EMOTIONS AND THE MEANING OF ASSESSMENT IN SCHOOL SETTINGS

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Abstract. Emotions shape our relationship with reality and influence decisions across social, relational, and professional domains (Goleman, 1995). In the context of schooling, emotions specifically linked to students' academic experiences are referred to as "academic emotions" (Pekrun, 2006), and they may be either positive or negative. Positive emotions can foster learning (Poggi *et al*., 2004), and those experienced during assessment are closely related to students' self-confidence and self-efficacy (Tomasi, 2023). Emotional responses significantly affect assessment outcomes (Camacho-Morales *et al*., 2021), reinforcing the idea that emotion and cognition are deeply intertwined (Perla, 2002). In primary education, assessment serves primarily a formative function: it enables teachers to understand students' learning processes and to guide their academic development (Benvenuto in Nigris and Agrusti, 2021). Consequently, recognizing children's emotional states during assessment is essential. This exploratory study, based on a non-probabilistic sample, investigates primary school students' perceptions regarding the purpose and meaning of assessment, as well as their emotional responses during evaluative tasks. Results show that students assign considerable importance to assessment and clearly understand its primary purposes: to measure their learning, track their progress, and identify mistakes. Fewer students view assessment as a means of demonstrating competence to the teacher or achieving high report card grades. Emotional and behavioral reactions—both in written and oral assessments—are strongly correlated with the level of preparation students report. When they are aware of being unprepared, they frequently experience fear or anxiety, although they still attempt to remain focused during the test. Nonetheless, physiological signs along with the use of distracting or copensative strategies indicate emotional tension. The findings also highlight a generally healthy level of self-esteem: students demonstrate an awareness that their self-worth is not solely determined by assessment outcomes. Moreover, they recognize a link between consistent academic effort and positive test results.

1. Introduction

Emotions are complex processes that arise in response to internal or external stimuli—referred to as emotion-eliciting events—through physiological changes, thoughts, and behaviors (Lewis *et al.*, 2008). They shape how we relate to reality and influence our decision-making processes (Goleman, 1995). As Campana (2017) argues, there is no cognitive act without emotional significance, and emotions are

"considered fundamental and indispensable elements for education" (Cagol, 2019, p. 111). Goleman (1995) proposes a model of emotional intelligence in which the recognition and regulation of one's own emotions contribute to improved social, professional, and overall personal well-being. This framework is also relevant in educational contexts, where the emotional dimension is deeply embedded throughout the entire learning process.

The emotions experienced by children throughout their educational journey are referred to as "academic emotions", which can manifest with varying intensity, carry either positive or negative valence, and directly influence the level of well-being or distress perceived in the classroom (Pekrun, 2006). Academic emotions have been shown to impact motivational processes related to learning (Pekrun and Schutz, 2007), as well as cognitive functions such as attention (Vuilleumier, 2005), memory consolidation, and learning acquisition (Phelps, 2004). These emotional processes, in turn, influence students' responses during assessment (Hopwood *et al.*, 2024). Positive emotional states have been shown to stimulate motivation for learning (Poggi *et al.*, 2004). Emotions experienced during assessment situations are significantly correlated with self-confidence, perceived self-efficacy, and mastery goal orientation (Tomasi, 2023), and they can exert a meaningful influence on students' performance in evaluative contexts (Camacho-Morales *et al.*, 2021). Among the key factors contributing to the emergence of emotions within educational settings are the significance attributed to assessment and the fear of failure (Zeidner, 2014). Assessment, in turn, plays a critical role in shaping students' behavior and influencing their self-concept (Carless and Lam, 2014, p. 315).

When students approach *assessment-for-learning* tasks with strong emotions such as anxiety or fear, this can lead to situations of discomfort or even tension. Such emotional climates may negatively affect the collective well-being that is essential for fostering a positive and supportive learning environment. The impact of the school climate on learning is mediated by students' well-being (Fatou and Kubiszewski, 2018). As noted by Hossain *et al.* (2023, p. 448), "students with a higher sense of well-being perform better at school." Furthermore, empirical evidence suggests that the experience of well-being influences students' engagement in school activities beyond the effects attributable to their perception of the school climate (Lombardi *et al.*, 2019).

The literature is therefore in agreement in assigning emotions a very important role in children's school life; however empirical studies contextualized within primary school that address students' conceptions of assessment are still quite rare (Imperio and Seitz[1], 2023). The present research aims to highlight the emotional

[1] As an example, Imperio and Seitz (2023, p. 4) cite the following works: HARRIS L. R., BROWN G. T. L., HARNETT J. A. 2009. "Drawing" Out Student Conceptions: Using Pupils' Pictures to Examine

experiences of primary school students themselves, who are conceptualized as "competent actors," namely individuals recognized as "experts and principal informants of their own lived experiences" (Imperio and Seitz, 2023, p. 3). When children are regarded as competent witnesses of their educational experiences and can recognize the emotions linked to assessment, they are more likely to take an active role in learning; however, when assessment is viewed merely as accreditation, engagement declines (Remesal, 2009, in Imperio & Seitz, 2023). This understanding enables teachers to better support students in managing these emotions and fostering a positive classroom climate.

2. Objectives, tool and method

This research project is framed within an action research paradigm (Lewin, 1946) with a non-inferential aim. In this context, research aims to identify and understand a problem (Research) and then gather information to address it (Action), specifically focusing on strategies to foster a calm climate during assessment in order to enhance well-being in primary school classrooms (Batic, 2025).

The study explored various aspects of assessment; however, this paper focuses on the meaning assessment holds for children and its emotional dimension, aiming to test two hypotheses: 1) children perceive assessment as important or useful; 2) children experience varying levels of worry and anxiety before and during tests, depending on whether they have studied. These emotional states influence their performance (as already demonstrated by Hopwood et al., 2024), and assessment outcomes may, in turn, affect their self-esteem. To explore these aspects, a questionnaire was developed and refined through two preliminary cognitive pre-tests, aimed at evaluating item clarity, simplicity, and administration time. The final instrument consisted of 25 items, including structured questions, Likert-type scales from 0 to 5, and two open-ended questions. Emotions related to assessment were measured through both explicit self-reports (e.g., "I feel calm," "I feel anxious," "I feel scared") and indirect indicators of emotional states. The questionnaire included a list of behaviors, and children were asked to indicate those they exhibit when they have studied and when they have not. Kinesics was used to interpret nonverbal cues

Their Conceptions of Assessment. In MCINERNEY D. M., BROWN G. T.L., LIEM G.A.D. (Eds.) *Student perspectives on assessment: What students can tell us about assessment for learning*. Charlotte, NC: Information Age Pub, pp. 321-330; MONTEIRO V., MATA L., SANTOS N. N. 2021. Assessment Conceptions and Practices: Perspectives of Primary School Teachers and Students, *Frontiers in Education*, Vol. 6, Article 631185, pp. 1-15; MURPHY C., LUNDY L., EMERSON L., KERR K. 2013. Children's perceptions of primary science assessment in England and Wales, *British Educational Research Journal*, Vol. 39, No. 3, pp. 585–606.

(De Carlo & Perfetti, 2022), while physical symptoms such as stomach aches or crying were considered signs of anxiety (Mazzocco, 2017). The use of proxies for children's emotions and Likert-type scales implies an approximate measurement, potentially leading to over- or underestimation. Nonetheless, research indicates that children aged six and above can reliably report on their own health and emotional experiences (Riley, 2004); therefore, self-reporting was preferred. Another potential limitation concerns social desirability bias (Wang & Zang, 2025). To minimize this risk, the questionnaires were administered anonymously and completed independently by the children, following standardized instructions. A single administration was conducted, during which participants were asked to report the emotions they remembered experiencing when they were aware of having studied or not.

The data collection[2] took place between March and April 2025 and involved 29 primary school classes across the provinces of Gorizia, Pordenone, Trieste, and Udine. A non-probability sample of 472 children aged between 8 and 11 years was interviewed. The distribution across grade levels was as follows: 25.4% in third grade, 26.1% in fourth grade, and 48.5% in fifth grade. The sample consisted of 47% boys and 53% girls.

3. Data analysis and hypothesis testing

3.1. The purpose of assessment

One of the main findings of the study is that children attribute high importance to assessment: in response to a direct question, both the median and the mode were 5, with no significant gender[3] differences. When responses were dichotomized, only 6.8% rated between 0 and 2. Students clearly recognize tests as a means to gauge learning, improvement, and mistakes (Mdn = 5; Mo = 5). They are also aware—albeit to a slightly lesser extent—that assessment serves to determine the grade recorded in the report card or to demonstrate their competence to the teacher (Mdn

[2] The questionnaires were administered by trainee students from the Educational Sciences program at the University of Udine, in the presence of classroom teachers. Prior to administration, the project was approved by school principals, and families provided informed consent. Data were collected anonymously and processed in aggregate form, in full compliance with GDPR (2016/679) and Legislative Decree 101/2018. To test gender differences, the chi-square test was used, applying Yates' correction when necessary.

[3] To examine the statistical significance of gender differences, chi-square tests were performed. When appropriate, Yates' continuity correction was applied to adjust for small sample sizes.

= 4, Mo = 5) (tab. 1). The normalized Shannon index (H')[4] indicates substantial heterogeneity in the responses, except for the first two items and the last one, which show a moderate heterogeneity. The apparent discrepancy between the mean indices and the high H' values can be explained by the fact that, when categories are associated with low frequencies, the Shannon index tends to "reward" their presence, thereby potentially overestimating the heterogeneity of the distribution. Students' awareness of the meaning of assessment reflects both intrinsic motivation—linked to the importance attributed to testing, such as understanding how much they have learned, whether they have improved, and identifying mistakes—and extrinsic motivation, such as obtaining good grades and demonstrating their ability to the teacher. Assessment is not perceived by students as a means of competing with peers, such as receiving public praise, making comparisons with classmates, or determining who is the best or worst in the class. Statistically significant gender differences (p-value = 0.000) were observed in only two items, although the associations were weak. Boys, more than girls, were inclined to view assessment as a way to establish who is the best or worst in the class (Cramér's V = 0.179) and to receive praise in front of others (Cramér's V = 0.213).

Table 1 – *Children's perceived purposes of assessment (Mean[5], Median, Mode and Shannon Index).*

	Mean	Median	Mode	H'
To understand how much they have learned	4.3	5	5	0.622
To assess progress compared to previous evaluations	4.3	5	5	0.641
To identify their mistakes	4.1	5	5	0.719
To obtain a good report card	3.8	4	5	0.809
To identify which students did not understand	3.8	4	5	0.811
To determine the grades on the report card	3.8	4	5	0.811
To demonstrate their competence to the teacher	3.5	4	5	0.899
For the teacher to express a judgment on students	3.1	3	5	0.929
To reward those who perform well	2.2	2	0	0.972
To receive praise in front of the class	1.4	1	0	0.848
To make comparisons with classmates	1.3	1	0	0.830
To establish who is the best (and the worst) in the class	0.7	0	0	0.552

[4] The normalized Shannon index is $H' = -[\sum p_i \ln (p_i)]/\ln (k)$; where k is the total number of categories and p_i is the proportion of category i. It ranges from 0 to 1, reaching 1 when all categories are equally represented (maximum heterogeneity).

[5] The mean of ordinal variables is not strictly appropriate; however, it is reported here and in Table 4 for descriptive purposes.

3.2. Emotional and behavioral aspects related to assessment tasks

Assessment inevitably elicits emotional responses, and children were able to recognize and differentiate these across contexts—before tests, during written and oral exams, and depending on whether they had studied or felt unprepared (Tab. 2). Emotional states before a test differ depending on whether children have studied: calm predominates among the prepared (64.0%), while anxiety (56.8%) and fear (48%) are higher among the unprepared. Even prepared students experience anxiety (41.3%), with 36% not feeling calm and 53.4% not looking forward to the test. Boys tend to be calmer than girls, regardless of preparation. Additionally, among those who feel prepared, boys are more likely than girls to try not to think about the up-

Table 2 – *Children's Emotional States Before an Assessment (Percentage Values)*[6].

	Have studied	Have not studied
They feel calm	64.0 *	15.4 **
They are afraid of forgetting what they studied	52.6 *	38.4
They look forward to the test	46.6	9.4
They experience anxiety	41.3 *	56.8 **
They believe they do not know the material	22.2	38.1
They feel fear	17.2	48.0 **
They try not to think about it	12.6 *	23.1
They have stomach aches	7.2	17.1 **
They avoid going to school	0.6	2.8

coming test (16.0% vs. 9.7%). Girls show greater emotional reactivity, reporting higher anxiety than boys regardless of preparation, and are more likely to fear forgetting studied material (58.7% vs. 45.5%). Girls who do not feel adequately prepared report greater fear of taking the assessment compared to boys (66.0% vs. 46.0%) and exhibit higher levels of somatization, such as experiencing stomach aches (22.9% vs. 10.5%). McNemar's test, applied to all items, yielded statistically significant results ($p < 0.001$).

Children's emotional experiences during assessment tasks are detailed in Table 3, which compares emotional and behavioral reactions in written and oral tests under two conditions: when students had studied and when they had not. Items are presented in descending order based on the written test "studied = Yes" condition. Results show that children are aware of the need to focus, and most manage to do

[6] * Statistically significant differences between males and females were found using the chi-square test with $\alpha = 0.05$ and d.f. = 1, and Cramer's V values were, respectively, 0.096; 0.192; 0.099; 0.094.
** Statistically significant differences between males and females were found using the chi-square test with $\alpha = 0.05$ and d.f. = 1, and Cramer's V values were, respectively, 0.157; 0.201; 0.103; 0.165.

so. Comparisons indicate that the level of preparation, rather than the type of test, strongly influences emotional and behavioral responses. Statistically significant differences were observed across reactions, analyzed using McNemar's test with continuity correction for paired data. Specifically, for each type of assessment—written and oral—the responses given by the same students when they had studied were compared with those provided when they had not. For all comparisons, the null hypothesis was rejected in favor of the alternative hypothesis (H_1[7]), statistically confirming that attitudes, behaviors, and emotional states during both written and oral assessments are significantly influenced by preparation level.

Table 3 –*Self-Reported Emotional and Behavioral Reactions During Written and Oral Tests, Based on Whether Children Stated They Had Studied (Yes) or Not Studied (No) (Percentage Values).*

	Written tests		Oral tests	
	Yes	No	Yes	No
Ability to focus	94.2	80.6	93.5	79.2
Sustained attention on the task	88.7	60.5	90.7	65.2
Feeling calm	84.7	14.2	78.9	19.2
Remaining physically still	69.8	28.7	59.4	29.6
Body movements (e.g., fidgeting)	50.8	72.4	57.1	69.5
Sweaty hands	44.9	62.7	40.1	54.5
Requesting clarification from the teacher	33.1	60.7	15.5	36.3
Playing with hair	26.5	34.1	24.7	29.5
Difficulty recalling studied information	24.6	66.8	23.1	63.3
Manipulating objects on the desk	23.9	35.6	20.7	27.1
Comparing answers with classmates	17.6	25.1	--	--
Asking to use the bathroom	17.3	34.5	14.8	26.8
Trembling	17.0	46.7	19.7	44.8
Nail biting	15.8	26.2	13.7	23.0
Blushing	9.9	25.6	15.5	28.9
Headache	9.8	28.8	11.8	24.7
Drawing or doodling	9.3	19.9	8.2	14.2
Stomach ache	9.2	29.2	10.5	25.1
Copying from classmates	4.6	21.8	_--	--
Crying	2.4	12.6	1.7	9.7
Stammering or stumbling over words	--	--	33.5	60.5

'--' indicates that the item was not applicable or not included for that test type

From a descriptive standpoint, it emerges that, irrespective of their level of preparation, a greater number of children tend to seek guidance and suggestions from the teacher during written assessments than during oral ones. Furthermore, a significant proportion of students exhibit stuttering behaviors during oral evaluations, even when they report feeling adequately prepared. Almost all students

[7] All tests were statistically significant, with p-values < 0.001.

report being focused during the assessment; however, the most significant difference—as expected—is observed in the degree of calmness with which they approach these tests. Specifically, this disparity reaches 70.5% in written assessments (84.7% when prepared versus 14.2% when unprepared) and 59.7% in oral assessments (78.9% when prepared versus 19.2% when unprepared). The habit of playing with one's hair, which varies significantly across different situations, shows the least variation. Physiological indicators of anxiety (such as sweaty palms, trembling, flushing, headaches, stomachaches, crying, and stammering) and kinetic indicators (including movement during the test, playing with objects, and playing with hair) are more prevalent among children who are aware that they have not studied. Similarly, so-called distracting strategies (e.g., asking to go to the bathroom, nail-biting, drawing, and doodling) and surrogate strategies (such as checking with peers or copying from them during the test) are more frequently observed in these children. Regardless of children's emotional state during assessment, it is important to understand their relationship with evaluation and its influence on self-esteem (tab. 4). Students recognize the correlation between study time and performance (Mdn = 5 and Mo = 5), although 9% rated 2 or lower. They are less likely to see studying as aimed at obtaining a reward (Mdn = 2, Mo = 0), with 45.4% rating this statement 3–5. Overall, assessment outcomes appear to have little impact on self-esteem (Mdn = 0, Mo = 0), yet 14.5% report increased self-worth after success, and 16.5% feel negatively affected by poor performance. A gender difference emerges only regarding motivation by rewards: boys (53.1%) more than girls (38.7%) report higher motivation when a reward is expected ($p = 0.000$, Cramér's $V = 0.225$). The normalized Shannon index (H') shows high response heterogeneity, particularly regarding views on effort driven by rewards.

Table 4 – *Opinions On the Effects of Assessment (Mean, Median, Mode and Shannon Index).*

	Mean	Median	Mode	H'
The more time I study, the better the result I achieve in assessment	4.3	5	5	0.613
I put in more effort if I receive a reward afterward	2.1	2	0	0.935
I feel more valuable if I perform well on the assessment	1.4	0	0	0.816
I feel less valuable if I perform poorly on the assessment	1.0	0	0	0.712

4. Conclusions: from research to action

The findings of this study have practical implications. Although it does not pursue inferential objectives, the two initial hypotheses were confirmed. Importantly, the results align with existing literature, indicating that assessment can be considered an activating situation to which students attribute highly subjective interpretations.

These interpretations, in turn, shape the emotional responses that influence subsequent behaviors. One may refer to a triadic model of emotions, encompassing a physiological component (bodily manifestations), a mental focus, and an internal dialogue with oneself. Effective regulation of these components can contribute to enhanced emotional well-being. Given the correlation between emotional states and quality of life, learning to recognize and accept one's emotions can lead to improvements in overall well-being (De Carlo and Perfetti, 2022).

Awareness of being unprepared strongly affects students' pre-test emotions and behaviors, regardless of test type, with unprepared students finding it harder to maintain focus despite generally trying to concentrate. Children tend to experience emotional unrest and express their anxiety through a range of physiological indicators (such as sweating hands, trembling, headaches, stomachaches, stuttering, or even crying) and kinetic behaviors (including restlessness, playing with their hair, or manipulating objects). These manifestations are often accompanied by cognitive difficulties (e.g., forgetting information, seeking guidance from the teacher) and the use of distracting strategies (such as asking to go to the restroom) or surrogate strategies (e.g., copying or checking answers with peers).

All these reactions highlight the need for teachers to Act by fostering in children the awareness that assessment for learning should not be a source of stress, but rather— as some children have already recognized— an important opportunity for self-awareness and personal growth. In particular, most children already understand that assessment provides an opportunity to evaluate how much they have learned and to identify their mistakes. However, this view is not yet universally shared, and thus it may serve as one of the key focal points within the Action Project. Indeed, error plays a significant role in the assessment process, particularly in formative assessment (Vannini, 2019), and should be regarded as an opportunity for improvement (Benvenuto in Nigris and Agrusti, 2021, p. 15). Furthermore, errors make the individual learning process visible, thereby enabling the teacher to offer personalized and targeted instructional support (Hattie, 2012). In this way, teacher feedback is not merely a correction of errors but takes the form of a "dialogic pedagogy" (Manca, 1996), involving mutual understanding of mistakes by both teacher and student, who is guided and encouraged throughout their learning journey. The student should not be taught to avoid errors, but rather to use the information they contain (Barth, 1973, p. 42); thus, errors become a "driving force of the educational process in which students are actively engaged" (Castaldi, 2016, p. 12). In conclusion, error serves as a tool for growth for the child within an antifragile system (Taleb, 2012) and is a source of learning. Similarly, assessment provides an opportunity for continuous feedback that supports students' development and fosters critical and creative thinking.

Contrary to what is indicated in the literature, which suggests that children are motivated to attend school by extrinsic factors (i.e., motivation driven by the promise of a reward upon achieving a goal, Campana, 2017), the present research reveals that children do not assign significant value to statements such as "an assessment can serve to reward those who work well" and "I put in more effort if I receive a reward." Instead, intrinsic motivations appear to prevail (Hattie, 2012), related to interest, self-affirmation, and social validation, which are also nurtured by teacher feedback. At the same time, the utility of assessment is not primarily associated with competitive dynamics or social comparison. There is a widespread confidence in personal abilities and effort, coupled with the awareness that a strong commitment to studying can lead to improved assessment outcomes. Self-esteem tends to be high, as indicated by the absence of a correlation between self-perceived value and assessment results. On the basis of this awareness, the teacher can enhance the Action research process by implementing a structured project aimed at fostering emotional literacy (Maggi and Ricci, 2022), aimed at helping all children to recognize their emotions and to become aware of the role these emotions play in the process of learning and in both cognitive and personal development.

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