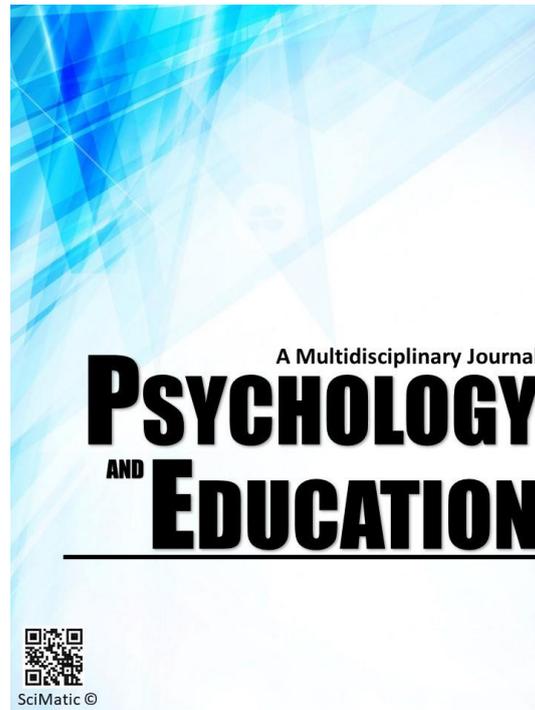


**DEVELOPMENT AND VALIDATION OF A TEST TO
MEASURE STUDENT'S CLIMATE CHANGE
AWARENESS (CCA) TOWARD SUSTAINABLE
DEVELOPMENT GOALS**



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Development and Validation of a Test to Measure Student's Climate Change Awareness (CCA) Toward Sustainable Development Goals

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Abstract

Climate change is prevalent worldwide. The Sustainable Development Goals focused on climate action. Climate Action teaches people to be prepared in times of disaster. In this study, the researcher developed Climate Change Awareness Scale (CCAS) and validated it in a sample of 500 students from SHS, College, Masters, and Doctorate students from different schools such as Echague National High School, Ramon High School, Isabela State University, Cavite National High School, and Philippine Normal University. The results show the validity of the 4 factors of Action on Climate Change, Inappropriate Action, Perceptions, and Unaware Action on Climate Change. To verify the content and construct validity of the CCAS, items were created based on the literature and chosen using factor analysis. The KMO and Barlett's test shows that the sample is adequate with a result of .864. The test has 50 items that were run using EFA and gathered 5 components. The original statements were now refined after EFA and categorized based on the result. There are 5 components extracted but component 5 has low variance. The CCAS provides awareness to us on what is the appropriate action on climate change and educates us on some inappropriate actions during climate change.

Keywords: *climate action, sustainable development goals, climate changeawareness scale*

Introduction

Climate change is a pervasive phenomenon with far-reaching social, economic, political, geographical, ecological, and psychological consequences. Global climate change is changing our relationship with the environment, making previously stable climate factors uncertain, unpredictable, and potentially dangerous (Adger, 2016). Climate change is happening nowadays and it's a serious problem that needs to address worldwide. As part of the community, we have a part in sustaining our environment for our generation and for the generation to come. Climate change has emerged as the most prominent global concern today, and two-pronged efforts, climate change adaptation and climate change mitigation have been launched to manage the phenomenon's cataclysmic ramifications (Piao et.al, 2019).

The international community and researchers in this field have already demonstrated the importance of Climate Change Awareness (CCA) in ensuring the sustainability of the environment as well as the Sustainable Development Goals (SDGs). According to Di Gregorio et.al (2019) to address the impacts of climate change, several policies on climate change have been developed at the international, national, subnational, and local levels. Achieving Sustainable Development Goals (SDGs) is not the responsibility of a single organ of government. Even the government cannot achieve this milestone without

the involvement of all stakeholders, including policymakers, strategists, researchers, academics, journalists, economists, social workers, politicians, professionals, ordinary citizens, and others. (Anderson et.al., 2021).

When a natural disaster strikes, everyone in the community must share equal responsibility for identifying and resolving the issues. Members of society must be aware of all types of environmental disasters. To protect future generations from all forms of natural disasters, it is critical to raise awareness and take action against them. In the school setting, climate change action, Disaster Readiness, and Risk Reduction Management (DRRM) are included in the curriculum in the Philippines to raise awareness and meet SD goals, especially on quality education and climate change.

Climate Change Awareness that is well-planned can help tackle those problems, as the Climate Change Awareness Scale (CCAS) strives to raise awareness of existing environmental concerns and equip people with the skills they need to solve those problems and prevent future environmental harm. CCAS is a collection of abilities that are required to meet the difficulties of environmental sustainability. Life is growing increasingly difficult for humans, and they must think critically before making any decisions about their surroundings. CCA, according to Halpern (2019), improves the human ability to make logical decisions and address important circumstances.



CCA is regarded as a set of skills by which citizens of the society can take responsible action for the sake of ecology, and there is a secure connection between Sustainable Development Goals and climate change awareness to produce every individual with all the required qualities to make an environmentally friendly decision for ensuring the global environmental balance, and CCA is regarded as a set of skills by which citizens of the society can take responsible action for the sake of ecology (Engels et.al, 2013).

This research develops and validates a test to assess climate change awareness to contribute to Psychology and Education and help the school and community achieve sustainable development goals and know the extent of awareness of climate action.

Research Questions

This study's primary purpose is to determine the climate change awareness of the students. Specifically, this study sought to answer the following questions:

1. What are the original statements of the Climate Change Awareness Scale?
2. What is the final form of the Climate Change Awareness Scale after Factor Analysis?
3. What is the significant importance of the Climate Change Awareness Scale?

Literature Review

Sustainable Development Goals

There are three pillars of sustainability: environmental protection, social development, and economic growth, sustainable development is defined as meeting the needs without jeopardizing future generations meeting their needs (Purvis et.al, 2019). All countries recognize sustainable development, and in 2015, the United Nations was able to introduce seventeen Sustainable Development Goals (SDGs) to be achieved by 2030. (UN-SDG, 2015; Mori et al., 219).

The focus of SD goals was good education and climate action (Naidoo & Fisher, 2020). In terms of education, students need to continue it amidst the pandemic. According to UNESCO 2030 SDG, the focus of attention is to have a lifelong learning chance for all. Although the importance of education in tackling climate change concerns is becoming more widely recognized, it is still neglected as a strategic resource for mitigating and adapting to climate change (Mochizuki, 2019).

Education on Climate Change for Long-Term Development that is multidisciplinary and comprehensive asserts that it must include relevant content knowledge on environmental, climate change, social issues, sustainable consumption, risk reduction, lifestyles, and sustainable consumption, and the institutional environment in which content is known, ensuring that education systems are resilient and climate-proofed (Anderson, 2013). To lower the risks and vulnerabilities of climate change, the education agenda focus on mitigation measures and adaptation to climate change, which include gaining new skills and knowledge as well as altering behaviors. Investing in high-quality education to address climate change is thus a critical component of reaching the MDGs.

According to Kimura et al. (2019), students have a modest degree of disaster literacy, as judged by their knowledge, attitude, and practice. The school, as a community center for education in climate change, is an entry point for Community based building efforts, according to an investigation of the students' capacity as "transfer agents" for Climate Change education. Based on those findings, there is a need that Climate Change Action to be included in the curriculum for the students to have a high degree of disaster literacy in terms of knowledge, attitude and practice.

The reviewed articles provided the researcher with strong bases in the development of the Climate Change Awareness Scale (CCAS) consistent with the mandates of the DepEd and in contribution to the realization of the SDG goals on education and climate action.

Methodology

This part contains an explanation of the development and validation of the Climate Change Awareness (CCA) test/scale, an instrument designed to measure students' awareness of climate change toward sustainable developmental goals. The entire process of development and validation was done through different steps. The descriptive method was employed in this study

Participants

The first stage of developing the test was selecting the target participant. Participants consist of 500 students from SHS, College students, and Master's and Doctorate students from different schools such as Echague National High School, Ramon High School, Isabela State University, Cavite National High School, and Philippine Normal University.



Instruments of the Study

The original Climate Change Awareness (CCA) test/scale was developed based on a thorough search of the literature on statements on climate awareness. The CCA originally has 50 items statements with no subcategories. Items were rated on a 4-point Likert scale ranging from 1 (strongly agree) through 4 (strongly disagree). Items were reviewed by two experts; the Public School District Supervisor who is the chairman of the District Quality Assurance Team for Developed Learning Resources, and Expert 2 a professor at Philippine Normal University to ensure the clearness and practical relevance of statements before sending out the survey. Participants were asked to rate the awareness survey and their profile background, which include their gender, age, and level of study (senior high school, college, master's/doctorate).

Procedures

A total of 5 schools were selected through the simple random sampling process and 500 respondents were randomly selected.

Item Generation

The draft of the questionnaire and test idea was prepared based on a wide range of related literature reviews and interviews as a basis for constructing the scale. There were 50 items statements on Climate Change Awareness Scale.

After finishing the test's initial version, the scale has undergone Experts Validation on the content of the scale to review the 50 items. The review's primary purpose was to check each item's relevance in line with the desired objective. Another aim of the review was to check the correctness of the information presented throughout the questionnaire and ensure language accuracy. Expert 1 is the Public School District Supervisor who is the chairman of the District Quality Assurance Team for Developed Learning Resources, and Expert 2 is a professor at Philippine Normal University whose work is focused on validating developed modules and materials among graduate students. The constructed scale passed the criteria of the expert and then proceeded to pilot testing.

A pilot study was conducted with 500 students composed of SHS, College students, and Master's and Doctorate students. Data was collected via google forms. Consent was asked before administering the

questionnaire. A pilot study was conducted with the initial version of the questionnaire to check the developed test's quality and validity.

After pilot testing, Exploratory Factor Analysis was performed using the principal component analysis and varimax rotation to determine the variance of statements, the commonality of scale, and the categories of the statements.

The KMO and Barlett's test shows that the sample is adequate with a result of .864. The test has 50 items with 500 respondents. The 50 items were run using EFA and gathered 5 components. The original statements were now refined after EFA and categorized based on the result. There are 5 components extracted but component 5 has a low variance.

The researcher conducted another survey or try-out with the edited version of the test to confirm its validity and reliability. A total of 500 students took part in the 2nd survey. The test's validity and reliability were examined again and compared with the previous results to confirm the developed test's internal and external validity.

Refinement of the Instrument through Factor Analysis

The original statement has 50 items, the 50 items will be refined using Exploratory Factor Analysis.

Reliability

The Cronbach's Alpha of the test was measured to check the internal consistency of the item. SPSS was used to measure Cronbach's Alpha based on the following criteria (Table 6). The overall reliability of the instrument was 0.8 which is very high.

Validity

The test's content/face validity was measured by 2 experts. The result demonstrated the appropriateness of the items for measuring the targeted climate change awareness scale. Two experts agreed that the items were clear enough to meet the purpose, and the instructions were appropriate for the participants.

Pearson product-moment correlation was calculated to check the validity of each item by using SPSS. Each item's significance value (Table 11) showed the instrument's validity by comparing its value with the total score.



Results

This section presents the findings according to the study's research questions. Here are the results of the study.

Overview of Original Statements of Scale on Student's Climate Change Awareness Scale (CCAS) towards Sustainable Development Goals

This part is composed of Table 1 (*see appendix*) with Original Statements of Scale on Student's Climate Change Awareness Scale (CCAS) towards Sustainable Development Goals based on interviews and literature review.

Refinement of the Instrument through Factor Analysis

The table 2-4 shows the refinement of Original statements through factor analysis. In KMO the sample is adequate with a result of .864. The test has 50 items with 500 respondents. There are 5 components extracted.

Table 2. Refinement of the Instrument through Factor Analysis

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.			.864
Bartlett's Test of Sphericity	Approx. Chi-Square	4312.893	
	df	1225	
	Sig	.000	

Table 3. Total Variance Explained

Component	Initial Eigenvalues		Extraction Sums of Squared Loadings			
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	14.671	29.342	29.342	14.671	29.342	29.342
2	4.551	9.102	38.444	4.551	9.102	38.444
3	2.927	5.854	44.298	2.927	5.854	44.298
4	2.102	4.205	48.503	2.102	4.205	48.503
5	1.747	3.493	51.996	1.747	3.493	51.996
6	1.647	3.294	55.290			
7	1.439	2.879	58.169			
8	1.255	2.510	60.678			
9	1.125	2.249	62.927			
10	1.091	2.181	65.109			
11	1.016	2.031	67.140			
12	.975	1.949	69.089			
13	.904	1.809	70.898			
14	.866	1.731	72.629			
15	.809	1.618	74.247			
16	.788	1.576	75.822			
17	.776	1.552	77.374			
18	.766	1.532	78.906			
19	.784	1.487	80.313			
20	.694	1.387	81.700			
21	.635	1.270	82.970			

continuation...

22	.606	1.212	84.182		
23	.561	1.123	85.305		
24	.548	1.097	86.402		
25	.525	1.050	87.451		
26	.471	.942	88.393		
27	.441	.882	89.275		
28	.429	.858	90.134		
29	.407	.813	90.947		
30	.394	.789	91.736		
31	.368	.735	92.471		
32	.350	.699	93.170		
33	.330	.659	93.830		
34	.301	.603	94.433		
35	.298	.595	95.028		
36	.284	.568	95.596		
37	.246	.492	96.088		
38	.233	.466	96.554		
39	.227	.454	97.008		
40	.195	.389	97.397		
41	.186	.372	97.770		
42	.176	.352	98.121		
43	.153	.306	98.427		
44	.148	.296	98.724		
45	.133	.266	98.990		
46	.117	.234	99.224		
47	.113	.226	99.449		
48	.105	.210	99.660		
49	.089	.178	99.837		
50	.081	.163	100.000		

Extraction Method: Principal Component Analysis.

Table 4. Component Matrix

	Component				
	1	2	3	4	5
VAR00048	.792	-.209	-.120	.148	-.232
VAR00041	.757		-.214	.211	
VAR00042	.754	-.119	-.227	.265	
VAR00049	.751	-.110	-.305	.332	
VAR00033	.713	.174	-.147		.205
VAR00045	.710		-.280	.360	
VAR050	.710		-.288	.159	
VAR00038	.708		-.168	.104	
VAR00044	.708		-.357	.285	
VAR00003	.699	-.109	.208		.187
VAR00013	.657		.135		.392
VAR00047	.653			-.138	-.288
VAR00025	.650	-.153	.312	-.146	-.256
VAR00020	.648		.277	-.118	.219
VAR00032	.632		-.284		
VAR00039	.626	.158		-.128	-.301
VAR00034	.623	.280	-.111	-.253	.152
VAR00030	.622	.336	-.143	-.107	.191
VAR00008	.609	-.345	.261	.109	.285
VAR00037	.608	.170	-.194		
VAR00002	.602	-.271	.458		
VAR00024	.602		.270	-.264	-.169
VAR00022	.585		.359	-.337	
VAR00007	.581	-.382	.284	.130	.277
VAR00014	.573		.317	-.241	.129
VAR00005	.570	-.258	.240	.130	.333
VAR00046	.564		-.204		-.179
VAR00012	.540	-.132	.229		
VAR00018	.520		.146	.253	-.319
VAR00028	.517	.263	-.142	-.195	.334
VAR00035	.510	.333	-.189	-.227	
VAR00026	.482	.249	.149		-.187
VAR00043	.478	.457	-.288	-.226	-.114



continuation...

VAR0006	.471	.157	.131	-.229	
VAR00011	.430		.252	.172	-.352
VAR00019	.428	.140		.173	-.253
VAR00036	.369	.231	-.111		
VAR00021	-.201	.808	-.144	.112	.211
VAR00016	-.111	.729	-.160	.106	
VAR00023	-.186	.728			.110
VAR0004	-.211	.642	-.148	.266	.174
VAR00031	.223	.502		-.214	
VAR00029		.425	.241	.373	.137
VAR00040	.389	.399	-.268	-.289	
VAR00017	.197	.340	-.197	.286	-.277
VAR00010		.295	.171	.209	
VAR00015	.424	.103	.426	-.286	-.244
VAR0001	.297		.397	.214	-.147
VAR0009	-.177	.353	.380	.339	
VAR00027		.308	.315	.320	

Extraction Method: Principal Component Analysis.
a. 5 components extracted.

The Final Form of the Instrument after EFA

The final form of the instrument has 50 statements that measure the climate change awareness of students. There are 4 components, component 1 has 37 items, component 2 has 9 items, component 3 has 3 items and component 4 has 1 item. The scale has a reliability of 0.08, and Cronbach’s alpha of 0.94. Table 5 (see appendix) Final Form of Climate Change Awareness Scale

Results of Reliability and Validity of the Scale

The Cronbach’s Alpha of the test was measured to check the internal consistency of the item. SPSS was used to measure Cronbach's Alpha based on the following criteria. The overall reliability of the instrument was 0.945 which is very high.

Table 6. Criteria of Chronbach’s Alpha Value

No.	Category	Reliability
1.	0.800 – 1.000	Very high
2.	0.600 – 0.799	High
3.	0.400 – 0.599	Moderate
4.	0.200 – 0.399	Low
5.	0.000 – 0.199	Very low

Table 7. Case processing summary

Case		N		%	
		Valid	Excluded	Total	Total
	Valid	500	0	500	100.0
	Excluded	0	0	0	.0
	Total	500	0	500	100.0

Table 8. Reliability Statistics

Cronbach’s Alpha	N of Items
.945	50

According to the above statistical value, Cronbach’s Alpha for the test was .945, showing its high reliability. |

Significant Importance of Climate Change Awareness Scale

It used to assess students' and also every people in the community worldwide to assess Climate Change Awareness to ensure their level of commitment to environmental issues. It is also helps in attaining Sustainable Developmental Goals and aid in saving the planet.

Discussion

This study's objective was to develop and validate a test to measure climate change awareness in students, and it was successfully designed and validated. Different environmental contents from a review of related literature and interviews were considered for creating the items of the test. Current environmental issues also got focused on the development process of the test. A total of 50 survey questionnaire was included after the careful analysis of piloting results and expert validation. Validity and reliability were checked and it was found valid and reliable for measuring the CCA of students. The table shows that the sample is adequate with a result of .864. The test has 50 items with 500 respondents.

Conclusion

Future research might include additional items, which would ensure a more valid and reliable exam, as well as more participants. Despite its many flaws, this research is extremely important. It could be used to assess students' CC Awareness to ensure their level of commitment to environmental issues. This exam can be used as a model by future researchers to create further tests for measuring these critical skills at different levels of schooling and in different subjects.

Policymakers may gain information about students' CC Awareness, which might be further developed by focusing on new policy initiatives on this subject. Finally, by taking this test, students will be able to determine their degree of CC Awareness and so increase their ability to contribute to environmental sustainability and sustainable development goals.

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References

- Adger, W. N. (2016). Place, well-being, and fairness shape priorities for adaptation to climate change. *Global Environmental Change*, 38, A1–A3.
- Akomolafe, C. & Adesua, V. (2016). The Impact of Physical Facilities on Students' Level of Motivation and Academic Performance in Senior Secondary Schools in South West Nigeria. *Journal of Education and Practice*, Vol. 7 (No. 4, p38-42).
- Alyami (2017). The Impact of Self-Esteem, Academic Self-Efficacy and Perceived Stress on Academic Performance: A Cross-Sectional Study of Saudi Psychology Students. *European Journal of Educational Sciences*. DOI: 10.19044/ejes.v4no3a5.
- Anderson, C. C., Denich, M., Warchold, A., Kropp, J. P., & Pradhan, P. (2021). A systems model of SDG target influence on the 2030 Agenda for Sustainable Development. *Sustainability Science*.
- Anderson, P. (2013). Book review. *Biological Conservation*, 159, 1.
- Di Gregorio, M., Fatorelli, L., Paavola, J., Locatelli, B., Pramova, E., Nurrochmat, D. R., May, P. H., Brockhaus, M., Sari, I. M., & Kusumadewi, S. D. (2019). Multi-level governance and power in climate change policy networks. *Global Environmental Change*, 54, 64-77.
- Engels, A., Hüther, O., Schäfer, M., & Held, H. (2013). Public climate-change skepticism, energy preferences and political participation. *Global Environmental Change*, 23(5), 1018–1027.
- Halpern, J. Y., & Pass, R. (2019). Sequential Equilibrium in Computational Games. *ACM Transactions on Economics and Computation*, 7(2), 1–19.
- Kimura, R., Hayashi, H., Kobayashi, K., Nishino, T., Urabe, K., & Inoue, S. (2017). Development of a “Disaster Management Literacy Hub” for Collecting, Creating, and Transmitting Disaster Management Content to Increase Disaster Management Literacy. *Journal of Disaster Research*, 12(1), 42–56.
- Mochizuki, Y. (2019). Rethinking Schooling for the 21st Century: UNESCO-MGIEP's Contribution to SDG 4.7. *Sustainability: The Journal of Record*, 12(2), 88–92.
- Mori Junior, R., Fien, J., & Horne, R. (2019). Implementing the UN SDGs in Universities: Challenges, Opportunities, and Lessons Learned. *Sustainability: The Journal of Record*, 12(2), 129–133.
- Naidoo, R., & Fisher, B. (2020). Reset Sustainable Development Goals for a pandemic world. *Nature*, 583(7815), 198–201.
- Piao, S., Liu, Q., Chen, A., Janssens, I. A., Fu, Y., Dai, J., Liu, L., Lian, X., Shen, M., & Zhu, X. (2019). Plant phenology and global climate change: Current progresses and challenges. *Global Change Biology*, 25(6), 1922–1940.
- Purvis, B., Mao, Y., & Robinson, D. (2018). Three pillars of sustainability: in search of conceptual origins. *Sustainability Science*, 14(3), 681–695.

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Table 1. *Overview of Original Statements of Scale on Student's Climate Change Awareness Scale (CCAS) towards Sustainable Development Goals*

1. We need to accept that everything changes.
2. I'm sad if there are people who died because of disaster.
3. I appreciate the family emergency preparedness plan.
4. I don't care what type of land where our house was built.
5. We need to participate in earthquake drills to be familiarized.
6. I love picking garbage on the beach or river.
7. Keep an eye on family members when there is a disaster.
8. Keep calm and update on the situation of an evacuation as well as safety instructions on where to go and what to do.
9. I always panicked when there is a disaster.
10. I was afraid of thunder and lightning.
11. Instructed family members not to cross moving streams when the water level is below high.
12. I'm aware of typhoon Haiyan/Yolanda.
13. I love helping our brothers and sisters in times of need.
14. I care for our brothers and sisters who were hit by famine,
15. I believe that someday the water level will rise if all the glaciers will melt.
16. If I am a person who settles near the active mountains, I will still live near them even though it is dangerous.
17. I respect people with no choice to live even though their place is prone to disaster.
18. I believe that nothing is permanent in this world except change.
19. Fear has nothing to do in times of calamity.
20. I will participate in mitigating disasters to attain sustainable development goals.
21. I will spread fake news to the locality regarding the disaster.
22. I believe El Nino and la Nina will become severe throughout time.
23. The heat from the sun from 10 am is still a good source of vitamin D.
24. Be cautious of the possibility of electrocution when flooding.
25. I want to take action on climate change.
26. I easily adapt to the changing environment.
27. I burn my garbage.
28. I segregate my garbage into biodegradable and non-biodegradable.
29. I'm not ready if disaster strike
30. I help people in times of disaster.
31. I can easily adjust to the disastrous effects of the disaster.
32. I apply to drop, cover, and hold when there is an earthquake.
33. I plant trees to help our environment.
34. I always participate in cleaning the environment
35. I get out of low-lying areas right away and move to a higher inland elevation when there is a typhoon.
36. I stay inside the house/building when there is a disaster.
37. I turn off the electricity when there is a flood
38. I stay up to date on social media and emergency information
39. In flooded places, I keep an eye out for snakes.
40. Before turning on electrical appliances, I have them checked by a qualified electrician.
41. Follow the advice of authority in times of disaster.
42. I listen to the latest official PAGASA typhoon report on the radio or from other credible sources.
43. I assist victims as soon as possible and seek necessary assistance at the hospital or DRR station.
44. Eat cooked food, and drink clean boiled water.
45. Go to a safe place when calamity strikes.
46. I never drive a flooded street.
47. I keep a watchful check on my pets.
48. Teach children to avoid playing matches and appliances.
49. I usually check the gas stove, appliances, and lights after use.
50. In case of fire, I will see to it that I will not panic and find a way to evacuate.



Table 5. Final Form of Climate Change Awareness Scale

<p>COMPONENT 1 APPROPRIATE ACTION ON CLIMATE CHANGE</p> <p>Item 48: Teach children to avoid playing matches and appliances Item 41: Follow the advice of authority in times of disaster. Item 42: I listen to the latest official PAGASA typhoon report on the radio or from other credible sources. Item 49: I usually check the gas stove, appliances, and lights after use. Item 33: I plant trees to help our environment. Item 45: Go to a safe place when calamity strikes. Item 50: In case of fire, I will see to it that I will not panic and find a way to evacuate. Item 38: I stay up to date on social media and emergency information Item 44: Eat cooked food, and drink clean bboiled water Item 3: I appreciate the family emergency preparedness plan. Item 13: I love helping our brothers and sisters in times of need. Item 47: I keep a watchful check on my pets. Item 25: I want to take action on climate change. Item 20: I will participate in mitigating disasters to attain sustainable development goals Item 32: I apply to drop, cover, and hold when there is an earthquake. Item 39: In flooded places, I keep an eye out for snakes Item 34: I always participate in cleaning the environment Item 30: I help people in times of disaster. Item 8: Keep calmandupdate on the situation of an evacuation as well as safety instructions on where to go and what to do Item 37: I turn off the electricity when there is a flood Item 2: I'm sad if there are people who died because of disaster. Item 24: Be cautious of the possibility of electrocution when flooding. Item 22: I believe El Nino and la Nina will become severe throughout time. Item 7: Keep an eye on family members when there is a disaster. Item 14: I care for our brothers and sisters who were hit by famine, Item 5: We need to participate in earthquake drills to be familiarized. Item 46: I never drive a flooded street. Item 12: I'm aware of typhoon Haiyan/Yolanda. Item 18: I believe that nothing is permanent in this world except change. Item 28: I segregate my garbage into biodegradable and non-biodegradable. Item 35: I get out of low-lying areas right away and move to a higher inland elevation when there is a typhoon. Item 26: I easily adapt to the changing environment. Item 43: I Assist victims as soon as possible and seek necessary assistance at the hospital or DRR station. Item 6: I love picking garbage on the beach or river. Item 11: Instructed family members not to cross moving streams when the water level is below high Item 19: Fear has nothing to do in times of calamity. Item 36: I stay inside the house/building when there is a disaster.</p>
<p>COMPONENT 2 INAPPROPRIATE ACTION ON CLIMATE CHANGE</p> <p>Item 21: I will spread fake news to the locality regarding the disaster. Item 16: If I am a person who settles near the active mountains, I will still live near them even though it is dangerous. Item 23: The heat from the sun from 10 am is still a good source of vitamin D. Item 4: I don't care what type of land where our house was built. Item 31: I can easily adjust to the disastrous effects of the disaster. Item 29: I'm not ready if disaster strike Item 40: Before turning on electrical appliances, I have them checked by a qualified electrician Item 17: I respect people with no choice to live even though their place is prone to disaster. Item 10: I was afraid of thunder and lightning.</p>
<p>COMPONENT 3 PERCEPTIONS OF CLIMATE CHANGE</p> <p>Item 15: I believe that someday the water level will rise if all the glaciers will melt. Item 1: We need to accept that everything changes. Item 9: I always panicked when there is a disaster</p>
<p>COMPONENT 4 UNAWARE ACTION ON CLIMATE CHANGE</p> <p>Item 27: I burn my garbage.</p>