

**TROP ICSU: Trans-disciplinary Research Oriented Pedagogy for  
Improving Climate Studies and Understanding  
(<https://tropicsu.org>)**

**Report on the TROP ICSU Workshops for Teachers at Kampala, Uganda,  
organized in collaboration with  
The African Union of Conservationists (AUC)  
(27-30 November 2018)**

<b>Workshop Title:</b>	A Faculty Development Program cum Workshop on CLIMATE ACROSS THE CURRICULUM: RESOURCES FOR INTEGRATING CLIMATE TOPICS IN DISCIPLINE-SPECIFIC TEACHING
<b>Date:</b>	November 27-28, 2018 (for University Lecturers) November 29-30, 2018 (for High School Teachers)
<b>Venue:</b>	Kampala Kolping Hotel, Kampala, Uganda
<b>Facilitators from the TROP ICSU Team:</b>	Dr. Rahul Chopra, Ms. Anita Nagarajan, Ms. Aparna Joshi
<b>Facilitators from AUC:</b>	Mr. Raymond Katebaka, Dr. Daniel Waiswa
<b>Team of Coordinators/Helpers from AUC:</b>	Mr. Denis Lukato, Ms. Doreen Namawaza, Mr. Steven Swiliri, Mr. Richard Bavakure, Mr. Godfrey Tumuhairwe, Ms. Phionah Kansiime, Mr. Reuben Katwinomugisha
<b>Number of Participants:</b>	Workshop for University Lecturers: 88 Workshop for High School Teachers: 73
<b>Disciplines/Subjects Taught by Participants:</b>	<u>University Lecturers:</u> Biological Sciences, Environmental Sciences, Meteorology, Social Science, Agriculture, Social Administration, Geography, Mathematics, Computer and Telecom Engineering, Economics, Humanities  <u>High School Teachers:</u> Biological Sciences, Mathematics, History, Geography, Chemistry, Literature, Agriculture, Social Science, English, Physics, ICT, Environmental Education  A detailed listing of the disciplines is provided in <a href="#">Appendix I: Disciplines/Subjects Taught by the Participants</a> .

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## Summary of the Workshops

Two TROP ICSU workshops—a **2-day workshop for university lecturers** and a **2-day workshop for high school teachers**—were conducted in collaboration with the African Union of Conservationists (AUC) at Kampala, Uganda, from November 27 to November 30, 2018. The workshops included not only participants **from different parts of Uganda**, but also **representatives from countries such as Tanzania, Kenya, Burundi, and Rwanda**.

TROP ICSU recognizes the invaluable support and the dedicated efforts of the AUC and its coordination team in inviting participants from various countries and locations, in planning and organizing all the logistics and arrangements, and in personally visiting many schools to encourage teachers to participate in the workshops.

The objective of the workshops was *to introduce the participants to digital teaching resources for teaching topics in the Sciences, Mathematics, Social Sciences, and Humanities using climate-related examples, case studies, and activities*. In addition, participants would be invited *to review the educational resources of the TROP ICSU project and to provide their feedback on the appropriateness and ease-of-use of the teaching tools and lesson plans*.



Group Photo: Workshop for University Lecturers, Kampala, Uganda



Group Photo: Workshop for High School Teachers, Kampala, Uganda

The workshops began with an introduction to AUC and its work and an overview of the objectives of the faculty development program cum regional workshop. Then, participants attended a few plenary sessions for an [overview of the TROP ICSU project](#) and its teaching resources. Over the next one and a half days, the teachers/educators worked in groups to carry out hands-on, interactive activities by using various [teaching tools](#) and [lesson plans](#) from the TROP ICSU website. They provided review comments about the teaching resources (via an online review form) to help in further enhancing the quality and effectiveness of the content. Further, participants worked in discipline-based groups to develop new lesson plan ideas to teach topics in their discipline using climate-related examples. In these activities, participants engaged in peer-to-peer discussions and exchanged ideas. The workshop concluded with presentations on new lesson plan frameworks and ideas and an open discussion on continued engagement and collaboration with the TROP ICSU project.

The AUC had extended an invitation for participation to the **National Curriculum Development Center (NCDC), Uganda**, which was accepted. The representative from NCDC attended and actively participated in both the workshops. Workshop participants had the opportunity to interact with the representative from NCDC in a dedicated session focused on the exchange of ideas, questions and answers, and suggestions between teachers/educators and the central curriculum development authority. The discussions in these sessions triggered ideas for next steps in incorporating digital pedagogy and climate-change related teaching resources in classrooms across Uganda.

The AUC had also invited a member of the **Uganda National Council for Science and Technology (UNCST)** to participate in the workshop. His active participation and recognition of the importance of using the educational resources from the TROP ICSU project may play a key role in disseminating the learnings from the workshops across Uganda.





Plenary Session at the Workshop for University Lecturers, Kampala, Uganda



Plenary Session at the Workshop for High School Teachers, Kampala, Uganda

Overall, the participants were keen on learning about the usage of digital teaching resources in the classroom and to integrate climate science/climate change-related topics in their existing curriculum. They also actively participated in the creation of new lesson plans and specifically, in the generation of ideas that are locally relevant to Africa as a continent or to one of the countries/regions in Africa. Each group created a framework for one new lesson plan for their discipline. Peer-to-peer discussions in groups enabled an exchange of several ideas, a debate on effective teaching practices in classrooms, and refinement and strengthening of lesson plan ideas.



Group Activity at the Workshop for University Lecturers, Kampala, Uganda



Group Activity at the Workshop for High School Teachers, Kampala, Uganda

Summary of the feedback received on the lesson plans from the TROP ICSU website

**Explaining the topic(s) in the discipline:** **100%** of the responses from the university lecturers and **100%** of the responses from the high school teachers stated that the reviewed lesson plan was **very effective or moderately effective** in explaining the topic in the discipline.

**Integrating the discipline topic(s) with climate science:** Approximately **93%** of the responses from the university lecturers and approximately **92%** of the responses from the high school teachers indicated that the reviewed lesson plan was **very effective or moderately effective** in integrating the discipline topic(s) with climate science.

**Using the lesson plan in the classroom:** **100%** of the responses from the university lecturers and **100%** of the responses from the high school teachers indicated that they **would use the lesson plan in their classroom as is or with some modifications**.

Detailed results for the lesson plan reviews are provided in [Appendix II A: Review of Lesson Plans by Participants \(University Lecturers\)](#) and [Appendix II B: Review of Lesson Plans by Participants \(High School Lecturers\)](#).

Summary of the feedback received on the teaching tools curated on the TROP ICSU website

**Explaining the topic(s) in the discipline:** Approximately **89%** of the respondents among the university lecturers and **100%** of the respondents among the high school teachers thought that the reviewed tool was **very effective or moderately effective** in explaining the topic(s) in the discipline.

**Describing the tool:** Approximately **89%** of the responses from the university lecturers and approximately **94%** of the responses from the high school teachers stated that the **tool description adequately shows how the discipline topic can be taught using a climate-related example, activity, or case study**.

**Using the tool in the classroom:** **100%** of the respondents among the university lecturers and **100%** of the respondents among the high school teachers indicated that they **would use the reviewed tool in their classroom as is or with some modifications**.

Detailed results for the teaching tool reviews are provided in [Appendix III A: Review of Teaching Tools by Participants \(University Lecturers\)](#) and [Appendix III B: Review of Teaching Tools by Participants \(High School Teachers\)](#).

## Details of the Workshops

### Agenda and Overall Organization

The agenda of each two-day workshop was as follows:

- **Day 1:**
  - Presentations by AUC: Welcome remarks, objectives of the workshop, introduction to AUC and its work
  
  - Presentations by the TROP ICSU team: Introduction to the TROP ICSU project, overview and demonstration of teaching resources (teaching tools and lesson plans) by using examples from each discipline



Group-based activity by the participants (groups organized by disciplines): Review of discipline-specific teaching resources available on the TROP ICSU website (one lesson plan and one teaching tool per group); fill out the review form for teaching resources

Discussion on the review of teaching resources



Group Activity at the Workshop for University Lecturers, Kampala, Uganda



Group Activity at the Workshop for High School Teachers, Kampala, Uganda

- **Day 2:**  
Introduction to the components of a lesson plan



Group-based activity by the participants (groups organized by disciplines): Creation of a new lesson plan based on an idea that integrates a climate topic with their regular teaching

Presentation of new lesson plans by participants: Brief summary of the lesson plan topic and tools/resources by each group

Presentation by the representative from the National Curriculum Development Center (Uganda), followed by a Q&A session with the participants

Open discussions with participants: Feedback on the workshop and discussions on long-term engagement of participants with TROP ICSU

Closing remarks



Feedback and Discussion at the Workshop for University Lecturers, Kampala, Uganda



Group Discussion at the Workshop for High School Teachers, Kampala, Uganda

#### Participant Feedback and Suggestions on Existing Teaching Resources

- Include more examples and case studies that reflect the African context
- Include objectives in the lesson plan
- Reduce the number of activities in the lesson plan
- Narrow the scope of questions
- Provide offline versions because many classrooms lack an Internet connection
- Incorporate more local examples and data

#### Ideas for New Lesson Plans

Some of the new lesson plan ideas and frameworks created by the participants were on the following topics:

- Climate Change and Biodiversity, example of East Africa's mountain gorilla (Biological Sciences, Geography)
- Climate Change and Pollination (Biological Sciences)
- Impact of Climate Change on Crop Production, example of rice in Uganda (Geography, Agriculture, Environmental Sciences)
- Climate Change and Extreme Events, examples from Africa (Environmental Sciences)
- Climate Change, Droughts, and Food Production, examples from Uganda (Agriculture)
- International Trade and Climate Change (Economics)
- Climate Change and Poverty (Economics)
- Graphical Representation of Greenhouse Gas Emissions Data from Different Energy Sources (Statistics)

### Key Takeaways and Learnings from the Workshops

- The use of digital pedagogy and computer-based tools was a novel idea to several participants (especially for the high school teachers); for these participants, the exploration and use of videos and online readings was relevant and effective as a first step.
- Overall, the university lecturers were comfortable with the use of computers and digital resources; however, the structure and usage of a lesson plan appeared to be a novel idea for them.  
From observations during the workshop, the key learnings for the university lecturers were: the use of digital pedagogy, the creation and usage of lesson plans, and the idea of integrating climate topics with topics in their discipline.
- Overall, the high school teachers were familiar with the creation and usage of lesson plans in the classroom; however, the use of computers and digital resources appeared to be a novel idea for them.  
From observations during the workshop, the key learnings for the high school teachers were: the use of digital pedagogy and the idea of integrating climate topics with topics in their discipline.
- Participants found the hands-on, interactive group sessions to be very useful and engaging.
- Peer discussions in groups helped in the exchange of ideas and enhanced participants' learning.
- Participants sought local and region-specific examples (Uganda, East Africa, Africa) for their teaching; some of the lesson plan ideas generated during the workshop incorporated such examples.
- The offline (downloadable) version of the lesson plans was used by several participants; this version is convenient for use and access in the classroom.
- Some participants would have preferred to work in smaller groups.
- Participants requested references to resources that introduce the basics of climate science and climate change.
- Some feedback from participants:  
*"It is a great pleasure to get this opportunity of workshop! The content covered during this period has sharpened my mind about our contributions as teachers (from different disciplines) in climate! I will recommend these digital tools to my fellow teachers (on my highest ability) and I have to make a climate advocacy within the community! Wish such workshops in next days(hope this is the first not the first and the last at once! Once again, thanks!"*

*"I found the training is interesting, however we should have to focus on what is next to be done ? how we can bring a wider impact at regional or African level by incorporating climate issues in curriculum at different levels."*

*"It has really been so wonderful and we wait for any future interactions."*

*"I appreciate how it was much inclusive; thank you for including us Rwandans."*

*"Use pedagogy of integration to find smooth entry points of climate change and then develop supplementary materials or change the existing textbooks"*

#### Next Steps

- Engagement by Team TROP ICSU with the participants to further enhance/refine the lesson plan ideas created during the workshop
- Modification of existing teaching resources (content and layout) based on analysis of feedback from participants
- Addition of region-specific (Uganda, East Africa, Africa) case studies, activities, and resources by using the ideas generated during the workshop



## *Appendix I: Disciplines/Subjects Taught by the Participants*

### University Lecturers:

Environmental Science; Wildlife Health and Management; Meteorology; GIS; Biodiversity Conservation; Social Science; Ecology; Agriculture; Ecology and Biodiversity Management; Forestry; Social Sector Planning and Management; Geography; Social Administration; Climate Change; Biology; Mathematics; Computer and Telecom Engineering; Beekeeping; Natural Resources Management; Economics; Gender; Computer Science; Humanities; Environment Management; Environment

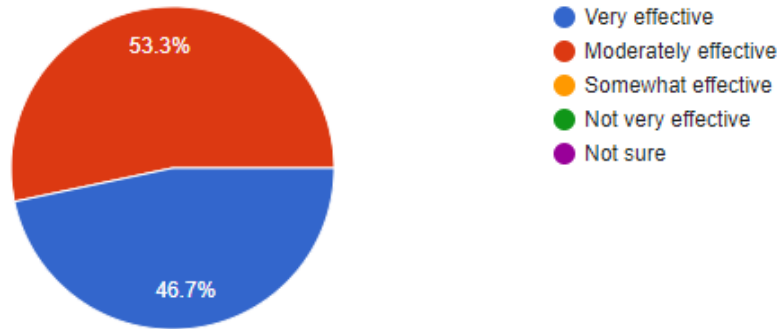
### High School Teachers:

Mathematics; Biology; History, Divinity and Education; Climate Change; Geography; History; Art and Design; Chemistry; Literature; Agriculture; Social Science; General Paper and English; Commerce; Entrepreneurship; Physics; ICT; Environmental Education

Appendix II A: *Review of Lesson Plans by Participants (University Lecturers)*

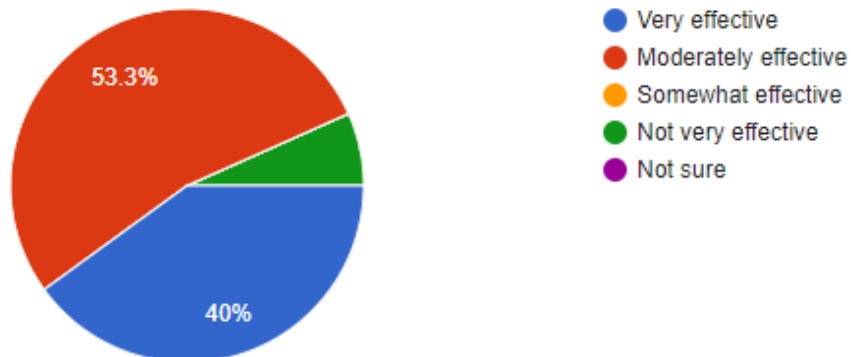
2. In your opinion, how effective is this lesson plan in explaining the topic(s) in the discipline?

15 responses



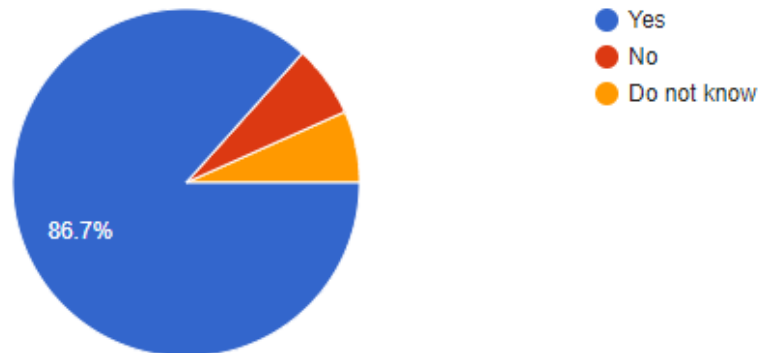
3. In your opinion, how effective is this lesson plan in integrating the discipline topic(s) with climate science?

15 responses



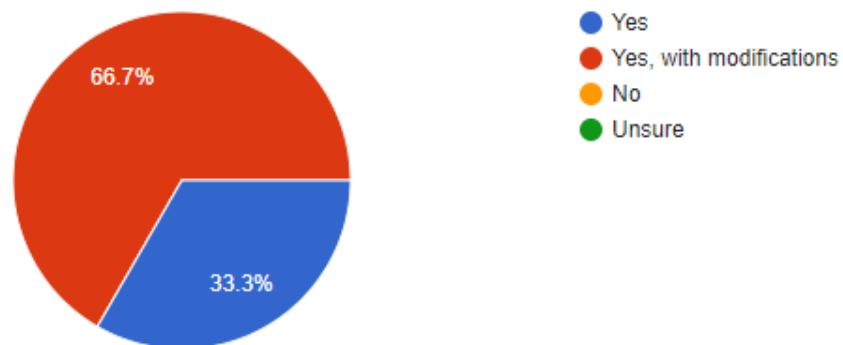
7. Do you think that your students will become more aware of climate change if you use this lesson plan in your classroom?

15 responses



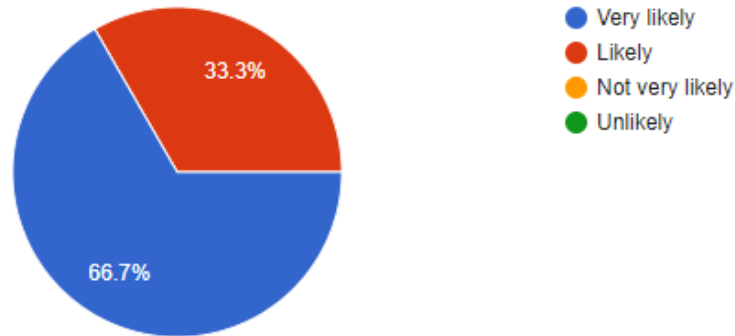
8. Would you use this lesson plan in your classroom for your students?

15 responses



10. How likely are you to develop your own lesson plan that can enhance the understanding of a core topic in your discipline using a climate-related example, activity, or case study?

15 responses

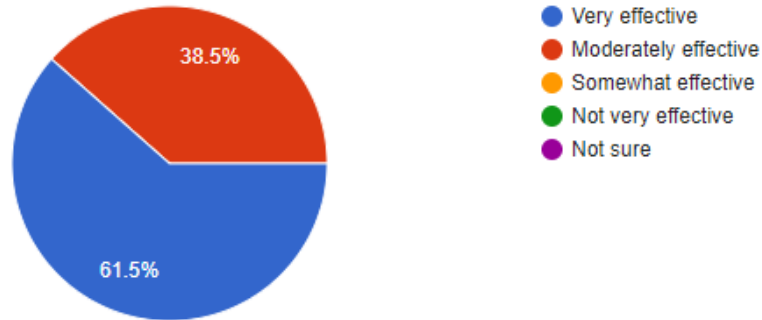




Appendix II B: *Review of Lesson Plans by Participants (High School Lecturers)*

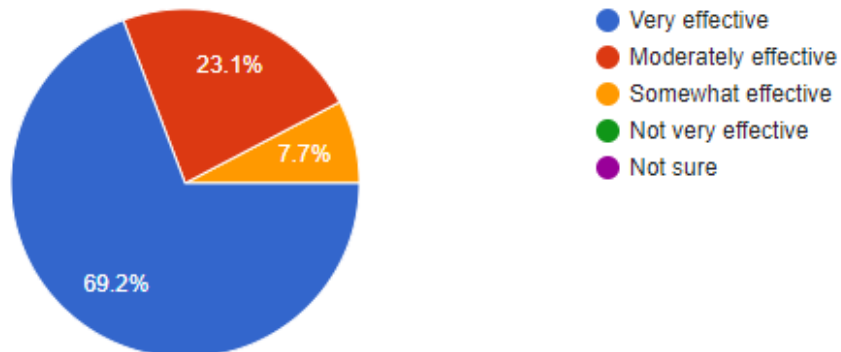
2. In your opinion, how effective is this lesson plan in explaining the topic(s) in the discipline?

13 responses



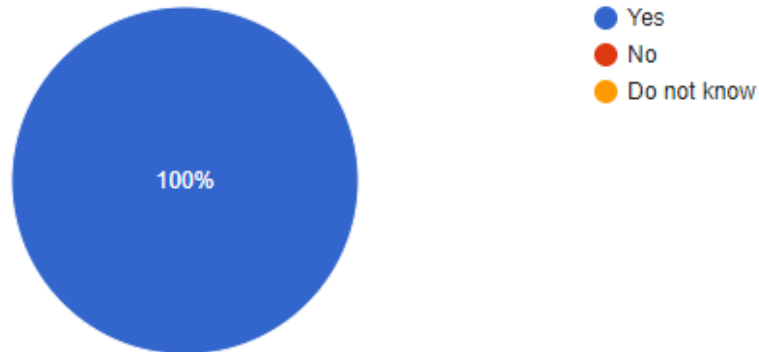
3. In your opinion, how effective is this lesson plan in integrating the discipline topic(s) with climate science?

13 responses



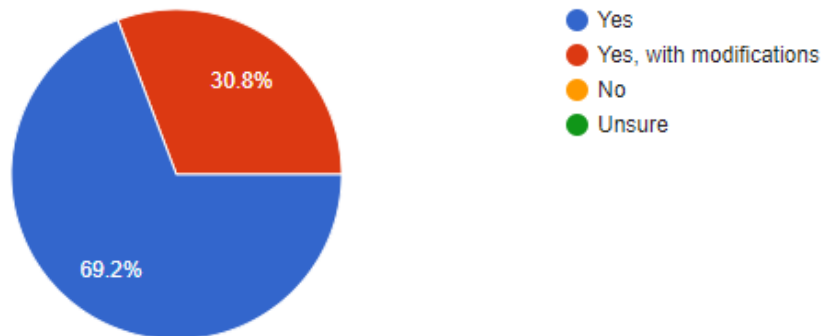
7. Do you think that your students will become more aware of climate change if you use this lesson plan in your classroom?

13 responses



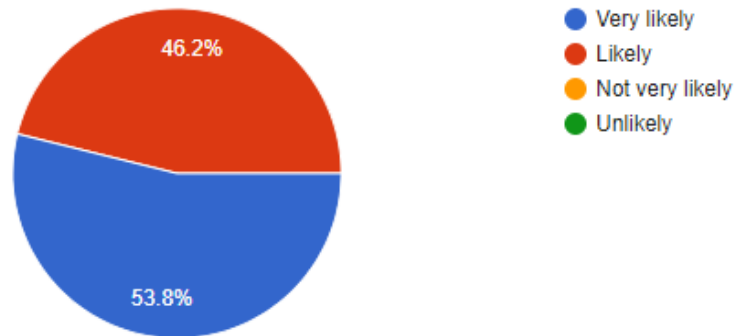
8. Would you use this lesson plan in your classroom for your students?

13 responses



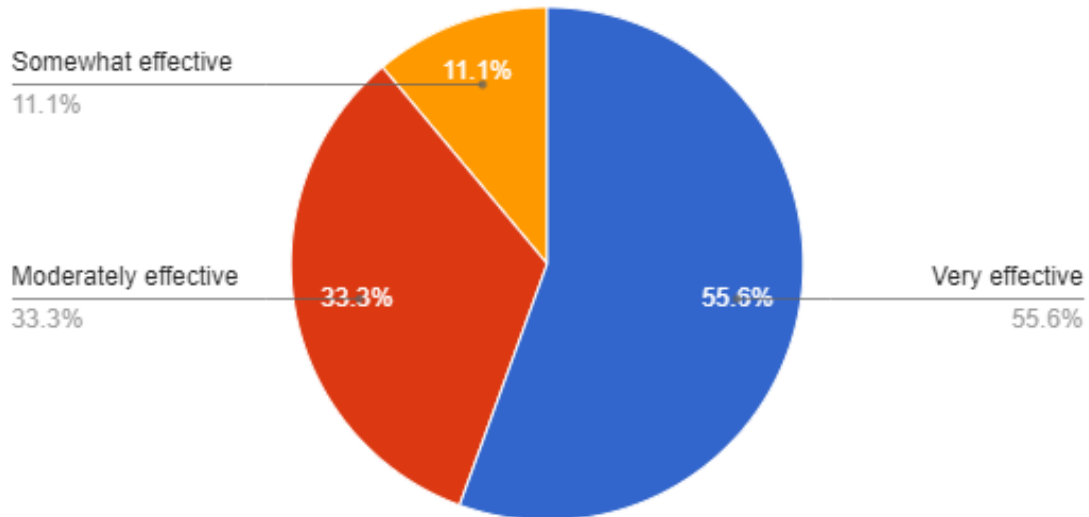
10. How likely are you to develop your own lesson plan that can enhance the understanding of a core topic in your discipline using a climate-related example, activity, or case study?

13 responses

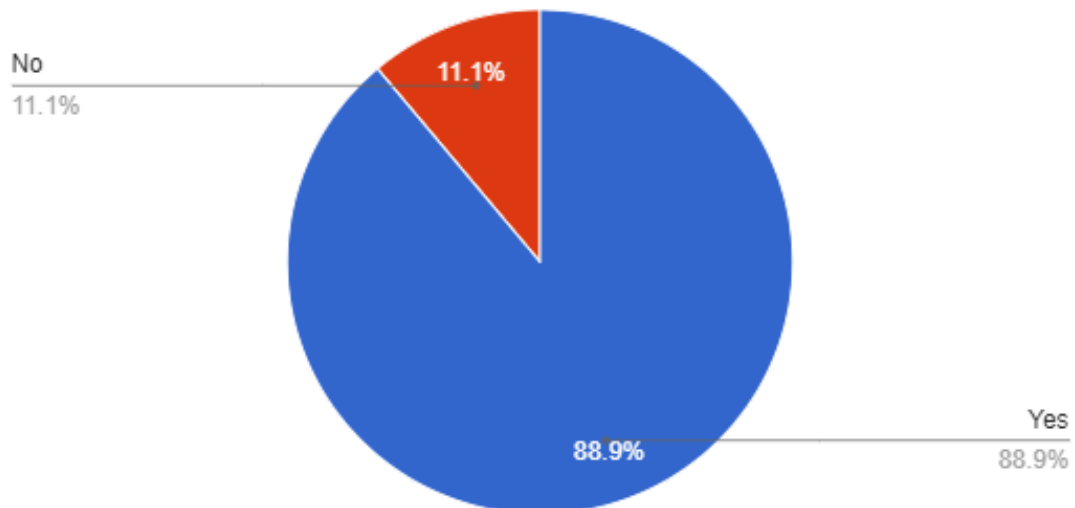


Appendix III A: *Review of Teaching Tools by Participants (University Lecturers)*

2. In your opinion, how effective is this teaching tool in explaining the topic(s) in the discipline?

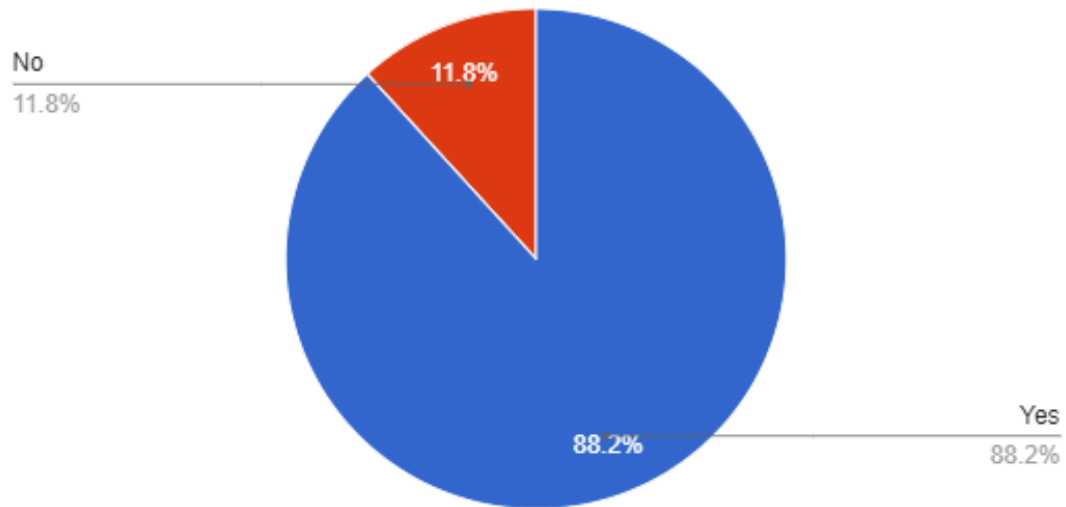


4. Does the tool description adequately show how the discipline topic can be taught using a climate-related example, activity, or case study?

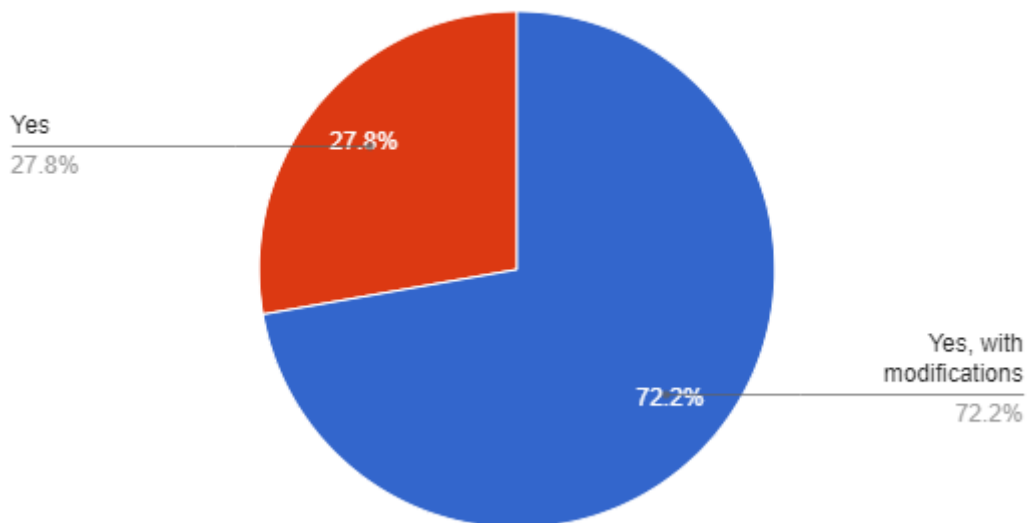




5. Do you think that your students will become more aware of climate change if you use this teaching tool in your classroom?

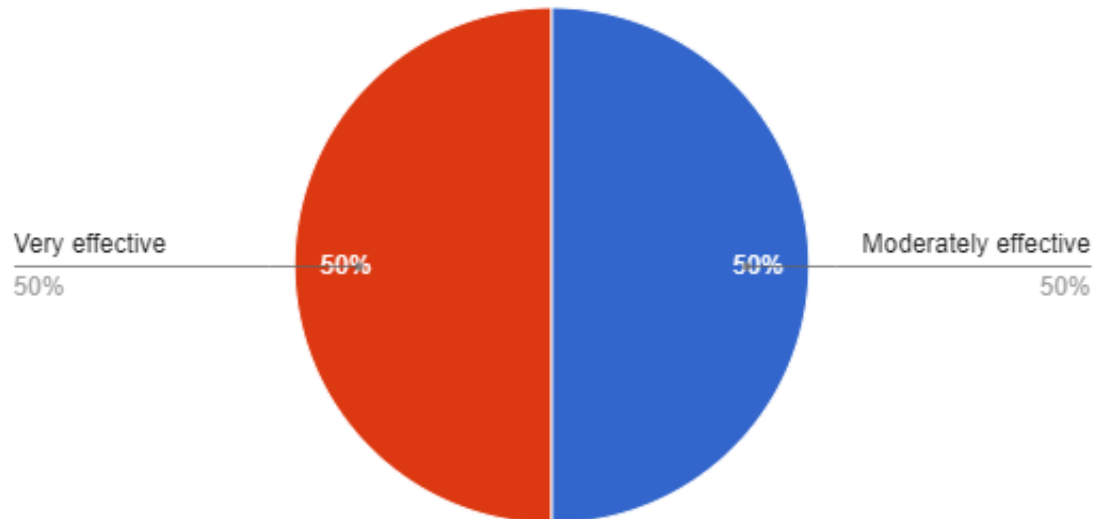


6. Would you use this teaching tool in your classroom for your students?

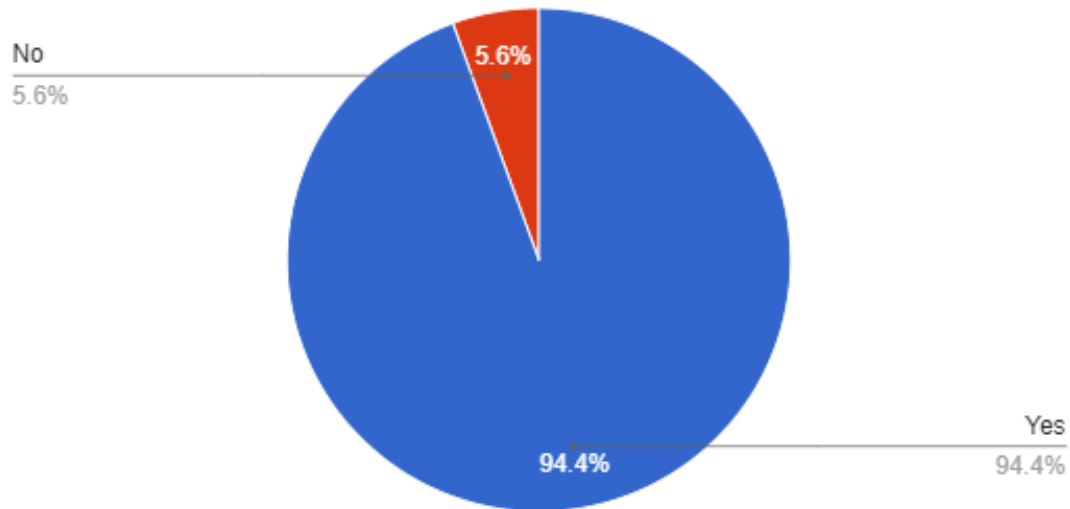


*Appendix III B: Review of Teaching Tools by Participants (High School Teachers)*

2. In your opinion, how effective is this teaching tool in explaining the topic(s) in the discipline?



4. Does the tool description adequately show how the discipline topic can be taught using a climate-related example, activity, or case study?



6. Would you use this teaching tool in your classroom for your students?

