Implementation of Non-Cognitive Dimension Assessment through Caring Assessment in Informatics Learning Eighth Grade

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Abstract
Assessment practices in learning still often focus on measuring cognitive achievement, while the non-cognitive and emotional dimensions of students have not been fully accommodated. This study aims to examine the implementation of Caring Assessment in Informatics learning eighth grade junior high school, find out students' perceptions of its application, and understand how the principle of caring affects students' learning experience. This study used a qualitative descriptive approach with simple quantitative support design involving 32 eighth grade students in one of the junior high schools in Purwakarta Regency. Data was collected through learning observations, student interviews, in-depth interviews, and student perception questionnaires adapted from the Perceived Caring Scale with four dimensions, namely attention, empathy, support, and feedback. The results of the study showed that Caring Assessment was carried out very well in learning practice and was perceived very positively by students in all aspects measured. Support emerges as the most powerful dimension, while empathy appears to be a more subtle dimension, but it is still perceived to be very high. Observation and interview data also show that Caring Assessment contributes to creating a safer, supportive, and meaningful learning environment, so that students feel more helped, valued, and more courageous to engage in learning. Thus, Caring Assessment not only functions as a means of assessing learning outcomes, but also as a pedagogical practice that supports a more complete student learning experience.

1. Introduction

The assessment approach in learning has shifted as the assessment as learning paradigm has strengthened. This paradigm views assessment as an integral part of the learning process that encourages reflection, self-regulation, and active student engagement. Therefore, assessment is no longer understood solely as a tool to measure final achievement, but as a means of supporting a continuous learning process. Within this framework, assessments are required to provide meaningful and ongoing feedback to support students' learning processes in a reflective manner (Yan & Brown, 2021; Panadero et al., 2022). Nevertheless, although recent studies have highlighted adaptive assessments and modern learning innovations, classroom assessment practices still show a strong tendency to measure cognitive aspects. As a result, the need for multidimensional assessments, including the non-cognitive aspects and the emotional dimensions of students, has not been fully accommodated systematically (Vesin et al., 2022; Delianidi et al., 2024; Machkour et al., 2025). This trend suggests that the paradigm shift in assessment has not been fully followed by changes in assessment practices at the learning level.

The change in assessment practices that has not completely occurred is also seen in the Indonesian context. Rahmawati et al. (2024) show that the implementation of assessments still does not integrate the affective and psychomotor domains comprehensively. On the other hand, national policies place assessments as part of the learning process that need to pay attention to the development of students as a whole, including non-cognitive aspects (Standards, Curriculum, and Education Assessment Agency, 2024). The mismatch between policy orientation and practice in the field underscores the need for an assessment approach that is not only academic outcome-oriented, but also able to accommodate students' involvement, emotional experiences, and learning relationships in school learning.

The student-learning relationship in the assessment process opens up space for a more complete form of assessment and is closer to the dynamics of real learning in the classroom. A number of recent studies have shown that assessment practices that place pedagogical relationships, empathy, and emotional support as part of the assessment process contribute to student engagement and quality of the learning experience (Sun, 2021;

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Zhao et al., 2023). In this context, Caring Assessment is positioned as an approach that has the potential to enrich assessment practices because it places care and teacher-student relationships at the heart of the assessment process (Sparks et al., 2024; Lehman et al., 2024). In this study, Caring Assessment is understood as a pedagogical approach based on teacher behavior applied in the context of real learning, rather than as a technology-based intervention or model with claims of universal causal relationships. However, previous studies have not explicitly answered how Caring Assessment is implemented as an operational assessment practice in the classroom, how students perceive its application during learning, and how the approach affects the way students interpret their learning process, especially in Informatics learning in eighth grade of junior high school. This is where the novelty of this research lies, namely in the study of Caring Assessment as an assessment practice that is carried out directly by teachers in Informatics learning eighth grade junior high school and analyzed through students' learning experiences in a real classroom context.

The real classroom context is important to clarify because Informatics learning in eighth grade junior high school puts students in a developmental phase that requires mastery of concepts, problem-solving skills, perseverance, collaboration, and confidence at the same time. At this level, students are not only faced with the demands of understanding the material, but also with the process of adapting to tasks that require logic, creativity, and social interaction in learning activities. Therefore, Informatics learning is a relevant context for examining assessments that do not stop at academic achievements but also pay attention to students' learning experiences during the process. Based on the study space, this research was carried out as a direct application of Caring Assessment in Informatics learning eighth grade junior high school with teachers as the implementer of assessments in the classroom. The formulation of the problem in this study focuses on three main aspects that are interrelated. First, this study examines how the implementation of Caring Assessment in Informatics learning in eighth grade of junior high school. Second, this study explores how students' perceptions of the application of Caring Assessment in the learning process. Third, this study examines how the principle of caring affects the way students interpret and undergo the learning process in Informatics learning. Thus, this research is directed to make an empirical contribution to the development of learning assessment practices that are more humane, contextual, and in line with the principles of assessment as learning.

2. Method

2.1. Study Design

This study uses a qualitative descriptive approach with simple quantitative support. This approach was chosen because the research aims to describe the implementation of *Caring Assessment* in learning as well as understand students' perceptions, learning experiences, and emotional experiences contextually. Simple quantitative support is used on the questionnaire data to reinforce the description of qualitative findings through the presentation of average scores, percentages, or the tendency of student responses.

2.2. Participants

The research participants were 32 eighth grade students at one of the junior high schools in Purwakarta Regency, Indonesia. Eighteen students are male and 14 are female students with an age range of between 13 and 14 years. All students filled out a perception questionnaire, 3 students took part in interviews, and 2 students participated in in-depth interviews. The selection of eighth grade students is based on the consideration that they have had a relatively stable Informatics learning experience as well as cognitive and emotional readiness to engage in reflective and active learning. In addition, participants have diverse academic backgrounds so that they can provide a more representative perception of the learning being studied.

2.3. Target Population and Sampling Techniques

The target population of this study is junior high school students, especially eighth grade in Informatics learning. Samples were taken from one class eighth using purposive sampling, as participants were selected based on the suitability of their characteristics with the purpose of the study. This technique is used to obtain relevant and in-depth data according to the research context.

2.4. Instruments

The research instruments include learning observation sheets, student interview guides, in-depth interview guides, and student perception questionnaires. The perception questionnaire was adapted from the Perceived Caring Scale (PCS) by Teven and McCroskey with editorial and contextual adjustments (see Table 1). The questionnaire uses a Likert scale of 1–5 to measure four dimensions, namely attention, empathy, support, and feedback. To support the quality of the instrument, the reliability of the questionnaire was checked through an internal consistency test using Cronbach's alpha coefficient as the basis to ensure the stability of the measurements in this study.

Table 1. PCS Adaptation

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Yes	Dimensions	Person-person indicator	Response Scale	Source
1	Caution	Teachers' attention to students' needs, comfort, and learning development	Likert scale 1-5	Teven & McCroskey (1997)
2	Empathy	Teacher's sensitivity to understanding students' conditions/emotions and responsive responses when students have difficulties	Likert scale 1-5	Teven & McCroskey (1997); Sun (2021)
3	Support	Teacher support in the form of academic assistance, motivation, and encouragement of student participation	Likert scale 1-5	Sun (2021); Zhao et al. (2023)
4	Feedback	Teacher feedback is constructive, improves the learning process, and creates a sense of security when students make mistakes	Likert scale 1-5	Zhao et al. (2023); Sun (2021)

2.5. Measurement Tools

In addition to the questionnaire, this study uses observation sheets based on Caring Assessment indicators to record the implementation of attention, empathy, support, and feedback in learning. The study also uses interview guides and in-depth interview guides to explore students' perceptions, learning experiences, and emotional experiences. Data was recorded in the form of observation notes and interview transcripts.

2.6. Research Procedures and Timeline

The research was carried out for four weeks in four meetings. The initial stage includes the preparation and adjustment of instruments. Furthermore, learning is carried out by integrating the principles of Caring Assessment and observed by two observers, namely the main researcher and one accompanying observer. After the learning was over, all students filled out questionnaires, then conducted interviews with three students and in-depth interviews with the two selected students.

2.7. Data Analysis Strategy

Data is analyzed by placing descriptive qualitative analysis as the primary approach, while simple quantitative data is used as support . Observation data was analyzed by grouping findings based on four Caring Assessment indicators. Interview data was analyzed through identification of important statements and grouping of themes, while in-depth interviews were analyzed using interpretive thematic analysis. Meanwhile, the questionnaire data was analyzed in a simple quantitative manner by calculating the average score, percentage, and tendency of student responses on each dimension. The overall data analysis techniques applied in this study are summarized in Table 2. The results of the questionnaire analysis were then interpreted descriptively to support and strengthen qualitative findings related to the practice of Caring Assessment in learning.

Table 2. Assessment Data Analysis Techniques

Data Type	Data Source	Focus of Analysis	Analytical Techniques	Result Form
Learning observation	Caring Assessment indicator-based observation sheet	Implementation of the principles of Caring Assessment in learning	Grouping findings by indicators (attention, empathy, support, feedback)	Description of the Caring Assessment implementation pattern
Student interviews	Interview transcript	Students' perceptions and learning experiences	Identify key statements and grouping themes	Thematic narrative of student perception
In-depth interviews	In-depth interview transcript	Emotional experiences and the meaning of learning	Interpretive thematic analysis	In-depth description of the learning experience
Student Perception Questionnaire (PCS Adaptation)	Adaptation PCS questionnaire response	Students' perception of the practice of Caring Assessment/teacher's concern in learning	Descriptive analysis of response tendencies	Summary of students' perceptual tendencies

3. Results and Discussion

3.1. Results

The results of the study show that the application of Caring Assessment in Informatics learning is perceived very positively by students, seen in learning practices, and strengthened by the results of interviews. In this context, assessment is not only present as a procedure to find out learning outcomes, but also as part of a learning process that pays attention to the comfort, involvement, and emotional state of the students. Through

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the learning experiences they expressed, students interpreted Caring Assessment as a practice that brings more complete attention, empathy, support, and feedback.

Student perception data shows that all aspects of Caring Assessment are in the very high category. As presented in Table 3, the average total perception of students is 4,365. Among the four aspects measured, support obtained the highest average (M = 4,433; SD = 0.559), while empathy obtained the lowest average (M = 4.286; SD = 0.521), although it remains in the very high category. This pattern shows that students tend to recognize caring more easily through forms of help and encouragement that are visible directly in learning activities.

Table 3. Descriptive Statistics of Caring Assessment Based on Student Perceptions

Aspects	N	Mean	SD	Min	Max	Category
Caution	32	4.366	0.456	3.429	5.000	Very high
Empathy	32	4.286	0.521	3.167	5.000	Very high
Support	32	4.433	0.559	2.857	5.000	Very high
Feedback	32	4.365	0.543	3.167	5.000	Very high
Total	32	4.365	0.461	3.423	5.000	Very high

This tendency to be very positive in perception is supported by the adequate quality of the instruments. In Table 4, Cronbach's total Alpha value of 0.944 indicates that the instrument is in the very reliable category, while the reliability of each aspect is in the range of 0.771–0.895. This internal consistency strengthens the use of questionnaire data as a basis for describing the implementation of Caring Assessment in research, while providing a stronger foundation for the reading of observation results.

Table 4. Reliability of Caring Assessment Instruments

Aspects/Scale	Number of Items	Cronbach's Alpha	Interpretation
Caution	7	0.771	Reliable
Empathy	6	0.776	Reliable
Support	7	0.895	Excellent
Feedback	6	0.878	Good
Total	26	0.944	Highly reliable

The results of the observation showed that the implementation of the Caring Assessment during the four meetings was in the very good category. As seen in Table 5, the overall implementation percentage reached 95.313%. In learning practice, the empathy aspect obtained the highest average observation (15,875), followed by support (15,750), while feedback obtained the lowest average (14,000). The findings of this observation show that the caring dimension is not only felt by students but also seen in the actions of teachers during the learning process.

Table 5. Results of Caring Assessment Observations Per Aspect and Per Meeting

Aspects	P1	P2	P3	P4	Aspect Average
Caution	15.0	14.5	16.0	16.0	15.375
Empathy	15.5	16.0	16.0	16.0	15.875
Support	15.0	16.0	16.0	16.0	15.750
Feedback	15.5	13.0	14.5	13.0	14.000
Average meeting	15.250	14.875	15.625	15.250	15.250
Percentage of meetings	95.313	92.969	97.656	95.313	95.313

In this practice, there are still some variations between aspects and between meetings. In the initial stage, attention to all students was not completely evenly distributed, while at the second meeting the submission of feedback still needed to be strengthened. However, at the third and fourth meetings, the caring indicators seemed to be more consistent. This consistency is also in line with the findings of the interviews that show how students interpret their experiences during learning.

The results of the interviews strengthened the questionnaire and observation data. Students interpret the teacher's attention as direct help when experiencing learning difficulties, as in the statement, *"if we don't understand, we will be helped by the teacher"* (R1). In the aspect of empathy, students state that when they make mistakes they *are "not blamed at all"* (R2), so that learning is felt to take place in a safe atmosphere. The same experience also arises in the support aspect, when students affirm the existence of help, reexplanation, and encouragement to try. From this interview, it can be seen that the experience of caring does not stop at general perception but is present in a concrete learning experience.

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The concrete learning experience shows the harmony between data sources. The questionnaire showed a very positive perception, the observation showed a real caring practice, while the interview explained how students interpreted the practice in daily learning situations. A summary of the integration of findings is presented in Table 6, which shows that support is a key strength of the Caring Assessment, while feedback and equitable attention in the early stages of implementation still need strengthening.

Table 6. Integration Matrix of Caring Assessment Findings

Aspects	Mean	Observations	Interview	Integrative nodes
Caution	4.366	At the beginning of learning, equal attention distribution was not optimal, then it improved	Students feel more cared for and helped	The attention aspect is strong, but in the early stages of implementation it is not yet fully evenly distributed
Empathy	4.286	Teachers are quite responsive and keep the learning atmosphere safe	Students feel not afraid of being wrong and not pressured	Empathy is present in practice, but it seems more subtle than other aspects
Support	4.433	Teacher support appears to be strong on motivation and help when students are struggling	Students affirm the existence of help, encouragement, and re-explanation	Support is the main strength of caring assessment
Feedback	4.365	Feedback and delivery of assessment results are not always consistent	Students feel that the teacher's explanation helps to understand the mistake	Feedback is good, but it still needs reinforcement in practice consistency

3.2. Discussion

The findings of this study show that Caring Assessment in Informatics learning not only functions as a mechanism for assessing learning outcomes, but also as a pedagogical practice that accompanies the learning process through attention, empathy, support, and feedback. In this framework, assessment does not stop at the measurement function but also helps shape the student learning experience to be safer, more comfortable, and more supportive. This interpretation is in line with the view that assessment can be part of the learning process when students are involved in understanding the evidence of learning, using feedback, and directing subsequent learning improvements.

The novelty of this research lies in the integration of the caring dimension into formative assessment practices, especially in the context of Informatics learning which has been focusing more on cognitive and technical aspects. This study not only positions assessment as a tool to improve learning outcomes, but also as a relational medium that builds pedagogical interaction between teachers and students. Thus, this study expands the formative assessment framework by including affective and emotional dimensions as an integral part of the assessment process.

In the student's learning experience, the teacher's attention is seen through his or her ability to recognize learning needs and respond to them directly in the classroom. Although in the early stages of equal attention distribution was not fully optimal, observations showed improvements in subsequent meetings, while interviews showed that students felt helped when they experienced difficulties. This shows that attention is not just the physical presence of the teacher, but a form of pedagogical involvement that makes students feel guided during the learning process. This kind of involvement is in line with the findings of Thornberg et al. (2022), which show that the quality of teacher-student relationships is related to student learning engagement.

Student learning engagement becomes more real when teachers provide concrete support. In this study, support was the strongest dimension because it obtained the highest average on the questionnaire, clearly seen in observations, and affirmed in interviews. Students most easily recognize Caring Assessment through the actions of teachers who directly help them overcome difficulties, re-understand the material, and dare to try. These findings reinforce the view that formative assessments are more meaningful when teachers do not stop at providing information but follow up on it through assistance that helps students move to the next stage of learning (Schildkamp et al., 2020; Veugen et al., 2024).

The next stage of learning still requires a safe emotional state for students to be actively involved. In this context, empathy is an important aspect even though the average is the lowest compared to other aspects. The findings do not show weaknesses but rather suggest that empathy is a more subtle dimension of caring and is not always uniformly recognized by all students. Interviews show that empathy comes through a safe learning atmosphere, especially when students make mistakes without feeling blamed or pressured. These results are in line with the study of Aldrup et al. (2022), which placed teacher empathy as an important part of the quality of teacher-student interaction and emotional support felt by students.

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The emotional support students feel is then closely related to how they receive feedback. In this study, feedback was perceived as positive because it helped students understand mistakes and deepen the material, but the observation results showed that the consistency still needed to be strengthened. These findings are important because the effectiveness of feedback is determined not only by its existence, but also by its clarity, continuity, and connection to student learning regulations. This view is in line with Nicol and Macfarlane-Dick (2006), Panadero et al. (2018), and Andrade (2019), who affirm that good feedback helps students understand their learning position and determine their next steps for improvement.

The next improvement step is what makes Caring Assessment more meaningful as part of the learning process. Overall, the results of this study show that the influence of Caring Assessment is more visible on the quality of the learning process than on the improvement of direct learning outcomes. Students feel safer when they make mistakes, are more courageous to ask questions, are more comfortable with learning, and are more helpful when facing difficulties. In the context of Informatics learning that demands trial, error, and repetitive improvement, this condition becomes very relevant.

In the perspective of assessment theory, these findings confirm that Caring Assessment acts as a bridge between formative assessment and the affective dimension of learning. If formative assessments have so far focused on using learning evidence to improve students' cognition, then Caring Assessment expands its role by ensuring that the process takes place in a context of relationships that are supportive and responsive to students' emotional needs. Thus, Caring Assessment not only strengthens the regulatory function of assessment, but also its relational function in building a more humanist learning environment.

Safer and more supportive learning conditions show that Caring Assessment can be understood as an assessment practice that expands the focus of learning from being cognitively dominant to being more sensitive to the non-cognitive and emotional dimensions of students. This understanding is also in line with the direction of assessment policy in Indonesia which places assessment as part of the learning process and student development in a more complete way. Thus, Caring Assessment is not only relevant as an assessment approach in the classroom, but also as a way to interpret assessment in a more humane way in learning.

3.3. Implications

The findings of this study show that assessments can be developed not only to assess learning outcomes, but also to accompany students' learning experiences. In Informatics learning, Caring Assessment is relevant because it provides a safer learning space for students to try, make mistakes, and improve their understanding. At the theoretical level, this study reinforces the view that assessment needs to be understood as a pedagogical practice that is relational, not purely administrative.

3.4. Limitations

This research has several limitations. The research was conducted in a single classroom in one school so the findings are contextual and are not intended to be generalized widely. The number of participants in the interview and in-depth interviews is also relatively limited, so the variety of student experiences revealed does not cover the full range of possible learning experiences. This study also focuses on the description of the implementation of Caring Assessment and student perception, so it has not examined the relationship with learning outcomes more specifically.

4. Conclusion

Caring Assessment in Informatics learning eighth grade junior high school makes assessment not only function as a tool for measuring learning outcomes, but also as a pedagogical practice that supports students' learning experiences in a safer, supportive, and humane way. The findings show that the application of Caring Assessment is perceived very positively by students and is seen in learning practices, especially in the aspects of support, attention, empathy, and feedback. Thus, this study emphasizes the importance of developing assessments that are more sensitive to students' non-cognitive and emotional dimensions in learning.

Author Contributions

The first author contributes to conceptualization, methodology, investigation, data curation, formal analysis, validation, visualization, project administration, as well as original draft writing and manuscript editing. The second author contributes to the supervision, validation, and review and editing of the manuscript. The third author contributed to the observation and became an observer. The fourth author contributes to the investigation, provision of resources, implementation of learning implementation, and manuscript review. All authors have read and approved the final version of the manuscript.

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Data Availability

The datasets generated during and/ or analyzed during the current study are available from the corresponding author on reasonable request.

Declaration on AI Use

The authors states that AI technology or AI-assisted tools are used in a limited way to assist in the readability and improvement of the manuscript language under the full supervision of the author. All ideas, analysis, interpretations, and conclusions in this article are solely the responsibility of the authors.

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