



Republic of the Philippines
Department of Education
POLICY AND PLANNING SERVICE

Office of the Director

MEMORANDUM
2026-PPS-OD-09-005

DEPARTMENT OF EDUCATION
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FOR : **JOCELYN DR ANDAYA, CESO III**
Regional Director, DepEd NCR
concurrent Officer-In-Charge,
Office of the Assistant Secretary for Operations

✓ **DR. SALUSTIANO T. JIMENEZ, CESO III**
Regional Director, DepEd Region VIII

ATTY. ALBERTO T. ESCOBARTE, CESO II
Regional Director, DepEd Region XII

ATTENTION : **Schools Division Superintendents**
SDO Muntinlupa City, SDO Manila, SDO Pasay City, SDO
Leyte, SDO Southern Leyte, SDO General Santos City, SDO
Sarangani

FROM : *metligunas-roque*
MARIA CLARISSE T. LIGUNAS ROQUE
Director IV, Policy and Planning Service

SUBJECT : **Conduct of Data Collection for the Study Titled "Head and Heart in the Climate Classroom: The Link Between Teachers' and Students' Climate Change-Related Cognitions and Emotions in a Global South Country"**

DATE : 08 September 2026

This has reference to the request of Dr. Patricia Simon, Research Assistant Professor at Hong Kong Baptist University, to conduct data collection for the study titled "Head and Heart in the Climate Classroom: The Link Between Teachers' and Students' Climate Change-Related Cognitions and Emotions in a Global South Country."

The study is a longitudinal investigation that examines the relationship between secondary school science teachers' and Grade 10 students' climate change-related cognitions and emotions, specifically their environmental attitudes, climate change hope, climate change anxiety, and pro-environmental behavior, with the Philippines serving as the study context.

The selection of regions was based on their distinct experiences of climate change and climate-related hazards. The National Capital Region (NCR) was selected primarily due to its recurrent experience of flooding; Region XII (SOCCSKSARGEN) because of its vulnerability to El Niño-related impacts; and Region VIII (Eastern Visayas) because of its frequent exposure to strong typhoons.

Only schools that offer a science curriculum with an existing unit or module on climate change will be eligible to participate, specifically their Grade 10 teachers and students. The researcher has already identified the schools proposed for participation based on the study's eligibility criteria and has coordinated with the concerned Schools Division Offices (SDOs) regarding the proposed data collection activities and target respondents. In the event that the required number of respondents cannot be met from the identified schools, the concerned SDO shall assist the researcher in identifying additional eligible respondents and/or schools to ensure that the target number of participants is achieved.

Data collection will be conducted in two main phases, complemented by supplementary qualitative data collection activities in the Schools Division Office (SDO) of Muntinlupa, with details as follows:

Data Collection Activity/Phase	Target Respondents	Coverage	Schedule
Phase 1: First Pen-and-Paper Survey	255 science teachers (85 per region) and 6,000 Grade 10 students (2,000 per region) from selected public and private secondary schools	National Capital Region (NCR): SDO Manila, SDO Pasay City, SDO Muntinlupa Region VIII (Eastern Visayas): SDO Leyte, SDO Southern Leyte Region XII (SOCCSKSARGEN): SDO General Santos City, SDO Sarangani	September 14–October 17, 2026
Phase 2: Second Pen-and-Paper Survey	Grade 10 students from participating selected public and private secondary schools. <i>*The Grade 10 students who participated in the first survey shall participate in the second survey.</i>	NCR: SDO Manila, SDO Pasay City, SDO Muntinlupa Region VIII (Eastern Visayas): SDO Leyte, SDO Southern Leyte Region XII (SOCCSKSARGEN): SDO General Santos City, SDO Sarangani	November 9–14, 2026
Supplementary: Key Informant Interviews (KIIs)	Five (5) science teachers and five (5) school principals	SDO Muntinlupa, NCR	To be scheduled
Supplementary: Focus Group Discussions (FGDs)	Twenty-five (25) Grade 10 students across five (5) schools	SDO Muntinlupa, NCR	To be scheduled

In this regard, this Office respectfully endorses the conduct of the study and informs the concerned Regional and Schools Division Offices that the research team will coordinate directly with their respective offices regarding the scheduling and logistical arrangements for the data collection activities. As the researcher has already identified the schools and coordinated with the concerned SDOs, the latter

are requested to facilitate the participation of the identified respondents. Should the required number of participants not be met, the concerned SDO shall identify additional eligible respondents and/or schools, in coordination with the researcher.

Kindly note that participation in the study shall be voluntary. Appropriate informed consent procedures shall be observed prior to the administration of the surveys and the conduct of the KIIs and FGDs. All information gathered shall be treated with strict confidentiality, anonymized, and processed in accordance with the Data Privacy Act of 2012 (Republic Act No. 10173). The information collected shall be used solely for the purposes of the study. Further, all data collection activities shall be scheduled and conducted in a manner that minimizes disruption to regular classes and the performance of official duties, consistent with relevant Department policies, including the **DepEd Order No. 9, s. 2005 (Instituting Measures to Increase Engaged Time-On-Task and Ensuring Compliance Therewith)**, and **DepEd Order No. 9, s. 2026 (Guidelines on the Implementation of the Three-Term School Calendar in Basic Education)**.

Attached for reference are the research proposal and briefer.

For coordination regarding the conduct of the study, please contact Dr. Zaldy Collado, Field Coordinator from De La Salle University (DLSU), through email at zaldy.collado@dlsu.edu.ph or mobile number 0915-228-1273. For further clarification regarding this endorsement, the Policy and Planning Service–Policy Research and Development Division (PPS-PRDD) may be contacted through email at ps.prd@deped.gov.ph or mobile number 0975-667-8832.

For reference and favorable consideration.

Copy furnished:

DR. PETER MARC D. MAGSALIN

Director IV, Bureau of Curriculum and Development

JOSEPH G. DELA CRUZ

Director IV, National Educators Academy of the Philippines

Abstract

Introduction: Education is a powerful tool to harness when seeking to address the issue of climate change. Change in young people's attitudes and behaviors towards the issue can be achieved through teaching them about the impact of their actions on the environment and the various ways they can adapt to climate change consequences. While climate change is a global problem, there are certain contexts considered to be more vulnerable than others due to economic and geographical reasons. The Philippines, a Global South country, is one example of such context. Germanwatch's 2025 Climate Risk Index Report (CRI) identified it as the 10th most affected country by extreme weather events in the last 30 years. As teachers are the implementers of climate change education initiatives in formal classrooms, it is important to study the extent to which their environmental concern translates into their students' environmental concern. Thus, in the present study, the link between teachers' climate change-related cognitions and emotions and their students' will be examined.

Method: Secondary school science teachers and students from both private and public schools in the Philippines will be surveyed on their environmental attitudes, climate hope, climate anxiety, and pro-environment behavior. To qualify for the study, the school must have an existing science curriculum that covers the topic of climate change. Three-level Hierarchical Linear Modeling (HLM) analyses will be used, with students at level 1, teachers at level 2, and schools at level 3. Students' data (level 1) will be nested within their science teachers' data (level 2 – science class level, that can also include teachers' experience). Students and teachers will also be grouped based on their school type (level 3). The study will examine the association between teachers' scores on the variables of interest at baseline (time 1) and students' scores

on the same variables after a few months (time 2), controlling for baseline students' scores.

Implications: Findings could provide initial support for the significance of teachers' environmental concern in imparting these values to their students. The study could highlight the important role of teachers in honing a future climate change-resilient generation. The study also aims to contribute overall to the efforts at reaching United Nations Sustainable Development Goal 13 to "take urgent action to combat climate change and its impacts."

Head and heart in the climate classroom: The link between teachers' and students' climate change-related cognitions and emotions in a Global South country

Climate change is an urgent phenomenon manifesting as an unprecedented change in the Earth's atmosphere due to human activity. Addressing this crisis requires concerted efforts from various sectors working together to develop sustainable solutions that will help mitigate it. One powerful pathway to reverse, or at least reduce its damage, is through educating younger generations who will be the future changemakers and leaders inheriting this problem. Evidence shows how education plays an important role in shaping climate change-related understanding, emotions, and action (Stevenson et al., 2014; Stevenson & Peterson, 2016; Olsen, 2024).

A common framework used in studying effective teaching practices in climate change and environmental education is the "heads-hearts-hands" model (Sipos et al., 2008). It pertains to teaching that deliberately combines scientific understanding of climate change (heads), emotional engagement (hearts), and opportunities for action (hands). Central to this model is the assumption that teaching is most impactful when it goes beyond information delivery to promote engagement and participation, a claim that is backed by evidence from a recent scoping review (Muccione et al., 2025). Survey studies that support a hope- and efficacy-oriented pedagogy discuss how an emphasis on solutions, possibilities, and collective efficacy can help motivate climate action (Aruta, 2025; Stevenson & Peterson, 2016).

However, a look into the systematic review by Olsen et al. (2024) on environmental education revealed that all of the studies included came from the Global North—wealthy, industrialized, and technologically advanced regions. This is

despite the fact that Global South contexts are known to be at the receiving end of disproportionate climate change impacts given their social, cultural, and infrastructural constraints that are in stark contrast with more developed regions. The uneven amount of published studies between the Global North and the Global South is problematic, due to the latter's high vulnerability to climate change impacts. While the necessity of climate change education in the Global South is undeniable, limited institutional support and resource constraints pose challenges to systematic and effective implementation. This points to the need to have more studies on climate change teaching in these contexts.

Another notable gap in the literature is how evidence often centers on cognitive over affective outcomes. In the current study, environmental concern is conceptualized as encompassing not only cognitive but also emotional aspects, as both dimensions matter for climate engagement and well-being. Integrating cognitions and emotions is necessary for understanding how students respond to climate change education, as evidence consistently suggests how emotions can shape climate change engagement (Ortner et al., 2025; Pihkala, 2022; Simon et al., 2022).

Despite some evidence from the Philippines and Southeast Asia that climate change education is associated with learners' understanding, emotional responses, and climate action (Aruta, 2025; Espinosa et al., 2024; Samonte, 2025; Tang, 2025), the survey studies are cross-sectional in nature. Consequently, there is limited insight into climate change cognitions' and emotions' trajectories over time, especially in Global South countries. There is also a scarcity of studies that consider emotion-sensitive climate change education in these contexts. Finally, there are relatively fewer studies on the topic that include both students and teachers (Olsen et al., 2024). All these gaps point to the need to conduct a longitudinal study with both student and teacher

participants to obtain a more comprehensive understanding of climate change education in high-risk and resource-constrained settings such as the Philippines.

Teachers' Climate Change-Related Cognitions and Emotions and Their Impacts on Teaching Practices

Studies that examine the role of teachers in shaping climate literacy demonstrate that teachers' own cognitions and emotions affect their pedagogical choices. Teachers are recognized as playing a pivotal role in affecting learners' climate literacy, not only through curriculum implementation but through their own cognitions and emotions pertaining to climate change. Surveys and focus groups reveal that teachers often experience climate anxiety, and those who lacked support likely avoided emotional discussions (National Environmental Education Foundation & Climate Mental Health Network, 2025). In contrast, teachers with emotional resources were inclined to channel concern into constructive action. When teachers lack confidence or emotional support, they tend to avoid transformative climate change pedagogy and to focus only on content, while teachers that have high efficacy and constructive emotional engagement with climate change issues have a higher likelihood to adopt participatory, ethically informed, and action-focused approaches (Bartlett et al., 2022; Herranen & Aksela, 2024; Ibourk et al., 2025; Karvonen et al., 2023). Whether teachers' climate change-related cognitions and emotions affect their students' own climate change-related cognitions and emotions have yet to be studied in the Global South. As teachers are the main implementers of climate education initiatives in formal classrooms, there is a need to study whether teacher factors translate into student outcomes.

The Philippine Climate Change Education Context

While climate change is a global problem, there are certain contexts considered to be more vulnerable than others due to economic and geographical reasons. The Philippines, a Global South country, is one example of such context. Germanwatch's 2025 Climate Risk Index Report (CRI) identified it as the 10th most affected country by extreme weather events in the last 30 years. This underscores the need to study how climate change education is happening in this context, to evaluate how schools can contribute to increasing awareness about this issue and how teachers can help hone a future climate change-resilient generation.

The Department of Education (DepEd) in the Philippines, via Republic Act No. 9729, has mandated the integration of climate change concepts across different subjects (e.g., Science, Social Studies, Values Education, Health, English and Filipino) in the K to 12 curricula. Due to the country's extreme vulnerability to typhoons, there is a strong emphasis on disaster risk reduction and community resilience. Although climate change education has long been a national priority in the Philippines, implementation continues to face constraints. These include lack of resources and limited teacher training, as well as climate-related disruptions that affect learning outcomes. In this study, the focus will be on junior high school (grades 7-10) and senior high school (grades 11-12) students and teachers. Science, Core Earth and Life Science (for non-STEM), and STEM specialized classes (Earth Science and Disaster Readiness and Risk Reduction) will be included in the study.

The Present Study

The objective of this study is to examine the link between teachers' and students' climate change-related cognitions and emotions. Specifically, data will be analyzed to determine whether teachers' climate change-related cognitions and

emotions (environmental attitudes, climate change hope, climate change anxiety, and pro-environment behavior) at time 1 are associated with students' scores on the same outcomes at time 2.

It is hypothesized that teachers' environmental attitudes, climate change hope, climate change anxiety, and pro-environment behavior at the start of the study (time 1) will be associated with students' scores on the same variables at time 2, while controlling for baseline students' scores. Hierarchical linear modeling will be used to analyze the data. The study will allow for an integration of cognition-emotion dynamics and teacher-student linkages in climate change education. Findings could provide initial support for the significance of teachers' environmental concern in imparting these values to their students. It can also serve as evidence for school administrators on the importance of promoting teachers' continuing professional development around emotionally responsible pedagogy in teaching about climate change. Locally, it could inform the implementation of the Philippines' National Adaptation Plan. Globally, it can contribute overall to the efforts at reaching United Nations Sustainable Development Goal 13 to "take urgent action to combat climate change and its impacts."

Method

Participants and procedure

Participants will include secondary school science teachers and their students from both private and public schools in the Philippines. Schools will be eligible to participate if they offer a science curriculum with an existing unit or module on climate change. The science teachers who will be surveyed should be responsible for

teaching the climate change curriculum. Secondary school students should be participating in these science classes that include the topic of climate change.

An a priori power analysis was conducted for this three-level random intercept model (students nested within teachers/classes nested within schools) estimating a teacher-level fixed effect on attitudinal/behavioral outcomes, conditioning on baseline student scores (Time 1) at Level 1. Fifty schools will be invited to participate. At least four to five teachers will be recruited per school, and a minimum of 25 students per class (approximately 200-250 teachers and 5,000-6,250 students). These numbers provide reasonable power for moderate teacher-level effects while allowing estimation of school-level variance. Using two-sided tests ($\alpha = .05$) and targeting 80% power, and adopting ICCs typical for attitudinal/behavioral outcomes ($\rho_{\text{class}} \approx .06$, $\rho_{\text{school}} \approx .02$; cf. Hedges & Hedberg, 2007), we assume the baseline covariate explains $\approx 40\%$ of Level-1 variance and $\approx 10\%$ at Levels 2 and 3. Under these assumptions, the design yields a minimum detectable standardized teacher-level effect of approximately 0.22–0.25 SDs. Sensitivity analyses indicate MDES ≈ 0.26 –0.29 SDs with higher ICCs ($\rho_{\text{class}} = .08$, $\rho_{\text{school}} = .03$) and ≈ 0.20 –0.22 SDs with lower ICCs ($\rho_{\text{class}} = .04$, $\rho_{\text{school}} = .01$). Calculations were conducted for a three-level random-intercept model using Optimal Design/powerlmm, allowing modest cluster-size imbalance and up to 10% student attrition across waves (see also Hedges & Rhoads, 2010; Spybrook et al., 2011).

Informed consent from teachers and from students of legal age will be acquired. Parental consent and student assent will also be obtained as required, with assurance of the confidentiality of the responses and the participants' right to withdraw from the study at any point in time. Participants will be given the English version of the instruments, as English the primary medium of instruction in the

Philippines (Rafael, 2015). Data will be collected through student and teacher surveys administered in two time points.

At Time 1, teachers and students will receive an online or paper-based questionnaire. At Time 2, only students will complete the same set of instruments.

Instruments

Environmental Attitudes

The Revised New Ecological Paradigm (NEP; Dunlap et al., 2000) is a 15-item scale that measures pro-ecological worldview. The NEP covers five content domains: limits to growth, balance/fragility of nature, anti-anthropocentrism, potential for an eco-crisis, and rejection of human exceptionalism. Respondents indicate their agreement on a scale ranging from 1=strongly disagree to 7=strongly agree. The even-numbered items are reverse-scored. The instrument has been largely used across many cultures and displayed adequate reliability and validity across samples (Dunlap, 2008; Hawcroft & Milfont, 2010).

Climate Change Beliefs

An item that asked about adolescents' climate change beliefs will be included in the survey. The item comes from the *Climate Change in the American Mind (2008-2018) Codebook* (2020) that The Yale Program on Climate Change Communication and George Mason University Center for Climate Change Communication have been using to collect data from nationally representative U.S. adults for more than two decades.

Climate Change Hope

The Climate Change Hope Scale (CCHS; Li & Monroe, 2017) is an 11-item measure that assesses hope in the context of climate change. The CCHS has three subscales: 1) collective-sphere willpower and waypower, (e.g. I believe that scientists will be able to solve problems caused by climate change), 2) personal-sphere willpower and waypower (e.g. I am willing to take actions to help solve problems caused by climate change), and 3) lack of willpower and waypower (e.g. Climate change is so complex we will not be able to solve problems that it causes). It consists of a 7-point Likert scale ranging from 1=strongly disagree to 7=strongly agree. The scale displayed adequate reliability and validity among a sample of Filipino youth (Simon et al., in-press).

Climate Change Anxiety

The Climate Change Anxiety Scale (CCAS; Clayton & Karazsia, 2020) is a 13-item scale that measures the negative emotional impacts of climate change. The two subscales are: 1) cognitive-emotional impairment, (e.g. Thinking about climate change makes it difficult for me to sleep), and 2) functional impairment (e.g. My concerns about climate change interfere with my ability to get work or school assignments done). CCAS consists of a 7-point Likert scale ranging from 1=strongly disagree to 7=strongly agree. It displayed good reliability and validity among a Philippine university sample (Simon et al., 2022) and secondary school students (Simon et al., in-press).

Pro-Environment Behavior

The six-item measure on pro-environment behavior that will be used is the same tool used in the study by Clayton and Karazsia (2020) to measure participant's

behavioral engagement pertaining to sustainability. Sample item is “I wish I behaved more sustainably.” The scale consists of a 5-point Likert scale ranging from 0=never to 4=always/constantly.

Data Analysis

Given the nested structure of the data, a three-level Hierarchical Linear Modeling (HLM) approach will be used, with level 1 (students), level 2 (teachers/class), and level 3 (school type: public vs. private). The association between teachers’ Time 1 scores on the variables of interest and students’ Time 2 scores, controlling for students’ Time 1 scores, will be examined in the analyses. Controlling for baseline students’ scores increases power by reducing residual variance. HLM will allow the study to account for clustering effects and to simultaneously examine cross-level interactions.

Ethical Considerations

The study obtained ethics approval from the ethics review committee of the author’s institution. Appropriate consent/assent procedures, confidentiality safeguards, secure data storage, and the voluntary nature of participation will be ensured and followed for all students and teachers.

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STUDY BRIEFER

The study is about understanding the role of teachers in shaping students' climate change attitudes and behaviors.

Background

Climate change is one of the most pressing challenges facing communities around the world. Beyond addressing its environmental and economic consequences, there is a growing need to help young people understand climate change and develop the knowledge, attitudes, emotions, and behaviors needed to respond to it.

Education provides an important avenue for achieving this. Through classroom instruction and everyday interactions with students, teachers can influence how young people understand environmental issues, respond emotionally to climate change, and develop behaviors that contribute to environmental protection and climate resilience.

This is particularly important in the Philippines, a country highly vulnerable to climate-related hazards such as typhoons, flooding, extreme heat, drought, and sea-level rise. The 2025 Climate Risk Index identified the Philippines as the **10th most affected country by extreme weather events over the past 30 years**. In this context, developing a generation that is informed, environmentally responsible, and prepared to respond to climate change is especially important.

While climate change education is increasingly incorporated into school curricula, less is known about how teachers' own climate change-related attitudes and emotions may be associated with those of their students. This study seeks to contribute to understanding this relationship.

Purpose of the Study

The study aims to examine the relationship between secondary school science teachers' climate change-related attitudes, emotions, and behaviors and those of their students.

Specifically, the study will examine whether teachers':

- Environmental attitudes and concern
- Climate hope
- Climate anxiety
- Pro-environmental behaviors

are associated with changes in similar attitudes, emotions, and behaviors among their students over time.

The study recognizes that students are influenced by many factors, including their families, peers, communities, media, and broader social environments. Rather than

assuming that teachers are solely responsible for students' environmental attitudes, the study seeks to understand the potential contribution of the classroom and teacher-student context.

When will they participate, who will participate and in what activities?

Data Collection Phase

A. Important Dates

1	Sept 14- Oct 17	First Survey (Science Teachers/Grade 10 Students)
2	Oct 26 - Nov 7	Discussion on Climate Change (per DepEd schedule)
3	Nov 9 - 14	*Second Survey (Grade 10 Students only)

**Grade 10 students who participated in the first survey shall participate in the second survey*

B. # of Participants/Respondents per Site and Activities

Schools Division Office	Activity	Respondents/Participants
NCR SDO Muntinlupa	Key Informant Interviews (KIIs)	School 1: 1 Grade 10 Science Teacher School 2: 1 Grade 10 Science Teacher School 3: 1 Grade 10 Science Teacher School 4: 1 Grade 10 Science Teacher School 5: 1 Grade 10 Science Teacher Total: 5 Science Teachers
	Key Informant Interviews (KIIs)	School 1: 1 Principals/School Head School 2: 1 Principals/School Head School 3: 1 Principals/School Head School 4: 1 Principals/School Head School 5: 1 Principals/School Head Total: 5 Principals/School Heads
	Focus Group Discussions (FGDs)	School 1: 5 Grade 10 Students School 2: 5 Grade 10 Students School 3: 5 Grade 10 Students School 4: 5 Grade 10 Students School 5: 5 Grade 10 Students Total: 25 Grade 10 Students

	Pen and Paper Survey	Total: 300 Grade 10 Students
NCR SDO Manila SDO Pasay	Pen and Paper Survey	Total Science Teacher Respondents: 85 Total Grade 10 Student Respondents: 1700
Region 8 SDO Leyte SDO Tacloban City	Pen and Paper Survey	Total Science Teacher Respondents: 85 Total Grade 10 Student Respondents: 2000
Region 12 SDO Sarangani SDO Gen San	Pen and Paper Survey	Total Science Teacher Respondents: 85 Total Grade 10 Student Respondents: 2000

Sampling

The selection of regions was based on their distinct and perceived experiences of climate change and climate-related hazards. The National Capital Region (NCR), for instance, was selected primarily due to its recurrent experience of flooding; Region XII (SOCCSKSARGEN) because of its vulnerability to El Niño-related impacts; and Region VIII (Eastern Visayas) because of its frequent exposure to strong typhoons.

Only schools that offer a science curriculum with an existing unit or module on climate change will be eligible to participate (meaning, their Grade 10 teachers and students). Attached as well is the list of schools where Junior High School is being offered (Grade 10) where we propose to conduct the data collection.

Our Commitment to Participating Schools

The research team will make every effort to ensure that participation:

- Causes minimal disruption to classes and school activities;
- Respects the time and availability of teachers and students;
- Protects the privacy and confidentiality of participants;
- Does not evaluate individual teachers or students; and
- Is conducted in accordance with applicable research ethics requirements.

We greatly value the participation of schools in this study. By taking part, schools and teachers can contribute to a better understanding of how climate change education may help shape the attitudes, emotions, and behaviors of the next generation of Filipinos.

