

Ontological Bridge-building for Climate Change Mitigation in Maasailand:

Summary Findings from the Survey Data

Anonymous survey results and analysis of the survey findings for Beth Elness-Hanson’s Marie Curie postdoctoral fellowship, 2025, North Central Diocese of the Evangelical Lutheran Church in Tanzania. This is for th Marie Skłodowska-Curie postdoctoral fellowship (project 101065810), funded by the European Commission with support and management by VID Specialized University, Norway.

Part A) Likert Scale Data and Analysis

Color schemes:

There were three surveys:



There were 10 **Likert scale** questions with four responses.

- See right.
- These are identified by colors at the bottom row demonstrating the average response of each sample group.

Likert scale questions **evaluate affective learning outcomes related** to feelings, attitudes, and beliefs.

		Lower limit	Upper limit
1	Strongly disagree	1.00	1.75
2	Disagree	1.76	2.50
3	Agree	2.51	3.25
4	Strongly agree	3.26	4.00

There are three groups analyzed below:

Confirmation students; Form 2 Secondary School; TEE students

- **All of the responses** for all samples appear in gradations of color between red and blue;
 - red for the fewest responses to
 - blue for the most responses.
- The total number of **research participants** in each sample are in the light grey boxes.
- The **Standard Deviation** (orange box) row appear in gradations of color between red and blue;
 - red for the smallest deviation or range in the responses to
 - blue for the broadest deviation or range in the responses
- **The mean/average** of the responses **per sample/column** appear in a range of green to yellow;
 - green for the highest average, agreement
 - yellow for the lowest average, disagreement

ALL		C-Len	C-Olchor	F2-MGLSS	F2-Moringe	TEE Kibaya	TEE Wasso	Total	Percent	% agree/ disagree
1	Strongly disagree	6	2	7	4	0	0	19	12%	29%
2	Disagree	5	4	15	3	0	0	27	17%	
3	Agree	3	7	22	6	1	11	50	31%	71%
4	Strongly agree	4	24	8	6	12	9	63	40%	
Participants		18	37	52	19	13	20	159		
Standard Deviation		1.1	0.9	0.9	1.1	0.3	0.5			
AVERAGE		2.2	3.4	2.6	2.7	3.9	3.5			
		Disagree	Strongly agree	Agree	Agree	Strongly agree	Strongly agree			

Delta Pre to Post	Delta Pre to Long
Change	Change
1%	4%
-4%	-8%
5%	7%
-2%	-3%

- On the right is the % change.
- The color gradations range from green to red.
 - green for the highest % change to more occurrences
 - red for the lowest % change with fewer occurrences
- To the right is the total percentages of both strongly disagree and disagree as well as both agree and strongly agree.
- **OBS!** Increased percentage may be considered as positive if in alignment with Maasai values and the lessons’ student learning outcomes. However, decreased percentage may also be considered positive for questions that are stated as disagreeing with Maasai values and the lessons’ student learning outcomes, i.e., a double negative

makes a positive. See especially questions 1, 4, and 7.

1 EXAGGERATED: I believe that the climate crisis is greatly exaggerated, because I know that God/Engai controls the weather.

Pre instruction										Post instruction										Longitudinal										Delta Pre to Post	Delta Pre to Long																					
ALL																														Change	Change																					
	C-Len	C-Olchor	F2-MGLSS	F2-Moringe	TEE Kibaya	TEE Wasso	Total	Percent	% agree/ disagree		C-Len	C-Olchor	F2-MGLSS	F2-Moringe	TEE Kibaya	TEE Wasso	Total	Percent	% agree/ disagree		C-Len	C-Olchor	F2-MGLSS	F2-Moringe	TEE Kibaya	TEE Wasso	Total	Percent	% agree/ disagree																							
1	Strongly disagree	1	5	2	0	2	5	15	10%	23%	3	3	4	2	3	2	17	11%	20%		4	8	4	0			16	14%	19%	1%	4%																					
2	Disagree	4	3	7	2	4	1	21	13%		2	1	5	1	3	3	15	10%		0	3	3	0			6	5%	-4%		-8%																						
3	Agree	2	4	28	8	3	4	49	31%	77%	6	8	28	10	3	2	57	36%	80%		7	7	24	7			45	39%	81%	5%	7%																					
4	Strongly agree	13	22	15	8	4	9	71	46%		9	25	14	6	4	10	68	43%		6	14	18	11			49	42%	-2%		-3%																						
Participants		20	34	52	18	13	19	156											20	37	51	19	13	17	157											17	32	49	18	0	0	116										
Standard Deviation		1	1.1	0.8	0.7	1.1	1.3											1.1	0.9	0.8	0.9	1.2	1.1											1.2	1.2	0.9	0.5															
AVERAGE		3.4	3.3	3.1	3.3	2.7	2.9											3.1	3.5	3	3.1	2.6	3.2											2.9	2.8	3.1	3.6															
		Strongly agree	Strongly agree	Agree	Strongly agree	Agree	Agree											Agree	Strongly agree	Agree	Agree	Agree	Agree											Agree	Agree	Agree	Strongly agree															

Summary comments

Traditional view of Engai controlling the weather is dominant, but this is not in alignment with lesson content. The Maasai traditional view of Engai’s providence is not to be denigrated. However, this indicates that human efforts are futile or minimal at best, because of Engai’s sole agency over the weather.

Pre to post The role of Engai increases 3% (as the disagree and strongly disagree change from 23% to 20%)

Longitudinal The role of Engai increased 4% (as the disagree and strongly disagree change from 23% to 19%)

Agree	Overall average, 11/13 Agree
Strongly agree	Overall average, 5/13 Strongly agree

- Notable points
- Combined agree and strongly agree is 80-81%.
 - There was a pre to longitudinal reduction by 3% from strongly agree, though agree increased 7%.

2 WORRIED: I am very worried about the future because of the problems resulting from climate change.

Pre instruction										Post instruction										Longitudinal										Delta Pre to Post	Delta Pre to Long							
ALL										C-Len	C-Olor	F2-MGLSS	F2-Moringe	TEE Kibaya	TEE Wasso	Total	Percent	% agree/ disagree	C-Len	C-Olor	F2-MGLSS	F2-Moringe	TEE Kibaya	TEE Wasso	Total	Percent	% agree/ disagree	C-Len	C-Olor	F2-MGLSS	F2-Moringe	TEE Kibaya	TEE Wasso	Total	Percent	% agree/ disagree	Change	Change
1	Strongly disagree	6	2	7	4	0	0	19	12%	29%	3	3	6	3	0	2	17	11%	28%	3	4	3	2			12	11%	33%	-1%	-1%								
2	Disagree	5	4	15	3	0	0	27	17%		7	4	14	3	0	0	28	18%		4	6	12	4			26	23%		1%	6%								
3	Agree	3	7	22	6	1	11	50	31%	71%	3	13	14	7	6	7	50	31%	72%	6	7	23	10			46	40%	67%	0%	9%								
4	Strongly agree	4	24	8	6	12	9	63	40%		8	19	17	6	7	8	65	41%		2	15	11	2			30	26%		1%	-13%								
Participants		18	37	52	19	13	20	159			21	39	51	19	13	17	160			15	32	49	18	0	0	114												
Standard Deviation		1.1	0.9	0.9	1.1	0.3	0.5				1.1	0.9	1	1.1	0.5	0.9				1	1.1	0.8	0.8															
AVERAGE		2.2	3.4	2.6	2.7	3.9	3.5				2.8	3.2	2.8	2.8	3.5	3.2				2.5	3	2.9	2.7															
		Disagree	Strongly agree	Agree	Agree	Strongly agree	Strongly agree				Agree	Agree	Agree	Agree	Strongly agree	Agree				Disagree	Agree	Agree	Agree															

Summary comments

A sense of worry about climate change is high, but with greater variation than question 1. **There is significant decrease from a strong sense of worry.**

Pre to post The sense of worry about the future is sustained to a high rate, with negligible decrease.

The sense of worry continues though with a small overall decrease.

Longitudinal

Agree There was a 13% shift from strongly agree to agree and a 4% shift from agree to disagree.

Strongly agree There was a 13% decrease from strongly agree to agree.

Notable points

- In the strongly agree, there was a 13% decrease from strongly agree to agree from the pre to longitudinal surveys.
- The group with the highest overall worry in both the pre and post lesson was the **TEE** students, though there was a 7% decrease from strongly agree to agree, and even a 7% response post instruction identifying strongly disagree.

3
TEK: I believe that Maasai traditional environmental knowledge is good in caring for the creation/nature.

ALL		Pre instruction									Post instruction									Longitudinal									Delta Pre to Post	Delta Pre to Long
		C-Len	C-Olchor	F2 MGLSS	F2 Moringe	TEE Kibaya	TEE Wasso	Total	Percent	% agree/ disagree	C-Len	C-Olchor	F2 MGLSS	F2 Moringe	TEE Kibaya	TEE Wasso	Total	Percent	% agree/ disagree	C-Len	C-Olchor	F2 MGLSS	F2 Moringe	TEE Kibaya	TEE Wasso	Total	Percent	% agree/ disagree	Change	Change
1	Strongly disagree	0	2	3	3	1	2	11	7%	18%	1	2	1	0	0	0	4	3%	8%	0	5	3	0			8	7%	9%	-4%	0%
2	Disagree	1	6	7	2	1	0	17	11%		0	2	3	0	1	2	8	5%		0	2	1	0			3	2%		-6%	-8%
3	Agree	5	7	18	5	5	3	43	27%	83%	6	7	21	4	1	3	42	26%	92%	7	13	21	3			44	36%	91%	0%	9%
4	Strongly agree	12	24	24	8	6	15	89	56%		11	28	26	15	11	14	105	66%		10	17	24	15			66	55%		10%	-1%
Participants		18	39	52	18	13	20	160			18	39	51	19	13	19	159			17	37	49	18	0	0	121				
Standard Deviation		0.6	0.9	0.9	1.1	0.9	1				0.8	0.8	0.7	0.4	0.6	0.7				0.5	1	0.8	0.4							
AVERAGE		3.6	3.4	3.2	3	3.2	3.6				3.5	3.6	3.4	3.8	3.8	3.7				3.6	3.1	3.3	3.8							
		Strongly agree	Strongly agree	Agree	Agree	Agree	Strongly agree				Strongly agree	Strongly agree	Strongly agree	Strongly agree	Strongly agree	Strongly agree				Strongly agree	Agree	Strongly agree	Strongly agree							

Summary comments

There was a significant increase in a positive view of Maasai TEK.

Pre to post 10% increase in a positive view of Maasai TEK

The decrease was basically sustained at 9% decrease.

Longitudinal

Agree Almost identical pre to post but an increase of 9% in positive to TEK

Strongly agree 10% increase from pre to post, but almost identical with pre at longitudinal

- Notable points
- Most increase of a positive view of Maasai TEK in the agree, with most decrease in the disagree from 11 to 2% pre to longitudinal.
 - The **Form 2** group showed the greatest increase of positive view of Maasai TEK, 79% pre to 94% for both post and longitudinal.

4 PASTORALISM: I believe that pastoralism is not good for the environment.

Pre instruction										Post instruction										Longitudinal										Delta Pre to Post	Delta Pre to Long
ALL																														Change	Change
	C-Len	C-Olchor	F2-MGLSS	F2-Moringe	TEE Kibaya	TEE Wasso	Total	Percent	% agree/ disagree		C-Len	C-Olchor	F2-MGLSS	F2-Moringe	TEE Kibaya	TEE Wasso	Total	Percent	% agree/ disagree		C-Len	C-Olchor	F2-MGLSS	F2-Moringe	TEE Kibaya	TEE Wasso	Total	Percent	% agree/ disagree		
1 Strongly disagree	7	10	14	6	7	13	57	36%	62%		2	12	14	6	10	7	51	32%	66%		6	13	8	7			34	29%	60%	-4%	-7%
2 Disagree	4	11	19	4	3	1	42	26%			10	7	26	7	0	4	54	34%			5	6	20	5			36	31%		8%	5%
3 Agree	5	3	9	4	2	2	25	16%	38%		3	9	7	3	0	1	23	14%	34%		5	7	12	3			27	23%	40%	-1%	7%
4 Strongly agree	4	11	8	5	1	7	36	23%			5	12	4	1	3	6	31	19%			1	8	8	3			20	17%		-3%	-5%
Participants	20	35	50	19	13	23	160				20	40	51	17	13	18	159				17	34	48	18	0	0	117				
Standard Deviation	1.2	1.2	1	1.2	1	1.4					1	1.2	0.9	0.9	1.3	1.3					1	1.2	1	1.1							
AVERAGE	2.3	2.4	2.2	2.4	1.8	2.1					2.6	2.5	2	1.9	1.7	2.3					2.1	2.3	2.4	2.1							
	Disagree	Disagree	Disagree	Disagree	Disagree	Disagree					Agree	Agree	Disagree	Disagree	Strongly disagree	Disagree					Disagree	Disagree	Disagree	Disagree							

Summary comments

There was a concern that seeking a negative response would feel comfortable, yet this has generally worked.

Pre to post Overall, slight increase, 4%, in valuing pastoralism.

Overall, fairly consistent with pre lesson, only down 2%.

Longitudinal

Agree The decline from strongly agree is seen in the rise in agree, modest movement.

Strongly agree The decline of 5% from strongly agree shows a bit less negative view of pastoralism.

Notable points

- This was the only strongly disagree average response from TEE Kibaya.
- The most significant development in appreciation for pastoralism was seen in the Form 2 group in the post lesson survey, though this was not sustained on the longitudinal lesson that returned to very close to the pre lesson numbers.
- The Confirmation group declined by 6% post lesson and returned to almost pre lesson numbers.

5 **SIMILARITIES SCI-TEK: I believe that there are similarities between climate science and Maasai traditional environmental care.**

Pre instruction										Post instruction										Longitudinal										Delta Pre to Post	Delta Pre to Long
																														Change	Change
ALL	C-Len	C-Olor	F2-MGLSS	F2-Moringe	TEE Kibaya	TEE Wasso	Total	Percent	% agree/ disagree	C-Len	C-Olor	F2-MGLSS	F2-Moringe	TEE Kibaya	TEE Wasso	Total	Percent	% agree/ disagree	C-Len	C-Olor	F2-MGLSS	F2-Moringe	TEE Kibaya	TEE Wasso	Total	Percent	% agree/ disagree				
1	Strongly disagree	0	4	10	1	0	1	16	10%	2	6	3	1	1	0	13	8%	19%	0	5	3	0			8	7%	19%	-2%	-3%		
2	Disagree	3	7	10	6	1	1	28	18%	0	3	10	4	0	0	17	11%		3	5	6	0			14	12%		-7%	-6%		
3	Agree	9	6	18	9	5	6	53	34%	9	12	22	10	6	5	64	41%	81%	5	6	21	11			43	37%	81%	7%	4%		
4	Strongly agree	8	21	12	3	4	13	61	39%	9	17	16	4	6	12	64	41%		7	18	18	7			50	43%		2%	5%		
Participants		20	38	50	19	10	21	158		20	38	51	19	13	17	158			15	34	48	18	0	0	115						
Standard Deviation		0.7	1.1	1.1	0.8	0.6	0.8			0.9	1.1	0.9	1	0.9	0.5				0.8	1.1	0.9	0.5									
AVERAGE		3.3	3.2	2.6	2.7	3.3	3.5			3.3	3.1	3	3.2	3.3	3.7				3.3	3.1	3.1	3.4									
		Agree	Agree	Agree	Agree	Agree	Strongly agree			Agree	Agree	Agree	Strongly agree	Strongly agree	Strongly agree				Strongly agree	Agree	Agree	Strongly agree									

Summary comments

This is the positive way of asking Q#4 on pastoralism. The positive view of a Maasai TEK response was stronger, and overall increased in the groups that sustained to the longitudinal survey.

Agree	7% increase pre to post; and sustained at 4% from pre to longitudinal
Strongly agree	2% increase pre to post; with additional increase of 5% pre to longitudinal

- Notable points
- This positive question of Maasai TEK (contra Q#4) demonstrates increase and sustained value of TEK with similarities with climate science.
 - The greatest increase was among the Form 2: 13% increase pre to post and 25% increase pre to longitudinal.

6 MANY HANDS: I believe that many people doing small creation care activities can have big impacts on reducing the effects of climate change when all the small actions are considered together.

Pre instruction										Post instruction										Longitudinal										Delta Pre to Post	Delta Pre to Long																					
ALL																														Change	Change																					
	C-Len	C-Olchor	F2-MGLSS	F2-Moringe	TEE Kibaya	TEE Wasso	Total	Percent	% agree/ disagree		C-Len	C-Olchor	F2-MGLSS	F2-Moringe	TEE Kibaya	TEE Wasso	Total	Percent	% agree/ disagree		C-Len	C-Olchor	F2-MGLSS	F2-Moringe	TEE Kibaya	TEE Wasso	Total	Percent	% agree/ disagree																							
1	Strongly disagree	3	6	9	2	3	0	23	14%	28%	4	3	6	0	1	1	15	10%	25%		3	8	1	1			13	11%	22%		-4%	-3%																				
2	Disagree	8	1	6	2	0	7	24	14%		7	4	7	2	2	2	24	15%			4	3	4	2			13	11%			1%	-4%																				
3	Agree	4	9	23	5	5	4	50	30%	72%	6	8	20	9	4	5	52	33%	75%		2	9	18	9			38	32%	78%		3%	2%																				
4	Strongly agree	7	24	14	10	3	12	70	42%		2	24	18	8	6	8	66	42%			6	18	26	6			56	47%			0%	5%																				
Participants		22	40	52	19	11	23	167											19	39	51	19	13	16	157											15	38	49	18	0	0	120										
Standard Deviation		1.1	1.1	1	1	1.2	0.9											0.9	1	1	0.7	1	0.9											1.2	1.2	0.7	0.8															
AVERAGE		2.7	3.3	2.8	3.2	2.7	3.2											2.3	3.4	3	3.3	3.2	3.2											2.7	3	3.4	3.1															
		Agree	Strongly agree	Agree	Agree	Agree	Agree											Disagree	Strongly agree	Agree	Strongly agree	Agree	Agree											Agree	Agree	Strongly agree	Agree															

Summary comments

The strong positive response in the pre lesson survey increased modestly to the post survey and a bit more in the longitudinal survey.

Agree
Strongly agree

Overall, the agree stayed fairly constant.

Most of the increase was in the strongly agree from pre to longitudinal at 5%.

Notable points

- The Confirmation group had a small decrease from pre to post by 5%, while still 2/3rds agreed or strongly agreed.
- The most significant change was in the Form 2 group: 6% increase pre to post and 14% increase from pre to longitudinal, with most of this in the strongly agree response.

7 **PLASTIC: I believe that burning plastic drinking bottles is a good way to reduce trash in the environment.**

Pre instruction										Post instruction										Longitudinal										Delta Pre to Post	Delta Pre to Long																					
																														Change	Change																					
ALL	C-Len	C-Olchor	F2-MGLSS	F2-Moringe	TEE Kibaya	TEE Wasso	Total	Percent	% agree/ disagree	C-Len	C-Olchor	F2-MGLSS	F2-Moringe	TEE Kibaya	TEE Wasso	Total	Percent	% agree/ disagree	C-Len	C-Olchor	F2-MGLSS	F2-Moringe	TEE Kibaya	TEE Wasso	Total	Percent	% agree/ disagree																									
1	Strongly disagree	5	13	18	7	1	0	44	26%	42%	5	8	20	8	8	5	54	34%	48%	4	12	22	7			45	39%	62%	8%	13%																						
2	Disagree	4	3	13	6	1	0	27	16%		3	5	7	3	1	3	22	14%		2	10	11	3			26	23%		-2%	7%																						
3	Agree	3	5	11	4	4	3	30	18%	58%	4	11	12	4	3	3	37	23%	52%	4	3	8	4			19	17%	38%	6%	-1%																						
4	Strongly agree	10	19	10	2	7	20	68	40%		8	14	12	4	1	7	46	29%		6	7	7	4			24	21%		-11%	-19%																						
Participants		22	40	52	19	13	23	169											20	38	51	19	13	18	159											16	32	48	18	0	0	114										
Standard Deviation		1.3	1.4	1.1	1	0.9	0.3											1.3	1.2	1.2	1.2	1.1	1.3											1.2	1.2	1.1	1.2															
AVERAGE		2.8	2.8	2.3	2.1	3.3	3.9											2.8	2.8	2.3	2.2	1.8	2.6											2.8	2.2	2	2.3															
		Agree	Agree	Disagree	Disagree	Strongly agree	Strongly agree											Agree	Agree	Disagree	Disagree	Disagree	Agree											Agree	Disagree	Disagree	Agree															

Summary comments

This question had an overall 20% response to the lesson content.

Pre to post Overall, there was a modest 6% response to the lesson content.

The longitudinal responses, however, showed a 20% response shifting from positive view of burning plastic to a negative view.

Longitudinal

Notable

point

- The strongest response to the lesson material was seen in the TEE group.
- The pre lesson had a 94% agree/strongly agree response which shifted to a negative view of burning plastic with a 55% post lesson response for strongly disagree/disagree.
- This was a 49% shift!

8

FUTURE OF CHILDREN: Caring for the environment is important for our future and the future of our children and grandchildren.

Pre instruction										Post instruction										Longitudinal										Delta Pre to Post Change	Delta Pre to Long Change
ALL																															
	C-Len	C-Olchor	F2-MGLSS	F2-Moringe	TEE Kibaya	TEE Wasso	Total	Percent	% agree/ disagree		C-Len	C-Olchor	F2-MGLSS	F2-Moringe	TEE Kibaya	TEE Wasso	Total	Percent	% agree/ disagree		C-Len	C-Olchor	F2-MGLSS	F2-Moringe	TEE Kibaya	TEE Wasso	Total	Percent	% agree/ disagree		
1 Strongly disagree	1	4	0	0	0	0	5	3%	7%		0	1	1	0	0	0	2	1%	4%		0	3	0	0			3	2%	7%	-2%	-1%
2 Disagree	3	1	1	1	0	1	7	4%			3	0	1	0	0	1	5	3%			2	2	0	1			5	4%		-1%	0%
3 Agree	6	8	17	3	1	2	37	22%	93%		3	6	13	4	2	5	33	21%	96%		4	6	10	3			23	19%	93%	-1%	-3%
4 Strongly agree	11	28	34	15	11	19	118	71%			14	31	36	14	11	12	118	75%			12	27	39	14			92	75%		4%	4%
Participants	21	41	52	19	12	22	167				20	38	51	18	13	18	158				18	38	49	18	0	0	123				
Standard Deviation	0.9	1	0.5	0.6	0.3	0.5					0.8	0.6	0.6	0.4	0.4	0.6					0.7	0.9	0.4	0.6							
AVERAGE	3.3	3.5	3.6	3.7	3.9	3.8					3.6	3.8	3.6	3.8	3.8	3.6					3.6	3.5	3.8	3.7							
	Strongly agree	Strongly agree	Strongly agree	Strongly agree	Strongly agree	Strongly agree					Strongly agree	Strongly agree	Strongly agree	Strongly agree	Strongly agree	Strongly agree					Strongly agree	Strongly agree	Strongly agree	Strongly agree							

Summary comments

This is one of the top two most positive response Likert scale questions.

Pre to post Overall, there was a slight increase from pre to post lesson at 3%.

Overall, there was a sustained strongly positive view in consistent with the pre survey position, though 4% higher in the strongly agree.

Longitudinal

Notable

points

- This is a very strong positive response for all groups.
- Both the **Form 2** and **TEE** groups had responses at 97% or higher for agree/strongly agree.
- The **Confirmation** group had a strong increase of 15% from pre to post, which dipped a bit to 7% at the longitudinal point.

9 GOD'S INSTRUCTION: God has instructed humans to serve and protect the creation.

Pre instruction										Post instruction										Longitudinal										Delta Pre to Post	Delta Pre to Long
ALL																														Change	Change
	C-Len	C-Olchor	F2-MGLSS	F2-Moringe	TEE Kibaya	TEE Wasso	Total	Percent	% agree/ disagree		C-Len	C-Olchor	F2-MGLSS	F2-Moringe	TEE Kibaya	TEE Wasso	Total	Percent	% agree/ disagree		C-Len	C-Olchor	F2-MGLSS	F2-Moringe	TEE Kibaya	TEE Wasso	Total	Percent	% agree/ disagree		
1 Strongly disagree	0	1	1	1	1	0	4	2%	9%		0	2	2	1	0	0	5	3%	6%		0	0	1	1			2	2%	7%	1%	-1%
2 Disagree	4	1	3	2	1	0	11	7%			1	2	0	2	0	0	5	3%			1	4	1	0			6	5%		-3%	-2%
3 Agree	2	6	18	3	2	1	32	19%	91%		5	10	13	4	3	2	37	23%	94%		1	7	15	6			29	24%	93%	4%	5%
4 Strongly agree	15	33	30	13	9	20	120	72%			15	24	36	12	11	15	113	71%			15	24	32	11			82	69%		-1%	-3%
Participants	21	41	52	19	13	21	167				21	38	51	19	14	17	160				17	35	49	18	0	0	119				
Standard Deviation	0.8	0.6	0.7	0.9	1	0.2					0.6	0.8	0.7	0.9	0.4	0.3					0.5	0.7	0.6	0.8							
AVERAGE	3.5	3.7	3.5	3.5	3.5	4					3.7	3.5	3.6	3.4	3.8	3.9					3.8	3.6	3.6	3.5							
	Strongly agree	Strongly agree	Strongly agree	Strongly agree	Strongly agree	Strongly agree					Strongly agree	Strongly agree	Strongly agree	Strongly agree	Strongly agree	Strongly agree					Strongly agree	Strongly agree	Strongly agree	Strongly agree							

Summary comments

This is one of the top two most positive response Likert scale questions. This is encouraging as a creation care project working within the church.

Pre to post The very strong pre survey response increased a bit, 91 to 94%, with shifting views from the disagree (not strongly disagree).
The positive view was sustained with a modest overall increase, 2%.

Longitudinal

Notable point

- The **Form 2** and **TEE** both increased 6% positive:
 - Form 2** from pre to longitudinal and
 - TEE** from pre to post (longitudinal survey data pending).
- The **TEE** was 100% agree and strongly agree, as there were no disagree or strongly disagree. This is an affirming response that reflects their good theological teaching.

10 **HOPE: I have hope, knowing that I can made a difference, empowered by the Holy Spirit to participate in God's renewal and care for God's creation.**

Pre instruction										Post instruction										Longitudinal										Delta Pre to Post	Delta Pre to Long
ALL																														Change	Change
	C-Len	C-Olor	F2 MGLSS	F2 Moringe	TEE Kibaya	TEE Wasso	Total	Percent	% agree/ disagree		C-Len	C-Olor	F2 MGLSS	F2 Moringe	TEE Kibaya	TEE Wasso	Total	Percent	% agree/ disagree		C-Len	C-Olor	F2 MGLSS	F2 Moringe	TEE Kibaya	TEE Wasso	Total	Percent	% agree/ disagree		
1 Strongly disagree	2	0	3	0	1	2	8	5%	9%		0	1	3	0	0	0	4	2%	6%		0	4	1	2			7	6%	12%	-2%	1%
2 Disagree	1	2	3	1	1	0	8	5%			1	1	2	2	0	0	6	4%			0	4	2	2			8	7%		-1%	2%
3 Agree	7	5	20	7	1	1	41	24%	91%		8	5	22	3	1	5	44	27%	94%		2	4	17	3			26	21%	88%	3%	-3%
4 Strongly agree	12	35	26	11	10	19	113	66%			12	32	24	14	12	13	107	66%			15	25	29	11			80	66%		0%	0%
Participants	22	42	52	19	13	22	170				21	39	51	19	13	18	161				17	37	49	18	0	0	121				
Standard Deviation	0.9	0.5	0.8	0.6	1	0.9					0.6	0.6	0.8	0.7	0.3	0.5					0.3	1.1	0.7	1.1							
AVERAGE	3.3	3.8	3.3	3.5	3.5	3.7					3.5	3.7	3.3	3.6	3.9	3.7					3.9	3.4	3.5	3.3							
	Strongly agree	Strongly agree	Strongly agree	Strongly agree	Strongly agree	Strongly agree					Strongly agree	Strongly agree	Strongly agree	Strongly agree	Strongly agree	Strongly agree					Strongly agree	Strongly agree	Strongly agree	Strongly agree							

Summary comments

This is the third highest question with high agree/strongly agree responses.

- Pre to post** Overall, there was a small increase from pre to post survey responses of 3% for agree/strongly agree combined.
- Longitudinal** Overall, there was a small decrease in the agree/strongly agree views by 3%. However, the strongly agree was consistent at a strong 66% for every survey,
- Notable points
- The greatest increase was 8% in the **Form 2** group strongly agree responses between pre and longitudinal surveys.
 - The **TEE** post lesson survey showed a 100% response for agree/strongly agree views combined.

Part B) Multiple Choice Data and Analysis

Color schemes:

There were three surveys:



There are three groups analyzed below:

Confirmation students; Form 2 Secondary School; TEE students

• Participants were asked to choose “the best” answer.

• All the multiple-choice options are listed.

• The correct/best answer is in the green box.

• The mode (most frequent response) is identified by colored numbers:

○ in green numbers if correct and

○ in red numbers if wrong or not “the best” response (especially in even numbered questions, 12, 14, 16, 18, 20).

• The frequency of responses are numerated and the colors range in gradation for all responses in the table from blue to red.

○ Blue has the most responses.

○ Red has the fewest responses.

• The number of participants are listed in grey boxes.

11. WEATHER/CLIMATE: What is the difference between weather and climate?

ALL

	C-Len	C-Olchor	F2-MGLSS	F2-Moringe	TEE Kibaya	TEE Wasso	Total	Percent
a) Weather and climate are similar words to describe the state of the atmosphere.	9	10	9	6	0	5	39	21%
b) “Weather” is local and temporary, and “climate” describes the conditions over long term and an entire region.	10	9	38	13	9	7	86	46%
c) “Climate” is the scientific word meaning “weather”.	2	10	0	2	2	9	25	13%
d) All of the above are correct.	4	19	5	0	1	7	36	19%
Participants	25	48	52	21	12	28	186	

Pre instruction

Change	Change
Pre to Post	Pre to Longitudinal
3%	-3%
12%	15%
-6%	4%
-9%	-16%

• The correct/best answer is identified by a green box at the right.

• The percentages of change are identified from pre to post lesson surveys on the left and from pre to longitudinal surveys on the right.

• The change is illustrated by color gradations from green to yellow.

○ Positive change is more green.

○ Negative change is more yellow.

• More green in the correct row indicates stronger learning outcomes from lesson instruction.

For accessing raw data for other research, email Beth Elness-Hanson, beth.elness-hanson@vid.no

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11. WEATHER/CLIMATE: What is the difference between weather and climate?

ALL

	Pre instruction									Post instruction									Longitudinal								Change	Change
	C-Len	C-Olor	F2-MGLSS	F2-Moringe	TEE Kibaya	TEE Wasso	Total	Percent		C-Len	C-Olor	F2-MGLSS	F2-Moringe	TEE Kibaya	TEE Wasso	Total	Percent		C-Len	C-Olor	F2-MGLSS	F2-Moringe	TEE Kibaya	TEE Wasso	Total	Percent	Pre to Post	Pre to Longitudinal
a) Weather and climate are similar words to describe the state of the atmosphere.	9	10	9	6	0	5	39	21%		10	20	6	5	1	2	44	24%		3	11	6	4	3	4	31	19%	3%	-2%
b) “Weather” is local and temporary, and “climate” describes the conditions over long term and an entire region.	10	9	38	13	9	7	86	46%		12	9	44	14	10	15	104	58%		7	22	39	14	8	11	101	61%	12%	15%
c) “Climate” is the scientific word meaning “weather”.	2	10	0	2	2	9	25	13%		2	10	1	0	0	1	14	8%		6	15	1	1	0	1	24	15%	-6%	1%
d) All of the above are correct.	4	19	5	0	1	7	36	19%		2	11	1	0	0	4	18	10%		1	1	3	0	0	4	9	5%	-9%	-14%
Participants	25	48	52	21	12	28	186			26	50	52	19	11	22	180			17	49	49	19	11	20	165			

Correct

Summary Notes

Mode (most frequent) The mode improved from 4 to 5 in pre to post surveys.

Pre to Post 12% improvement in selecting the correct answer after lesson instruction.

Pre to Longitudinal 15% improvement in selecting the correct answer that is sustained over time.

- Notable points
- The Confirmation groups improved 18% from pre to longitudinal surveys.
 - The Form 2 groups had an improvement of 12% from pre to post surveys that dipped to 8% at longitudinal.
 - Amazingly, the TEE groups had a 36% improvement from pre to post surveys.

12. CAUSE: What is the cause of “climate change”?

ALL

	Pre instruction								Post instruction								Longitudinal								Change	Change
	C-Len	C-Olor	F2-MGLSS	F2-Moringe	TEE Kibaya	TEE Wasso	Total	Percent	C-Len	C-Olor	F2-MGLSS	F2-Moringe	TEE Kibaya	TEE Wasso	Total	Percent	C-Len	C-Olor	F2-MGLSS	F2-Moringe	TEE Kibaya	TEE Wasso	Total	Percent	Pre to Post	Pre to Longitudinal
a) Any process, even volcanic eruptions, that causes adjustments to a climate system is causing “climate change”.	6	3	11	5	3	7	35	19%	3	13	8	7	5	6	42	24%	3	9	6	6	1	6	31	19%	4%	0%
b) The human-caused warming of the earth is the major cause of “climate change” in the last 70 years.	5	5	6	4	3	7	30	17%	7	14	9	1	1	7	39	22%	4	17	6	5	2	6	40	25%	5%	8%
c) The burning of fossil fuels that release greenhouse gasses is a major cause of “climate change”.	3	27	27	8	4	7	76	42%	3	17	29	8	2	3	62	35%	6	20	27	7	4	5	69	42%	-7%	0%
d) All of the above are correct.	4	14	8	4	2	7	39	22%	8	6	6	3	4	6	33	19%	2	3	10	1	3	4	23	14%	-3%	-8%
Participants	18	49	52	21	12	28	180		21	50	52	19	12	22	176		15	49	49	19	10	21	163			Correct

Summary Notes

These "All of the above are correct" questions are more complex. All answers are good, but "All of the above" is the best answer.

Mode (most frequent) There were no fully correct mode responses of "All of the above." The mode response (45% on the longitudinal survey) still correctly identified the cause of climate change as the burning of fossil fuels.

13. GREENHOUSE/CAUSE: What is the “greenhouse effect”? (Kiswahili: What causes global warming?)

ALL	Pre instruction								Post instruction								Longitudinal								Change	Change	Correct
	C-Len	C-Olchor	F2-MGLSS	F2-Moringe	TEE Kibaya	TEE Wasso	Total	Percent	C-Len	C-Olchor	F2-MGLSS	F2-Moringe	TEE Kibaya	TEE Wasso	Total	Percent	C-Len	C-Olchor	F2-MGLSS	F2-Moringe	TEE Kibaya	TEE Wasso	Total	Percent	Pre to Post	Pre to Longitudinal	
a) Certain gases, like carbon dioxide (CO2) and methane (CH4), trap heat in the atmosphere which increases the temperature of the planet.	18	18	28	9	7	14	94	50%	17	19	34	12	9	18	109	60%	10	21	28	10	2	15	86	52%	10%	2%	Correct
b) Growing crops in modern greenhouses increases crop productivity and reduces food insecurity.	2	14	10	7	2	2	37	20%	2	14	7	3	1	2	29	16%	1	12	10	3	4	0	30	18%	-4%	-2%	
c) The modern technology has developed new gasses, like carbon dioxide (CO2) and methane (CH4), that are used in greenhouses.	4	10	7	5	2	5	33	18%	4	13	8	4	2	3	34	19%	5	9	10	6	3	4	37	22%	1%	5%	
d) All of the above are correct.	1	7	7	0	1	7	23	12%	1	4	3	0	0	1	9	5%	2	6	1	0	2	1	12	7%	-7%	-5%	
Participants	25	49	52	21	12	28	187		24	50	52	19	12	24	181		18	48	49	19	11	20	165				

Summary Notes

Mode (most frequent) The mode is correct in all surveys.

Pre to Post 10% improvement in selecting the correct answer after lesson instruction.

Pre to Longitudinal Negligible 1% improvement in selecting the correct answer is sustained over time.

- Notable points**
- The **Confirmation** groups sustained at 49% correct from pre to post surveys with a negligible dip at the longitudinal surveys.
 - The **Form 2** groups had an improvement of 14% from pre to post surveys that dipped to a 5% improvement from pre to longitudinal surveys.
 - The **TEE** groups had a strong 23% improvement from pre to post surveys.

14. FUTURE?: What will happen if the earth gets a little warmer?

ALL

	Pre instruction								Post instruction								Longitudinal								Change	Change
	C-Len	C-Olchor	F2-MGLSS	F2-Moringe	TEE Kibaya	TEE Wasso	Total	Percent	C-Len	C-Olchor	F2-MGLSS	F2-Moringe	TEE Kibaya	TEE Wasso	Total	Percent	C-Len	C-Olchor	F2-MGLSS	F2-Moringe	TEE Kibaya	TEE Wasso	Total	Percent	Pre to Post	Pre to Longitudinal
a) Changing weather patterns will cause more extreme weather: more major flooding and more severe droughts.	14	17	15	11	4	12	73	39%	8	26	22	5	5	7	73	40%	6	21	20	6	5	11	69	42%	1%	3%
b) Polar ice and glaciers will melt faster and raise the ocean levels flooding coastal and island communities.	7	14	21	3	1	7	53	28%	11	14	19	9	2	6	61	34%	7	3	18	11	2	6	47	28%	5%	0%
c) Least developed countries will suffer most from climate change.	3	10	10	5	7	2	37	20%	2	6	5	3	0	0	16	9%	5	21	6	1	2	0	35	21%	-11%	2%
d) All of the above are correct.	2	8	6	2	0	7	25	13%	4	4	6	2	5	11	32	18%	0	4	5	1	2	2	14	8%	4%	-5%
Participants	26	49	52	21	12	28	188		25	50	52	19	12	24	182		18	49	49	19	11	19	165			Correct

Summary Notes

These "All of the above are correct" questions are more complex. All answers are good, but "All of the above" is the best answer.

Mode (most frequent)

- There was only 1 fully correct mode response of "All of the above" by the Wasso TEE group in the post lesson survey.
- The mode response (39% on the longitudinal survey) still correctly identifies: a) Changing weather patterns will cause more extreme weather: more major flooding and more severe droughts.

15. AFFECTS?: How will climate change affect us?

ALL	Pre instruction								Post instruction								Longitudinal								Change	Change	Correct
	C-Len	C-Olchor	F2-MGLSS	F2-Moringe	TEE Kibaya	TEE Wasso	Total	Percent	C-Len	C-Olchor	F2-MGLSS	F2-Moringe	TEE Kibaya	TEE Wasso	Total	Percent	C-Len	C-Olchor	F2-MGLSS	F2-Moringe	TEE Kibaya	TEE Wasso	Total	Percent	Pre to Post	Pre to Longitudinal	
a) Warming temperatures will not be a concern because of air conditioning and other modern technologies.	6	3	17	2	1	2	31	17%	8	5	8	2	0	2	25	14%	2	5	11	4	0	0	22	13%	-3%	-3%	Correct
b) Warming temperatures will increase food insecurity and hunger due to droughts and flooding.	10	25	29	13	10	20	107	58%	13	28	40	15	10	20	126	69%	9	23	32	10	8	17	99	60%	11%	2%	
c) In Tanzania, the effects are low because the Government's efforts, such as the Julius Nyerere Dam, will reduce most flooding.	10	16	4	4	1	1	36	19%	5	14	3	1	1	1	25	14%	6	16	3	3	1	2	31	19%	-6%	-1%	
d) All of the above are correct.	0	4	2	2	0	3	11	6%	0	3	1	1	0	1	6	3%	1	5	3	2	2	0	13	8%	-3%	2%	
Participants	26	48	52	21	12	26	185		26	50	52	19	11	24	182		18	49	49	19	11	19	165				

Summary Notes

Mode (most frequent) All mode responses were correct. This identifies prior knowledge about the impacts of food insecurity and extreme weather.

- Pre to Post

Pre to Longitudinal

Notable points
- 11% improvement in selecting the correct answer after lesson instruction.

The pre-to post survey was not sustained, seeing a marginally lower, -3%, selection of the correct answer over time.

- It is notable that 17% identified no concern due to air conditioners and modern technology, and an average of 21% identified low impacts because of the new dam.
 - The Confirmation groups improved 7% from pre to post surveys but not change from pre to longitudinal surveys.
 - The Form 2 groups had a strong improvement of 20% from pre to post surveys that dipped to 4% at longitudinal.
 - The TEE groups had a 7% improvement from pre to post surveys.

16. BIBLE: What does the Bible teach us about God's creation?

ALL

	Pre instruction							
	C-Len	C-Olchor	F2-MGLSS	F2-Moringe	TEE Kibaya	TEE Wasso	Total	Percent
a) God created the world and it is good.	8	15	15	5	2	1	46	24%
b) God loves the world, meaning not just people but also the rest of the creation.	8	10	19	7	5	10	59	31%
c) God has promised never to abandon God's creation.	3	12	6	4	0	0	25	13%
d) All of the above are correct.	7	12	12	5	5	17	58	31%
Participants	26	49	52	21	12	28	188	

Post instruction							
C-Len	C-Olchor	F2-MGLSS	F2-Moringe	TEE Kibaya	TEE Wasso	Total	Percent
8	14	16	5	0	0	43	24%
6	14	15	6	4	16	61	34%
4	12	11	3	2	1	33	18%
7	10	10	5	6	7	45	25%
25	50	52	19	12	24	182	

Longitudinal							
C-Len	C-Olchor	F2-MGLSS	F2-Moringe	TEE Kibaya	TEE Wasso	Total	Percent
2	12	11	6	0	4	35	21%
6	17	16	6	6	11	62	38%
8	10	12	4	1	1	36	22%
2	9	10	3	4	4	32	19%
18	48	49	19	11	20	165	

Change	Change
Pre to Post	Pre to Longitudinal
-1%	-3%
2%	6%
5%	9%
-6%	-11%

Correct

Summary Notes

These "All of the above are correct" questions are more complex. All answers are good, but "All of the above" is the best answer.

Mode (most frequent)

- There were 2 fully correct mode response of "All of the above" among the TEE groups in the pre lesson surveys, which dipped to only 1 in the post lesson surveys.
- However, the mode response (34% on the post and longitudinal surveys) still correctly identifies: b) God loves the world, meaning not just people but also the rest of the creation.

17. GOD'S PLAN: What is God’s plan regarding creation?

ALL

	Pre instruction								Post instruction								Longitudinal								Change	
	C-Len	C-Olchor	F2-MGLSS	F2-Moringe	TEE Kibaya	TEE Wasso	Total	Percent	C-Len	C-Olchor	F2-MGLSS	F2-Moringe	TEE Kibaya	TEE Wasso	Total	Percent	C-Len	C-Olchor	F2-MGLSS	F2-Moringe	TEE Kibaya	TEE Wasso	Total	Percent	Pre to Post	Pre to Longitudinal
a) God gave humans authority over the creation in order to dominate it and use it for their pleasure.	11	11	22	9	2	5	60	32%	9	11	14	6	1	3	44	24%	6	12	15	5	0	5	43	26%	-8%	-6%
b) God commissioned humankind to serve and protect creation as God’s stewards.	5	16	18	6	6	15	66	35%	6	26	19	9	10	17	87	48%	8	15	26	8	9	12	78	48%	13%	12%
c) Because the spiritual is more important than the material, spiritual experiences take priority over the creation.	6	10	4	5	1	4	30	16%	8	4	15	2	0	2	31	17%	3	17	5	5	0	1	31	19%	1%	3%
d) All of the above are correct.	4	12	7	1	3	3	30	16%	3	9	2	2	1	1	18	10%	1	4	3	1	1	2	12	7%	-6%	-9%
Participants	26	49	51	21	12	27	186		26	50	50	19	12	23	180		18	48	49	19	10	20	164			

Correct

Summary Notes

Mode (most frequent) The mode responses improved from 3 to 5 in pre to post surveys.

Pre to Post Overall, there was a 13% improvement in selecting the correct answer after lesson instruction.

Pre to Longitudinal A 7% improvement in selecting the correct answer was sustained over time.

- Notable points
- The Confirmation groups improved 14% from pre to post surveys and sustained a 7% increase from pre to longitudinal surveys.
 - The Form 2 groups had an improvement of 7% from pre to post surveys that jumped to 17% at longitudinal.
 - The TEE groups had a strong 23% improvement from pre to post surveys.

18. HOW ADAPT? How can we adapt to reduce climate change and reduce our risk?

	Pre instruction								Post instruction								Longitudinal								Change	Change
	C-Len	C-Olor	F2-MGLSS	F2-Moringe	TEE Kibaya	TEE Wasso	Total	Percent	C-Len	C-Olor	F2-MGLSS	F2-Moringe	TEE Kibaya	TEE Wasso	Total	Percent	C-Len	C-Olor	F2-MGLSS	F2-Moringe	TEE Kibaya	TEE Wasso	Total	Percent	Pre to Post	Pre to Longitudinal
ALL																										
a) Reducing the use of plastics can reduce the use of fossil fuels.	10	8	30	7	9	8	72	38%	8	14	33	6	9	19	89	49%	8	20	32	8	8	17	93	57%	11%	18%
b) Preparing for extreme weather, can make my family more protected from such floods and/or droughts.	7	8	10	6	0	9	40	21%	8	8	11	3	1	1	32	18%	5	7	7	5	0	0	24	15%	-3%	-7%
c) Including women in decision making that affects their and their children's lives can reduce the vulnerability of the entire household.	9	27	7	6	1	6	56	30%	8	22	2	6	0	2	40	22%	4	17	4	6	0	1	32	20%	-8%	-10%
d) All of the above are correct.	0	6	5	2	2	5	20	11%	2	6	6	2	1	2	19	11%	1	4	6	1	2	1	15	9%	0%	-1%
Participants	26	49	52	21	12	28	188		26	50	52	17	11	24	180		18	48	49	20	10	19	164			Correct

Summary Notes

These "All of the above are correct" questions are more complex. All answers are good, but "All of the above" is the best answer.

Mode (most frequent)

There were no mode responses that identified the complexity of all of the above as correct. However, there was a strong response in the mode with a 11% pre to post increase and sustained to 12% over time with the longitudinal survey that identifies: a) Reducing the use of plastics can reduce the use of fossil fuels. This is one of the very accessible and practical responses to the instruction.

Notable points

With regard to the mode response: a) Reducing the use of plastics can reduce the use of fossil fuels:

- The Confirmation groups increased 18% from pre to longitudinal surveys.
- The Form 2 groups increased 7% from pre to longitudinal surveys.
- The TEE groups increased a huge 38% from pre to post surveys!

19. HOW MITIGATE?: How can we prevent (mitigate) climate change and care for the environment? This demonstrates some prior knowledge, though we see more correct responses, as noted below.

ALL	Pre instruction								Post instruction								Longitudinal								Change	Change	
	C-Len	C-Olchor	F2-MGLSS	F2-Moringe	TEE Kibaya	TEE Wasso	Total	Percent	C-Len	C-Olchor	F2-MGLSS	F2-Moringe	TEE Kibaya	TEE Wasso	Total	Percent	C-Len	C-Olchor	F2-MGLSS	F2-Moringe	TEE Kibaya	TEE Wasso	Total	Percent	Pre to Post	Pre to Longitudinal	
a) Only God controls the weather, so we have limited ways to prevent/mitigate climate change.	16	23	7	5	2	9	62	33%	12	23	8	1	0	2	46	25%	6	20	4	4	0	7	41	25%	-8%	-8%	
b) Planting trees is an important way to remove carbon dioxide (CO2) from the atmosphere.	8	8	40	13	7	17	93	49%	10	7	38	2	11	18	86	47%	10	12	43	13	9	11	98	59%	-2%	10%	Correct
c) Having a large herd of cows and goats is important to survive the droughts caused by climate change.	2	11	2	2	2	0	19	10%	2	19	4	4	0	0	29	16%	2	13	2	2	1	2	22	13%	6%	3%	
d) All of the above are correct.	0	8	3	1	1	2	15	8%	2	1	2	12	1	3	21	12%	0	4	0	0	0	0	4	2%	4%	-6%	
Participants	26	50	52	21	12	28	189		26	50	52	19	12	23	182		18	49	49	19	10	20	165				

Summary Notes

Mode (most frequent) The mode sustained at 3 correct in pre to post surveys (more longitudinal analysis coming with the final TEE longitudinal surveys).

Pre to Post There were almost identical numbers for pre to post instruction with -2% decrease in selecting the correct answer after lesson instruction.

Pre to Longitudinal 9% improvement in selecting the correct answer that is sustained over time.

Notable points

- The Confirmation groups improved 12% from pre to longitudinal surveys. The most significant change was a Confirmation groups choosing "c) Having a large herd..." with an 11% increase from pre to post lesson. This reduced a bit to a 5% increase from pre to longitudinal surveys.
- The Form 2 groups had a very high correct response from 73% the participants in the pre survey, but the correct responses decreased 16% at the post lesson survey, as 20% chose d) All of the above. However, by at the longitudinal survey, the correct responses increased 10% with 82% of the respondents choosing correctly.
- The TEE groups had a strong 23% improvement from pre to post surveys.

20. HOW MAKE A DIFFERENCE?: How can you make a difference in preventing (mitigating) climate change?

ALL	Pre instruction								Post instruction								Longitudinal								Change	Change
	C-Len	C-Olchor	F2-MGLSS	F2-Moringe	TEE Kibaya	TEE Wasso	Total	Percent	C-Len	C-Olchor	F2-MGLSS	F2-Moringe	TEE Kibaya	TEE Wasso	Total	Percent	C-Len	C-Olchor	F2-MGLSS	F2-Moringe	TEE Kibaya	TEE Wasso	Total	Percent	Pre to Post	Pre to Longitudinal
a) I can learn more about reducing risk (adaptation) and preventing (mitigation) climate change.	8	6	16	6	2	6	44	24%	8	10	16	11	4	8	57	31%	7	17	17	9	2	9	61	37%	8%	14%
b) I can do my part and make better choices that reduce the effects of climate change.	7	19	13	6	6	5	56	30%	7	12	15	2	2	3	41	22%	2	17	24	2	4	6	55	34%	-8%	4%
c) I can work with my family to work to make our community more prepared for climate change problems.	7	14	12	7	1	9	50	27%	6	17	8	3	2	3	39	21%	5	9	4	3	2	1	24	15%	-5%	-12%
d) All of the above are correct.	4	11	10	2	3	7	37	20%	5	11	13	3	4	10	46	25%	4	5	4	5	2	4	24	15%	5%	-5%
Participants	26	50	51	21	12	27	187		26	50	52	19	12	24	183		18	48	49	19	10	20	164			Correct

Summary Notes

These "All of the above are correct" questions are more complex. All answers are good, but "All of the above" is the best answer.

Mode (most frequent)

- There were no correct mode responses in the pre surveys.
- Post instruction, there were 2 correct mode responses in both TEE groups.
- However, the mode response (37% on the post and longitudinal surveys with a 14% increase) still correctly identifies: a) I can learn more about reducing risk (adaptation) and preventing (mitigation) climate change.
- Similarly, 34% of the longitudinal survey responses identified: b) I can do my part and make better choices that reduce the effects of climate change.

Notable points

- These are important responses!
- The Confirmation groups increased 18% from pre to longitudinal surveys on choice a) I can learn more about reducing risk (adaptation) and preventing (mitigation) climate change.
- The Form 2 groups increased 12% from pre to longitudinal surveys on choice b) I can do my part and make better choices that reduce the effects of climate change.
- The TEE groups had a 13% improvement from pre to post surveys on the correct (and more complex) d) All of the above, while also increasing 13% on a) I can learn more about reducing risk (adaptation) and preventing (mitigation) climate change.