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TITLE: EDUCATION AND INFORMATION ROLES OF KNOWLEDGE INFORMATION MANAGEMENT PROFESSIONALS IN PUBLIC LIBRARIES IN SENTISING PEOPLE ON THE IMPACT OF CLIMATE CHANGE IN NORTH-CENTRAL NIGERIA

**Abstract**

*Paper seeks to use the education and information roles of knowledge information management professionals in public libraries to sensitise people on the phenomenal issue of climate change. The study was anchored on five objectives (1) to create awareness for people using their roles of education to educate users and other people about the problems associated with climate change. ; (2) to make them know that they can use their service roles of education to educate people on other sources of energy they can use domestically instead of burning fossil fuels**;3 to use their service roles of information to disseminate information on how necessary afforestation is in mitigating climate change problems; (4) to use their roles as cultural gate keepers of information to disseminate information on human activities that reduce greenhouse gas emission; (5) to use their roles of information dissemination to give people information that would enable them create other sources of energy . Census research design of 251 staff would be used, hypotheses was tested at 0.5 level of significance and data was presented using frequency tables and percentages. The hypotheses was analysed using Pearson product moment correlation coefficient to determine the relationship of the independent variables to the dependent variables and was found to have a strong positive relation. The findings from the objectives are that the knowledge Information Management Professionals can use their roles of Education and Information to educate, inform users and other people about climate change, dangerous impacts and measures for mitigation.*

Keywords: KIMP, Public Libraries, Climate change, North-Central Nigeria

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**Introduction**

**Background to the study**

Climate change is a broad term used to refer to changes in the Earth’s climates, at local, regional, or global scales, and can also refer to the effects of these changes. In recent decades, the term climate change is most often used to describe changes in the Earth’s climate driven primarily by human activity since the pre-Industrial period, which is caused by burning of fossil fuels like coal, oil, and natural gas, which produce heat trapping gases. Climate change refers to long term shifts in temperatures and weather patterns. These shifts may be natural but since the 1800’s human activities have been the main cause of climate change. There is also removal of forests, resulting in a relatively rapid increase in carbon dioxide concentration in the Earths’ atmosphere. Climate change is a broad term used to refer to changes in the Earth’s climates, at local, regional, or global scales, and can also refer to the effects of these changes. In recent decades, the term According to Lawrence and Hassnot (2017) ‘climate change’ is most often used to describe changes in the Earth’s climate driven primarily by human activity since the pre-Industrial period 1850 onwards, particularly the burning of fossil fuels and removal of forests, resulting in a relatively rapid increase in carbon dioxide concentration in the Earth’s atmosphere.

Climate change is one of the 17 targets of sustainable development goals (SDG) goals precisely SDG goal 13 called Climate Action. The SDG goals were the footprint to achieve a better and more sustainable future for all. They address the global challenges that is got like poverty, inequality, climate change, environmental degradation, peace and justice. It is a collection of 17 interlinked global goals designed to be a shared blue print for peace and prosperity of people and the planet, now and into the future. SDG13 is one of the 17 sustainable development goals established by the United Nations Assembly in 2015 and are intended to be achieved in 2030. Their mission statement: Is a shared blue print for peace and prosperity for people and the planet now and into the future. (Lawrence & Hassnot 2017)

Climate change is increasing the frequency and intensity of extreme weather events such as heat waves, droughts, floods and tropical cyclones, aggravating water management problems, and reducing agricultural production and food security. Health risks are increased, critical infrastructure is damaged and the provision of basic services as water, sanitation, education, energy and transport are interrupted. The current period of warming is occurring more rapidly than any past events. It has become clear that humanity has caused most of the last century’s warming by releasing heat-trapping gases commonly referred to as greenhouse gases to power our modern lives (Zarin ‘’ et al 2016) This is being done through burning fossil fuels, agriculture and land-use and other activities that drive climate change. Greenhouse gases are at the highest levels that they have ever been since the last 800,000 years. This rapid rise is a problem because it’s changing our climate at a rate that is too fast for living things to adapt to (Liu ‘’et.al’’. 2015)

Climate change involves not only rising temperatures, but also extreme weather events, rising sea levels, shifting wildlife populations and habitats, and other adverse effects. There is an overwhelming scientific consensus that global warming is mostly man-made. Climate scientists have come to this conclusion almost unanimously. One of the biggest causes is by far the burning of fossil fuels – coal, gas and oil – which have increased the concentration of greenhouse gases such as carbon dioxide in the atmosphere. The use of fossil fuel leads to production of large amounts of carbon-dioxide. The carbon-dioxide raises the initial rate of global warming resulting into climate change. It Increases size of arid areas and leads to scarcity of food. Climate change affects the rainfall patterns, coupled with other activities like clearing land for agriculture, which is causing the average temperature of our planet to increase. In fact, scientists are as certain of the link between greenhouse gases and global warming as they are of the link between ±smoking and lung cancer.

Climate change is now affecting every country on every continent. It is disrupting national economies and affecting lives, costing people, communities and countries dearly today and even more tomorrow (Pecl ‘’et al” 2017)

People are experiencing the significant impacts of climate change, which include changing weather patterns, rising sea level, and more extreme weather events. The greenhouse gas emissions from human activities are driving climate change and continue to rise. They are now at their highest levels in history. Without action, the world’s average surface temperature is projected to rise over the 21st century and is likely to surpass 3 degrees Celsius this century, with some areas of the world expected to warm even more. The poorest and most vulnerable people are being affected the most. Pecl et.al (2017)

Other challenges of climate change are that anthropogenic green gas emissions have increased since the pre-industrial era driven largely by economic and population growth, and are now higher than ever. The world is warming at an alarming rate damaging our ability to grow food. Storms, floods hurricanes and droughts are intensifying, oceans are warming and becoming more acidic, ice is disappearing, and the seas are rising. All countries must take all reasonable steps to reduce emissions to the full extent of their abilities, wealthy countries must lead the way, by decarbonising their economies more quickly than developing countries. States must also take all necessary steps to help everyone within their jurisdiction to adapt to the foreseeable and unavoidable effects of climate change, thus minimizing the impact of climate change on their human rights. This is true irrespective of whether the state is responsible for those effects, because states have an obligation to protect people from harms caused by climate change. Climate change issues must be tackled, as fast and as humanely as possible. Green house gasses are gasses in Earth’s atmosphere that trap heat. They let sunlight pass through the atmosphere of various gasses especially carbon dioxide that contribute to the green house effect. A green house is any gaseous compounding the atmosphere that traps and holds heat in the atmosphere. It absorbs infra red radiation thereby trapping and holding heat in the atmosphere. By increasing the heat in the atmosphere, green house gases are responsible for the green house effect which leads to global warming. The green house gases in the Earth’s atmosphere are water vapour, carbon dioxide, methane, nitrous oxide and ozone. Green gas emissions from human activities, strengthen the green house effect causing climate change. Several major green house gasses that result from human activity are a CO2, methane CH4, Nitrous oxide, Industrial gases are hydrofluoric carbon (HFCs), perfluorocarbon (PFCs) sulfur hexachloride (SF6) Nitrogen trifluoride (NF3). (Forsell et al 2016)

Direct emissions are caused by burning fuel for power or heat through chemical reactions and from leaks from industrial processes or equipment. Most direct emissions come from the consumption of fossil fuels for energy. Fossil fuel is a hydro carbon containing materials formed naturally from the Earth’s crust from the remains of dead plants and animals that is extracted and burnt as fuel, or gas formed from the geological past from the remains of living organisms. The main fossil fuels are coal, crude and natural gas. Sources of greenhouse gas emissions are electricity, transportation, industry, commercial and residential places, agriculture, land use and forestry. Greenhouse emissions can be reduced by using renewable energy.( Pecl “ et al’’ 2017) &( Forsell “et al” 2016)

Renewable energy is the energy that is generated from natural sources as sun, wind, biomass, and water. These renewable energy sources are naturally replenished. It is also referred to as green energy or clean energy as the process of generating energy from these renewable sources emits no greenhouse gas unlike fossils like coal or oil.

Solar power is used to generate electricity from sunrays, and then converted into electricity that can warm your home or power your devices. The panels generate power during daylight hours and it does not have to be sunny for them to work. The powers generated during sunlight can be stored in the batteries. The renewable solar energy can be created by using the sun to create electricity in your home through solar photo voltaic panels.

#### Hydroelectric systems are renewable energy source that use water flowing downhill to generate electricity, therefore a house close to the river or lake is a great opportunity. Hydro power is an eco- friendly renewable source of energy . The energy generated through hydro power relies on the water cycle which is driven by the making it renewable. Hydro power is aided by water making it a clean source of energy.

#### Biomass power is electricity generated from renewable organic waste that would otherwise be dumped in landfills, openly burned, or left in the woods as fodder for forest fires.

In biomass power plants, wood waste or other waste is burned to produce steam that runs a turbine to make electricity, for instance by burning organic materials like woods, pellets,, chips, or logs to provide heating and hot water. The energy from plants like corn and soy can be burnt to create heat or converted into electricity that provides heat to industries and homes. Fortunately, new technologies — including pollution controls and combustion engineering — have advanced to the point that any emissions from burning biomass in industrial facilities are less than emissions produced when using fossil fuels (coal, natural gas, oil). Liu” et.al” 2015)

**Wind power** or **wind energy** is mostly the use of wind turbines to generate electricity. Wind power is a popular, sustainable, renewable energy source that has a much smaller impact on the environment than burning fossil fuels. Historically, wind power has been used in sails, windmills and wind pumps but today it is mostly used to generate electricity. Wind turbines are used in generating wind energy, that is electricity is use generated by the wind turning the blades. (Forsell “et.al’’ 2016)

Afforestation is one practice that can help humanity. Afforestation could be used to mitigate the effects of climate change. It is the establishment of a forest or stand of trees where no trees previously were. Many governments and non- governments organisations engage in afforestation programmes to create forests and increase carbon capture. Afforestation can combat the issue of global warming, soil erosion, pollution and maintenance of biodiversity and ecological balances. It can reduce atmospheric carbon -dioxide, increase soil quality to avoid or reverse desertification. It also creates habitats to local wildlife, creates wind brakes, support soil health, and may improve water quality.

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Afforestation involves establishing a forest on land not previously forested is one of the most effective means of tackling climate change. Establishing enough tree cover to make a sizeable impact on rising temperatures will require a global effort. Afforestation initiatives must use green energy, and engage the public. Afforestation still remains one of the most effective means of tackling climate change, especially establishing a forest, especially on land not previously forested, and particularly when it is designed to rely on green energy. This natural climate solution reduces the impact of desertification, supports ecosystems, and removes carbondioxide from the atmosphere. It is a check against deforestation, which has been contributing to climate change dramatically in the last few centuries.

Cutting down on consumption of diaries products, meats and eggs, and going vegan is a great mitigation option It would regenerate the carbon footprint and lower the negative effects of diet in the environment. It can significantly lower your environmental impact producing plant-based foods which result in fewer greenhouse gas emissions’. Adopting renewable energy sources like solar, wind, and small hydro-carbon, help cities develop more sustainable transport like rapid transit, and electric vehicles. Another benefit of using renewable sources of energy is the ability of the source to protect the population from the adverse effects of environmental pollution to the society. Solar and wind power protects the society through low carbon-dioxide protection. Renewable energy comes from sources the Earth can naturally replenish like crops and biomatter. Other measures towards mitigation are walking, cycling, or taking public transport because the world’s roads are clogged with vehicles most of which are burning diesel or petrol. Walking or riding a bike instead of driving will reduce greenhouse emissions and also help health and fitness (Locateli. “et al’’ 2015).

A lot have been discussed so far about climate change and some of its impacts, and mitigation measures, preliminary investigations from the researcher discovered that some individuals innocently do not know that a lot of the natural disasters like floods, heat waves, landslides global warming, desertification etcetera are as a result of climate change. They equally do not know that there is a phenomenal disaster called climate change in the World generally and then Nigeria and North-Central particularly. It appears people are not intentional or worried about climate change and its problems hence the way it is ravaging the world. There is dire need to disseminate climate change information to all and sundry in the whole country generally and in North-Central Nigeria particularly. This cannot be done without the use of the public library which is called the layman’s university because of its ability to accommodate all and sundry. (Locateli. “et.al’’ 2015)

The public library is the local centre of information, making all kinds of knowledge and information readily available to its users. A public library is an organisation established, supported and funded by the community, either through local, regional or national government or through some other form of community organisation. It provides access to knowledge, information and works of the imagination through a range of resources and services and is equally available to all members of the community regardless of race, nationality, age, gender, religion, language, disability, economic and employment status and educational attainment. ( **Onwukanjo,** 2006).

The services of the public library are provided on the basis of equality of access for all, regardless of age, race, sex, religion, nationality, language or social status. Specific services and materials must be provided for those users who cannot, for whatever reason, use the regular services and materials, for example, linguistic minorities, people with disabilities or people in hospital or prison. All age groups must find material relevant to their needs. Collections and services have to include all types of appropriate media and modern technologies as well as traditional materials. High quality and relevance to local needs and conditions are fundamental. Material must reflect current trends and the evolution of society, as well as the memory of human endeavor and imagination. Information resources and services should not be subject to any form of ideological, political or religious censorship, nor commercial pressures. (Gill ‘’et al’’ 2001) & Idowu 2011) Dissemination of information especially climate information would not be very successful in the public library without the ingenuity of the staff called the Knowledge Information Management Professionals (KIMP). At this juncture there is need to conceptually define knowledge and Information management (KIMP) and KIMP professionals.

Knowledge management (KM) is the collection of methods relating to creating, sharing, using and managing the knowledge and information of an organisation. Knowledge management creates ideal conditions for individuals to learn using another person's information and experience. Knowledge management is obtained through experience, education and the understanding of information. It focuses on knowledge, understanding and wisdom and deals with both codified and uncodified knowledge. Knowledge Management should create and provide the right tools, people, knowledge, structures (teams, etc.), culture, etcetera, so as to enhance learning. It should understand learning, values and applications of the new knowledge created It must store this knowledge and make it readily available for the right people at the right time and it must continuously assess, apply, refine, and remove organisational knowledge in conjunction with concrete long and short term factors.( Onwukanjo, 2015), from this knowledge management definition it could be deduced that it depends upon the management of the organisation's knowledge creation and conversion mechanisms; [organizational memory](http://www.knowledge-management-tools.net/organizational-memory-and-knowledge.html) and retrieval facilities; organisational learning; and [organisational culture](http://www.knowledge-management-tools.net/organizational-culture.html).

Information management refers to management of data (facts and figures) that have been obtained from different sources. This data is structured, organised and processed. Information management concerns managing organisation's information resources to improve the performance of the organization. Information management is the collection and management of information from one or more sources and the distribution of the information to one or more audiences. Information management is a cycle of processes that support the organization's learning activities identifying information needs, acquiring, manage and distribution to required audiences. (Onwukanjo, 2015).

This study is centred on Knowledge Information Management Professionals ( KIMP) who work in the public library as the professional staff of the organisation. It means that all the prior explanations about Knowledge Information Management as defined earlier are encapsulated on the use of these professionals in identifying information needs, acquisition, management, and distribution to the required users and to put succinctly, the functions of KIMP are collection of information resources, processing the resources, organisation of the resources and dissemination (CPOD).( Onwukanjo, 2015)

The objectives of any public library anywhere in the world are Education roles, Research roles, Information roles, Cultural roles and Recreational roles (ERICR) The KIMP that work in the public libraries ideally stock information resources with respect to the five aforementioned roles and objectives. This is because users of the public library need information and knowledge resources that would help them in their formal, informal or non- formal education, their research activities, their information quests, their cultural activities, and lastly their recreational activities. ( Onwukanjo, 2006) & (Adebayo, 2018)

This study is only interested in the Education and Information roles of the KIMP professional as regards sensitising users and other people on the issue and impact of climate change. Since the public library provides access to knowledge in printed and other formats to support formal and informal education. The public library should also actively support literacy campaigns, as literacy is the key to education and knowledge and use of libraries especially as it concerns educational materials on climate change. Newly literate people need easy access to appropriate reading materials to maintain and develop their skills. The need for educational development is seen to be paramount and the focus of public library is to support formal education. There are a variety of ways in which public libraries can support both formal and informal education. The formal and informal education hat the public library would emphasise on in this study is an emphasis on climate change, its impact and mitigations.(Onwukanjo, 2015)

The public library is the local centre of information providing all kinds of information readily available to its users. It is a basic human right to be able to have access to and an understanding of information, and there is now more information available than ever before in the world’s history. As a public service open to all, the public library has a key role in collecting, organising and exploiting information, as well as providing access to a wide range of information sources. The public library has a particular responsibility to collect local information on climate change and its problems and mitigation, and make it readily available to its users and its environs. It also acts as a memory of the past by collecting, conserving and providing access to material relating to the history of the community and of individuals.

In providing a wide range of information, the public library assists the community in informed debates and decision-making on key issues. In collecting and providing information the public library should, wherever possible, co-operate with other agencies to make the best use of available resources. It should also engage in outreach services to disseminate information on climate change including liaising with the mass media to disseminate information on climate change as a matter of expediency. The rapid growth in the volume of available information and the continuing technological changes, which have radically affected the way information is accessed, has already made a significant impact on public libraries and their services and should also translate to disseminate climate change information.

Information is very important to the development of the individual and of society, and information technology should also be used in disseminating information on climate change. A vital role for the public library is to bridge that gap by providing public access to the Internet as regards information dissemination on climate change. Adebayo et.al (2018).

It is based on all these aforementioned discussions that the researcher decided to undertake the study to actually see how the Knowledge Information Management Professionals (KIMP) in the public libraries in the Nigeria with special emphasis on North-Central Nigeria can use two of their roles or objectives of Education and Information to enlighten their users and other people on the issue of climate change and its problems with possible mitigation measures.

**Problem Statement**

Climate change refers to long term shifts in temperature and weather patterns due to burning of fossil fuels like coal, oil and gas which produces heat trapping gases responsible for global warming. The effects or problems of climate change are hotter temperature, heat waves, droughts, floods, more severe storms, desertification, and tropical cyclones, aggravating water management problems, and reducing agricultural production and food security. Health risks are increased, critical infrastructure is damaged and the provision of basic services as water, sanitation, education, energy and transport.

Preliminary investigations show that knowledge Information Management Professionals who are staff of the public library were scantily aware that some of the afore-mentioned identified problems were problems that humanity has been facing as result of climate change. The bigger and more worrisome problem is that users and people do not know that the global warming, heat waves, floods, high temperatures, to mention but a few are all the consequences and impacts of climate change. People also do not know that there are things they can do to mitigate the effects of climate change. There is therefore urgent need for the Knowledge and Information Management professionals (KIMP) of the public libraries to use their roles or objectives of Education and Information to sensitise the people, the users, and government on the need to use the public library which is a layman’s university because it has unrestricted access to give the average public library user and average Nigerian, information on climate change, and ways of mitigation. This was why the researcher embarked on this study.

**Objectives**

*(1) to create awareness for users using their roles of education to educate users and other people about the problems associated with climate change;*

*(2) to make them know that they can use their service roles of education to educate users on other sources of energy they can use domestically instead of burning fossil fuels;*

*(3) to use their service roles of information to disseminate information on how necessary afforestation is in mitigating climate change problems;*

*(4) to use their roles as cultural gate keepers of information to disseminate information on human activities that reduce greenhouse gas emission;*

*(5) to use their roles of information dissemination to give people information that would enable them create other sources of energy.*

**Research question one 1:**

How would the knowledge Information professional in public libraries use their education role to sensitise people on the problems associated with climate change

**Research question :2:**

How would the knowledge Information professional in public libraries use their education role to sensitise people about sources of energy other than fossil fuels

**Research question 3 :**

How would the knowledge Information professional in public libraries use their Information role to sensitise people *on afforestation and how necessary afforestation is in mitigating climate change problems;*

**Research question 4:**

How would the knowledge Information professionals in public libraries use their Information dissemination *and* *cultural gate keepers’* roles to sensitise  *users on human activities that reduce greenhouse gas emission;*

**Research question 5:**

How would the knowledge Information professionals in public libraries use their Information dissemination and *cultural gate keepers of information roles* to sensitise people *and give them information that would enable them create other sources of energy.*

**Hypothesis:**

Two hypotheses were tested in the study at 0.05 level of significance

1. There is no significant relationship between education roles of knowledge Information professionals in public libraries and sensitisation of their users on the impact of climate change in North- Central Nigeria
2. There is no significant relationship between Information roles of knowledge Information professionals in public libraries and sensitisation of their users on the impact of climate change in North- Central Nigeria

Table 1: Public libraries in North- Central Nigeria with their KIMP staff

population

|  |  |  |
| --- | --- | --- |
| **S/NO** | **STATE** | **POPULATION** |
| 1 | Benue State Library Board | 46 |
| 2 | Kwara | 47 |
| 3 | Nassarawa | 25 |
| 4 | Niger | 36 |
| 5 | Plateau | 41 |
| 6 | FCT | 31 |
| 7 | Kogi | 25 |
|  | **TOTAL** | **251** |

**Methodology**

**Research Design**

This study adopted correlation descriptive design which seeks to establish the

relationship that exists between two or more variables. Direction and magnitude of the relationship between the variable was indicated which was found to be strong and positive, that is the effect of the independent variable on the dependent variable.

**Population of the Study**

The population of the study is the 251 KIMP public library staff in North-Central Nigeria

242 respondents returned their copies of questionnaire giving it a response rate of 96% there 96% representing the 242 represents 100% of the total population

Total enumeration technique or census technique was employed so as to use the total population of KIMP public library staff as respondents. This is because the researcher sees climate change problems impact and mitigation as a phenomenal issue that the KIMP personnel can use their education and information objective to tackle.

**Data Collection or Research Instruments**

The questionnaire was the main instrument for the study. It was designed under different research questions. The five point likert scale of Strongly Agree (SA), Agree (A), Strongly Disagree (SD) and Disagree(D) and undecided were used to determine the average responses of the respondents.

Validity and reliability of the instruments

In order to ensure face and content validity of the questionnaire two professors in the Department of Library and Information Science vetted the questionnaire even with the ASSU strike . It was pretested and corrected by administering some copies to library staff of National library Minna.

The Cronbach Alpha method was used to determine the reliability coefficients of each of the research questions. The values obtained were 0.82 for RQ 1, 0.86 for RQ 2, 0.85 FOR RQ 3, 0.82 for RQ 4 and 0.79 for RQ 5(RQ is Research questions.) Research questions were used to obtain the alpha values since the work had three variables.

**Method of data analysis**

The data in the study were analysed using inferential statistics of Pearson Product moment correlation coefficient to determine the relationship between the variables. The socio-demographic information and research questions were analysed using descriptive statistics of frequency, counts and percentages and means.

**Analysis of Research Questions**

**Table 2: Summary Statistics Showing Public libraries in North- Central Nigeria with their staff population**

|  |  |  |  |
| --- | --- | --- | --- |
| **S/NO** | **STATE** | **POPULATION** | **PERCENTAGE** |
| 1 | Benue State Library Board | 46 | 19.01 |
| 2 | Kwara | 47 | 19.42 |
| 3 | Nassarawa | 25 | 10.33 |
| 4 | Niger | 36 | 14.88 |
| 5 | Plateau | 41 | 16.94 |
| 6 | FCT | 31 | 12.81 |
| 7 | Kogi | 25 | 6.61 |
|  | TOTAL | 251 | 100 |

**Research question one 1:**

**Table 3: How would the knowledge Information professional in public libraries use their education role to sensitise people on the problems associated with climate change**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 1. Educate them to know that there is abnormal increase in atmospheric temperature 2. Educate them to know that millions of people are suffering from catastrophic effects of extreme disasters like droughts, tropical storms, deadly heatwaves 3. Educate them to notice shifting wild life populations and habitats | | | | | | | | |
| **Statement** | **Strongly disagreed** | **Disagreed** | **Undecided** | **Agreed** | **Strongly Agreed** | **Weighted Sum** | **Mean** | **Ranking statement agreement** |
| Q1A | 0(0.00) | 0(0.00) | 8(3.30) | 24(9.92) | 210(86.78) | 1170 | 4.835 | 1st |
| Q1B | 0(0.00) | 0(0.00) | 7(2.89) | 41(16.94) | 194(80.17) | 1155 | 4.773 | 2nd |
| Q1C | 0(0.00) | 0(0.00) | 20(8.26) | 38(15.70) | 184(76.03) | 1132 | 4.6777 | 3rd |

From the Table3, values in the parenthesis are percentages of the frequency counts. Ranks are allocated to each statement based on the individual means. Ranks are allocated to each climate change information and knowledge based on the greater mean which depicts the KIMP level of agreement with the researcher.

The result from Table 3 shows the knowledge Information professionals in public libraries, and how they can use their educational role to sensitise people on the problems associated with climate change. From the table, we observed that, in each case larger percentage of the sampled respondents agreed that *the KIMP professionals in public libraries, can use their educational role to educate and sensitise people on the problems associated with climate change*. The respondents’ agreement to each statement in the table are ranked based on their means or averages. The result in the Table 3, shows that the respondents ranked *educate the public to know that there is abnormal increase in atmospheric temperature* as highest mean with highest level of agreements by the KIMP towards sensitising people on the problems associated with climate change in North Central Nigeria. Secondly, they ranked the statement *educate them to know that millions of people are suffering from catastrophic effects of extreme disasters like droughts, tropical storms, deadly heat waves* as secondon how to sensitize people on the problems associated with climate change and thirdly, they ranked the statement *educate them to notice shifting wild life populations and habitats* as last in sensitising the public*.* Each of these rankings depicts the KIMP level of agreement with the researcher concerning that particular statement.

**Research question: 2**

**Table 4.: How would the knowledge Information professional in public libraries use their education role to sensitise people about other sources of energy other than fossil fuels**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 1. Educate them to know that there is an alternative energy called solar energy from the sun 2. Educate them to know that there is biomass energy from plants and hydro electric energy from flowing river 3. Educate them to know there is geo-thermal energy from heat inside the earth | | | | | | | | |
| **Statement** | **Strongly disagreed** | **Disagreed** | **Undecided** | **Agreed** | **Strongly Agreed** | **Weighted Sum** | **Mean** | **Ranking statement agreement** |
| Q2A | 0(0.00) | 0(0.00) | 9(3.72) | 47(19.42) | 185(76.45) | 1140 | 4.711 | 1st |
| Q2B | 0(0.00) | 0(0.00) | 8(3.30) | 94(38.84) | 140(57.85) | 1100 | 4.545 | 2nd |
| Q2C | 0(0.00) | 0(0.00) | 10(4.13) | 94(38.84) | 138(57.02) | 1096 | 4.529 | 3rd |

From the table, values in the parenthesis are percentages of the frequency counts. Ranks are allocated to each statement based on the individual means. Ranks are allocated to each climate change information and knowledge based on the greater mean which depicts the KIMP level of agreement with the researcher.

The result from table 4. shows how the knowledge Information professionals in public libraries can use their knowledge on education to sensitise people about other sources of energy other than fossil fuels. The table 4 shows that, in each case larger percentage of the sampled respondents agreed that *the information professional in public libraries, can use their educational knowledge to sensitise people on sources of energy other than fossil fuels*. The respondent’s agreement to each statement in the table are ranked based on their means. From the table, it is observed that the respondents ranked *educate them to know that there is an alternative energy called solar energy from the sun* as highest mean, secondly they ranked the statement *educate them to know that there is biomass energy from plants and hydro electric energy from flowing river* as secondhighest mean and thirdly they ranked the statement *educate them to know there is geo-thermal energy from heat inside the earth as the lowest mean, which shows the least level of agreement* Thus from the result, the researcher conclude that public need to be educated to know that there is an alternative energy called solar energy from the sunin the study area.

**Research question: 3**

**Table 5: How would the knowledge Information professional in public libraries use their Information role to sensitise people on how necessary afforestation is, in mitigating climate change problems**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 1. Inform them that Communities should deliberately increase afforestation to create forests since forests absorb carbon- dioxide which causes global warming 2. Inform them to know that turning forests into agricultural land and livestock ranches is one of the major causes of deforestation globally and should be stopped 3. Inform them that Government at all levels should consciously plant trees to encourage afforestation which counteracts greenhouse emissions | | | | | | | | |
| **Statement** | **Strongly disagreed** | **Disagreed** | **Undecided** | **Agreed** | **Strongly Agreed** | **Weighted Sum** | **Mean** | **Ranking statement agreement** |
| Q3A | 0(0.00) | 0(0.00) | 7(2.89) | 60(24.79) | 175(72.31) | 1136 | 4.695 | 1st |
| Q3B | 0(0.00) | 0(0.00) | 10(4.13) | 90(37.19) | 142(58.68) | 1100 | 4.545 | 3rd |
| Q3C | 0(0.00) | 0(0.00) | 8(3.30) | 85(35.12) | 149(61.57) | 1109 | 4.583 | 2nd |

From the table, values in the parenthesis are percentages of the frequency counts. Ranks are allocated to each statements based on the individual means. Ranks are allocated to each climate change information and knowledge based on the greater mean which depicts the KIMP level of agreement with the researcher.

The result from table 5 shows the respondents view on how the the knowledge Information professionals in public libraries use their Information role to sensitise people on how necessary afforestation is mitigating climate change problems. From the table, we observed that, in each case larger percentage of the sampled respondents agreed that *the knowledge Information professional in public libraries, can use their information role to sensitise people on how necessary afforestation is, in mitigating climate change problems*. The respondent’s agreement to each statement in the tables are ranked based on their means. From the table, it is observed that the respondents ranked *inform communities to deliberately increase afforestation to create forests since forests absorb carbon dioxide which causes global warming* as highest mean, to sensitize people on how necessary afforestation is mitigating climate change problems in North Central Nigeria. Secondly, they ranked the statement *inform the public that Government at all levels should consciously plant trees to encourage afforestation which counteracts greenhouse emissions* as second highest mean to sensitize people on how necessary afforestation is, in mitigating climate change problems; and thirdly they ranked the statement i*nform the public to know that livestock ranches is one of the major causes of deforestation globally and should be stopped.* Thus, from the result, the researcher concluded that there is need to inform communities to deliberately increase afforestation to create forests since forests absorb carbon dioxide which causes global warmingin the study area.

**Research question4:**

**Table 6: How would the knowledge Information professionals in public libraries use their Information dissemination roles as cultural gate keepers to sensitise users on human activities that reduce greenhouse gas emission;**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 1. Disseminate information on the use of renewable energy 2. Disseminate information on the use of solar panels 3. Disseminate information on the use of energy saving bulbs | | | | | | | | |
| **Statement** | Strongly disagreed | Disagreed | Undecided | Agreed | Strongly Agreed | Weighted Sum | Mean | Dec |
| Q4A | 0(0.00) | 0(0.00) | 8(3.30) | 73(30.17) | 161(66.53) | 1121 | 4.632231 | 1st |
| Q4B | 0(0.00) | 0(0.00) | 7(2.89) | 98(40.50) | 137(56.61) | 1098 | 4.53719 | 2nd |
| Q4C | 0(0.00) | 0(0.00) | 10(4.13) | 94(38.84) | 138(57.02) | 1096 | 4.528926 | 3rd |

From the table, values in the parenthesis are percentages of the frequency counts. Ranks are allocated to each statements based on the individual means. Ranks are allocated to each climate change information and knowledge based on the greater mean which depicts the KIMP level of agreement with the researcher.

The result from table 6 shows how knowledge Information professionals in public libraries can use their Information dissemination and cultural gate keeper’s roles to sensitise users on human activities that reduce greenhouse gas emission. From the table, it is observed that, in each case larger percentage of the sampled respondents agreed with the statements under the research question. The respondent’s agreement to each statement in the table are ranked based on their means, from the table, it is observed that the respondents ranked *disseminate information on the use of renewable energy* as highest mean in sensitize people on human activities that reduce greenhouse gas emission in North Central Nigeria. Secondly they ranked the statement *disseminate information on the use of solar panels* as second highest mean, to sensitize people on human activities that reduce greenhouse gas emission; and lastly they ranked the statement d*isseminate information on the use of energy saving bulbs, a*s third mean, to sensitize people on human activities that reduce greenhouse gas emissionThus from the result, the researcher concludes that there is need to disseminate information on the use of renewable energyin the study area.

**Research question 5:**

**Table 7: How would the knowledge Information professionals in public libraries use their Information dissemination activities to sensitise people****to use their roles as cultural gate keepers of information to disseminate information that would enable them create other sources of energy.**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 1. Disseminate information on creation of solar energy 2. Disseminate information on the creation energy wind 3. Disseminate information on creation of biomass and hydro energy | | | | | | | | |
| RQ5 | Strongly disagreed | Disagreed | Undecided | Agreed | Strongly Agreed | Weighted Sum | Mean | Dec |
| Q5A | 0(0.00) | 0(0.00) | 8(3.30) | 71(29.34) | 163(67.36) | 1123 | 4.640496 | 1st |
| Q5B | 0(0.00) | 0(0.00) | 7(2.89) | 64(26.45) | 168(69.42) | 1117 | 4.615702 | 3rd |
| Q5C | 0(0.00) | 0(0.00) | 10(4.13) | 71(29.34) | 161(66.53) | 1119 | 4.623967 | 2nd |

From the table, values in the parenthesis are percentages of the frequency counts. Ranks are allocated to each statement based on the individual means. Ranks are allocated to each climate change information and knowledge based on the greater mean which depicts the KIMP level of agreement with the researcher.

The result from table 7 shows the respondent view on how would the knowledge Information professionals in public libraries could use their Information dissemination activities to sensitise peopleto use their roles as cultural gate keepers of information to disseminate information that would enable them create other sources of energy. From the table, it is observed that, in each case larger percentage of the sampled respondents agreed with the statements under the research question. The respondent’s agreement to each statement in the table are ranked based on their means. From the table, it is observed that the respondents ranked *disseminate information on creation of solar energy* as highest on how professionals use their knowledge to sensitise people on how to use their roles as cultural gate keepers of information to disseminate information that would enable them create other sources of energy in North Central Nigeria. Secondly they ranked the statement *disseminate information on creation of biomass and hydro energy* as second on how professionals use their knowledge to sensitize people on how to use their roles as cultural gate keepers of information to disseminate information that would enable them create other sources of energy; and thirdly they ranked the statement d*isseminate information on the creation of energy wind.* Thus, from the result, the researcher concluded that there is need to disseminate information on creation of solar energyin the study area.

**Table 8: Product Moment Correlation Showing relationship between education roles of knowledge Information professionals in public libraries and sensitisation of their users on the impact of climate change in North- Central Nigeria**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | **N** | **Mean** | **Std. Deviation** | **Pearson Correlation** | **Sig.(P-value)** |
| Climate change | 242 | 13.5826 | 1.61534 | 0.890\*\* | 0.000 |
| Education roles | 242 | 13.7851 | 1.53091 |  |  |

Table 8 shows the result of product moment correlation showing relationship between educational roles of knowledge information professionals in public libraries and sensitisation of their users on the impact of climate change in North- Central Nigeria. From the Table 8, it is observed that p-value = 0.000 observed that p-value = 0.000 is less than 0.05 level of significance ( r =0.890; P < 0.05) this infers a strong positive relationship between Information roles of knowledge Information professionals in public libraries and sensitisation of their users on the impact of climate change in North- Central Nigeria, there for the null hypothesis which states that that there is no significant relationship between Education roles of knowledge Information Professionals in public libraries and sensitisation of their users on the impact of climate change in North- Central Nigeria is hereby rejected.

**Table 9: Product Moment Correlation Showing relationship between Information roles of knowledge Information professionals in public libraries and sensitisation of their users on the impact of climate change in North- Central Nigeria**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | **N** | **Mean** | **Std. Deviation** | **Pearson Correlation** | **Sig.(P-value)** |
| Climate change | 242 | 13.5826 | 1.61534 | .547\*\* | 0.000 |
| Information roles | 242 | 41.7107 | 4.3564 |  |  |

Table 4.8 shows the result of product moment correlation showing relationship between information roles of knowledge Information professionals in public libraries and sensitisation of their users on the impact of climate change in North- Central Nigeria. From the table it is observed that p-value = 0.000 is less than 0.05 significant level of significance

( r =0.547; P < 0.05) this infers a strong positive relationship between Information roles of knowledge Information professionals in public libraries and sensitisation of their users on the impact of climate change in North- Central Nigeria, there for the null hypothesis which states that that there is no significant relationship between Information roles of knowledge Information professionals in public libraries and sensitisation of their users on the impact of climate change in North- Central Nigeria is hereby rejected.

**Discussion of Findings Based on Research Questions**

**Research question 1:**

Sought to find out how the knowledge Information professionals in public libraries (KIMP) can use their education role to sensitise people on the problems associated with climate change**.**

The study revealed that they can use their KIMP roles to educate their users and teach them to know that there is abnormal increase in atmospheric temperature, that millions of people are suffering from catastrophic effects of extreme disasters like droughts, tropical storms, deadly heatwaves, educate them to notice shifting wild life populations and habitats, and these findings, observations and facts are in consonance with the views of Lawrence and Hassnot (2017) about some characteristics of climate change which can make the KIMPs in public libraries perform their education roles wonderfully well.

**Research question 2:**

Sought to find out how the knowledge Information professional in public libraries can use their education role to sensitise people about other sources of energy other than fossil fuels.

The study revealed that they can use their KIMP roles to educate their users and teach them to know that there is an alternative energy called solar energy from the sun; educate them to know that there is biomass energy from plants and hydro electric energy from flowing river; educate them to know there is geo-thermal energy from heat inside the earth these findings, observations and facts are in consonance with the views of (Locateli. et.al 2015) and Forsell, et.al. (2016)

**Research question 3:**

Sought to find out how the knowledge Information professional in public libraries can use their Information role to sensitise people on how necessary afforestation is, in mitigating climate change problems.

The study revealed that they can use their KIMP roles to inform their users to know that Communities should deliberately increase afforestation to create forests since forests absorb carbon- dioxide which causes global warming

Inform them to know that turning forests into agricultural land and livestock ranches is one of the major causes of deforestation globally and should be stopped

Inform them that Government at all levels should consciously plant trees to encourage afforestation which counteracts greenhouse emissions. These findings, and facts are in consonance with the views of (Locateli. et.al 2015) and Zarin, D. J et.al. (2016)

**Research question 4:**

Sought to find out how the knowledge Information professionals KIMPs in public libraries can use their Information roles to sensitise people as cultural gate keepers of information, on human activities that reduce greenhouse gas emission;

The study revealed that they can use their KIMP roles to Disseminate information on the use of renewable energy; Disseminate information on the use of solar panels; Disseminate information on the use of energy saving bulbs. These findings agree with the views of Pecl, G. T. et.aL. (2017)

**Research question 5:**

Sought to find out how the knowledge Information professionals KIMPs in public libraries can use their Information roles to sensitise people as cultural gate keepers of information to disseminate information that would enable them create other sources of energy.

The study revealed that they can use their KIMP roles to disseminate information on creation of solar energy, disseminate information on the creation of wind energy; disseminate information on creation of biomass and hydro energy. These findings agree with the views of Forsell (2016) and Pecl, G. T. et.aL. (2017)

**Discussion of Findings Based on Tested Hypotheses**

Product Moment Correlation Showing relationship between education and information roles of knowledge Information professionals in public libraries and sensitisation of their users on the impact of climate change in North- Central Nigeria. findings infer a strong positive relationship between Information and Education roles of knowledge Information professionals in public libraries and sensitisation of their users on the impact of climate change in North- Central Nigeria, there for the null hypothesis which states that that there is no significant relationship between Education and Information roles of knowledge Information professionals in public libraries and sensitisation of their users on the impact of climate change in North- Central Nigeria were rejected. These findings agree with Onwukanjo (2006) in the study of Role of Public Libraries in Meeting Information needs for literacy and Adult education.

**Conclusion**

Based on all the findings of the study the public libraries KIMP in North-Central Nigeria really need be able to educate and disseminate climate change information to users so that everybody would know about climate change and its problems, so as to plan on how to mitigate them

**Recommendations**

Based on the findings of this 2esearch, the author makes the following recommendations

The Management of all the public libraries in Nigeria generally and the North- Central Nigeria particularly should as a matter of deliberate policy prevail on their Knowledge Information Management professionals to utilise the Education and Information aspect of the public library objective to render services. (2) in rendering their professional services, they should be intentional and serious about teaching and giving out information about climate change. (3) They should embark on current awareness services on the topic of climate change, its problems and possible mitigation measures. (4) They should do the aforementioned with all seriousness since the public library is everybody’s university.

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