**Research Article**

# Emotional Literacy of Elementary School Teachers: A Study on Science Learning with Problem-Based Learning (PBL) and Homogeinity Psycho Cognition (HPC) Program

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**Abstract.**
In the 21st century era, students learn not only to live now but also to live in the future, which is full of dynamics and the surge of globalization. Schools should strive to create a social-emotional environment that supports the development of students' emotional aspects, including by implementing relevant social-emotional learning. Emotional literacy with problem-based learning (PBL) and homogeneity psycho cognition (HPC) learning programs is an unexplored research field in Indonesia, especially in biological science learning in elementary schools and even at higher levels. This research was conducted to explore PBL programs and emotional literacy in depth. This research aims to examine the influence of the PBL learning model with HPC strategies on the emotional literacy of elementary school students in Ambon City. This research is quasi-experimental research, where emotional literacy is the dependent variable and the PBL learning model while HPC strategies is the independent variable. The research results show that there is no difference in emotional literacy between the treatment groups. This means that the implementation of the 2013 curriculum and the Merdeka curriculum in elementary schools have made positive contribution to the learning and emotional environment of elementary school students. Thus, any learning model no longer affects students' emotional literacy.

**Keywords:** emotional literacy, PBL with HPC strategy, emotional environment, elementary schools

## 1. Introduction

One of the main objectives of primary education is to train students to have the knowledge, skills, attitudes, and critical competencies for life and personal development. Correspondingly, the goal is to make students capable of becoming fully mature and achieving maximum happiness, well-being, and academic development. For these reasons, the curriculum design should provide the high outcomes and opportunities necessary for their maturation and give meaning to academic and personal progress [1]. In recent decades, the education system in the UK has increasingly emphasized the importance of developing children's social and emotional skills. Young children in South Africa face many adverse problems that can hinder their emotional and social life development [2]. In 2003, the Department for Education and Skills (DfES) successfully developed children's emotional and social well-being. The DfES outlined several reasons for implementing emotional literacy programs in schools. It is necessary to improve pupil behavior, increase the inclusion of children with emotional and behavioral difficulties, improve mental health, and increase educational and employment success [3]. Emotional literacy can improve students' mental health by reducing or preventing risk-taking behavior, helping them be happier and enabling them to get along better with others, helping students manage their problems, and improving learning outcomes [4]. Emotionally literate students can engage in problem-solving and deal with uncertainty and challenge more effectively [5]. When children have a favorable view of themselves, they will be more positive, willing to accept change, flexible, and able to learn [6]. These are essential skills that children should develop from a young age to help build a stable relationship with their own emotions [7].

There may be confusion between emotional intelligence and emotional literacy. Moreover, both concepts can be used interchangeably with each other. Emotional intelligence is preferentially used in the United States, while educators in the UK opt for emotional literacy. There is a difference between the two concepts, although emotional literacy and emotional intelligence both have similar characteristics. Intelligence refers to an individual's ability to progress cognitively and socio-emotionally. In contrast, the term literacy emphasizes the possession of linguistic skills and strategies for applying linguistic skills to exchange ideas with others and overcome language barriers in everyday life [8]. Emotional intelligence has individualistic features regarding developing socio-emotional information [9]. Steiner and Perry outline some differences and consider emotional literacy as the ability to understand one's emotions, listen to and empathize with others, and express emotions effectively [10].

Individuals who are not emotionally literate may not know how to express or control their emotions; emotionally literate people can meaningfully engage in harmonious interactions or manage irrational behaviors by gauging the effects of combining one's emotions with others [11]. Emotional literacy, unlike emotional intelligence, is a skill that can be taught [12]. A significant amount of social learning occurs among peers as their knowledge and thinking skills are constantly tested socially and academically. We also know that healthy relationships require self-awareness to recognize and manage one's own emotional state and acknowledge and respond accordingly to the emotional state of others. Data shows that girls can improve three critical emotional literacy skills: listening skills, anger management, and interpersonal sensitivity [13]. This study's results align with a study in Pakistan for primary school teachers, which showed that female teachers have higher emotional literacy than male teachers [14].

Aristotle laid the foundation of the concept of emotional literacy centuries ago with his words, "On the other hand, it is not easy to define how, with whom, at what and how long one should get angry or at what point the right action ceases and the wrong begins" in his book Nicomachean Ethics. Emotional literacy is a strategy that can transform emotions such as anger, anxiety, and others into active and productive energy. In the context of emotional literacy, leading a quality life requires individuals to acquire life skills such as understanding, managing, and expressing their emotions. Coined in 1960 by Nancy Graham, emotional literacy was popularized by Claude Steiner and Marshall Rosenberg, among others. Steiner first used the concept of emotional literacy in 1979 in his book 'Healing Alcoholism' which describes emotional literacy skills as the ability to understand emotions, the ability to listen to others and empathize with their emotions, and the ability to express emotions productively to improve the quality of life around them [15]. Emotional literacy puts forward a new type of literacy to regulate human relationships through the effective use of words. It emphasizes that individual emotional well-being and positive interpersonal relationships can be provided through words [16].

Emotional intelligence emphasizes the personal ability to understand and manage emotional information, while emotional literacy is related to others to understand better and facilitate the processing of emotional information. As it focuses on the emotional well-being of individuals and qualifies the social environment in educational institutions, emotional literacy has more intensive use in the educational process than emotional intelligence [17]. Therefore, emotional literacy is more like the idea we want to convey through this research, as it emphasizes the ability to understand, manage, and develop these skills over time in an educational context. The point is that emotional literacy, as

the communication of emotional vocabulary in a social context, makes us feel closer to using these terms, although they can be interchangeable.

The results of a study in the UK reveal that students view science as a boring field. One way to increase students' interest in science is through the involvement of the affective domain. Research shows that affective and cognitive domains are interrelated. Integrating emotional learning in science lessons will facilitate the social development of boys and girls and increase the likelihood of them being interested in science [18]. In addition, a study in Hong Kong informed that literacy education can help children develop a positive attitude towards engineering and science. They are more likely to view science as essential and relevant to their future lives [19]. This emotional literacy is one of the predictors of students' academic success [20]. Students with high emotional literacy will work better in their study groups [21]. Goleman (1995) states that only 20% of a person's success can be attributed to IQ, and other factors determine 80%. Many people are curious to know how a student's emotional literacy helps him/her to learn better and achieve academically [22]. Students who regulate their emotions effectively show more adaptability in school environments and tasks, feeling a greater emotional connection to the academic context. [23]. Future science research should consider the implications of literacy education.

Early childhood is an essential developmental stage where children acquire social-emotional and behavioral skills, such as social problem-solving and emotional regulation, which they will need in the later stages of life [24]]. Therefore, a person needs to find methods to regulate their emotions. Emotion regulation is defined as an attempt to influence one's emotions intentionally or automatically to experience or express them in a certain way. Emotional literacy is relevant to the school environment because teachers are human resources and play an essential role in the teaching and learning process. It is essential to use human resources to make learning more effective and avoid conflicts between stalkers because emotions and feelings need to be understood and managed correctly. It requires teachers who can recognize interpersonal and intrapersonal skills. Emotional literacy helps to create and improve relationships, make the work environment cooperative and supportive, and develop a sense of community. Social problem-solving is considered a competency that begins to develop early, needs to be supported early, and is learned through attitudes and skills [25]. Implementing PBL in primary education has contributed to developing emotional literacy competencies in early childhood and grade 2 students [26]. PBL also positively impacts literacy competencies at older ages, such as grades 4, 5, and 6 in primary education [27]. Emotional literacy with PBL and HPC programs is an unexplored area of research in

Indonesia, especially in biological science learning in elementary schools and even at higher levels. Therefore, this study was conducted to explore the PBL program and emotional literacy in depth. Therefore, this study aims to examine the effect of PBL and HPC on the emotional literacy of elementary school teachers in science learning.

# 2. Methods

## 2.1. Research design

This study included *quasi-experimental* research with a *pretest-posttest nonequivalent control group design* [28]. Table 1 shows the procedure for implementing the treatment based on the research design.

TABLE 1: Treatment Class Based on Variables.

| Pretest | Treatment | Posttest |
|---------|-----------|----------|
| O1 | S1 | O2 |
| O3 | S2 | O4 |

Description:

O1, O3 : *pretest* score

O2, O4 : *posttest* score

S1 : PBL model group with HPC strategy

S2 : conventional learning

## 2.2. Population and samples

The population of this study was all class teachers at 8 core elementary schools in Nusaniwe sub-district, Ambon City. The determination of the research sample class was carried out by *random sampling* through the lottery technique. Each treatment group was represented by 2 primary schools, so 4 primary schools were used in the experimental group (HPC strategy) and control group (conventional learning).

## 2.3. Instrument

The independent variable instrument is the learning implementation observation sheet, an observation sheet for implementing the lecture implementation plan (RPP). The

observation sheet contains statements about lecture and student activities during learning using PBL with the HPC learning strategy and the conventional learning. The dependent variable instrument is an emotional literacy questionnaire instrument. The emotional literacy questionnaire was developed by researchers using relevant emotional literacy theories. Furthermore, testing was carried out to ensure that the instrument met the criteria and was of good quality with valid and reliable information. The assessment of emotional literacy ability refers to the rubric developed by Kliueva & Tsagari [29] from the University of Cyprus and Oslo and Akershus University College of Applied Sciences which contains 20 questions with Indicators, namely: 1) building a learning environment (4 items), 2) building relationships (4 items), 3) responding to prevailing behavior (4 items), 4) building a cooperative environment (4 items), 5) building emotional growth (4 items).

## 2.4. Procedure

The research data was collected through the following activities. 1) Implementation of learning by using HPC strategy with PBL and learning with conventional models. 2) Observation of learning by using the observation sheet and giving a *checklist* ($\mathbb{p}$ ) on the appropriate statement. 3) Giving an emotional literacy questionnaire to the teacher.

## 2.5. Data analysis techniques

The data obtained from this research is emotional literacy. The questionnaire data is ordinal, so it needs to be transformed with MSI (Successive Interval Method). The test data were then tabulated and analyzed using the SPSS 16.00 program after all data met the criteria of normality and homogeneity.

# 3. Results and Discussion

## 3.1. Emotional literacy data description

Emotional literacy data was measured through questionnaires by teachers in each treatment group. The emotional literacy indicators used include 1) building a learning environment, 2) building relationships, 3) responding to disruptive behavior, 4) developing a cooperative environment, and 5) supporting emotional growth. The following describes the average emotional literacy data.
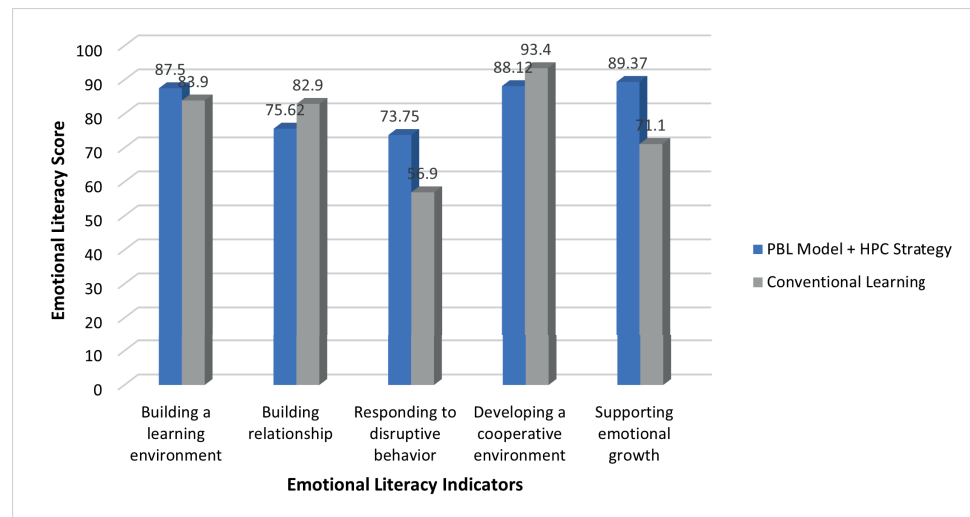
**Figure** 1:

Emotional literacy data showed that emotional literacy in the PBL treatment group with the HPC strategy was 6.31% higher than in the conventional treatment group. Indicators of building relationship and developing a cooperative environment in the PBL group with the HPC strategy were much lower than in the conventional group. The other 3 indicators of building a learning environment, responding to disruptive behavior, and supporting emotional growth were higher than the conventional group.

The emotional literacy that tends to be the same between the two treatment groups shows that emotional literacy is highly considered in the elementary school environment. One form of school attention in maintaining emotional literacy in elementary schools is rejecting acts of violence or bullying. In the era of the Merdeka Belajar curriculum, bullying is prohibited, so schools always strive to prevent bullying and keep the school environment safe and comfortable for all parties.

## 3.2. Emotional literacy hypothesis test

The statistical method used to test the emotional literacy hypothesis is the independent samples t-test. The hypothesis is that there is no difference in emotional literacy between PBL treatment groups with HPC and conventional strategies. The results of hypothesis testing are presented in Table 3.

The t-test results show that the significance value = 0.565, more significant than 0.05. This result shows that Ho is accepted and Ha is rejected, meaning there is no difference in emotional literacy between PBL groups with HPC strategies and conventional learning.

TABLE 2: Emotional Literacy Hypothesis Test Results.

| | | Levene's Test for Equality of Variances | | t-test for Equality of Means | | | | | 95% Confidence Interval of the Difference | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | F | Sig. | t | df | Sig. (2-tailed) | Mean Difference | Std. Error Difference | Lower | Upper |
| HB | Equal variances assumed | .344 | .565 | -1.077 | 18 | .296 | -3.87500 | 3.59808 | -11.43429 | 3.68429 |
| | Equal variances not assumed | | | -1.077 | 17.841 | .296 | -3.87500 | 3.59808 | -11.43913 | 3.68913 |

In general, hypothesis testing results prove no difference in emotional literacy between PBL learning models with HPC strategies and conventional models. However, there are cognitive learning outcomes in treating PBL-HPC, PBL, and conventional learning models. In another sense, the learning model significantly affects cognitive learning outcomes. Emotional literacy is considered an essential variable for individuals in terms of understanding their own emotions as well as the emotions of others, interpersonal relationships and problem-solving, and controlling and managing their behavior. So, it is assumed that there is a correlation between children's social problem-solving skills and parents' level of emotional literacy [30]. Emotional literacy is a crucial aspect of emotional intelligence, meaning our ability to deal with emotions. In addition, an increased understanding of emotions can help children's approach to problem-solving in academic and social activities [31]. Emotional literacy focuses on how we communicate our feelings and how well we read the emotions of others. While some children are naturally comfortable doing this, others may need more encouragement and support. With emotional literacy, children will be able to express their feelings appropriately and may be confused or worried about the emotions of others.

Although children's picture books have always been used to support young children's reading skills and are slowly being recognized as a powerful application of visual literacy, they have been largely ignored as a pathway to children's emotional development. Recent achievements in cognitive psychology have offered scholars of children's literature, particularly picture book scholars, new ways of looking at picture book texts, which can inform teachers' use of picture books to support children's emotional literacy. Empathy, the ability to understand other people's emotions, is crucial to distinguishing

humans from other living organisms. Empathy is also one of the most essential social skills. However, this capacity may not emerge automatically; it usually appears around 4 and develops gradually towards adolescence. Empathy usually develops more slowly, or even its development is completely blocked in children with various forms of autism. However, like all other literacies, emotional literacy can be improved and trained, and this is where the role of the teacher becomes decisive. One potential way to foster empathy in the younger generation of children is through picture books [32]. Emotional literacy is critical in helping humans, especially children, deal with their emotions in an empowering way that will improve their quality of life [33]. Steiner also divides emotional literacy into five parts, as shown in Figure 2.
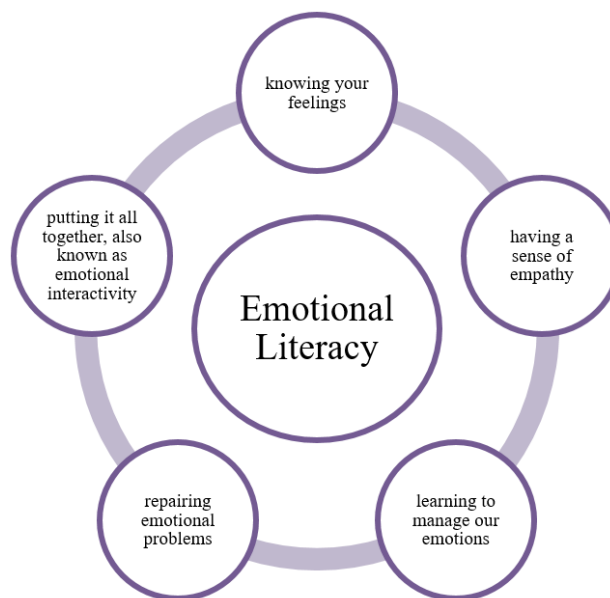


**Figure** 2: The Five Parts of Emotional Literacy.

What is the foundation by which students view their environment approach phenomena? What do they believe and value that is embedded in the family environment? Students develop a personal perspective towards social relationships and social issues encountered. Therefore, this foundation can be built positively and beneficially through parents' emotional literacy skills. However, to prove this statement, observing how children act in real-life problem situations and their responses to hypothetical problems is necessary.

Emotional literacy focuses on how people relate to each other and entails human dialog. Bullying, discrimination, and many peace-breaking issues can be managed through emotional literacy. It requires people to listen to each other and accept different points of view. Given that in the education process, emotional literacy cannot

be acquired through the implementation of lesson plans or teaching modules in 1-hour lessons or hours of lessons that occur in schools. Teachers' rooms, corridors, classrooms, playgrounds, and various spaces in the school should be designed to focus on the quality of relationships between all school members. Thus, emotionally literate schools must foster a climate for ethos and democracy where staff and students are encouraged to reflect on their feelings [34]. Some reasons for conducting emotional literacy programs in schools include increased positive student behavior, increased inclusion of children with emotional and behavioral difficulties, improved mental health, and excellent educational and occupational achievement. Relationships in emotionally literate schools are paramount and should be characterized by openness, effective communication, well-developed consultation mechanisms, and peer-supportive spirit.

School is not a place where emotional literacy is taught but where it is practiced. Teachers, like many others, may feel uncomfortable talking about their emotions. Emotional literacy helps teachers and students engage in activities that enhance physical and emotional well-being and outline the range of things they can discuss with each other. Promoting emotional literacy is expected to increase the power of learning by providing opportunities for teachers and students, mainly to deal with emotions that can keep them from learning. The key is ensuring that emotional literacy turns into identity and life skills through school values and teacher behavior. Therefore, in this study, teachers' emotional literacy skills are considered to evaluate their emotional skills from various perspectives through their relationships at school.

## 4. Conclusions

In general, the results of hypothesis testing prove that there are no differences in teachers' emotional literacy in PBL learning with the HPC strategy and conventional models. This condition shows that government policies, especially those related to curriculum revision from the previous 2013 Curriculum to the Merdeka Curriculum, have a good impact on the learning environment that supports teachers' emotional literacy. Teacher emotional literacy indeed determines students' emotional literacy.

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