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FROM RESEARCH TO RESILIENCE BUILDING: THE UNIVERSITY FOR DEVELOPMENT STUDIES THIRD TRIMESTER FIELD PRACTICAL PROGRAMME AS A WINDOW FOR FOSTERING RURAL COMMUNITIES' CLIMATE CHANGE ADAPTATION IN GHANA

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Abstract
Despite the growing concerns for climate change adaptation promotion through education, universities' contributions remain largely in the form of greening campuses and curriculum development with limited engagements with local communities to build their adaptative capacity. Climate change education in Ghanaian public universities is mostly about climate change curricula with limited local community adaptation promotion. This paper examines the contribution of a Ghanaian public university in promoting rural communities' adaption in northern Ghana. Guided by a qualitative case study methodology, the University for Development Studies' Third Trimester Field Practical Programme [TTFPP] is made a case. The paper is developed with a focus on climate change teaching/learning, research, administration and field/community practical works with students, lecturers and administrators in view. A review of the university's policy documents and an online survey comprising students, lecturers and administrators provided the data. The study found that the students, lecturers and administrators possess a wealth of climate change knowledge even though climate scepticism exist among some staff. Also, the university does not have a climate change policy now. Nonetheless, the TTFPP is perceived to have the potential of promoting adaptation among rural communities in northern Ghana.

Keywords: Climate Change, Adaptation, Universities, Education, Rural Communities, Ghana

Introduction

Climate change is a global environmental challenge that is receiving attention as evident in the last meeting of the Conference of the Parties (CoP) 26 of the United Nations Climate Change (United Nations, 2021). Apart from these global platforms, higher education institutions such as universities are seen to have an important role to play in promoting climate change adaptation (McCowan et al., 2021). This could be in the form of education, knowledge production, service delivery, public debates and Campus operations (McCowan, 2020). Citing the activities of these universities, Filho et al. (2021) noted that some have already designed and initiated carbon neutral goals and practices as well as develop climate change modules in educational programmes and courses relating to climate change (being taught as either special graduate courses or infused into existing courses in universities) (Institute of Green Growth Solutions, 2015). Even in some African countries such as Nigeria, Kenya,

Uganda and Senegal, climate change curricular are being infused in Technical and Vocational Education Training [TVET] programmes (UNESCO-UNEVOC, 2021).

Ghana is vulnerable to climate change and its impacts. In fact, climate change impacts are already manifesting. Existing studies of rainfall from 1951 to 2000, showed that mean annual rainfall totals in the country's agro-ecological zones have decreased (Owusu & Waylen, 2009). It is further noted of a downtrend in precipitations over the last 50 years throughout the country with some variations between the regions. McSweeney et al. (2010) observed that there is an increase in mean annual temperature by 1.0°C since 1960, an average rate of 0.21°C per decade. Furthermore, the regions north of the country are noted to be associated with higher increasing rates. Thus, conscious of the already occurred climate impacts and those anticipated in the country, the need to build Ghanaians adaptative capacity through education especially in the universities, became paramount.

Ghanaian universities like elsewhere (Demaidi & Al-Sahili, 2021; Filho et al., 2019; Freije et al., 2017; Moswete et al., 2017) are also engaging in climate change adaptation promotion in the form of research and education (Odonkor et al., 2020). The University for Development Studies (UDS) in Ghana has also been engaging in climate change adaptation promotion. Noteworthy, however, a sift through the existing literature in the country about how Ghanaian universities are influencing climate change knowledge among students is limited. For instance, though Boateng and Boateng (2015) discussed Ghana's universities in relation to climate change, their study focused on the content of the curriculum. Furthermore, Boakye's (2015) contribution to climate change studies in the country only examined the phenomenon in pre-tertiary school curriculum. The dearth of information about climate knowledge of Ghanaian universities students therefore, necessitated the study, as it takes up the challenge to contribute to the existing literature on climate knowledge at the tertiary education level in the country.

More so, as noted already, universities considering the positions that they occupy and the platforms that they have, are engaging in activities that are outside their immediate academic environment (Gardner et al., 2021; McCowan, 2020), with the aim of achieving the goals of climate change adaptation. Noteworthy, however, elsewhere, Filho et al. (2019) revealed of climate change scepticism among university staff. In fact, while McCowan (2020, p. 5) hinted that "there are many degree-holding climate change deniers…. it is the people coming out of the world's best colleges and universities that are leading us down the current unhealthy, inequitable, and unsustainable path". This thwarts the efforts of universities at promoting climate change adaptation. Therefore, studying university staff (lecturers and administrators) climate change knowledge and their position regarding adaptation is also important for planning and designing academic and research goals of any university taking into consideration climate change, hence the second objective of this study.

Furthermore, Filho et al. (2021) and McCowan (2020) observed that existing studies about climate change are usually about greening campus and curriculum development. Studies that explore how students learning activities within the university academic calendar permit them to influence local communities' practices and behaviour towards adaptation are almost absent. This notwithstanding, the UDS in Ghana through its Third Trimester Field Practical Programme [TTFPP] has been active in promoting education and awareness on development issues in the country. For instance, in 2021, the university integrated education and

awareness creation about Covid 19 pandemic into the TTFPP modules. Thus, while on the field for the TTFPP, the students educated their respective TTFPP local communities about the pandemic. Therefore, as a first step of the university's commitment to local community adaptation, exploring the perceptions of the potential of the TTFPP of the UDS, Ghana, as a conduit for promoting adaptation in rural communities in Ghana is another focus of this article.

The goal of the paper is, therefore, to examine climate change knowledge and the potential of the TTFPP to contribute to climate change adaptation in rural communities in Ghana. Specifically, it focuses on examining the following: (i) climate change knowledge among students; (ii) climate change knowledge among staff; (iii) perceptions of the potential of the UDS TTFPP to contribute to promoting climate change adaptation in rural communities and (iv) effective ways of making the TTFPP to promote climate change adaptation in rural communities. Following this, the rest of the article looks at the nature of climate change in Ghana and the methods employed in the study. The remaining part of the article presents the results, discussion and conclusion.

Climate Change, Adaptation and Ghanaian Universities

Climate change and its impacts are already manifesting in Ghana. The country's climate change policy presented that while temperatures are increasing, rainfall is decreasing in all the ecological regions of the country. Temperatures have averagely increased by 0.21°C per decade with the situation being more rapid in northern Ghana. On the part of rainfall, the policy indicated that rainfall has decreased throughout the country since the past 40 years. Further analysis of rainfall showed that its patterns are erratic in all the country's regions (Ministry of Environment, Science, Technology and Innovation, 2013). Based on past rainfall data, evidence abound that rainfall across the country will decrease by 2.9% soon (2040), with a slight increase of 1.1% in the mid future (2060) and later decrease in the far future (2080) by 1.7%. Also, projection of future temperatures revealed an increase in the near future by 3.8% by 2040, 5.6% by 2060 and further increase by 6.9% throughout the country (Ministry of Environment, Science, Technology and Innovation, 2015).

To address the impacts of climate change, Ghana became a party to the United Nations Framework Convention on Climate Change [UNFCC] and has since 2001, through its national communications been presenting its climate change efforts on global platforms (Institute of Green Growth Solutions, 2015). According to the then Ministry of Environment, Science, Technology and Information (MESTI) (2015), areas prioritised for adaptation in the country include agriculture and food security, disaster preparedness and response, natural resources management, equitable social development among others. Policy documents such as the National Change Policy, 2013, National Climate Change Adaptation Strategy, National Environment Policy are in place, while institutional agencies such as Ghana National Climate Change Committee, the Environmental Protection Agency, MESTI and the Meteorological Service Agency continues to provide technical support and guidance on adaptation.

Research institutes and public universities such as the UDS have also been involved in promoting climate change adaptation through teaching/learning and research, as some Ghanaian public universities, Faculties and Centres have been designated for climate change studies. At the UDS, the Faculty of Agriculture, Food and Consumer Sciences, Faculty of Renewable Natural Resources, the West Africa Centre for Water, Irrigation and Sustainable Agriculture run programmes on

climate change. The University of Energy and Natural Resources (School of Geo-Science) has designed programmes with focus on climate change. The Kwame Nkrumah University of Science and Technology at the West African Science Service Centre on Climate Change and Adapted Land Use run Postgraduate programmes relating to climate change while at the University of Ghana, the Centre for Climate Change and Sustainable Development hosts post graduate programmes also on climate change. Premised on this, the study thus, attempts to explore not only students and staff knowledge about climate change but also the ways by which universities can boost the adaptative capacity of local communities to climate change and its impacts, with the UDS being a case study.

Methods, Data and Study Area

The purpose of the article is to explore climate change knowledge in the UDS and how the university can effectively use this knowledge through its mandatory TTFPP to empower rural communities for adaptation to climate change. The study was conducted between March 2020 and December 2021. Apart from the review of the university's policy documents, an online questionnaire survey was carried out in the UDS to generate data. The questionnaire survey was pretested by a panel of academics, students and administrators of the university. The survey questionnaire was prepared in English using Google form with the link sent to all respondents' emails. Participation in the study was voluntary. A total of 291 respondents volunteered to participate in the survey (Students = 235, Faculty Officer/Assistant Registrars = 20 and Lecturers = 36). Student respondents came from eight faculties, four faculties each from the Tamale and Nyankpala campuses of the university.

The questions were formulated based on the author's knowledge about climate change and engagements in and experiences of the TTFPP activities. Questions were both open and close ended. The first part of the survey questionnaire aimed at generating information about the background of all participants (faculties, programmes and units/sections,). Regarding lecturers, this section further generated data about the positions, roles and experiences in relation to the TTFPP. The second part was to assess respondents' level of climate change knowledge and the sources from which this knowledge emanates. Using the Likert five-point scale (1 for highest up to 5 for lowest), different statements were posed to generate responses about climate change from respondents. On the same scale, statements demanding responses in the form of strongly agree, agree, neutral, disagree and strongly disagree were presented. Such statements solicited views about the need for the UDS to continue to teach, research about and have a climate change policy. Statements in this category also centred on respondents' perceptions of the potential of the TTFPP as a conduit to promote rural communities' adaptation. The third section comprised open-ended questions which probed respondents' knowledge about how to make the TTFFPP more effective for promoting climate change adaptation. The Statistical Package for the Social Sciences (SPSS) software was used to analyse the quantitative data.

The University for Development Studies (UDS) is Ghana's first public University in Northern Ghana. It was established by the Government of Ghana by PNDC Law 279 in 1992. It aims at providing higher educations to all qualified persons in Ghana and outside the country. It further intends to contribute to knowledge building through research for the development of Ghana. The university is unique because it blends the academic world with that of the community in order to provide constructive interaction between the two for the total development of northern Ghana in particular and the country as a whole. The university runs

a trimester system. This requires that students spend their first two semesters on campus and the last semester in the field. For about 20 years, the university operated a multi campus system with its campuses located in Nyankpala, Tamale, Navrongo and Wa. Currently, the university has only campuses in Tamale and Nyankpala as its former campuses at Wa and Navrongo have become autonomous universities. The university currently runs both graduate and undergraduate programmes at the various campuses as well as community-outreach activities and research programmes.

Findings

The UDS and the TTFPP

As noted already, the University for Development Studies runs a Trimester system of which during the third trimester, students are sent to rural areas to live and conduct research for at least five weeks. Every student at the university must undertake the TTFPP. The programme intends to make students appreciate the importance of working in Ghanaian rural communities. Furthermore, students get the opportunity to study the nature of development challenges that are confronting rural communities. Through the Third Trimester, data is generated for further research. To achieve this, students in their first and second year of studies are sent to some rural areas which have been identified by the University's Directorate of Community and Outreach Programmes. At the end of the students' stay in these community, they do not only produce reports but are also graded on six credit points.

Climate Change Knowledge in the UDS

This section highlighted two issues of climate change within the UDS context; a general look at the students, lecturers and administrators' knowledge about climate change and adaptation while the second part discussed the perceptions of the feasibility of the university's TTFPP in promoting climate change adaptation in local communities particularly those in rural Ghana.

Students' Climate Change knowledge

Out of the 235 students who participated in the online survey, 99% of them indicated that they were aware of the occurrences of climate change and its impacts. While some students (20.8%) observed changes in temperature others (18.2%) observed that rainfall has changed over the past decade. According to 3.9% of them, occurrences of floods frequently were manifestations of climate impacts. Regarding the major cause of climate change, the survey results revealed that 74% of the students largely attributed the situation to human activities.

Further analysis of students' knowledge levels showed that the students though possessed a wealth of climate change knowledge, it varies as seen in Figure 1. A profile of the students' programmes of study showed that students whose programmes had curriculum or topics relating to the natural environment exhibited highest to moderate levels of climate change knowledge. Such students were found in the Faculty of Agriculture, Faculty of Sustainable Development and Faculty of Renewable Natural Resources. Students here exhibited significant level of the subject matter as seen in their general knowledge of topics such as climate change manifestations, causes of climate change, climate change modelling, climate change scenarios, impacts. On the other hand, students outside the aforementioned faculties had a low level of climate change knowledge.

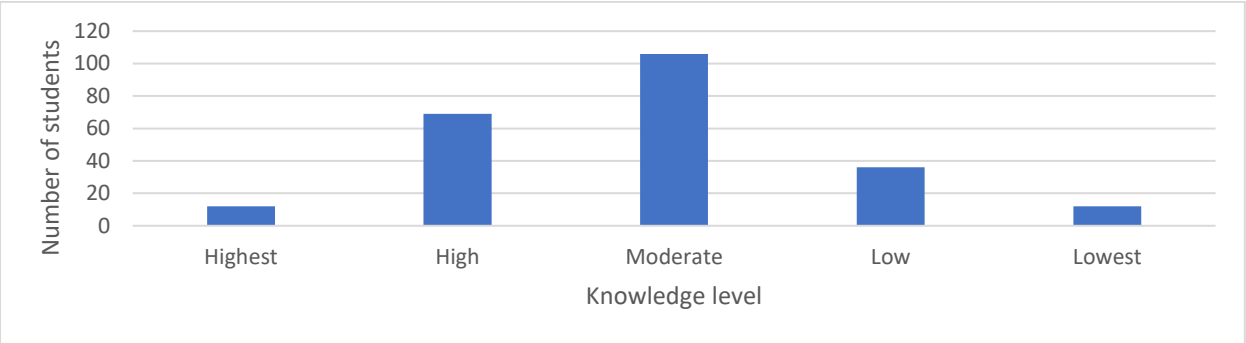

Figure 1: Students' knowledge levels of climate change

Source: *Field Survey, 2023*

Apart from the programmes of study, students' knowledge and information about climate change pointed largely to social media (Figure 2). This was particularly the case for students from faculties/schools that do not have climate change or environment-related programmes/courses.

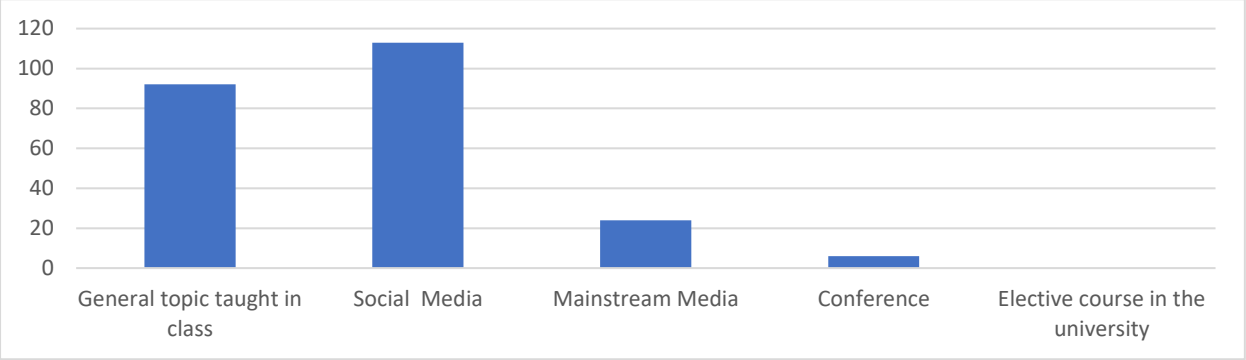

Figure 2: Students' source of climate change information

Source: *Field Survey, 2023*

Further discussions about students' perceptions of climate change and the actions needed in the UDS were also measured using a 5-point Likert scale questionnaire as captured in the statements concerning the nature of impacts of climate change and what ought to be done (Table 1). The scores of the statements were on the positive side, indicating that the students agreed or strongly agreed with them.

Statement A (SA) which represented the impacts of climate change attracted a 'strongly agree' responses (48.7%), indicating that the students already know that climate change is manifesting. It is therefore, not surprising that Statement C (SC) which required that all students at the university be taught climate change got an 'agree' score as high as 54.7%. Also, to address climate impacts, the students suggested that the UDS formulate a climate change policy as indicated in the 'agree' (52%) score of Statement D (Statement D). This notwithstanding, the 'neutral' (6.6%), 'disagree' (1.3%) and 'strongly disagree' (1.3%) scores of Statement A (SA), show the need for more education on climate change so as to enhance their knowledge levels for positive climate change decisions and actions.

Table 1: Students' knowledge and attitude about climate change issues (in %)

Statement	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
The impacts of climate change will be grievous (SA)	48.7	42.1	6.6	1.3	1.3
The UDS should be concerned about climate change (SB)	42.7	52	5.3		
The UDS should teach all its students about climate change (SC)	37.3	54.7	8		
The UDS should have a climate change policy (SD)	37.3	54.7	8		
The UDS should conduct research about climate change (SE)	41.3	50.7	6.7		

Source: *Field Survey, 2023*

Staff Climate Change Knowledge

All the 20 Administrators who participated in the survey were aware of climate change occurrences. The respondents (85.7%) revealed that climate change is happening now, with 66.7% of them attributing the situation to both nature and human activities while 33.3% associated it with human activities only. When asked about their sources of climate change information, 50% of them mentioned mainstream media. The remaining 50 % attributed their knowledge of climate change to activities within the university such as workshops.

In order to determine the knowledge and attitudes of Administrators toward climate change, the following statements were posed on a Likert scale questionnaire as in Table 2. Generally, the respondents alluded to the fact that climate change impacts would be serious (Statement AA). However, regarding the importance of having a climate change policy in the university (Statement AB), the 'agree' (28.6%) and 'disagree' (28.6%) scores were indifferent with some respondents scoring 'neutral' (14.3%). These responses are not encouraging as far as addressing the impacts of climate change is concerned considering the role of these officials in the university environment.

Table 2: Administrators' knowledge about and attitude toward climate change and adaptation (in %)

Statement	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
The consequence of climate change will be serious (AA)	85.7	14.3			
The UDS should have a climate change policy (AB)	28.6	28.6	14.3	28.6	
The UDS should teach all its students about climate change (AC)	57.1	28.6	14.3		

Source: *Field Survey, 2023*

On the part of lecturers, all the 36 respondents (100%) indicated that they were aware of climate change occurrence, adding that it is happening now. According to them, climate change is manifesting in the form of changes in temperature and rainfall, hence causing hazards such as floods and windstorms. 73.1% of them revealed that climate change is caused by both nature and humans while 26. 9 % believe that human beings are only responsible for climate change. Further statements posed to the respondents probed the relevance of climate change policy, arguments for promoting rural communities' adaptation and their students' roles in promoting climate change in rural communities as seen in Table 3. The respondents 'strongly agree' (73.1%) with the devastating consequences of climate change and advocated for the UDS to have a climate change policy. However, they 'strongly disagree' (34.6%) regarding the integration of climate change topics in all courses. Nonetheless, guided by their teaching, research activities and community services experiences, this category of respondents strongly endorsed the need to promote the adaptation of rural communities as seen in their responses (LD and LE).

Table 3: Table 3: Lecturers' knowledge about climate change and adaptation (in %)

Statement	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
The consequence of climate change will be devastating (LA)	73.1	23.1	3.8		
The UDS should teach all of its students about climate change (LB)	30.8	26.9	7.7		34.6
The UDS should have a climate change policy (LC)	65.4	30.8	3.8		
The UDS should support building the adaptative capacity of rural communities (LD)	57.7	42.3			
The TTFPP can be a channel through which the UDS can communicate climate change adaptation to rural communities (LE)	73.1	26.9			

Source: *Field Survey, 2023*

Perceptions of the Potential of the UDS TTFPP to tackle Climate Change in Rural Communities

Considering the sensitive nature of rural economies to climate (largely nature-dependent), it is important to consider the need to promote climate change adaptation in rural communities in Ghana. Considering the role of the TTFPP in such a process, the statements in Table 4 summarised respondents' perceptions regarding the feasibility of the TTFPP in promoting adaptation. Generally, participants underscored the important role of the UDS in promoting adaptation as seen in the scores in Table 4. This suggest that respondents though possess different levels of knowledge about climate change and its impacts, they recognise largely that the TTFPP is feasible in contributing to promoting adaptation in rural communities.

Table 4: Perceptions of the potential of the UDS TTFPP in promoting adaptation in rural communities (in %)

Respondents	Strongly agree	Agree	Neutral	Disagree	Strongly disagree	Total (%)	Total (N)
Students (SP)	50.7	46.7	1.3	1.3		100	235
Participating lecturers in the TTFPP (not teaching modules) (LN)	38.5	26.9	19.2	11.5	1.3	100	36
Administrators (AP)	28.6	42.9	28.6		34.6	100	20
Lecturers who teach TTFPP modules (LM)	83.3	16.7				100	10

Source: *Field Survey, 2023*

Considering the areas of priority for rural communities, about 63.1% of all lecturers supported the promotion of climate-resilient agriculture and food systems with natural resources management (10% of respondents) and disaster preparedness and resilience (15% of respondents) with other priority areas such as energy promotion considered less pressing hence scored lower values.

Shaping the TTFPP to effectively promote Adaptation in Rural Communities

The consideration of the TTFPP as a conduit for promoting climate change education in rural communities has been recognised as seen in the responses above. However, some respondents underscored the need for rigorous climate change education to be carried out first in the university before it is extended to other places such as rural communities. This, the respondents suggested can be done in the following ways. Firstly, the administrators suggested that their climate change knowledge be deepened through workshops, conferences and seminars.

Regarding students' climate change knowledge enhancement, several suggestions were made. Firstly, some lecturers who are also engaging in other activities of the TTFPP but do not teach the TTFPP modules, argued that the TTFPP modules could be revised and updated. A chapter on climate change could be included in the TTFPP modules rather than allowing students to learn about climate change outside the classroom. In line with that, some respondents indicated that all undergraduate programmes should at least have a course that focuses on climate change and its relevance in the respective field of study. Another section of this category of respondents suggested that while on campus, students' seminars, lectures, radio talk shows and other advocacy programmes be organised for students on climate change. This according to them is important as it will equip the knowledge of students about the concept as a few of them are privileged to be taught topics relating to climate change in the classroom.

However, lecturers who teach the TTFPP modules did not support the idea to include

climate change topics in the TTFPP modules. This, the lecturer instructors of the TTFPP modules premised on the fact that the contents of the TTFPP modules are already loaded, hence teaching them as part of the TFFPP would be a challenge. They therefore suggested that all students should form climate change advocacy groups to deepen their climate knowledge. This would also equip them with climate change presentation skills and thus prepare them for climate change education in rural communities.

Discussion

Climate change is one of the growing environmental challenges confronting the world. Its complex nature requires a critical enquiry and well-informed education that builds knowledge, influences attitudes and promotes action, especially to promote adaptation (Feinstein & Mach, 2020). Achieving adaptation through education, therefore, requires concerted efforts including those of universities. As McCowan (2020) noted, all universities must contribute to adaptation as they are communities themselves and assist communities in societies outside of them. Premised on this, the place of universities in climate change adaptation has been well documented (Filho et al., 2021; Demaidi & Al-Sahili, 2021; Filho et al., 2018; Vogel et al., 2015). This study thus sets out to contribute to the growing literature on the contribution of climate change education and the role of universities in and outside their immediate environments in climate change adaptation promotion.

From the results, most of the UDS students regardless of their programmes of study have knowledge about climate change as they explained this to be in the form of changes in temperature and rainfall. However, there are variations in the source and level of knowledge of these students about climate change. For instance, students whose programmes included a climate change curriculum obviously possessed more knowledge than those without this. This resonates with the findings of Demaidi & Al-Sahili., 2021; Freije et al. 2017; Moswete et al., 2017; and Rahman et al., 2014. Though it does not offer students significant climate knowledge, social media is playing a crucial role in this regard especially for students whose programmes have no climate change curriculum. Therefore, recognising and using social media could serve as an important tool to not only educate but also reach out to a larger student population about climate change adaptation. This has already been suggested by Rooney-Varga et al. (2014) based on their findings of Australian students' engagement in climate change issues through students' media. Apart from the media, the findings underscored the importance of climate change clubs or associations formed by students to enhance climate change knowledge accumulation by students.

Considering the role of students in promoting adaptation, Apollo and Mbah (2021) in their review of cases in East Africa revealed that young people in Kenya have the misconception that climate change is only peculiar with farmers hence no need for collective efforts in promoting adaptation. Contrary, the students of the UDS recognise that climate change affects everybody and hence efforts to adapt must be promoted collectively. The students here are, therefore, willing to educate rural communities about climate change and adaptation as part of their normal academic studies during the third-trimester fieldwork. To make this possible, it was suggested of the need to first deepen the knowledge of these students about climate change issues. This can be achieved through the integration of climate change curriculum in universities' programmes as also recognised in existing studies (Filho et al., 2021; Freije et al., 2017; Rahman et al., 2014; Kagawa & Selby, 2012) . Contrary, revising the TTFPP modules of the UDS to reflect climate change topics was

not agreed by some respondents. Probing these respondents showed that lack of knowledge about the importance of climate change education in general, climate scepticism (Filho et al., 2021) and lecturers' workload account for this. A similar observation was made by Berger et al. (2015). It is therefore important to conduct further research on how to increase climate change knowledge especially of students apart from mainstreaming it in the universities' curricular.

The results showed that university staff such as lecturers and administrators possess adequate knowledge about climate change and its impacts. However, unlike most of the lecturer respondents, some administrators think that having in place a climate change policy in the university is irrelevant. Unfortunately, this category of respondents forms the bulk of the university management who take the major decisions of the university. It is therefore not surprising that the UDS does not have a climate change policy at the moment. This confirms McCowan's (2020) argument that the university can sometimes be part of the climate change problem. Designing a climate change policy for the UDS and increasing the knowledge base of climate change adaptation among the general staff of the university is therefore key. This is important to secure commitments, willingness and the allocation of resources to climate change adaptation both within and outside the university's community. Nonetheless, to increase knowledge and influence attitudes of these respondents as similarly suggested by Siegner and Stapert, (2020), the results recognised interfaces such as conferences, seminars, workshops, climate outreach and media events as platforms to do so. This will not only bring together climate change experts and staff to learn but also create room to collaborate and pull resources together to promote adaptation.

Contrary to the notion that universities' adaptation efforts largely take the form of greening campuses and curriculum development (McCowan, 2020), the TTFPP as a window for promoting rural adaptation has been largely perceived by the respondents as a possible way of the UDS fulfilling its mandate of community engagement in the form of rural communities' adaptation promotion. Using the TTFPP to promote adaption in rural areas will re-affirm Moswete et al.'s (2017) call for college students to be taken to rural areas through field-based courses or subjects for hands-on activities to enhance their climate change learning and adaptation promotion. Nonetheless, for the TTFPP to be a successful tool in promoting rural adaptation in Ghana, the study advocates for a broader understanding of climate change and its adaptation so as to address scepticism among some staff as noted already which is partly creating a disjuncture in framing and implementing climate change policies/strategies in the university community itself and promoting adaptation in rural communities.

Noteworthy also, the issues emerging from this study reinforce the existing literature that highlights the challenges faced by universities in their quest to promote adaptation. This, therefore, offers an opportunity for further research on how feasible Ghanaian universities can practise adaptation themselves while championing such efforts outside their immediate environments.

Conclusion

The place of universities in promoting adaptation beyond their own communities which is seldom given attention in research studies has been the highlight of this analysis. The examination of the UDS field practical programme's contributions to promoting rural communities is in line with the argument that academics need to move from publications to public climate change actions to influence

transformational change. Though needs improvement, students, lecturers and administrators of the UDS possess knowledge of climate change and its impacts. Apart from climate change programmes/courses, mainstream and social media constituted important sources of students' sources of climate knowledge. On the other hand, staff climate change knowledge is traced to mainstream media, conferences and workshops. Furthermore, while some staff possess climate change knowledge, climate scepticism exists among some of them. The scepticism is further exacerbated by the fact that the university has no climate change policy at the moment.

Considering the university's TTFPP as a window for promoting local communities' adaptation to climate change, almost all the respondents asserted that such a programme is apt for building the adaptative capacities of especially rural communities in Ghana. It was however, suggested that for climate change knowledge to be deepened among students especially those whose programmes had no climate change topics, climate change curriculum should be included and climate change clubs formed among students as well as the use of social media to educate and disseminate climate change information. On the part of staff, it was suggested that workshops and training programmes that focus on climate change be organised to increase people's knowledge and understanding of climate change and the ways of adapting to it.

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