Feedback and Self-Assessment: A Systematic Review of Their Effects on Enhancing Students' Receptivity to Teacher Criticism in Secondary Education

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Abstract

Feedback is a vital educational tool that helps students identify gaps in their understanding, improve their performance, and achieve their learning goals. To be effective, feedback should be given promptly, clearly, and with specific directions for improvement. This systematic review analyzes 36 studies conducted between 2015 and 2025, following the PRISMA 2020 methodology. It explores how feedback and self-assessment contribute to enhancing secondary school students' receptiveness to teacher criticism. The findings reveal that the characteristics of feedback significantly influence students' receptiveness. Positive, constructive, clear, and formative feedback is particularly effective in fostering commitment, self-regulation, motivation, and learning progress. Additionally, direct and personalized feedback promotes better understanding and application of the comments received. Moreover, students' individual characteristics—such as self-esteem, self-confidence, self-efficacy, emotional maturity, a growth mindset, and past experiences with criticism—play a significant role in shaping their attitudes toward feedback, whether positive or defensive. The quality of the teacher-student relationship is also crucial for fostering students' emotional safety and

their acceptance of criticism, although this area requires further research. External factors, such as cultural background, classroom dynamics, and the use of digital tools, are equally important, as they contribute to creating a positive learning environment and enhance receptiveness through personalization, interactivity, and collaboration. Finally, self-assessment tools like rubrics and reflective journals strengthen students' self-regulation, responsibility, and positive attitudes toward feedback. This confirms the importance of active student participation in the learning process.

1. Introduction

Feedback plays a crucial role in the educational process by linking students' current performance to their learning goals. It provides guidance for improvement and promotes self-regulation (Black & Wiliam, 1998). Recognized as one of the most effective educational interventions, feedback positively impacts both cognitive and emotional development in students (Hattie & Timperley, 2007). This is especially important in secondary education, where the characteristics of adolescence, such as the desire for autonomy and heightened emotional sensitivity, come into play (Hyland, 2006). The way feedback is delivered, and its quality significantly influences how receptive students are to it (Winstone et al., 2017). According to self-efficacy theory, students with high self-confidence tend to respond positively to criticism, while those with a growth mindset are more likely to adopt a constructive attitude toward it (Dweck, 2006). Self-assessment complements this process by encouraging active participation and helping students identify their strengths and weaknesses, as well as set goals (Nicol & Macfarlane-Dick, 2006). Previous research has extensively highlighted the significance of feedback in the learning process. Formative feedback has proven to be effective as it enables continuous improvement through constructive criticism (Black & Wiliam, 1998). Additionally, the four-level model (task, process, self-regulation, self) emphasizes that focusing on the process enhances learning (Hattie & Timperley, 2007). Moreover, peer feedback and digital feedback have been recognized as valuable tools for fostering collaboration and autonomy among students (Van der Kleij et al., 2015).

Despite the extensive literature on feedback and self-assessment in the learning process, there is a clear research gap concerning secondary school students' receptivity to teacher criticism. This issue remains under-researched, especially regarding factors such as the nature of feedback, individual student characteristics, the quality of the teacher-student relationship, and external influences including cultural, social, and technological factors. This systematic review aims to address this gap by examining the effects of feedback and self-assessment on students' receptivity to criticism, while also considering the developmental characteristics of adolescence. Additionally, it explores how self-assessment can serve as a mechanism for promoting self-regulation, ultimately enhancing students' acceptance of and meaningful engagement with feedback.

2. Theoretical Framework

Feedback is a crucial component of the learning process, as it helps students understand their progress, recognize their strengths, and address their weaknesses (Black & Wiliam, 1998). The effectiveness of feedback depends on its ability to answer three essential questions: a) Where is the student in relation to their goals? b) Where do they need to be? c) How can they bridge the gap between the two? (Hattie & Timperley, 2007). Feedback promotes self-regulation when it is clear, specific, and aligned with learning goals. Students also need to comprehend the criteria for success to utilize feedback effectively (Nicol & Macfarlane-Dick, 2006). There are various types of feedback: formative feedback is given during the learning process to aid improvement; summative feedback assesses the final outcome; positive feedback boosts motivation; corrective feedback addresses mistakes;

descriptive feedback provides detailed information; and directional feedback offers instructions (Brookhart, 2008). Additionally, feedback can be immediate, provided right after a task, or delayed, given later; it can also be written, oral, or even non-verbal, depending on the context (Brookhart, 2008). In secondary education, feedback is especially important due to the developmental characteristics of adolescents, which include the growth of critical thinking, independence, and emotional sensitivity (Hyland, 2006).

The effectiveness of feedback largely depends on students' willingness to accept criticism. Students who view feedback as an opportunity for personal growth tend to make more progress compared to those who see it as an attack, which can lead them to reject it (Nicol & Macfarlane-Dick, 2006). The concept of receptiveness to criticism refers to an individual's ability and willingness to accept and utilize the points addressed to them (Fong et al., 2016). Several factors influence students' receptiveness to teachers' criticism in secondary education, and these factors are multidimensional. Characteristics of feedback, such as its type (constructive or negative), the manner in which it is delivered (friendly and clear), the educational approach (tailored to individual student needs), the timing (offered at an appropriate moment), and the context (private or group settings), all play a crucial role in the learning process (Brookhart, 2008). Additionally, individual characteristics of students—such as self-esteem, self-confidence, past experiences with criticism, age, psychological development, and emotional maturity—significantly affect how they perceive and interpret feedback (Fong et al., 2016). Furthermore, the interpersonal relationship between teacher and student, built on trust and mutual respect, greatly enhances receptivity to criticism (Hyland, 2006). Finally, external factors, including family cultural and social values, technology usage, and classroom dynamics, also influence students' responses to feedback (Nicol & Macfarlane-Dick, 2006).

Self-assessment in secondary education promotes active student participation and encourages receptiveness to feedback, enabling them to process comments constructively (McMillan & Hearn, 2008). Through self-assessment, students can identify their strengths and weaknesses, set improvement goals, and develop skills in self-regulation and autonomy (Nicol & Macfarlane-Dick, 2006). The primary tools used for self-assessment include a) checklists, b) assessment rubrics, c) digital portfolios, d) reflective journals, and e) self-assessment questionnaires (McMillan & Hearn, 2008). Research indicates that participating in self-assessment improves students' ability to utilize feedback, engage in critical thinking, and recognize their learning needs (Hattie & Timperley, 2007). Additionally, it enhances students' sense of control over their learning, which in turn fosters a positive attitude towards criticism (Nicol & Macfarlane-Dick, 2006).

3. Previous research - Contribution of this review

Feedback plays a crucial role in the educational process, with various studies examining factors that influence its effectiveness, such as format, timing, and the student-teacher relationship. Moreover, the literature provides both theoretical and empirical insights into how students perceive and use feedback. Initially, Nicol and Macfarlane-Dick (2006) analyzed 42 studies and found that clear and timely feedback enhances student autonomy in

higher education, helping students to establish and achieve their goals. Additionally, Hattie and Timperley (2007), through a meta-analysis of 12 studies, proposed a four-level model emphasizing that the learning process is a key determinant of performance. Furthermore, Shute (2008), in an analysis of 180 studies, emphasized that formative feedback is most effective when it is clear, timely, and free of excessive criticism, and provided practical suggestions for its implementation. Similarly, Jonsson (2013), based on 103 studies, confirmed the significance of feedback and highlighted how learning strategies and academic discourse can affect its effectiveness. In contrast, Evans (2013), analyzing 68 studies, explored students' perceptions and found that the effectiveness of feedback depends on understanding, communication, and expectations. This suggests a need for improvements in student-teacher interactions. Moreover, Liu and Brown (2015) identified methodological weaknesses in corrective feedback in second language writing based on 44 sources. Additionally, Van der Kleij et al. (2015) conducted a meta-analysis of 40 studies and concluded that analytical feedback in digital environments is more effective than simple responses, underscoring the importance of personalization. On a related note, Chen (2016) highlighted both the advantages and challenges of peer feedback through an analysis of 20 articles, emphasizing the need for student guidance in this process. Moreover, Winstone et al. (2017), based on 51 studies, categorized student engagement into understanding, application, and adaptation, demonstrating that active participation enhances the usefulness of feedback. Finally, Baliram and Youde (2018), in a meta-analysis of 8 studies, confirmed the positive impact of feedback on academic performance. In addition, Smithers et al. (2018), reviewing 14 studies, linked non-cognitive skills developed from childhood to better educational outcomes, despite potential data bias.

Recent international literature has increasingly focused on the factors that determine the effectiveness of feedback in the learning process. In particular, Haughney et al. (2020) analyzed 70 empirical studies and found that effectiveness depends on factors such as positivity, clarity, timeliness, and student participation. Following this perspective, Wisniewski et al. (2020) conducted a meta-analysis based on 435 studies, confirming that feedback significantly impacts learning outcomes. Their work highlighted that emphasizing the learning process and promoting self-regulation enhances students' progress. Additionally, Paterson et al. (2020), in their analysis of 36 studies, discovered that students prefer clear, timely, and constructive feedback linked to their work, which promotes active learning. The study by Lipnevich and Panadero (2021), which reviewed 14 publications, underscored the importance of personalization, demonstrating that adapting feedback to meet students' needs fosters their autonomy. Furthermore, Röhl (2021) performed a meta-analysis of 18 studies, revealing a small but statistically significant positive effect of feedback on perceived teaching quality, emphasizing the necessity of individual support for teachers. Similarly, the research by Castro et al. (2021), which included 26 studies in the review and 13 in the meta-analysis, showed that feedback enhances the knowledge, attitudes, and skills of medical students, despite a high level of variability in the findings. In contrast, Yu and Yang (2021) analyzed 45 studies and found that while students respond positively to detailed feedback, they struggle to implement it, highlighting the need for additional guidance. Continuing this theme, Morris et al. (2021) examined 56 studies and confirmed that formative feedback improves learning

when it is systematically integrated into teaching. Moreover, the meta-analysis by Koenka et al. (2021), involving 61 studies, demonstrated that written comments significantly improve motivation and performance compared to mere grading. Correspondingly, Jensen et al. (2021) observed, through 17 studies, a notable shift towards student-centered feedback practices that emphasize collaboration and self-directed activities. However, Hahn et al. (2021), encompassing 125 studies, took a more cautious stance, acknowledging both the advantages and limitations of automatic grading. Finally, Panadero and Lipnevich (2022) conducted an analysis of 72 studies and proposed a comprehensive categorization of feedback models, underscoring the necessity for flexibility and adaptation to various learning and cultural contexts.

Recent research has highlighted the growing interest in the relationship between feedback, self-assessment, and non-cognitive skills in the learning process. Specifically, Frantz et al. (2022) conducted a systematic review of 11 studies to explore the interaction between non-cognitive skills and environmental factors, emphasizing their role in academic development. Building on this research, Zynuddin et al. (2023) analyzed 65 studies and confirmed the close relationship between school climate and the development of non-cognitive skills, stressing that a supportive environment is crucial for learning success. In addition, Badrun (2024), based on a review of 27 studies, underscored the importance of self- and peer-assessment in enhancing student motivation and advocated for the systematic integration of these practices in education. Furthermore, Esmaeeli et al. (2023) conducted 25 systematic reviews and highlighted the diversity of feedback applications, emphasizing their fundamental contribution to learning and the necessity of adapting forms and strategies to specific educational contexts. In line with these findings, Li et al. (2024) performed a meta-analysis of 39 experimental studies, revealing a positive effect of peer feedback on learning effectiveness. This reinforces the idea that student interaction can serve as a catalyst for achieving deeper understanding. Similarly, Yan et al. (2023) examined 98 outcomes from 26 studies on explicit and implicit self-assessment, demonstrating that combining these assessments with clear, targeted feedback results in a more significant impact. Equally noteworthy is the contribution by Liebenow et al. (2024), who conducted a meta-analysis of 47 studies and found improvements in the accuracy of self-assessment, particularly concerning knowledge of outcomes. This reinforces the perspective that feedback enhances students' self-awareness.

The studies, reviews, and meta-analyses mentioned earlier indicate that feedback is a crucial element of learning. It enhances cognitive development, self-regulation, and academic performance. Feedback is most effective when it is clear, timely, constructive, and tailored to students' needs. Additionally, active participation, personalization, and the use of technological tools can further enhance its impact. Moreover, peer and online feedback encourage collaboration and the development of non-cognitive skills, while formative feedback helps improve self-awareness and the accuracy of self-assessment. However, there is limited research on students' receptivity to criticism and how they apply feedback. This research aims to investigate secondary school students' receptivity to feedback by considering various factors such as the characteristics of the feedback, individual student traits, the

student-teacher relationship, and external influences. It will also explore how self-assessment can improve students' ability to use feedback effectively, promoting self-regulation and encouraging their active participation in learning.

4. Purpose - Research questions - Method

This systematic review aims to investigate the effects of feedback and self-assessment on secondary school students' receptiveness to teacher criticism. It focuses on the factors that influence how students accept, internalize, and use this feedback. Specifically, the study analyzes how aspects related to the characteristics of the feedback, individual student traits, the interpersonal relationship between students and teachers, and external variables shape students' responses to criticism. The analysis is based on research published between 2015 and 2025, aiming to draw valid conclusions, identify gaps in the existing literature, and suggest directions for future research. This literature review seeks to address key research questions: a) How do feedback characteristics (type, mode, educational approach, timing, context) affect students' receptivity in secondary education? b) In what ways do individual student traits (self-esteem, self-confidence, prior experiences with criticism, age, psychological development) influence their acceptance and use of feedback? c) How do interpersonal teacher-student relationships (trust, mutual respect) shape attitudes toward feedback? d) How do external factors (cultural, social, technological, classroom dynamics) impact receptiveness to teacher feedback? e) To what extent are self-assessment tools examined in the studies reviewed, and which methods help students become more receptive to criticism? f) How significant is the contribution of self-assessment in supporting students' acceptance of feedback compared to studies without such tools? Additionally, the review examines the fields of study, sample characteristics and size, types of data collected, and research tools utilized. The methodology for the review was based on the updated PRISMA 2020 statement by Page et al. (2021), which offers revised guidelines for the stages of study identification, screening, eligibility assessment, and final selection (see Figure 1).
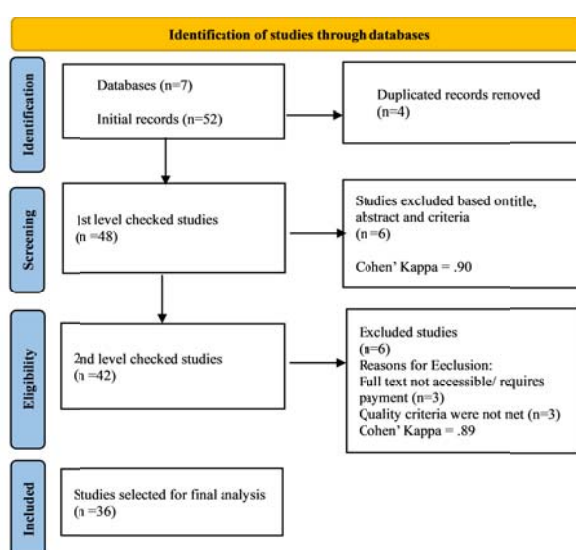

Figure 1. Flowchart of the literature review based on the PRISMA 2020

The search terms used for Greek sources include: "Feedback" AND "receptivity" AND "learners" AND "educators" AND "secondary education*." For the English sources, the search terms are: "Feedback" AND "receptivity" AND "students" AND "instructors" AND "secondary education*." Various combinations and substitutions were made, such as: "Feedback" AND "receptivity" AND "learners" AND "teachers," "Feedback" AND "acceptance of criticism" AND "students" AND "instructors," as well as variations with "secondary education," "senior," "middle," and "high school." The search was conducted in both Greek and English, focusing on factors that influence student receptivity, which include: a) the student-teacher relationship, b) emotional and psychological state, c) the type, frequency, and manner of providing feedback, d) cultural and family background, and e) cognitive and personal beliefs. The primary search was performed using English terms, as the relevant literature is predominantly in English. Additionally, terms such as "self-assessment" AND "feedback" AND "secondary education" were used to explore the relationship between self-assessment and feedback, as self-assessment enhances students' self-regulation and receptivity to criticism.

This review was conducted using seven bibliographic databases to extend the research beyond previous systematic reviews in the field. Scopus and IEEE Xplore were chosen for their broad subject coverage. Additionally, searches were carried out in ScienceDirect and SpringerLink, which encompass social sciences and humanities, as well as in SAGE Journals and ResearchGate. Google Scholar was also utilized, despite its limited search options. The search across these databases resulted in 52 studies. After removing four duplicates, 48 studies remained for the initial evaluation. During this stage, the titles and abstracts were analyzed based on predefined selection criteria (see Table 1). To ensure consistency in the process, a small number of studies were assessed, and Cohen's kappa coefficient was calculated (refer to Figure 1). Following this assessment, six investigations were excluded.

Table 1. Inclusion/exclusion criteria for studies in the review

Inclusion criteria	Exclusion criteria
Studies written in English and Greek.	Studies written in a different language where there is no possibility of translation.
Application in the field of education.	Not applicable to the field of education.
Reference to feedback and learners' receptivity to teacher criticism in secondary education.	Do not refer to feedback and learners' receptivity to teacher criticism in secondary education.
The abstract provides some information.	Reviews/theoretical studies
Publication year from 2015-2025	

A total of 42 studies were submitted for a second-level review, during which the main text of each study was analyzed. Among these, three studies were excluded because they required payment for access. The remaining 39 studies were evaluated for quality based on the following criteria: a) the context of the effect of feedback on students' receptivity to teacher criticism in secondary education (cognitive domain and type of research), b) the

methodological design (data type and participant sample), and c) the data collection methods and tools used. Ultimately, 36 studies that met these criteria were selected, with consistency ensured by calculating Cohen's kappa coefficient (see Figure 1).

5. Results

The following tables present studies identified in this systematic review that explore the relationship between feedback, self-assessment, and students' receptivity to teacher criticism in secondary education. Key information such as the researchers, year of study, country, purpose, type of research, sample size, subject area, and findings are recorded. The information is organized according to several factors: a) the characteristics of feedback, b) the individual characteristics of the student, c) the teacher-student relationship, and d) external factors. Additionally, the contribution of self-assessment is examined as a factor that enhances students' self-regulation and their ability to accept and effectively use feedback. Specifically, Tables 2, 3, and 4 present results regarding feedback and students' receptivity to teacher criticism, focusing on factors related to the characteristics of feedback (the first research question). These tables cover: the type and manner of feedback provision (Table 2), the educational approach and timing of feedback (Table 3), and the context in which feedback is delivered (Table 4).

Table 2. The impact of feedback on students' receptiveness to teacher criticism in secondary education, focusing on feedback types

Researchers Year Country	Purpose of research	Research Type Sample Size Subject	Research results
Vattøy & Gamlem 2019 Norway	It explores how teachers include the perspectives of adolescents in feedback discussions with students in lower secondary schools.	Mixed (observations, quantitative) 178 participants Mathematics, English as a foreign language High school Lesson video recordings, CLASS-S for analysis	Feedback dialogues often overlook adolescents' viewpoints, diminishing their receptiveness. Teachers' inflexibility restricts student engagement and empowerment.
Van Der Kleij & Adie 2020 Australia	It examines how students perceive and use oral feedback and their receptiveness to learning progress.	Qualitative (interviews, observations) 30 participants Language, Mathematics Middle School, High School	Verbal feedback is most effective when it is clear and direct, with receptivity influenced by the quality of the feedback and the teacher's trustworthiness. The effectiveness is further enhanced through effective communication.
Bonsu	It analyzes how	Quantitative	Written feedback greatly

2021 Ghana	written feedback impacts students' writing skills and their overall performance.	350 participants (325 students and 50 teachers) English as a foreign language High school written assessment, questionnaires	enhanced students' writing skills, especially in structure, content, and language use. Students are open to receiving written feedback.
Pradhan & Ghimire 2022 Nepal	The purpose of this study is to explore how teachers provide feedback and how this feedback contributes to student learning.	Qualitative 10 teachers and 40 students English as a foreign language Middle school/High school observations, semi-structured interviews	Teachers provide constructive verbal and written feedback that enhances learning, and students are more receptive when the feedback is clear and positively expressed.
Ahmed, Khokhar & Nisar 2022 Pakistan	This study examines students' perceptions of the feedback they receive from teachers in the classroom.	Qualitative 25 participants (girls only) General education High school semi-structured interviews	The students found constructive feedback helpful for their progress and self-confidence. They are more receptive to feedback that is positively worded and less critical.
Farid & Alam 2023 Pakistan	Examines the connection between teacher feedback and student success in secondary English language arts.	Quantitative 260 participants English as a foreign language High school questionnaires, observation sheets	Prompt and positive feedback improves students' performance, making them more open to constructive feedback that encourages and enhances their academic achievements.
Wilfredi & Wachira 2024 Tanzania	Analyzes the effects of written feedback on assessments, considering the viewpoints of both students and teachers.	Mixed 80 participants Biology High school Written feedback, questionnaires, interviews, action research	Providing written feedback improved students' understanding and engagement, with their receptiveness depending on the quality and clarity of the feedback. Additionally, teachers required more support to implement this

Researchers Year Country	Purpose of research	Research Type Sample Size Subject	Research results
Safeek & Hock 2024 Malaysia	Explores how positive feedback influences students with reading difficulties, enhancing their skills, confidence, and engagement.	Mixed (quantitative, qualitative) 199 teachers Language, reading ability Middle school/High school Questionnaires, Interviews, group discussions	feedback effectively. Encouraging and supportive positive feedback helped students with reading difficulties improve their skills and confidence, reinforcing a positive attitude towards learning.
Lipnevich & Lopera-Oquendo 2024 Singapore	The aim is to validate a psychometric tool designed to measure students' receptivity to constructive feedback.	Quantitative 314 participants General education Middle school/High school Self-assessment of abilities and beliefs about learning with a questionnaire	The tool used to measure receptivity showed strong reliability. Students favor clear and constructive feedback, which is shaped by their cultural context.
Hübner, Winstone, Merk & Hattie 2024 Germany	Exploring how students' perceptions of educational feedback relate to their self-concept, intrinsic value, and performance over the long term.	Quantitative 2,121 participants Mathematics High School Questionnaires	Student perceptions of feedback are interconnected with self-concept, value, and performance. Receptivity to feedback is influenced by the type of feedback, especially when it involves criticism.

Table 3. Results of the impact of feedback on students' receptiveness to teacher criticism in secondary education, based on factors related to the educational approach and timing of feedback

Researchers Year Country	Purpose of research	Research Type Sample Size Subject	Research results
Kyaruzi, Strijbos, Ufer & Brown 2019 Tanzania	This study explores how students' perceptions of formative assessment and the use of feedback influence their performance.	Quantitative 2,767 participants Mathematics Middle School questionnaires, measuring academic performance	Positive attitudes towards formative assessment and the active use of feedback were linked to improved performance, with receptivity depending on the clarity

			and usefulness of the feedback.
Guo & Wei 2019 China	This research examines how various types of teacher feedback influence students' abilities to engage in self-regulated learning.	Experimental 584 participants Mathematics Middle School, High School Self-assessment Questionnaires, Rubrics	Effective feedback helps students self-regulate and promotes critical thinking. Its success and acceptance depend on the type and way it is used by students.
Panadero, Fernández-Ruiz & Sánchez-Iglesias 2020 Spain	This paper examines how feedback influences students' self-assessment and self-efficacy.	Experimental 64 participants Language, Mathematics High school Self-assessment forms, questionnaires	Feedback improves receptiveness, encourages participation in self-assessment, and enhances students' learning outcomes and academic performance.
Javed, Asghar & Nazak 2020 Pakistan	It explores how feedback practices influence school performance and their connection to academic outcomes.	Quantitative 2,375 teachers (1,271 men, 1,104 women) and 12,648 participants (7,020 men, 5,628 women) General education Middle School, High School questionnaires	Teacher feedback improves student receptivity and performance. Techniques such as formative and direct feedback enhance engagement, understanding, and academic achievement.
Ketonen, Nieminen & Hähkiöniemi 2020 Finland	The text examines how peer assessment enhances students' ability to comprehend and utilize feedback effectively.	Mixed (quantitative, experimental, qualitative) 31 participants Physics Middle School, High School Self-assessment rubrics, questionnaires, interviews	Peer assessment enhanced students' understanding and use of feedback, improving their receptivity to criticism through collaboration and deeper comprehension.
Asewe, Origa & Mulwa 2020 Kenya	This study explores the connection between teacher feedback and student performance.	Mixed (quantitative, experimental) 80 participants Mathematics High School Questionnaires,	Frequent, qualitative feedback is linked to improved performance, as timely provision enhances acceptance and utilization.

		performance tests	
Eleje, Esomonu, Okoye, Agu, Okoi Ugorji, & Abanobi 2020 Nigeria	This study explores the impact of corrective feedback on students' academic performance in quantitative economics.	Experimental 164 participants Economics Middle School Experimental vs. control condition	Combining corrective feedback with practical support enhances student performance by improving receptivity, understanding, and outcomes.
Cutumisu & Schwartz 2021 USA	Investigates whether the impact of positive or corrective feedback on learning is consistent after high school, regardless of age.	Quantitative 764 participants General education Middle School Self-assessment Digital assessment (Posterlet), questionnaires	The connection between feedback and learning stabilizes after high school, with students showing a preference for this type of feedback, which enhances their receptivity and usefulness.
Sagua 2021 Spain	To analyze the role of feedback in teaching English to secondary school students.	Mixed 139 participants English as a foreign language High School questionnaires, observations, interviews	Timely and tailored feedback helps students recognize and correct errors.
van der Kleij 2023 Australia	The study explores how teachers and students perceive verbal feedback using video-stimulated recall methods.	Qualitative 2 teachers, 5 students Language, Mathematics High school Lesson videos, interviews, observations	Students were more receptive to verbal feedback when they clearly understood it, while teachers often believed their feedback was more effective than it truly was.
Conner, Mitra, Holquist & Boat 2025 USA	It examines how feedback practices that include student voice influence engagement and performance, focusing on choice, receptivity, and responsiveness.	Mixed (quantitative, qualitative, experimental) 1,751 participants General education Middle school/High school Self-assessment Student voice scales, questionnaires,interviews	Feedback incorporating student voice enhanced engagement, autonomy, and confidence. Student receptivity depends on active teacher participation.

Table 4. Results of the impact of feedback on students' receptiveness to teacher criticism in secondary education, considering factors related to the feedback context

Researchers Year Country	Purpose of research	Research Type Sample Size Subject	Research results
Singh & Hoon 2016 Malaysia	This study explores how structured peer feedback impacts students' revisions of their texts.	Experimental 20 participants English as a foreign language High school placement test, narrative writing	Peer feedback enhanced revision, collaboration, and critical thinking, resulting in greater receptivity and quality than teacher feedback.
Batool & Akhter 2019 Pakistan	This study explores how feedback impacts student performance in order to understand its role in enhancing learning outcomes.	Mixed (experimental, quantitative) 87 participants Mathematics High school questionnaires, intervention	Feedback improves performance, especially for students with moderate or low abilities, who are more receptive and respond better than those who do not receive feedback.
Sandal, Helleve, Smith & Gamlem 2022 Norway	Examines how student and teacher perceptions of feedback practices change over a seven-month development program.	Qualitative 40 teachers, 1,003 participants General education Middle School observations, interviews)	Feedback perceptions improved with increased application to learning and greater receptivity when dialogue was involved. However, students rated dialogue lower than teachers did.
Azbel, Ilyushin, Kazakova & Morozova 2022 Russia	Aims to identify and analyze the value of teachers' and students' attitudes toward feedback as an essential component of academic literacy.	Mixed (quantitative, qualitative) 2,710 participants and 134 teachers General education High school questionnaires, interviews	Teachers understand feedback but do not apply it systematically, while students see it as a privilege of teachers and exhibit low receptivity due to their inexperience. Factors such as grading, bureaucracy, and parental attitudes hinder its quality.

Conner, Mitra, Holquist & Boat 2025 USA	It examines how feedback practices that include student voice influence engagement and performance, focusing on choice, receptivity, and responsiveness.	Mixed (quantitative, qualitative, experimental) 1,751 participants General education Middle School, High School Self-assessment Student voice scales, questionnaires, interviews	Feedback incorporating student voice enhanced engagement, autonomy, and confidence. Student receptivity depends on active teacher participation.

Table 5 shows the results of the feedback and students' receptivity to teacher criticism, based on factors related to individual characteristics such as self-esteem, self-confidence, previous experiences with criticism, age, psychological development, and emotional maturity (2nd research question).

Table 5. displays the results of how feedback affects learners' receptivity to teacher criticism in secondary education, considering individual student characteristics

Researchers Year Country	Purpose of research	Research Type Sample Size Subject	Research results
Kyaruzi, Strijbos, Ufer & Brown 2019 Tanzania	This study explores how students' perceptions of formative assessment and the use of feedback influence their performance.	Quantitative 2,767 participants Mathematics Middle School questionnaires, measuring academic performance	Positive attitudes towards formative assessment and the active use of feedback were linked to improved performance, with receptivity depending on the clarity and usefulness of the feedback.
Guo & Wei 2019 China	This research examines how various types of teacher feedback influence students' abilities to engage in self-regulated learning.	Experimental 584 participants Mathematics Middle School, High School Self-assessment Questionnaires, Rubrics	Effective feedback helps students self-regulate and promotes critical thinking. Its success and acceptance depend on the type and way it is used by students.
Batool & Akhter 2019	This study explores how feedback impacts student performance in order to understand its role	Mixed (experimental, quantitative) 87 participants Mathematics High school	Feedback improves performance, especially for students with moderate or low abilities, who are more receptive and

Pakistan	in enhancing learning outcomes.	questionnaires, intervention	respond better than those who do not receive feedback.
Panadero, Fernández-Ruiz & Sánchez-Iglesias 2020 Spain	This paper examines how feedback influences students' self-assessment and self-efficacy.	Experimental 64 participants Language, Mathematics High school Self-assessment forms, questionnaires	Feedback improves receptiveness, encourages participation in self-assessment, and enhances students' learning outcomes and academic performance.
Cutumisu & Schwartz 2021 USA	Investigates whether the impact of positive or corrective feedback on learning is consistent after high school, regardless of age.	Quantitative 764 participants General education Middle School Self-assessment Digital assessment (Posterlet), questionnaires	The connection between feedback and learning stabilizes after high school, with students showing a preference for this type of feedback, which enhances their receptivity and usefulness.
Ahmed, Khokhar & Nisar 2022 Pakistan	This study examines students' perceptions of the feedback they receive from teachers in the classroom.	Qualitative 25 participants (girls only) General education High school semi-structured interviews	The students found constructive feedback helpful for their progress and self-confidence. They are more receptive to feedback that is positively worded and less critical.
He, Liu, Ran & Zhang 2023 China	Study examines how students' perceptions of feedback influence their self-regulated learning through self-efficacy and goal orientation.	Quantitative 236 participants General education High school Self-assessment Assessment of self-regulated learning, self-efficacy with questionnaires	Positive views of feedback improved self-regulated learning by boosting self-efficacy and goal orientation, with receptivity increasing when feedback built self-confidence.
Safeek & Hock 2024 Malaysia	Explores how positive feedback influences students with reading difficulties, enhancing their skills, confidence, and engagement.	Mixed (quantitative, qualitative) 199 teachers Language, reading ability Middle School, High School Questionnaires,	Encouraging and supportive positive feedback helped students with reading difficulties improve their skills and confidence, reinforcing a positive attitude towards learning.

Researchers Year Country	Purpose of research	Research Type Sample Size Subject	Research results
		Interviews, group discussions	
Hübner, Winstone, Merk & Hattie 2024 Germany	Exploring how students' perceptions of educational feedback relate to their self-concept, intrinsic value, and performance over the long term.	Quantitative 2,121 participants Mathematics High School Questionnaires	Student perceptions of feedback are interconnected with self-concept, value, and performance. Receptivity to feedback is influenced by the type of feedback, especially when it involves criticism.
Bahr, Höft, Lipnevich, Meyer & Jansen 2025 Germany	They examine students' openness to feedback through latent profile analysis, identifying various types of acceptance and responses to criticism.	Quantitative 1800 participants (653 males, 765 females, 84 others, 298 unspecified) General education Middle School, High School Self-assessment measuring self-efficacy with questionnaires	Students' responses to feedback and their willingness to accept it are influenced by several factors, including their self-confidence, past experiences, and how they view criticism.

Table 6 illustrates the impact of teacher feedback on students' receptivity to criticism, focusing on aspects of the teacher-student interpersonal relationship, such as trust and mutual respect (3rd research question).

Table 6. Results of the impact of feedback on students' receptivity to teacher criticism in secondary education, focusing on factors related to the teacher-student interpersonal relationship

Researchers Year Country	Purpose of research	Research Type Sample Size Subject	Research results
Vattøy & Gamlem 2019 Norway	It explores how teachers include the perspectives of adolescents in feedback discussions with students in lower secondary schools.	Mixed (observations, quantitative) 178 participants Mathematics, English as a foreign language High school Lesson video recordings, CLASS-S for analysis	Feedback dialogues often overlook adolescents' viewpoints, diminishing their receptiveness. Teachers' inflexibility restricts student engagement and empowerment.
Van Der Kleij & Adie	It examines how students perceive	Qualitative (interviews, observations)	Verbal feedback is most effective when it is clear

2020 Australia	and use oral feedback and their receptiveness to learning progress.	30 participants Language, Mathematics Middle School, High School	and direct, with receptivity influenced by the quality of the feedback and the teacher's trustworthiness. The effectiveness is further enhanced through effective communication.
Sandal, Helleve, Smith & Gamlem 2022 Norway	Examines how student and teacher perceptions of feedback practices change over a seven-month development program.	Qualitative 40 teachers, 1,003 participants General education Middle school observations, interviews)	Feedback perceptions improved with increased application to learning and greater receptivity when dialogue was involved. However, students rated dialogue lower than teachers did.
van der Kleij 2023 Australia	The study explores how teachers and students perceive verbal feedback using video-stimulated recall methods.	Qualitative 2 teachers, 5 students Language, Mathematics High school Lesson videos, interviews, observations	Students were more receptive to verbal feedback when they clearly understood it, while teachers often believed their feedback was more effective than it truly was.
Conner, Mitra, Holquist & Boat 2025 USA	It examines how feedback practices that include student voice influence engagement and performance, focusing on choice, receptivity, and responsiveness.	Mixed (quantitative, qualitative, experimental) 1,751 participants General education Middle School, High School Self-assessment Student voice scales, questionnaires, interviews	Feedback incorporating student voice enhanced engagement, autonomy, and confidence. Student receptivity depends on active teacher participation.

Tables 7 and 8 display the results from teacher feedback regarding students' receptivity to criticism, taking into account external factors such as cultural, social, and classroom dynamics (presented in Table 7) as well as technology (shown in Table 8). Additionally, elements related to the fifth and sixth research questions—specifically the use of self-assessment processes and tools and their impact on students' receptivity to teacher criticism—are incorporated throughout all tables presenting the results and are examined in detail in the subsequent discussion.

Table 7. Results of the impact of feedback on students' receptiveness to teacher criticism in primary education, considering cultural and social factors as well as classroom dynamics

Researchers Year Country	Purpose of research	Research Type Sample Size Subject	Research results
Singh & Hoon 2016 Malaysia	This study explores how structured peer feedback impacts students' revisions of their texts.	Experimental 20 participants English as a foreign language High school placement test, narrative writing	Peer feedback enhanced revision, collaboration, and critical thinking, resulting in greater receptivity and quality than teacher feedback.
Ketonen, Nieminen & Hähkiöniemi 2020 Finland	The text examines how peer assessment enhances students' ability to comprehend and utilize feedback effectively.	Mixed (quantitative, experimental, qualitative) 31 participants Physics Middle School, High School Self-assessment rubrics, questionnaires, interviews	Peer assessment enhanced students' understanding and use of feedback, improving their receptivity to criticism through collaboration and deeper comprehension.
Azbel, Ilyushin, Kazakova & Morozova 2022 Russia	Aims to identify and analyze the value of teachers' and students' attitudes toward feedback as an essential component of academic literacy.	Mixed (quantitative, qualitative) 2,710 participants and 134 teachers General education High school questionnaires, interviews	Teachers understand feedback but do not apply it systematically, while students see it as a privilege of teachers and exhibit low receptivity due to their inexperience. Factors such as grading, bureaucracy, and parental attitudes hinder its quality.
Lipnevich & Lopera-Oquendo 2024 Singapore	The aim is to validate a psychometric tool designed to measure students' receptivity to constructive feedback.	Quantitative 314 participants General education Middle School, High School Self-assessment of abilities and beliefs about learning with a questionnaire	The tool used to measure receptivity showed strong reliability. Students favor clear and constructive feedback, which is shaped by their cultural context.

Table 8. Results of the impact of feedback on learners' receptivity to teacher criticism in primary education, considering external factors such as technology

Researchers Year Country	Purpose of research	Research Type Sample Size Subject	Research results
Rotsaert, Panadero, Schellens & Raes 2018 Belgium	Analyzes the quality of feedback provided by peers and its influence on assessment outcomes.	Experimental 36 participants Language High school experimental vs. control condition mobile devices	Students found peer feedback to be very helpful, demonstrating a high level of receptiveness to it.
Lim & Phua 2019 Singapore	This text examines how language feedback technology enhances writing instruction.	Mixed (quantitative, qualitative) 436 participants General Education Middle school Self-assessment Grammarly, questionnaires, interviews	Writing instruction enhanced by technology boosts both accuracy and creativity. The immediacy and clarity of feedback enhance student receptiveness.
Ryan, Henderson & Phillips 2020 Australia	Evaluates the use of digitally recorded feedback on assessments, focusing on student engagement, perceptions, and impact.	Mixed (experimental quantitative, qualitative) 260 participants General Education High School Self-assessment recorded feedback, questionnaires, interviews	Students preferred digital feedback as it was more detailed, personalized, and effective than traditional feedback. They also appreciated its clarity and ability to be retested.
Duran & Pinyol 2020 Spain	It explores whether adult learners read feedback comments and how digital feedback influences their learning progress.	Quantitative (questionnaire) 1,046 adult participants General education High school Self-assessment online learning platform	Digital feedback influences receptivity and enhances motivation and engagement; however, many students do not take it into account.
Wu & Schunn 2021a	It explores how peer feedback enhances writing and learning, focusing on students'	Mixed (quantitative, experimental) 185 participants (80 males, 105 females)	Peer feedback improved both writing and learning; those who offered feedback

USA	willingness to revise and develop their skills.	Language High school Self-assessment rubrics, Peerceptiv digital platform, written work analysis, questionnaires	developed critical thinking and self-reflection, while recipients benefited from their suggestions. The group's quality and dynamics influence receptivity.
Wu & Schunn 2021b USA	It explores how characteristics of peer feedback influence design and implementation, focusing on the mediating role of design.	Experimental 125 participants (43 males, 77 females, 5 no gender) Language, writing High school Self-assessment Analysis of feedback and revisions	Constructive peer feedback significantly improves the planning and implementation of revisions, with planning acting as a key factor that determines the success of feedback implementation.
Maier 2021 Germany	Examines the impact of two types of feedback messages on brief online grammar and spelling lessons.	Experimental 620 participants (309 women, 311 men) German, English Middle school, High school Self-assessment MasteryX web application	Self-reported feedback demonstrated small but significant positive effects on learning behavior, while reward-based feedback modestly improved scores in advanced courses.
Luca Bahr, Höft, Meyer & Jansen 2024 Germany	Validation of a scale to measure students' receptiveness to digital feedback in order to create a reliable tool.	Quantitative 1,207 high school participants and 464 students General education Middle school, University Self-assessment (self-efficacy questionnaires)	The scale demonstrated reliability and validity, indicating that students respond better to digital feedback when it is clear, direct, and tailored to their specific needs.
Heindl, Huber, Schuricht, Wawrzinek, Babl & Ellert 2025	Compares the impacts of human and digital feedback on student motivation, engagement,	Mixed (quantitative experimental) 219 participants General education Middle School, High School	In-person feedback boosted motivation, while digital feedback increased student engagement, resilience, and persistence. The

Germany	resilience, and persistence.	questionnaires, intervention, digital feedback platforms	receptiveness to the feedback was positively influenced by its objectivity.

6. Discussion

This systematic review identified a total of 36 research studies. Notably, only one of these studies was published in the proceedings of an international conference in 2020. In terms of time distribution, the period from 2019 to 2021 has the highest concentration of studies, with 19 studies in total. The peak year was 2020, which contributed 8 studies (22.2%), followed by 2021 with 6 studies (16.7%) and 2019 with 5 studies (13.9%). An equal number of studies (5, or 13.9%) were recorded in 2024. In contrast, the years 2022 (4 studies, or 11.1%), 2023, and 2025 (3 studies each, or 8.3%) show a lower frequency. Only one study was recorded for the years 2016 and 2018 (2.8%). No studies were found from the years 2015 and 2017. Geographically, the majority of the research originates from Europe (13 studies, or 36.1%) and Asia (11 studies, or 30.6%). Additionally, Oceania contributes 5 studies (13.9%), America has 4 studies (11.1%), and Africa includes 3 studies (8.3%). Among individual countries, Germany shows the most significant activity with 5 studies (13.9%), followed by Pakistan and the USA, each with 4 studies (11.1%). Australia and Japan both have 3 studies (8.3%), while Malaysia, Norway, Tanzania, China, and Singapore each contributed 2 studies. Lastly, one study was recorded from Belgium, Kenya, Nigeria, Finland, Ghana, Nepal, and Russia.

The systematic review reveals a predominant trend towards mixed-methods studies, which account for 13 studies (36.1%). This indicates an increasing inclination to combine quantitative and qualitative research approaches. Following this, there are 11 quantitative studies (30.6%), 7 experimental studies (19.5%), and 5 qualitative studies (13.8%), showcasing a diverse range of methodologies. Quantitative studies primarily utilize questionnaires and statistical analysis, while qualitative studies emphasize interviews and observations to gain a deeper understanding. Mixed-methods studies integrate tools from both quantitative and qualitative methods, providing a more comprehensive perspective. Experimental studies, on the other hand, employ control and experimental groups to assess interventions using diagnostic tests and rubrics, which helps in identifying causal relationships. The sample sizes of the participants in these studies vary significantly. The majority involve more than 500 participants (11 studies, 30.6%) or include 101 to 500 individuals (10 studies, 27.8%). Other sample sizes include studies with 51–100 participants (8 studies, 22.2%), 21–50 participants (5 studies, 13.9%), and very small samples of 11–20 (1 study, 2.8%) and 1–10 individuals (1 study, 2.8%). This distribution illustrates the diverse scales employed in research approaches. Overall, the participant numbers range from 7 to 12,648 individuals. Specifically, in quantitative research, the sample sizes range from 236 to 12,648 individuals; in qualitative research, from 7 to 50 participants; in mixed-methods research, from 31 to 1,751 individuals; and in experimental research, from 20 to 620 individuals. This variety highlights both the methodological choices and the specific objectives of each research study.

The analysis of the level of education reveals that the largest percentage of studies was conducted at the Lyceum level (n=13, 36.1%). The Gymnasium level (n=11, 30.6%) also represents a significant portion, as do studies that involve both levels (n=11, 30.6%). Additionally, one study (2.7%) included both Gymnasium and university students, illustrating research across different levels of maturity. In terms of subject focus, general education accounts for the highest number of studies with 14 (38.9%). Mathematics and English as a foreign language each have five studies (13.9%), while Language is the subject of four studies (11.1%). Economics, Physics, and Biology are covered by one study each (2.8%). Furthermore, five studies (13.9%) explore combinations of subjects, such as Language and Mathematics (n=3, 8.3%), and German with English (n=1, 2.8%), indicating a trend towards interdisciplinary approaches. Digital media is featured in 11 studies (30.5%), while only seven studies (19.4%) provide gender-balanced data. Among these, two studies (5.6%) focused exclusively on women, and one study included adult secondary school students.

In addressing the first research question, it was found that most of the studies reviewed—specifically 25—indicate that various characteristics of feedback, such as its type, mode of delivery, educational approach, timing, and context, significantly influence student receptivity in secondary education. Constructive, positive, and clear feedback enhances student engagement and motivation by providing guidance that helps improve performance without instilling feelings of failure or discouragement (Ahmed et al., 2022; Pradhan & Ghimire, 2022; Azbel et al., 2022; Farid & Alam, 2023; Safeek & Hock, 2024; Lipnevich & Lopera-Oquendo, 2024; Hübner et al., 2024). These findings are consistent with similar studies, which show that the effectiveness of feedback hinges on its clarity, purpose, and alignment with students' needs. Specifically, clear, positively framed, and timely guidance that identifies both current and desired performance levels promotes self-regulation, autonomy, and engagement in learning (Nicol & Macfarlane-Dick, 2006; Hattie & Timperley, 2007; Brookhart, 2008). Additionally, the clarity and structure of written feedback enhance students' receptivity, making it easier for them to understand and apply the comments (Bonsu, 2021; Farid & Alam, 2023; Wilfredi & Wachira, 2024). This aligns with findings from Shute (2008) and Koenka et al. (2021), who concluded that descriptive and analytical written feedback is more effective than simple grading, as it fosters student motivation and self-awareness. Conversely, verbal feedback, when delivered directly and clearly, can also enhance receptivity by creating a sense of immediacy, communication, and personal involvement (Van Der Kleij & Adie, 2020). This effect has been documented by Evans (2013) and Van der Kleij et al. (2015), who emphasize that personal interaction and mutual understanding between teachers and students are crucial for accepting criticism. However, feedback dialogues can have negative effects if they do not address students' needs, limiting their ability to accept criticism (Vattøy & Gamlem, 2019). This observation is consistent with findings by Hyland (2006) and Fong et al. (2016), which suggest that a lack of empathy and consideration for adolescents' psychological maturity may lead to feedback rejection. Formative assessment and self-assessment are essential components that promote self-regulation and critical thinking, empowering students to take an active role in their learning processes and thereby increasing the acceptance of feedback (Guo & Wei, 2019; Kyaruzi et al., 2019; Panadero et al., 2020; Javed et al., 2020; Ketonen et al., 2020). These

results are supported by theoretical frameworks indicating that self-assessment enhances student participation and autonomy, fostering positive attitudes toward criticism and transforming feedback from a form of external control to a tool for self-improvement (Nicol & Macfarlane-Dick, 2006; McMillan & Hearn, 2008). The timing of feedback is another critical factor, as providing feedback promptly increases engagement, understanding, and its application in learning activities. This supports findings from earlier research (Asewe et al., 2020; Sagua, 2021; Cutumisu & Schwartz, 2021; van der Kleij, 2023; Eleje et al., 2020) and aligns with Hattie's (2009) theoretical perspective that asserts immediacy enhances memory and knowledge retention. Furthermore, the context in which feedback is delivered, particularly in collaborative settings, plays a vital role in improving receptivity. Active participation in group activities fosters a sense of collaboration and shared responsibility for learning (Singh & Hoon, 2016; Batool & Akhter, 2019; Sandal et al., 2022; Conner et al., 2025). This finding agrees with the work of Van der Kleij et al. (2015) and Panadero & Lipnevich (2022), who argue that participatory feedback and student input promote greater engagement and acceptance. Additionally, tailoring feedback to accommodate students' cultural and social contexts enhances receptivity, as feedback that considers cultural backgrounds is often more readily accepted (Azbel et al., 2022). Likewise, students' self-concept and their perception of feedback's value influence their attitudes toward criticism; those with a positive self-image tend to be more receptive (Hübner et al., 2024). This aligns with self-efficacy theory, which maintains that students with positive self-concept view feedback as an opportunity for growth rather than a threat (Dweck, 2006). Finally, despite extensive documentation, further research is needed to explore the optimal frequency of feedback, the interactions between different feedback types, and the most suitable environments for delivering feedback, as current studies do not comprehensively address these aspects.

The research revealed that only a limited number of studies (n=10) examined factors related to students' individual characteristics (the second research question) that significantly influenced their receptiveness to feedback. These factors included self-esteem, self-confidence, prior experiences with criticism, age, psychological development, and emotional maturity. The findings indicated that students with high self-efficacy and a positive attitude towards learning tend to respond favorably to feedback, viewing it as an opportunity for improvement rather than a personal criticism (Kyaruzi et al., 2019; Guo & Wei, 2019; Ahmed et al., 2022; He et al., 2023). This aligns with existing theoretical and empirical evidence suggesting that self-confidence, a growth mindset, and a focus on learning enhance the positive acceptance of feedback (Dweck, 2006; Hattie & Timperley, 2007; Shute, 2008). Additionally, age and emotional maturity were identified as significant factors, with older students processing feedback more consistently and experiencing less negative impact on their self-esteem (Cutumisu & Schwartz, 2021). This observation is somewhat consistent with international literature, which primarily investigates the developmental characteristics of adolescence and emotional sensitivity, yet lacks extensive empirical studies on emotional maturity (Hyland, 2006; Evans, 2013). Furthermore, the research found that students with lower academic abilities or learning disabilities respond better to positive and supportive feedback, which boosts their self-confidence and helps them manage the fear of failure

(Batool & Akhter, 2019; Safeek & Hock, 2024; Bahr et al., 2025). This finding partially agrees with studies highlighting the importance of individualized and encouraging feedback, although they do not specifically focus on students with learning disabilities (Lipnevich & Panadero, 2021; Wisniewski et al., 2020). Self-assessment also emerged as a factor that promotes self-regulation and increases self-efficacy, thereby improving students' receptiveness to feedback through greater awareness of their strengths and weaknesses (Guo & Wei, 2019; Panadero et al., 2020). This finding is consistent with literature recognizing self-assessment as a mechanism for enhancing participation, autonomy, and the effective use of feedback (Nicol & Macfarlane-Dick, 2006; McMillan & Hearn, 2008; Hattie & Timperley, 2007). Moreover, a positive self-concept among students was linked to greater acceptance of criticism (Ahmed et al., 2022; Hübner et al., 2024), reinforcing the notion that feedback is more effective when it is not perceived as a threat (Shute, 2008; Evans, 2013). Lastly, students' prior experiences with feedback significantly shaped their attitudes toward criticism: positive experiences fostered trust and receptivity, while negative experiences resulted in defensiveness (Guo & Wei, 2019). This finding aligns with research emphasizing the role of expectations, communication quality, and the student-teacher relationship in the process of receiving and utilizing feedback (Evans, 2013; Winstone et al., 2017). The limited research on psychological maturity and special educational needs highlights the necessity for further longitudinal studies to investigate their effects.

In contrast, only five studies emphasized the significance of the interpersonal relationship between teachers and students as a critical factor in the acceptance of feedback (addressing the third research question). A lack of trust or the failure to incorporate student voices hindered receptivity, as students felt that the feedback did not address their needs or perspectives (Vattøy & Gamlem, 2019; Van Der Kleij & Adie, 2020; van der Kleij, 2023). Conversely, active participation and constructive dialogue improved receptivity, as students felt their views were valued and integrated into the learning process (Sandal et al., 2022; Conner et al., 2025). These findings align with previous studies that have highlighted how positive student-teacher interactions, based on mutual respect and trust, enhance student engagement and the effective use of feedback (Hyland, 2006; Nicol & Macfarlane-Dick, 2006). Furthermore, the quality of interpersonal interactions—particularly empathy and clear communication from teachers-fostered positive attitudes among students (van der Kleij, 2023). This confirms that a strong relationship promotes self-regulation and openness to constructive criticism (Hattie & Timperley, 2007; Winstone et al., 2017). However, research in this area remains limited, indicating a need for further studies on the role of teacher education in building trust and enhancing students' receptiveness to feedback.

This review includes 13 studies that highlight the significant influence of external factors on students' receptivity to feedback, addressing research question 4. Factors such as cultural context, classroom dynamics, and technology play crucial roles in shaping how students perceive and accept feedback. Cultural values and parental attitudes notably affect students' interpretations of criticism (Azbel et al., 2022; Lipnevich & Lopera-Oquendo, 2024). These findings align with previous research, which indicates that social and cultural norms impact feedback perceptions (Fong et al., 2016; Hyland, 2006). Additionally, classroom dynamics,

particularly in collaborative environments, enhance receptivity. Students engage more actively and feel supported by their peers, which fosters a positive feedback culture (Singh & Hoon, 2016; Ketonen et al., 2020). This aligns with earlier studies that emphasize the role of peer feedback in promoting collaboration, active participation, and the development of non-cognitive skills (Black & Wiliam, 1998; Hattie & Timperley, 2007). Technology has also emerged as a powerful resource, with digital platforms offering personalized, timely, and interactive feedback that boosts student acceptance and motivation (Rotsaert et al., 2018; Lim & Phua, 2019; Ryan et al., 2020; Duran & Pinyol, 2020; Wu & Schunn, 2021a,b; Maier, 2021; Luca Bahr et al., 2024; Heindl et al., 2025). Furthermore, technology allows for feedback to be tailored to individual needs, enhancing its effectiveness (Rotsaert et al., 2018; Lim & Phua, 2019; Maier, 2021). This is consistent with previous observations regarding the importance of personalized and targeted feedback (Wisniewski et al., 2020; Lipnevich & Panadero, 2021). However, the limited exploration of cultural and social factors, such as family involvement and social norms, reveals a need for further research since these elements significantly influence students' attitudes toward criticism and their overall learning experiences. Additionally, the lack of studies examining the long-term impacts of technology and social factors indicates a necessity for deeper investigation in various educational and cultural contexts.

Regarding the use of self-assessment processes (research question 5), 15 studies (41.6%) integrated self-assessment with various methods and tools, focusing mainly on secondary education. These studies utilized digital platforms, such as Peerceptiv for peer feedback (Wu & Schunn, 2021a; 2021b), MasteryX for online grammar and spelling lessons (Maier, 2021), Grammarly for teaching writing (Lim & Phua, 2019), Posterlet for digital assessment (Cutumisu & Schwartz, 2021), as well as online learning platforms (Duran & Pinyol, 2020) and digitally recorded feedback (Ryan, Henderson & Phillips, 2020). Additionally, self-assessment questionnaires (Guo & Wei, 2019; Panadero et al., 2020; He, Liu et al., 2023; Luca Bahr et al., 2024; Lipnevich & Lopera-Oquendo, 2024; Bahr et al., 2025; Conner et al., 2025), rubrics (Guo & Wei, 2019; Ketonen et al., 2020; Wu & Schunn, 2021a; 2021b), self-assessment sheets (Panadero et al., 2020), and self-efficacy measurement scales (He et al., 2023; Luca Bahr et al., 2024; Bahr et al., 2025) were used. Some research combined self-assessment with peer feedback (Ketonen et al., 2020; Wu & Schunn, 2021a; 2021b) or with the integration of student voice (Conner et al., 2025).

The findings related to the sixth research question indicate that self-assessment significantly enhances students' receptivity to feedback, resulting in improved self-regulation, engagement, and academic performance. The integration of digital tools has been shown to foster writing skills and critical thinking. Students particularly benefitted from clear and constructive feedback, which helped enhance both accuracy and creativity in their writing while also increasing their receptivity through immediate and straightforward feedback (Wu & Schunn, 2021a; 2021b; Lim & Phua, 2019). Moreover, digital feedback was perceived as more detailed, personalized, and effective compared to traditional feedback methods. Students appreciate the clarity and the ability to review feedback, which contributes to heightened motivation and engagement, even though some students may still overlook the feedback

provided (Ryan, Henderson & Phillips, 2020; Maier, 2021; Duran & Pinyol, 2020). Self-assessment using rubrics has been found to improve self-regulation and understanding, especially when combined with collaborative practices (Guo & Wei, 2019; Ketonen et al., 2020). Additionally, self-assessment through questionnaires has been associated with higher self-efficacy and goal orientation, which fosters positive attitudes among students (He et al., 2023; Luca Bahr et al., 2024; Lipnevich & Lopera-Oquendo, 2024). Furthermore, incorporating student voice into self-assessment processes has been shown to enhance engagement and autonomy, with the effectiveness of this approach depending on teachers' active participation (Conner et al., 2025). On the other hand, the lack of self-assessment processes restricts receptivity and effectiveness; feedback dialogues that disregard students' perspectives result in diminished participation and empowerment (Vattøy & Gamlem, 2019). In addition, vague or unsupportive feedback can have a limited impact on learning, especially when students are not encouraged to reflect on it (Azbel et al., 2022). Overall, these results align with previous theoretical and empirical research indicating that self-assessment enhances students' receptivity to feedback and promotes self-regulation, active participation, self-confidence, and academic performance. The effectiveness of self-assessment is further amplified when combined with clear, constructive, and personalized feedback, as well as collaborative practices such as peer feedback (Hattie & Timperley, 2007; Winstone et al., 2017). Conversely, the absence of effective self-assessment or the provision of vague feedback can hinder self-regulation and impede learning progress (Black & Wiliam, 1998; Nicol & Macfarlane-Dick, 2006; Shute, 2008).

7. Conclusions - Suggestions

This systematic review encompasses a variety of studies primarily conducted between 2019 and 2021, a period marked by heightened research activity, particularly in 2020. The studies originate from various countries, with Germany, Pakistan, and the USA standing out, while Europe and Asia are the predominant continents represented, highlighting the international scope of the topic. Methodologically, mixed-method approaches are common, combining quantitative data—mostly gathered through questionnaires—with qualitative elements such as interviews and observations. This combination offers comprehensive and in-depth analysis. Additionally, though less frequent, experimental and qualitative studies provide valuable insights into causal relationships and personal experiences, respectively. In terms of educational levels, the majority of studies were carried out in lyceums, followed by gymnasiums and a few that included university students. The sample sizes range from medium to large, with participant numbers varying from 7 to 12,648, depending on the methodology used. Regarding subject areas, general education is the most frequently explored, followed by mathematics and English as a foreign language, while other subjects are represented to a lesser extent. Notably, the use of digital media and references to gender ratio data appear to be limited.

Most research indicates that student receptivity to feedback is influenced by various characteristics, including the type of feedback, delivery method, instructional approach, timing, and context. Constructive, clear, and positive feedback, in particular, enhances student engagement and motivation, leading to improved performance without discouragement.

Written feedback that is clear and structured, along with immediate verbal feedback, promotes students' understanding and application of the comments they receive. Conversely, receptivity to feedback decreases when discussions do not consider students' perspectives. Additionally, formative assessments and self-assessment foster self-regulation and critical thinking. Timely feedback integrates seamlessly into learning activities, thereby increasing its effectiveness. Collaborative environments and cultural adaptation also contribute positively to receptivity, as do students' positive self-concepts. In the future, it would be beneficial to explore the ideal combination of feedback characteristics and the interaction between written and oral feedback across different educational settings.

Several studies have shown that individual factors such as self-esteem, self-confidence, prior experiences, age, psychological development, and emotional maturity significantly influence students' receptiveness to feedback. Specifically, students with high self-efficacy and positive attitude view feedback as an opportunity for growth. In contrast, older students tend to process feedback more consistently without negatively affecting their self-esteem. Additionally, positive and supportive feedback boosts students' self-confidence. Self-assessment also encourages self-regulation and acceptance of feedback, while a positive self-perception and good past experiences enhance receptiveness. Conversely, negative experiences can lead to a defensive attitude. Future studies could explore the roles of emotional maturity, learning difficulties, and prior experiences across different age groups and educational contexts.

Moreover, several studies have highlighted the importance of the teacher-student interpersonal relationship as a crucial factor in students' receptivity to learning. A lack of trust or failure to consider students' voices can limit their engagement. In contrast, when students actively participate and engage in constructive dialogue, they feel that their opinions are valued, enhancing their receptivity. Trusting relationships built on open communication and supportive guidance create a safe environment for accepting constructive criticism. The teacher's empathy and clear communication further strengthen students' positive attitudes toward learning. Future research could examine how teachers are trained to foster trust and empathy and how this training influences their effectiveness across different cultural contexts.

It's important to recognize that external factors, such as cultural context, classroom dynamics, and technology, significantly impact how receptive students are to feedback. In particular, cultural values and parental attitudes shape students' perceptions of feedback; environments that view criticism as a tool for improvement tend to enhance acceptance. Additionally, collaborative classroom dynamics promote receptivity through peer interaction and support. Technology, especially through digital platforms, offers personalized, timely, and interactive feedback, which can increase student engagement and motivation. Moreover, combining digital tools with collaborative practices appears to improve students' self-regulation and active participation. Further research is needed to explore the long-term effects of technology, its relationship with cultural and social factors, and the effectiveness of various forms of digital feedback in different learning environments.

Numerous studies have examined self-assessment using digital platforms, questionnaires, rubrics, and self-efficacy scales. The results indicate that self-assessment enhances receptiveness to feedback, self-regulation, engagement, and overall performance. Additionally, digital tools improve writing, critical thinking, and creativity while providing more detailed and effective feedback. Rubrics and questionnaires promote self-regulation, and increased student participation fosters autonomy. On the other hand, a lack of self-assessment or ambiguous feedback can hinder receptiveness to feedback. Further research is recommended at various educational levels, comparing different tools, investigating the role of teachers, and exploring reasons for rejecting digital feedback.

Further research is essential to enhance our understanding of feedback strategies. This includes examining the types, methods, and contexts in which feedback is provided, as well as the impact of factors such as self-esteem, emotional maturity, and individual learning needs. A key area of focus should be the interpersonal relationships between teachers and students, along with the necessary training for teachers to foster collaborative and effective learning environments. At the school-unit level, it is important to analyze how leadership, organizational culture, and resource management can improve student learning and engagement. Additionally, educational policies should be evaluated for their effects on the implementation of innovative practices, teacher support, and the reduction of educational inequalities. Lastly, social and cultural factors require more thorough investigation, particularly regarding their influence on student receptivity in relation to school culture and social group differentiation.

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