



RESEARCH PAPER

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Beliefs, knowledge and lived experiences of the higher education institute educators in mitigating climate change

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Abstract

This study aimed to evaluate the beliefs, knowledge, and lived experiences among educators of Cagayan State University in mitigating climate change. A reliable researcher-made questionnaire was used to collect data from 275 randomly selected educators in the eight (8) campuses of Cagayan State University. Results revealed that educators describe their actions in mitigating climate change as “Often” to both social (3.77) and economic (3.84) aspects, while it is deemed “Always” for their actions relevant to the environmental (4.37) aspects. It is observed that the perceived described actions of the educators based on their knowledge and lived experiences about climate change are complementing one another. That is why both social and economic aspects are answered majority as “Often”. On the other hand, the described actions of the educators to mitigate climate change on environmental aspects had surfaced to be “Always”. Thus, the previous results revealed that the educators know something about climate change, they feel worried about it and they believe climate change is happening are precursors to developing high sense of concern to the protection of our environment and ultimately developing an environment-friendly behavior among the educators of the Cagayan State University.

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Introduction

Globally, climate change is the pressing environmental crisis of the present generation. Climate change refers to the long-term changes in the climate that occur over decades, centuries, or longer. It is caused by rapidly increasing greenhouse gases in the Earth's atmosphere due primarily to burning fossil fuels like coal, oil, and natural gas (NOAA, 2020) which is an example of an anthropogenic source that is the main cause of the increase in concentrations of greenhouse gas (Ahmed *et al.* 2021). Aydin (2010) explicitly stated that one of the way that the Earth's climate is changing is global warming. It is the observed and projected increase in the average temperature of the earth's atmosphere and oceans due to greenhouse gas (GHG) emissions on account of human activities.

In order to change the behaviors of individuals to reduce climate change, it is likely that a multidisciplinary approach will be needed, with education being an important component Erten (2005). Unfortunately, many of the environmental educational programs developed during the last decade have not succeeded in the way we might have expected (Jakobsson, 2009) this is because there are many factors that might influence behavior patterns. At this point, it becomes especially important to explore ways in which the knowledge, attitudes and perhaps more specifically, the behavior of the individuals might be influenced in such a way as to reduce greenhouse gas emissions (Burgess, Harrison and Filius, 1998) that has caused extreme climatic changes and brought many disasters in the past decades. On the other hand, science educators have a key role in empowering students to take action to reduce climate change. This involves assisting students to understand its causes as well as taking pedagogical decisions that have optimal probabilities of leading to students being motivated to take actions based on empirically science-based beliefs (Boyes and Stanisstreet, 2013).

The future life-styles and pro-environmental behavior of today's educators and young students will be a cardinal factor in mitigating the severity of projected

climate change (Lehnert *et al.*, 2020). There is a vast array of pro-environmental behaviors that people can adopt to reduce greenhouse gas (GHG) emissions and mitigate the contribution of human activity to global climate change—from turning off lights, to composting, to biking instead of driving. Few studies have looked at which behaviors are the “low-hanging fruit” in terms of being most likely to be adopted by students after an environmental education experience. Some researchers tried to identify pro-environmental behaviors and science teachers are most likely to successfully foster—specifically, behaviors that limit students' contribution to global climate change (Skamp *et al.*, 2013).

The climate crisis is not a looming threat; people are now living with the consequences of centuries of greenhouse gas emissions. A failure to act urgently now will mean a reverse in development gains for the poorest and most vulnerable people in society, an erosion of biodiversity, increasing difficulties in providing food and shelter, as well as the potential loss of entire countries due to the impacts of climate change (NASA, 2019; The Elders, 2021). Thus this study aimed to evaluate the beliefs, knowledge and lived experience of educators in mitigating climate change. Specifically, it seeks answers to the following questions: (1) what is the profile of the educators in terms of their personal profile, professional profile and service profile? (2) What is the educator's belief about climate change? (3) What is the knowledge and lived experiences of educators in mitigating climate change in terms of social, economic and environmental aspects?

Materials and methodology

Research design

Descriptive design is used to determine the respondents' personal, professional and service profile, their beliefs about climate change, their knowledge and lived experiences on climate change in terms of social, economic and environmental aspects

Locale of the study

The study was conducted in the eight (8) campuses of the Cagayan State University namely Andrews,

Aparri, Carig, Gonzaga, Lal-lo, Lasam, Piat and Sanchez Mira campus respectively during the second semester of School Year 2021-2022 (Fig. 1).



Fig. 1. Map of the different campuses in Cagayan State University

Respondents and sampling procedure

This study was conducted at the Cagayan State University during the second semester of school year 2021-2022. Respondents are chosen among educators both permanent and part-time status from the 8 campuses of the University as previously presented. Systematic Random Sampling will be used to choose the respondents of the study. Of the 902 candidate respondents, the number of samples was reduced to 275 respondents as computed through Lynch Formula. The breakdown is shown in the Table 1 below.

Table 1. Breakdown of respondents of the study

Campus	Total Number of Faculty Members (Source: University MIS Office)	Number of Chosen Respondents
Andrews	228	69
Carig	319	96
Aparri	93	28
Piat	61	19
Sanchez Mira	65	20
Gonzaga	57	18
Lallo	51	16
Lasam	28	9
Total	902	275

Data gathering procedure

A written permission to conduct the study was secured from the office of the University President through channels in order to obtain full cooperation from the faculty respondents. When the permission was granted, the researcher attached the said document to his personal letters to the eight (8)

Campus Executive Officers and sent them via email. The said letters are attached to the appendices of this manuscript.

The researcher prepared a set of questionnaire as a survey instrument to gather the needed data and information for this study. Due to the pandemic situation brought by covid19, the plan of the researcher to personally administer the questionnaire was changed to online data gathering. The researcher then transferred the content of the prepared questionnaire to a Google form. The data gathering was then administered online thru the Google form from February to April 2022. A screenshot of the Google form is provided too in the appendices of this manuscript. From the Google form, faculty respondents completed the five-part study instrument to obtain basic information about them and their perceptions in terms of their beliefs, knowledge and lived experiences about climate change.

Data gathering tools

Three instruments are used to obtain information from the respondents: (1) Profile of the educators with regards to their personal, professional and service backgrounds (2) educators’ beliefs about climate change (3) knowledge and lived experiences of the educators’ on climate change in terms of social, economic and environmental aspects. The survey questionnaire used in this study is adapted from Boyes and Stanisstreet (2013).

Results and discussion

Personal profile of the educators

Tables 2 to 7 present the personal profile of the educators of the Cagayan State University in terms of sex, age, civil status, monthly household income, living arrangement, and household size, while Tables 8 to 10 reveal their professional profile in terms of highest educational attainment, field of specialization, and attended webinars/seminars and training relevant to climate change and disaster risk reduction management while Tables 11-13 show their service profile in terms of plantilla position, length of service and assigned college.

Table 2. Personal profile of the educators in terms of sex

Sex	Frequency (n=275)	Percentage
Female	152	55.3
Male	123	44.7

Table 3. Personal profile of the educators in terms of age

Age (in years)	Frequency	Percentage
	(n=275)	
Late adulthood (60 or older)	14	5.1
Middle age (40 to 59)	100	36.4
Early adulthood (18 to 39)	161	58.5
Mean = 38.79 years old (Early adulthood)	S.D. = 10.55	

Age ranges adopted from Erik Erikson Psychosocial Development Theory; mean and s.d. are computed from raw data

Table 4. Personal profile of the educators in terms of civil status

Civil Status	Frequency (n=275)	Percentage
Married	177	64.4
Single	90	32.7
Widowed	5	1.8
Legally separated	3	1.1

Table 5. Personal profile of the educators in terms of monthly household income

Income classes (monthly)	Frequency	%
	(n=275)	
Rich (above Php157,800)	10	3.6
Upper income (Php118,351 to Php157,800)	4	1.5
Upper middle (Php78,901 to Php118,350)	21	7.6
Middle class (Php31,561 to Php78,900)	108	39.3
Lower middle (Php15,781 to Php31,560)	117	42.5
Low income (Php7,890 to Php15,780)	15	5.5
Poor (below Php7,890)	0	0.0
Mean =Php52,806.93 (Middle class) S.D. =60,835.40		

Income ranges adopted from PSA (2012) Family Income and Expenditure Survey; mean and s.d. are computed from raw data

Sex

Table 2 presents the personal profile of the Educators of the Cagayan State University in terms of sex. It is apparent that there are more females with a frequency of 152 or 55.3 percent as compared to males with frequency of 123 or 44.7 percent.

This means that there are more female faculty who participated in the conduct of this study. It could also be inferred that there are more female faculty over the male faculty in the University.

Age

Table 3 displays the personal profile of the Educators of Cagayan State University in terms of age where most of them, with a frequency of 161 or 58.5 percent belong to the age bracket of 18 to 39 while 14 or 5.1 percent are already in the late adulthood or 60 or older. This means that most of the faculty of the university is in their early adulthood as affirmed by the reckoned mean age of 38.79 with a standard deviation of 10.55. This finding implies that the composition of the educators of CSU is mostly on their early adulthood or on their early years as professionals.

Civil status

The personal profile of the educators of Cagayan State University in terms of civil status is shown in Table 4. Most of the educators are married with a frequency of 177 or 64.4 percent. This can be attributed from the previous result that most of the educators are already in their early adulthood stage in which most people already entered in marriage on this stage.

Monthly household income

Table 5 shows the personal profile of the educators of Cagayan State University in terms of monthly household income. Majority of the educators with frequency of 117 or 42.5 percent have families that earn Php15, 781 to Php31, 560 monthly. Some of them, however, earns a little bit higher from Php31, 561 to Php 78,900. This reckoned an income mean of Php52, 806.93 with a standard deviation of 60,835.40. None of them is regarded as poor or with a monthly income below Php 7,890.00 based on the PSA 2012 data on Family and Income Expenditure Survey. This finding means that the income of the teachers would be enough to cover expenses for their families.

Table 6. Personal profile of the educators in terms of living arrangement

Civil status	Freq. (n=275)	%
Own a House	160	58.2
Lives with Parents	80	29.1
Rents an Apartment	31	11.3
Lives with Relatives	4	1.5

Table 7. Personal profile of the educators in terms of household size

Household size	Freq. (n=275)	%
Large (> 9 members)	10	3.6
Above average (7 to 9 members)	36	13.1
Average (4 to 6 members)	156	56.7
Small (1 to 3 members)	73	26.5
Mean = 4.84 (average)	S.D. = 2.10	

Household size ranges adopted from PSA (2020) PopCom Census; mean and s.d. are computed from raw data.

Table 8. Professional profile of the educators in terms of highest educational attainment

Highest educational attainment	Freq. (n=275)	%
Post-Doctorate degree graduate	4	1.5
Doctorate degree graduate	96	34.9
With units in a Doctorate degree	92	33.5
Master's degree graduate	46	16.7
With units in a Master's degree	31	11.3
Bachelor's degree graduate	6	2.2

Table 9. Professional profile of the educators in terms of field of specialization

Field of specialization	Freq. (n=275)	%
General Education and Allied Sciences	54	19.6
Educational Management/Developmental Education/Rural Development	42	15.3
Language Education/English /Development Communication	31	11.3
Information Technology	27	9.8
Agriculture/Fisheries/Veterinary Medicine	27	9.8
Allied Health Sciences	20	7.3
Architecture/Engineering/Industrial Technology	19	6.9
Public Administration/Criminology /Social Work	18	6.5
Hospitality and Tourism Management	14	5.1
Business Management and Accountancy	12	4.4
Physical Education	11	4.0

Living arrangement

The personal profile of the educators of Cagayan State University in terms of living status is displayed in

Table 6. Most of the educators owned a house with a frequency of 160 or 58.2 percent while 4 or 1.5 percent of the educators live with their relatives. This finding is parallel from the previous result that most of the teachers are already married in which most of them already have their own house.

Household size

Table 7 presents the personal profile of the educators of Cagayan State University in terms of household size. Most of the educators with frequency of 156 or 56.7 percent have a household size of 4 to 6 while 10 or 3.6 percent have a household size of more than 9. This finding means that the average household size of the educators is 4.84 with the standard deviation of 2.10 This is typical size of a family in Cagayan in which the average household size as per the latest census conducted by PSA Census of Population and Housing (CPH) in 2015 is 4.54 members.

Professional profile of the educators

Highest educational attainment

The personal profile of the educators of Cagayan State University in terms of highest educational attainment is shown in Table 8. The modal highest educational attainment of the educators is Doctorate degree graduate with a frequency of 96 or 34.9 percent. It is also good to note that 92 or 33.5 percent of the educators are enrolled in a doctoral course and already. Only six or 2.2% are Bachelor's degree graduate. This finding means that most of the educators pursue graduate studies probably to update their knowledge and skills in their chosen field and to gain promotional advantage.

Field of specialization

The professional profile of the educators of Cagayan State University in terms of field of specialization is presented in Table 9. The fields of specialization were classified as aligned to the various degree programs that the University offers. It is apparent that most of them have specialized in General Education and Allied Sciences with a frequency of 54 or 19.6 percent. On the other hand, two other specializations of the educators could be traced, with 42 or 15.3 percent

that have specialized in Educational Management, Developmental Education and Rural Development and 31 or 11.3 percent have specialized in Language Education, English or Development Communication. Educators that have specialized in Information Technology, Agriculture, Fisheries and Veterinary Medicine are observed to have the same frequency of 27 or 9.8 percent while educators that have specialized in Physical Education is revealed the least with a frequency of 11 or 4 percent. The diverse field of specialization that the educators hold is a manifestation of how multi-disciplinary is the degree programs offered by the university to cater the present demand of time and the industry where they would be graduates of the university may have the option to work with to practice their profession in the future.

Table 10. Professional profile of the educators in terms of presence of webinars/seminars and trainings along climate change and DRRM

	Freq. (n=275)	%
With seminar/trainings	49	17.8
No seminars/trainings	226	82.2

Table 11. Service profile of the educators in terms of plantilla position

Plantilla position	Freq. (n=275)	%
University professors	5	1.8
Professors (I to VI)	12	4.4
Associate professors (I to V)	61	22.2
Assistant professors (I to IV)	53	19.3
Instructors (I to III)	144	52.4

Table 12. Service profile of the educators in terms of length of service

Length of service	Freq. (n=275)	%
31 to 40	9	3.3
21 to 30	27	9.8
11 to 20	70	25.5
1 to 10	169	61.5
Mean = 10.28 years	S.D. = 8.28	

Presence of webinars/seminars and trainings attended along climate change and disaster risk reduction management

The seminars and trainings attended by the educators of Cagayan State University along climate change and disaster risk reduction management are revealed in Table 10.

Result shows that there are only 49 or 17.8 percent of the educators having experienced attending seminars or training relevant to climate change and disaster risk management while majority of the educators with a frequency of 226 or 82.2 percent have not yet attended seminars and trainings. This further implies that they are still waiting invitations for the seminars and trainings along climate change and disaster risk reduction management initiated by DOST, DENR or DRRMO in cooperation with CHED which are the lead implementer of these particular training programs.

Service profile of the educators

Plantilla position

Table 11 shows the frequency and percentage distribution of the educators of Cagayan State University in terms of plantilla position. Majority of the educators are holding plantilla positions of Instructors I to III with a frequency of 144 or 52.4 percent. This can be corroborated by the previous results that majority of the educators have an age bracket of 18 to 39 or early adulthood where they are on their early years as professionals. Low number of professorial positions is associated to the length of professional service, number of relevant published researches, science-based innovative and developmental outputs and the stringent NBC evaluation instrument to comply in order to reach the said plantilla position in State Universities and Colleges (SUCs).

Length of service

Revealed in Table 12 are the length of service of the educators of Cagayan State University. In terms of length in service in the University, majority of the educators rendered their services 1-10 years with a frequency of 169 or 61.5 percent while the oldest in service of 31-40 years tallied a frequency of 9 or 13.3 percent. The mean length of service of the educators in the government service is 10.28 years with a standard deviation of 8.28 which means that majority of them are already experienced educators. This finding is ascribed by the result earlier that composition of the educators of the Cagayan State

University is mostly on their early adulthood or on their early years as professionals.

Table 13. Service profile of the educators in terms of assigned college

College	Freq. (n=275)	%
Teacher Education (CTE)	52	18.9
Information and Computing Sciences (CICS)	43	15.6
Hospitality Management (CHM)	26	9.5
Agriculture and Animal Science (CAAS)	20	7.3
Industrial Technology (CIT)	20	7.3
Arts and Sciences (CAS)	19	6.9
Business, Entrepreneurship and Accountancy (CBEA)	17	6.2
Engineering and Architecture (CoEA)	17	6.2
Allied Health and Science (CAHS)	13	4.7
Human Kinetics (CHK)	13	4.7
Veterinary Medicine (CVM)	10	3.6
Criminal Justice Education (CCJE)	8	2.9
Public Administration (CPAd)	7	2.5
Fisheries and Aquatic Sciences (CFAS)	5	1.8
Graduate School (GS)	5	1.8

Table 14. Beliefs of the educators about climate change

Questions	WM (DV)	Relevant statistics
How worried are you about what climate change might do to the environment?	3.57 (Very worried)	185 (67.3%) are very worried
How much do you think you know about climate change?	3.03 (Know something about climate change)	49 (17.8%) know a lot about climate change
How 'environmentally friendly' do you think you are?	3.43 (Very environmentally friendly)	132 (48%) are very environmentally friendly
Do you think that climate change is really happening?	3.89 (Sure that climate change is happening)	244 (88.7%) are sure that climate change is happening

Legend: Note: Part 2 of the Questionnaire is divided into 4 different sectors on the beliefs of educators. The range here is just a guide for each of weighted mean with different descriptive value in each question. 1=1.00-1.74, 2=1.75-2.49, 3=2.50-3.24, 4=3.25-4.00

Assigned college

Presented in Table 13 are the college assignment by the educators of Cagayan State University. As evident in the Table, most of the educators are assigned to

teach in the College of Teacher Education with a frequency of 52 or 18.9 percent, followed by College of Information and Computing Sciences tallied to a frequency of 43 or 15.36 percent and third is the College of Hospitality Management with a frequency of 26 or 9.5 percent. Educators assigned in the College of Fisheries and Aquatic Sciences and the Graduate School shared both with the least tallied frequency of 5 or 1.8 percent. These findings coincide with the previous results showing that most of the educators have specialized in General Education and Allied Sciences of which their field of specialization directs them to the college where they are assigned to and the majority of the subjects that they are expected to teach.

Beliefs of the educators about climate change

Beliefs of the educators of Cagayan State University about climate change is divulged in Table 14. The researcher adopted the instrument utilized by Boyes and Stanistreet in 2013 covering four major questions to the respondents of this study. Results revealed that majority of the educators of Cagayan State University are very worried about what climate change may do to the environment as manifested in the frequency of 185 or 67.3 percent. This feeling of the educators is presumed to be attributed to what they have watched and seen in the social media, television and other online platforms on the extreme weather and climatic events happening in the past years in our country and other parts of the world and their impacts to our environment. Meanwhile, the educators revealed that only 49 or 17.8 percent know a lot about climate change. This is supported by the previous findings that most of the educators have no seminars and training attended related to climate change and disaster risk reduction management. In like manner, 132 or 48 percent of the educators expressed that they are environment-friendly. This mindset of the educators could be a sign that they are starting to do pro-environmental actions that can contribute in the protection of our environment. The change in the behavior of the educators is believed to be driven by their knowledge and beliefs about climate change as affirmed by the studies of Capstick and Pigeon (2014) and Weintrobe (2013).

Table 15. Knowledge and lived experiences of educators in mitigating climate change along social aspects

SL	Knowledge and Experiences (Social)	Weighted mean	Descriptive value
1	I believe that regardless of status in life, we are all affected by climate change.	4.81	Always
2	I use the internet to keep my knowledge updated on how to mitigate climate change.	4.29	Always
3	I usually use either electric fan or air-con in my house and in my office.	3.97	Often
4	I use my voice as a consumer, as a customer, as a member of the electorate and an active citizen, which will lead to changes on a much greater scale in the protection of our environment.	3.94	Often
5	I am aware that the poor are the most vulnerable to climate change.	3.89	Often
6	I send email rather than regular mail to greet my friends on their special day.	3.57	Often
7	I prefer to walk or ride my bicycle when I do exercise.	3.40	Often
8	I am active through social media in advocating impacts of climate change.	3.31	Sometimes
9	I drive my car when I go to work daily.	3.26	Sometimes
10	I use e-book, Wattpad and other reading applications during my past-time.	3.23	Sometimes
	Overall Weighted Mean	3.77	Often

Legend: 4.20-5.00 >> Always, 3.40-4.19 >> Often, 2.60-3.39 >> Sometimes, 1.80-2.59 >> Seldom, 1.00-1.79 >> Never

Table 16. Knowledge and lived experiences of educators in mitigating climate change along economic aspects

SL	Knowledge and Experiences (Economic)	Weighted mean	Descriptive value
1	I turn-off my appliances when not in use.	4.77	Always
2	I put off the lights when I get out of my house daily.	4.75	Always
3	I am accustomed to save water at home.	4.66	Always
4	I prefer to buy organically produced food than the synthetically produced ones.	4.01	Often
5	I switch my cellular phone into energy saving mode when not in use.	3.99	Often
6	I eat more vegetables than meat.	3.98	Often
7	I prefer to ride on utility vehicles than riding my own car when I travel for a vacation.	3.21	Sometimes
8	I use rainwater collector at home and utilize it during summer.	3.21	Sometimes
9	I prefer to use solar panel during power interruption rather than using generator set.	3.00	Sometimes
10	I prefer using biofuels for my car.	2.87	Sometimes
	Overall Weighted Mean	3.84	Often

Legend: 4.20-5.00 >> Always, 3.40-4.19 >> Often, 2.60-3.39 >> Sometimes, 1.80-2.59 >> Seldom, 1.00-1.79 >> Never

Table 17. Knowledge and lived experiences of educators in mitigating climate change along environmental aspects

SL	Knowledge and Experiences (Environmental)	Weighted mean	Descriptive value
1	I respect and protect green spaces.	4.75	Always
2	I remind my students to practice proper solid waste management at home.	4.53	Always
3	I always maintain the concept of clean and green at home and in school.	4.51	Always
4	I encourage my students to understand and support the concept of Clean Air Act.	4.44	Always
5	I practice the principles of 3Rs- Reduce-Reuse and Recycle at home.	4.37	Always
6	I integrate advocacy on environmental protection in my class.	4.35	Always
7	I support the mangrove rehabilitation program of the government.	4.33	Always
8	I advocate tree planting activity to my students at least once every year.	4.29	Always
9	I actively participate when there are invitations on clean-up drive activities.	4.12	Often
10	I bring my own eco-bag when I buy my needs in the market.	3.96	Often
	Overall Weighted Mean	4.37	Always

Legend: 4.20-5.00 >> Always, 3.40-4.19 >> Often, 2.60-3.39 >> Sometimes, 1.80-2.59 >> Seldom, 1.00-1.79 >> Never

Finally, majority of the educators with a frequency of 244 or 88.7 percent strongly believed that climate change is really happening. These findings are supported by results drawn from the study of Fagan and Huang (2018) of the Pew Research Center which revealed that majority of the country being surveyed or 18 out of 23 countries in the world believed that

climate change is seen as the top global threat. Philippines is one of the participants to this survey and 67 percent of the Filipino respondents believed that climate change is a global threat. South Korea, France and Mexico emerged to be the top 3 countries with 86, 83 and 80 percent of those who participated from their country in the said survey strongly believed

that climate change is a global threat. Similar study of Conca in 2019, also supports this preceding findings which reveals too that 90% of the 30,000 people surveyed in 28 countries of the world strongly believed that climate change is real. 75 percent of the Filipino respondents in this study say that climate change is really happening.

Knowledge and lived experiences of the educators in mitigating climate change

Table 15-17 displays the level of knowledge and lived experiences of the educators of Cagayan State University in mitigating climate change. The researcher conceptualized three categories in which climate change could be attributed, these are along social, economic and environmental aspects.

Social

Knowledge and lived experiences of the educators of the Cagayan State University in mitigating climate change along social aspects is presented in Table 15. Results show that educators “always” perceived that regardless of status in life, we are all affected by climate change (4.81) and they “always” use internet to keep their knowledge updated on how to mitigate climate change (4.29). Meanwhile, results revealed too that educators “Often” use electric fan or air-con in their houses or offices (3.97), use their voices as a consumer, as a customer, as a member of the electorate and an active citizen, that will lead to changes on a much greater scale in the protection of our environment (3.94), are aware that the poor are vulnerable to climate change. (3.89), send email rather than regular mail to greet their friends on their special day (3.57) and prefer to walk or ride their bicycle when they do exercise (3.40). Of the perceived mitigating drivers to climate change along social aspects, educators of Cagayan State University revealed that they are “Sometimes” active on social media in advocating impacts of climate change (3.31), drive car when they go to work daily (3.26) and use e-book, Wattpad and other reading applications during their past-time. A positive perception is obtained from the educators of the Cagayan State University as they describe their actions that they “Often” do

mitigating climate change along the social aspects as reckoned by the over-all weighted mean of 3.77. Kathrine Hayhoe, a climate scientist strongly supports these findings as she stated “We are humans, who wants the same thing every other human wants- a safe place to live in, whatever is our status in life, we all want to live on a safe place, a safe planet we call home. So while our work must continue to be unbiased and objective, increasingly, we are raising our voices, adding to the clear message that climate change is real and humans are responsible, the impacts are serious we must act now”. This statement of Hayhoe coincides with the overwhelming scientific consensus that climate change is purely man-made and thus man has to do positive actions to reduce its impacts to humanity and the environment (Amnesty International 2022). Moreover, as the climate continues to change, millions of poor people face greater challenges in terms of extreme events, health effects, food security, livelihood security, migration, water security, cultural identity, and other related risks. Poor and marginalized groups are calling for more ambitious action on climate change. Climate change is more than an environmental crisis – it is a social crisis and compels us to address issues of inequality on many levels: between wealthy and poor countries; between rich and poor within countries; between men and women, and between generations. The Intergovernmental Panel on Climate Change (IPCC) has highlighted the need for climate solutions that conform to principles of climate justice (i.e., recognition and procedural and distributive justice) for more effective development outcomes. (The WorldBank, IBRD-DA, 2022).

Economic

Table 16 shows the knowledge and lived experiences of educators of Cagayan State University in mitigating climate change along economic aspects. Result of this study revealed that among the positive actions that has a big relevance to economic well-being of an individual they would “Always” turn off their appliances when not in use (4.77); put off the lights when they get out of their house daily (4.75); and save

water at home (4.66). Educators would “Often” prefer to buy organically produced food than the synthetically produced ones (4.01), switch their cellular phones into energy saving mode when not in use (3.99) and eat more vegetables than meat (3.98). The educators revealed too that “Sometimes”, they prefer riding on utility vehicles than riding their own car when they go for a vacation (3.21), use rainwater collector at home and utilize it during summer (3.21), to use solar panel during power interruption rather than using generator set (3.0) and the use bio-fuels for their cars (2.87). Overall, the educators of Cagayan State University have a positive perception as they describe their actions to mitigate climate change along economic aspects as “Often” as reckoned by the over-all weighted mean of 3.84. These findings are supported by the recommendations of Rosen and Guenther (2015) who stated that mitigation or abatement measures of mitigating impacts of climate change include structural changes in the energy system, fuel switching, greater use of low- or no-carbon energy supplies such as nuclear generation of electricity and carbon sequestration technologies, enhanced energy efficiency, and changes in land use and life style. It is therefore to gradually abide to these practical and helpful recommendations so that we can really give our precious share in our aim to help mitigate impacts of climate change. The Global Environment Facility (GEF, 2020) also affirms the findings above and notably expounded that mitigating climate change is about reducing the release of greenhouse gas emissions that are warming our planet. Mitigation strategies include retrofitting buildings to make them more energy efficient; adopting renewable energy sources like solar, wind and small hydro; helping cities develop more sustainable transport such as bus rapid transit, electric vehicles, and bio-fuels; and promoting more sustainable uses of land and forests that would lead to economic relief to humanity.

Environmental

Table 17 presents the knowledge and lived experiences of educators of Cagayan State University

in mitigating climate change along environmental aspects. Among the perceived actions to mitigate climate change along environmental aspects, the following surfaced to be “Always” done by the educators to include respecting and protecting green spaces (4.75), reminding their students on proper solid waste management at home (4.53), maintaining the concepts of clean and green at home and in school (4.51), encouraging their students to understand and support the concept of Clean Air Act (4.44), practicing the principles of 3Rs, reduce, re-use and recycle (4.37), integrating advocacy on environmental protection in class (4.35), showing support to mangrove rehabilitation program of the government (4.33) and advocating tree planting activity to students at least once a year (4.29). Meanwhile, the revealed described actions to be done “Often” by the educators include: active participation to invitations on clean-up drives (4.12) and bringing eco-bag when buying needs in the market (3.96). Over-all perception of educators on actions to mitigate climate change along environmental aspects is described “Always” as reckoned by the over-all weighted mean of 4.37. This perceived described actions of the educators in mitigating climate change relevant to environmental aspect claiming that they “Always” do such activities is a positive manifestation that they are doing in their own simple ways their share to help reduce climate change in their respective homes or to the community where they belong. This positive attributes shown by the educators could be associated to the findings of the Global Environment Fund (GEF) in 2020, that people around the world who have high awareness about climate change strongly agree that climate change affects virtually all natural environmental systems. This interaction between climate change and biodiversity, land degradation, forests, chemicals and waste, and international waters points to the importance of recognizing climate change implications in everything we do.

According to NASA (2022), climate change has become one of the most complex issues facing us today. The environmental aspect is where it is anchored much besetting the problems ahead as

expected. It involves many dimensions-science, economics, society, politics and moral and ethical questions and is a global problem, felt on local scales, that will be around for decades and centuries to come. Responding to climate change involves two possible approaches: reducing and stabilizing the levels of heat-trapping greenhouse gases in the atmosphere (“mitigation”) and/or adapting to the climate change already in the pipeline (“adaptation”). The goal of mitigation is to avoid significant human interference with the climate system, and “stabilize greenhouse gas levels in a time frame sufficient to allow ecosystems to adapt naturally to climate change, ensure that food production is not threatened and to enable economic development to proceed in a sustainable manner”.

Conclusion

Based on the aforementioned findings of the study, this study concludes that:

1. The educators of Cagayan State University are female dominated, with majority who are in their early adulthood stage, married, living in their own house at an average household size of 4-5 members, have specialized in general education and allied science courses, holding Instructors I to III plantilla positions and in their early years in service earning enough monthly income for their family.
2. Educators have varied perceptions about climate change and these responses are directly associated to their beliefs, behaviors, knowledge and lived experiences.
3. Knowledge and lived experiences of the educators in mitigating climate change is significantly related to their assigned college. More positive perceptions are exhibited among educators who are assigned in the colleges who offers allied science and general education courses.

Recommendation

In the light of the foregoing findings and conclusions of this study, the following initiatives are highly recommended:

1. The university must consider enhancing its environmental education campaign by adopting the

proposed framework of this study to sustain the mechanisms in the promotion of best pro-environmental practices in the university and in the local communities along its service areas.

2. The university must allot funds for the piloting of the proposed Campus Action Plan on Climate Change Mitigation and Adaptation Programs in the 8 satellite campuses. The university must ensure that the program implementation is sustained.

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