception of low usefulness. On the more specific type of question – which asked teachers to express their perceptions of the usefulness of specific AI-assisted tools used by students for self-assessment, such as ChatGPT, CoPilot and DeepLWrite – over half of the sample (no. 312; 56.8%) expressed a positive view of the usefulness of ChatGPT. However, a significant proportion of teachers (no. 110; 20%) indicated that they did not find some of the tools suggested in the question useful.

In relation to the further focused question – concerning the perceived usefulness of AI-assisted tools for students' self-assessment of detailed writing skills (graphomotor, orthographic, text composition) – the majority of teachers shared a perception of usefulness particularly in relation to the orthographic sub-skill (No. 266; 48.5%), followed by the text composition sub-skill (No. 184; 33.5%).

With reference to the second research question – concerning the practices of using AI-assisted writing tools for student self-assessment – the quantitative data of the textual material of the open answer were processed by coding in three phases: [a]

open, as conceptualisation through significant text units and identification of labels; [b] axial, as identification of frequent macro-categories emerging from the text units, through the number of occurrences; [c] selective, as hierarchical and analytical ordering of the identified macro-categories, for the final emergence of the main categories (Creswell, 2013).

Text coding was performed on the open-ended question - see Table 2., Question d, ‘Describe an example of an AI-assisted writing tool used in your practice for student self-assessment?’ – which was answered by 91 teachers out of a total of 549 (16.5%). From the responses provided, it was possible to collect a text corpus consisting of 60 strings, which was then subjected to an in-depth textual analysis. Table 4 shows the main thematic categories that emerged, together with the axial and open codes, accompanied by sample extracts taken directly from the analysed corpus.

Core category strings (Tot. 108)	Axial coding	Open coding	Examples of answers
Conditions for teachers’ use (n. 12)	Usual practice (n. 4)	Verification	Targeted tests to probe learning
	Exceptional cases (n. 3)	Lockdown	I used during lockdown
	Extension to other experiences (n. 5)	Integrated tools	There are certain Wordwall games that allow me to induce the pupil to also reflect on self-correction
		Specific projects	The project is called “chat talent” through AI we try to create self-correction input
Effects on students (n. 48)	Interest (n. 24)	Involvement	Students show great interest and work harmoniously
		Stimulus	GeAI tools are very useful and stimulating.... Students are well predisposed to their use
		Playful aspect	Students perceived the activity in the form of a game

Plurima functionality (n. 8)	Writing skills and content	In addition to writing skills, students also deepened the content Development of transversal skills
Development of transversal skills (n. 16)	Critical sense and self-control	Critical sense and self-control Students develop critical sense and control of their thinking Depends on the students' degree of maturity/responsibility

Table 4. Categories and codes emerging from text corpora, with n. occurrences

Table 4 highlights the emergence of two main types of categories: on the one hand, the minority ones (no. 12), which refer to the description of the contexts of use of AI-assisted tools by teachers; on the other hand, the numerically predominant (no. 86), which concern the effects that the use of such tools produces in relation to students' interest and skill development.

The categories of the first group – referred to as ‘conditions of use’ – are divided into three subtypes, comprising: [a] common practices (no. 4), usually related to assessment procedures; [b] cases of exceptional use (no. 3), such as during the COVID-19 closure; [c] teaching experiences that extend the use of these tools in some way (no. 5) – for example through their integration with other interactive digital tools or as part of more articulated and structured thematic projects.

The categories of the second type – referred to as ‘effects on learners’ – are again divided into three main areas [a] motivational components – such as the interest shown in using these tools (no. 41), associated with involvement, stimulation and positive predisposition, a feeling of playfulness - [b] the possibility of enhancing multiple levels of learning (no. 19) – such as writing skills and content - and [c] transversal skills (no. 26) - such as critical thinking skills and self-control in the process of checking and reflecting on one's own work.

Although the number of answers to the open question – concerning students' practices of using AI-assisted tools for self-assessment – is relatively small, the characteristics of the reported practices tend to have a strongly positive connotation. Indeed, in describing the practices, the teachers tend to adopt the student's perspective, both in terms of motivation and potential stimulus to learning and in terms of actual skill development. Even in cases where teachers

adopt a personal professional perspective, there is a clear tendency to innovate and extend practices in the use of AI-assisted tools, often within more complex, articulated and integrated teaching contexts.

By way of example only, the following is an extract taken from the responses, which describes a concrete example of the use of an AI-assisted tool for self-assessment by students:

students had to produce a written text and then ask the artificial intelligence to modify it and make it better and more appropriate to the assigned task. Finally, they had to compare the two papers and understand where, what and why certain changes had been made by the AI and whether they agreed or disagreed with them.

It should be noted how the teacher at the end of the description of the practice does not fail to mention the meta-evaluation component of the experience on the part of the students, i.e. the possibility of expressing agreement or disagreement with the feedback received from the artificial intelligence tool during the self-assessment process.

3. Results – discrepancy between perceptions and practices

The methodological choice adopted within the study made it possible to collect data through a questionnaire structured according to a mixed approach and to process them using tools that were also mixed - i.e. both descriptive statistics and textual analysis. Thanks to this integrated approach, it was possible to obtain both quantitative and qualitative data.

The quantitative data made it possible to identify teachers' perceptions of the usefulness of AI-assisted writing tools in the self-assessment processes conducted by students, with a particular focus on the use of such tools for the self-assessment of specific writing sub-skills, such as grapho-motor, spelling and text composition skills. The qualitative data, on the other hand, made a significant contribution in describing the concrete practices of using these tools within everyday teaching.

- *What prevailing perceptions do teachers express towards AI-assisted writing tools?*

An analysis of the quantitative data concerning students' perceptions of the usefulness of AI-assisted tools for self-assessment reveals an overall ambivalent picture – see Question a and Questions b-c.

Indeed, it can be observed that when teachers are asked a general question, teachers' perception of usefulness of AI-assisted tools for student self-assessment seems to remain very cautious (see Table 3, Question a, "Quite useful" 48.5%). However, when the questions focus on more specific aspects - such as particular tools or certain writing sub-skills – there is an increase in teachers' perception of usefulness (see Table 3, Question b, "ChatGPT" 56.8%; Question c, "Orthographic" 48.5%). It should also be noted that part of the teacher sample maintains a critical stance, expressing a perception of uselessness of the tools considered, both in relation to certain specific types of tools and to certain writing sub-skills (see Table 3, Question b, "None of the above" 20%; Question c, "None of the above" 13.5%).

- *What practices do teachers report regarding the use of AI-assisted writing for student self-correction?*

From the analysis of the qualitative data, relating to the description of teaching practices, a picture emerges - albeit numerically limited - characterised by two positive and complementary aspects. On the one hand, there is a general openness on the part of teachers to the use of AI-assisted tools in students' self-assessment paths (see Table 4, category "Conditions of use"); on the other hand, there is a remarkable reflective capacity on the part of teachers in assessing the impact that these tools can have on students' involvement and interest, as well as on the development of both specific skills (related to writing) and transversal skills (see Table 4, category "Effects on students"). In one particular case, the meta-reflective component activated in the students themselves was also highlighted, as reported in a particularly significant extract in the corpus of open-ended responses.

In summary, the mixed analysis carried out reveals a discrepancy between the perceptions expressed and the practices actually implemented by the teachers. Teachers who do not usually use AI-assisted tools for student self-assessment tend to share generally cautious perceptions of their usefulness. However, these perceptions are more favourable when referring to very specific tools - as in the case of ChatGPT - or equally specific skills - such as spelling. In contrast, teachers

who describe regular practices of using AI-assisted tools for self-assessment by students express strongly positive opinions. These positive judgements relate both to the conditions of use – from the teacher's point of view – and, more significantly, to the observed positive effects on student engagement and skill development.

Conclusions

The survey was carried out among teachers enrolled in the qualification course for secondary school teaching at the Pegaso Telematic University. The main objective of the study was to investigate, specifically, the perceptions and describe the practices of a sample of 549 teachers in relation to the use of artificial intelligence (AI-assisted) writing tools for the self-assessment of students' writing skills.

From the data collected, a discrepant picture emerged between perceptions that tended to be moderate and teachers' practices of marked openness towards AI-assisted tools for student self-assessment.

The study confirms, in line with the findings of Swiecki et al. (2022), that the integration of AI-assisted tools in writing skills self-assessment processes primarily challenges teachers' traditional representations and beliefs about assessment practices, especially among those who have not yet developed a systematic practice of use. On the other hand, among those teachers who have started to experiment with such tools in their teaching, there is a decidedly positive perception, linked to the benefits observed for students, not only in terms of assessment, but also in terms of the development of transversal skills. This result is in line with what has been highlighted in previous studies (Papamitsiou & Economides, 2017; Greiff et al., 2015).

Moreover, the survey indirectly confirms that teachers' level of enthusiasm and concern towards AI-assisted tools would be linked to personal experience with the use of the tool: the more practical the teacher is with the tool, the more favourable, even enthusiastic, they are about its use in teaching - as already found by Zimotti et al. (2024).

However, the results of this survey suggest the possibility of investigating, in subsequent studies, a number of issues that have emerged in a cross-sectional manner:

- To understand whether the perceived usefulness of AI-assisted tools for the self-assessment of writing skills actually correlates with their use in teaching

practice, regardless of the school grade and the educational segment of reference. It is worth mentioning, in this regard, that the study by Marzuki et al. (2023) also found a positive perception on the part of university teachers regarding the positive impact of such tools on the development of writing skills, particularly in terms of content processing and text organisation.

- It is worth exploring whether the perceived usefulness of ChatGPT is partly determined by its awareness and popularity, rather than by direct experience of its use. In this sense, it would be appropriate to investigate the existence of social influence dynamics, i.e. a favourable perception towards technological tools known only indirectly or through so-called 'common sense'. This hypothesis is consistent with what emerged in the study by Zimotti et al. (2024), according to which many teachers have mixed feelings about ChatGPT: on the one hand, enthusiasm for the pedagogical potential it offers; on the other hand, fear for possible implications related to academic dishonesty
- To what extent is the perceived uselessness of AI-assisted tools for self-assessment linked to a lack of experience in using them in teaching practice. An in-depth reflection should concern the role that unfamiliarity or unfamiliarity with such tools plays as a form of protection against ongoing changes. However, this may also constitute a limitation to the experimentation with innovative teaching practices and the exploitation of the potential that AI-assisted tools offer in terms of supporting students' learning and personal growth (Papamitsiou & Economides, 2017).

Author contributions

Author1 wrote sections 1 and 2; author2 wrote section 3 and conclusion.

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