

Science Education: Challenges and New Trends after the Lockdown in Rivers State Nigeria

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Abstract: The study focuses on Science Education: Challenges and New Trends after the lockdown. It shows how the moderating variables; challenges and trends influence the disposition of Science Education in the post lockdown era. The study adopted a descriptive survey design. The sample of the study included 45 respondents from various sectors of the economy and drawn from three educational zones as viz: Rivers West Abua/Odual LGA, Rivers East- Khana LGA, Rivers central Emohua LGA through an accidental non probability sampling technique in which only elements that could be reached were used. The consideration here is in terms of limited time. Data were collected through interview and personal observations. To guide the study, five research questions and hypotheses were formulated and the results were tested using the Chi-square to answer the research questions and 0.05 alpha level of significance were used to test the hypotheses. The major findings of the research were: a high knowledge of science education among the Nigerian populace which has significantly affected the general outlook on the pandemic. The observation of the COVID-19 protocols is significantly low in the side of the citizens while the challenges and new trends brought in by the pandemic have both positive and negative effects on the people. Based on the findings, the following recommendations were made: That Science education is vital at this time of the pandemic, therefore those in the field should ensure its widespread. Since the COVID-19, pandemic may not leave the earth as soon as possible; it therefore becomes needful for everyone to live with its reality and do all that is necessary to reduce its spread. The government must recall her sole duty to protect lives and therefore develop a more effective measure to curtail the spread of the virus. Medical practitioners and health workers should be effectively protected in their fight against the deadly virus since they are more vulnerable and susceptible to infection. The religious bodies should understand that there is difference between faith and reality and therefore educate their professors of faith to separate faith from realities.

Keywords: Science Education, Challenges, New Trends, Lock down

I. INTRODUCTION

As children grow up in an increasing technological and scientifically advanced world, they need to be scientifically literate to succeed. Ideally, teaching the scientific method to students is teaching them how to think, live, learn and solve problems.

To a layman he sees science education to be for the people that have enrolled in the educational system “No” frankly speaking it is education for the young, old, educated and uneducated enrolled and unenrolled and the pandemic has

opened the eyes of all and sundry in this regard. Hence science education became a welcomed remedy to this obnoxious sickness called Covid-19, pandemic in Rivers State which comprises of three educational zones.

Science education is the teaching and learning of science to non-scientists such as school children, college students, or adults within the general public. The field of science education includes work in science content, science process (the scientific method), some social science and some teaching pedagogy.

Science education is well recognized as a distinct field within education, and is concern with the teaching, learning of science and discrete science disciplines. Nested within science education are sub-fields such as chemistry education and physics education. (Keith Taber, 2021). In his view, Gilbert, 2015, revealed the rise of informal science education, accordingly, informal science education was first provided for adults in the nineteenth century. The development of museum and the availability of cheap paper-based publications were the first genre into family-base education and then into the education of school-age students.

It was clear that science and technology play significant roles in the lives of all people, including future employment and careers, the formulation of societal decisions, general problem solving, reasoning, and the increase of economic productivity. There is a consensus that science and technology are central to living, working, leisure, international competitiveness, resolution of personal and societal problems. Few would eliminate science from the curriculum and yet few would advance it as curriculum organizer. The basic skills that characterize science and technology remain unknown for most researchers in science education.

During the twenty-first century, many nations around the world were arguing for the merger of science and technology in children of the lower grade such as nursery, Basic and kindergarten schools. Unfortunately, many are resisting such merger, mostly because technology (e. g manual training, industrial arts, vocational training) is often seen as an area of study for college-bound students. Few see the ties between science and technology, whereas others see ties between science and mathematics. “Note Mathematics is a science subject”.

Karen, (1996) outlined reasons and rationale for and the problem with such joining of science and technology.

Technology is defined as focusing on human-made world-unlike science, which focuses on the natural world. Technology takes nature as it is understood and uses the information to produce effects and products that are beneficial to man.

Furthermore, in a symposium on “thinking about science education for the future”, Ally, 2020 summarized the views of the authors which had it that, traditionally, the main focus of science education has been to teach students on how to think in distinct ways like scientists. But with the complex issues facing us today, it is also important for students to learn, to think different ways as to be able to hold multiple perspectives and embrace complexity. We need people who can stand outside the discipline and see how things work as what matters in the discipline. One way of achieving this meta-view could be to focus on the history and philosophy of science as a way of helping students see that science is one way of making sense of the world. Students should be provided with the opportunities to learn stories of science, the successes and failures, new discoveries and challenging ideas and also to learn about other knowledge systems.

Traditionally, science education has emphasized the importance of objectivity. However, if we recognize that science is a human endeavor. We can be more explicit that science is a value-free process. Ethical considerations become important. Learning about ethics and looking at issues from multiple perspectives could be a way of supporting students to develop more complex understanding.

Given the seriousness of the planetary crisis we are facing, it is also important to ensure students do not lose a sense of hope. One way of doing this is to build students' sense of agency that they can influence and change things. Programs that have a strong emphasis on taking action seem to be important. Perhaps, it is also time to pay close attention to the view in which humans are inextricably linked to and part of the natural world.

Science education is all about scientific literacy. And scientific literacy is the ability to engage the socio-scientific questions and requires the integration of scientific thinking and knowledge derived from scientific inquiry, with social, political, economic, ethical and pragmatic considerations. Thus, the best approach to developing scientific literacy is to focus on the epistemic aspect of science, which can help to mitigate the subjective aspect of scientific theory through a focus on evidence and logical argumentation.

Ally (2020), in his contribution, foresees knowledge building as a future focus pedagogy in science classrooms accordingly, he outlined how knowledge building, where learners work together to create knowledge as an effective pedagogy for science education in schools with the emergence of the knowledge economy, it has become a precedence for young people to develop competence associated with innovation and creativity.

However, with the outbreak of the Corona virus pandemic in 2019 (COVID-19) and the consequent lockdown in many nations of the world including Nigeria, science education is now faced with much challenges and trends especially after the lockdown.

COVID-19 pandemic, also known as the corona virus, is an ongoing pandemic caused by severe acute respiratory syndrome. It was first identified in December, 2019 in Wuhan, China. The World Health Organization (WHO) declared the outbreak a public emergency of international concern in January, 2020. As at January, 2021 more than 96 million cases have been confirmed, with more than 2.05 million deaths attributed to COVID-19 across 190 countries worldwide.

With the figures of new cases and deaths, the entire world is now drawn to a fixed point as the only remedy is to provide a solution to this pandemic. This necessitated the World Health Organization (WHO) to establish and insist that the whole nations be made to observe these protocols as adopted by the Nigeria Centre for Disease Control (NCDC) and made compulsory for all citizens in order to prevent infection and slow down the transmission of COVID-19 are as follows:

- Wash your hands regularly with soap and water or clean with alcohol-based sanitizer.
- Maintain at least 1 metre distance between you and any person coughing or sneezing.
- Avoid touching your face.
- Cover your mouth and nose when coughing or sneezing.
- Stay home if you feel unwell.
- Refrain from smoking and other activities that could weaken the lungs.
- Practice physical distancing by avoiding unnecessary travel and stay away from large groups of people.
- Use of face or nose mask in public places.

The need to practice physical distancing by avoiding unnecessary travel and staying away from large groups of people necessitated the lockdown.

As a result of the pandemic, many countries and regions imposed quarantine, entry bans, or other restrictions, either for citizens, restrict travelers to affected areas. (New York Times, 2020). It decreased willingness to travel, these have negative economic and social impacts on the travel sector. Thus, concerns have been raised over the effectiveness of travel restrictions to control the spread of COVID-19 (Australian Government, 2020).

Large scale physical distance measures and movement restrictions often referred to as lockdown can slow COVID-19 transmission by limiting contact between people. However, these measures have profound negative impacts on individuals, communities, and societies by social and economic life. Such measures disproportionately affect disadvantaged groups, including people in poverty, migrants, internally displaced

people and refugees, who most often live in overcrowded and under resourced settings, depends on daily labour for subsistence.

The World Health Organization (WHO) recognize that at certain point, some countries would have no choice but to issue stay-at-home order and other measures within the time.

Consequently, in Nigeria, several lockdowns were imposed on the citizenry and inhabitants of Nigerian in a measure to curtail the spread of the virus. On 30th March, 2020, Nigerian government implemented a sweeping quarantine for three major states that are home to almost 30 million people. The lockdown in Lagos, Abuja and Ogun state effected all businesses and offices within those locations and were fully closed during this period. This lock down was imposed, to enable the government trace, and isolate all individuals, that have come in contact with confirmed cases Mbah, (2020).

Subsequently, other states gradually joined in the lockdown measures until a ban was later imposed on inter-state travel which consequently resulted in all states of the federation being place on lockdown.

However, science found that restriction to travel has only affected the initial spread of COVID-19, unless combined with infection prevention and control measures to considerably reduce transmission Chinazzi M, David J. T, Ajelli M, Gioannini C, Litvinona M, Marler S. et al, (2020).

Nigeria government is currently making a move for another lockdown, it's therefore imperative to critically study the challenges, determine the effect and new trends after the lockdown on science education prospect.

The closure of schools in Nigeria from March to November, 2020, helped to expose the weakness of our education system as well as the need for an effective online education in Nigeria. Although many schools subscribed to the digital learning, yet no school was without any challenge in terms of the use of internet through Zoom, WhatsApp and other platforms for learning, the lockdown which was a challenge in Nigeria brought a new trend of widespread online learning in Nigeria educational sector. But going by the difficulties encountered during the period of online learning and the complaints of both teachers and students, it becomes needful to examine this vital issue.

COVID-19 resulted in shutting down of schools across the world. Globally over 12 million children were kept out of classroom.

However, education system has changed with a distinctive rise in e-learning which enables teaching and learning to be undertaken remotely on digital platforms.

Research suggests that online learning has shown an increase in the retention of information. The change the pandemic has caused might last for a long time, Consequently, science education must rise to overlap these challenges and develop fast internet or other online platforms, to meet up with the

demand of teaching and learning, even after the post lockdown period.

II. ECONOMY

With many Nigerians now made unemployed by the COVID-19, combined with lower volume of exports such as oil, Nigeria economy has contributed 6.1% year on year in the second quarter of 2020.

It is estimated that 27% of Nigeria's labour force (21 million Nigerians) are unemployed.

There is also little sign of quick turn-around in Nigeria's economy woes as the World Bank predicted Africa's most populous country is set for its worst recession in four decades (Yomi Kareem, 2020).

The effects of the corona virus pandemic has had on Africa's largest economy is starting to show in data.

Nigeria's economy contracted 6.1% year on year in the second quarter of 2020. The report from Nigeria Bureau of Statistics shows the -6.1% decline is also Nigeria's steepest in the last 10 years.

As most other economics around the world, the sharp drop in Nigeria's GDP growth is largely down to the slowdown in economic activity after the country resorted to a lockdown in April, 2020 to curb the spread of the virus. In the wake of the pandemic the World Bank forecast a decline of -3.2% for 2020-a five percent point drop from its previous projection (World Economic Forum, 2020).

While the lockdown has since been ease in the wake of heavy economic cost, the continued rise in cases-especially in Lagos Nigeria's economic hub-means the local economy is yet to fully re-open.

But Nigeria's economy has also been crippled by external factors too as the corona virus pandemic resorted in a near-total shut down of economic activity around the world. The accompany steep drop in oil prices amid a drop in global demand left Nigeria drastically shorn of earning given its dependence on the commodity as it biggest revenue source. For context, the United States slashed its Nigeria's crude oil import by 11.67 million barrels in the first five months of 2020, compared to what it bought in the same period in 2019. In fact, in the second quarter of 2020 local oil production dropped to its lowest since 2016-when Nigeria endured a full year negative growth.

The latest economic data shows Nigeria's government continues to fall short of projection in its economic recovery as growth plan; created the aftermath of the 2016 recession growth to set out aggression growth target from 2017 to 2020.

The details of Nigeria's economy contraction also came barely a week after a grim report on unemployment rate which shows 27.1% of Nigeria's labour force (21.7 million Nigerians are unemployed).

Be that as it may, science education has a great role to play to address this menace. The overhaul of the school curriculum is imperative. Every aspect of the school curriculum is outdated. Most of our subjects do not address contemporary issues, nor do they contribute to the mental growth of students. The system is designed to glorify grades instead of knowledge and skills. Science education must also wake up to the realities of the new trend in terms of capacity building training. The kind of capacity building training Nigerian youth need are practically focused- not one or two hours on-line training. They must equip job seekers with the right skills needed to land their dreams (job)s or to start their own businesses.

Technology: As indicated earlier, that science education plays a vital role in technological advancement, these two are interdependent. So as a measure to curtail the spread of the virus, social and physical distances was part of the protocols. Human beings as social beings are faced with the new trend of the need to break ties. Thus, as social distancing became the new normal standard, robots are moving from controlled environments to uncontrolled environments in many industries faster than ever, as businesses and governments search for new contact-less solution.

Robots are joining our frontline workers and helping to fight the virus. They are helping businesses do even more, which simultaneously demonstrating new cases to regulators, workers and the public. Thus, the pandemic is showing robots in their best light and the impact won't be forgotten.

The implication of this is that many workers will be displaced as robots replaces the jobs previously been done by humans. Thus, science education is now faced with the dilemma of providing an alternative solution to the exponential growth of unemployment that will show forth hereafter.

Health: The decision to ease the lockdown on May 4th, 2020 was a compromise between the heavy economic cost – including the hardship on citizens who depend on daily earning-and the choice to contain a public health emergency (DoyinOgunyemi, 2020).

The increasing number of cases has increased the challenges of handling the virus, such as increasing capacity testing sites in the various states, giving clients the result of their test within 48 hours at maximum. This will be attainable with uninterrupted supply chain of medical supply such as reagents consumables and provision of technical support and continuous training of adequate manpower.

COVID-19 presents Nigeria with an opportunity to properly invest in strengthening its primary healthcare system. The health-centres need to be properly equipped while health workers should be armed with adequate personal protective equipment. This will help them to discharge their duties without the fear of being at risk of contracting the virus.

In a research conducted by a team of health workers in Ahoada, Rivers state, (Ogolodom M.P et al, 2020), opined that the health workers are extremely strained during the

course of any pandemic because of their key players in response to the pandemic. They are the primary sector that has contact with patients and are prone to exposure to infected cases in healthcare setting. The risk percentage and attitude of healthcare workers towards COVID-19 was accessed and majority of the participant 183 (61%) of 300 participants perceived themselves at risk of being infected by the virus in the discharge of their duty.

Consequently, there is the fear that healthcare services may be compromised.

The role of science education in the face of this dilemma cannot be overemphasized. Thus, conclusively, Todd Campbell, Wayne Melville and Byung-Yoel Park, 2020 affirmed that it is believed that much can be learned about science and technology in relation to our response to COVID-19. More specifically, the range of response and power of societal pressures, has taught us that without more explicit connections between classroom teaching and learning to societal pressing phenomenon and challenges, our next generation of leaders and citizens will also struggle to draw on science as an essential tool for making decision of consequences. This not only compels us in the field of science to support science teachers to engage learners in more societal-relevant sense making experiences, it also points to the need for science teachers education researchers to engage in research that examines those factors that lead to students reaching for, and productively using science as tool for decision making in times of critical importance to society.

III. STATEMENT OF PROBLEM

Education is a basic human right, but above all it is the key to development of countries. When children cannot go to school, we know that the future is uncertain. However, even when they do attend school, sometimes there are insufficient guarantees that they will be able to acquire the educational skills demanded by the 21st century society. Science, as a human construct, is subject to a range of societal pressures, as this pandemic has so clearly demonstrated. With some nations of the world gradually relaxing the lockdown, the challenges and new trends brought by the COVID-19 pandemic became glaring. Based on this, the paper examines science education: challenges and new trends after the lockdown.

IV. PURPOSE OF THE PROBLEM

Education can no longer be about transferring explicit knowledge across generations. The need to replace old education standards with educational framework that combines knowledge with the 21st century skills of creativity, critical thinking, communication and collaboration is evident. Students need not just knowledge, but also skills, attitude and values to think and shape their future for a more empowered global citizenship. This has never been more evident than in the current COVID-19 pandemic.

In the wake of the lockdown, it is clear that life will not be as it used to be, the challenges and new trends brought about by

the pandemic will gradually become part of our daily lifestyle as the battle for solution persists. This study therefore, was designed to present science education as a trajectory response to the challenges and new trends after the lockdown.

V. RESEARCH QUESTIONS

The following research questions were formulated to guide the study:

1. What is the role of science education in addressing the challenges and new trends after the lockdown?
2. In what ways can the challenges and new trends after the lockdown promote the usefulness of science education in the society?
3. What are the challenges resulting from the lockdown due to the corona virus pandemic?
4. What are the new trends resulting from the lockdown due to the corona virus pandemic?
5. How do people respond to the challenges and new trends after the lockdown?

VI. RESEARCH HYPOTHESES

The following null hypotheses were formulated to guide the study:

HO₁: There is no significant difference between the role of science education and the challenges/new trends after the lockdown.

HO₂: There is no significant difference between the challenges/new trends and the usefulness of science education after the lockdown.

HO₃: There is no significant difference between the challenges resulting from the COVID-19 pandemic and the ease of the lockdown.

HO₄: There is no significant difference between the new trends proceeding from the COVID-19 pandemic and the ease of the lock down.

HO₅: There is no significant difference from people's response to the challenges and new trends after the lockdown.

VII. METHODOLOGY

The survey research design was adopted for this study because it is a type of descriptive research design. The total of 45 respondents constituted the population of the study and the area of the study were in selected places in Abua/Odual, Emohua, and Khana local government areas of Rivers state. The accidental non probability sampling technique was employed in the study in which only elements that could be reached were used. The consideration here is in terms of limited time. Direct information was obtained through interview and personal observations. The results were tested using the Chi-square to answer the research questions at 0.05 alpha level of significance was used to test the hypotheses.

VIII. RESULTS

Research question 1: What is the role of science education in addressing the challenges and trends after the lockdown?

| | | | | |
|-----------|-----|-----|-----|-----|
| Group | A | | B | |
| Knowledge | 45% | 45% | 55% | 55% |
| | 25% | 25% | 35% | 20% |
| Role | 87% | | 13% | |

In terms of knowledge of science education, 45% of respondents have no basic knowledge of what science education means. 25% of the respondents are not well educated while the remaining 20% who are educated fall outside the field of science. However, 55% of the respondents have knowledge of science education with 35% showing a high knowledge and 20% falling below average.

As of the role of science education in addressing the challenges and new trends after the lockdown, a greater percentage 87% agreed that so far, the contributions of science as a field and science education as an aspect of science are commendable. Their responses suggest that science education is a prospect to the challenges and new trends after the lockdown. The other minimal percent of 13% shows that 10% are not positive of the role of science education in addressing the challenges and new trends after the lockdown. They agreed that only the intervention of a supernatural being can address the challenges and new trends after the lockdown while 3% of the respondents see the challenges and new trends as a doom for mankind and there is no solution whether scientific or divine, mankind should simply resign to fate.

Research question 2: In what ways can the challenges and new trends after the lockdown promote the usefulness of science education in the society?

| | | |
|------------------|--------------|---------------|
| Group | Pre lockdown | Post lockdown |
| Use of Face Mask | 65% | 72% |
| Use of Sanitizer | 25% | 52% |
| Both | 39% | 18% |
| None | 42% | 32% |

Prior to this time, the use of face mask and hand sanitizers were mostly found in the health sector among the health workers. But with the observation of the COVID-19 protocols, the use of these became widespread. 72% of the respondents use face mask and hand sanitizers regularly, 18% use both items occasionally and 10% neither use any nor believe in their efficacy to curtail the spread of the virus. Also 63% of respondents can prepare a face mask contributing to the development of scientific literacy while the rest, 57% patronize those who distribute these items. On the regular hand wash and use of sanitizer, 57% wash their hand regularly with soap and water and 32% make use of the sanitizer in addition to the regular hand wash. By this the role of science education in promoting hygiene is upheld.

Research question 3: What are the challenges resulting from the lockdown due to the corona virus pandemic?

| Group | Pre lockdown | Post lockdown |
|-------------|--------------|---------------|
| Business | 45% | 55% |
| Market cost | 68% | 82% |

The challenges after the lockdown are quite enormous. 55% businesses both public and private were affected. The impact of the lockdown on small businesses is leading to low turnover and laying off staff. For instance, one of the media house, the PUNCH NEWSPAER had to lay off 40 staff. Also increase in the prices of food in the markets; a loaf of bread which is for the common man, formerly sold between N300 and N350 is now sold for N400 and N450. The continuous closure of some big markets like the oil mill and Slaughter Trans Amadi markets have contributed to loss of business and untold hardship on many individuals and families. Cost of transportation also increased as a result of social distancing measures, it became mandatory for public vehicles to reduce the number of passengers carried at a time.

Research question 4: What are the new trends resulting from the lockdown due to the corona virus pandemic?

| Group | Pre lockdown | Post lockdown |
|----------------|--------------|---------------|
| Mortality rate | 42% | 45% |
| Digital market | 55% | 75% |

The new trends resulting from the lockdown due to corona virus as shown by a study conducted in 27 countries randomly selected from the different continents on the impact of the lockdown 15 days before, 15 days during and 15 days after the lockdown on the prevalence and mortality due to the pandemic. The findings showed that 15 days after the lockdown, there was a trend toward a decline, but no significant decline in the mean prevalence and mean mortality rate due to the COVID-19 pandemic compared to 15 day before, and 15 days during the lockdown. The mean growth factor for number of cases was 1.18 and for mortality rate was 1.16 (Sultan AyoubMeo et al, 2020). Other trends include digital market trend as more customers are interacting with businesses through the digital channels like social media pages or email marketing. Digital marketing trends are growing stronger with 100,000 web pages being added every day.

Research question 5: How do people respond to the challenges and new trends after the lockdown?

| Group | Pre lockdown | Post lockdown |
|--------------------|--------------|---------------|
| Social Distances | 60% | 40% |
| Transportation | 48% | 52% |
| New prices of food | 50% | 50% |
| NCDC Update | 75% | 25% |

There is a gradual adjustment to the challenges and new trend of the COVID-19. At first when the figures are given out by the NCDC, people panic for fear of possible contraction of the

virus, but today the fear is gradually reducing and the daily figure of new cases found and mortality rate are gradually becoming insignificant as people see them as scientific and medical routines. In many place, social and physical distances have almost been reduce to zero level. Transportation has gone back to its normal routine, and there is a possibility that any further lockdown may not yield total compliance by the citizens as many have adjusted to the reality that the pandemic not likely leave the earth.

Hypothesis HO₁: There is no significant difference in the role of science education and the challenges and new trend after the lockdown.

Table 1: Chi-square X² calculated on the role of science education and the challenges and new trends after the lockdown.

| Group | Pre lockdown | Post lockdown |
|-------------------|--------------|---------------|
| Science Education | 45 | 65 |
| Challenges | 68 | 72 |
| New Trends | 25 | 48 |

Table 1 shows the role of science education in the place of the challenges and new trends after the lockdown. It lays bare that there is significant increase in all the variables: science education, challenges and new trends. This suggests scientific knowledge is directly proportional to the challenges and new trends after the lockdown. Thus the null hypothesis is rejected.

Hypothesis HO₂: There is no significant difference between the challenges /new trends and the usefulness of science education after the lockdown.

Table 2: Chi-square X² calculated on the significant difference between the challenges/new trends and the usefulness of science education after the lockdown.

| Group | Pre lockdown | Post lockdown |
|-------------------|--------------|---------------|
| Challenges | 67 | 84 |
| New Trends | 53 | 77 |
| Science Education | 41 | 89 |

Table 2 shows the relationship between challenges and new trends as they affect the usefulness of science education. All the variable indicate increase after the lockdown indicating that increase in science education is directly proportional to increase in the challenges and new trends and vice versa. Thus, the null hypothesis is rejected.

Hypothesis HO₃: There is no significant difference between the challenges resulting from the COVID-19 pandemic and the ease of the lockdown.

Table 3: Chi-square X² calculated on the significant difference between the challenges resulting from the COVID-19 pandemic and the ease of the lockdown.

| Group | Pre lockdown | Post lockdown |
|------------|--------------|---------------|
| Challenges | % | % |
| Education | 41 | 89 |

| | | |
|----------------|----|----|
| Health | 52 | 93 |
| Economy | 61 | 77 |
| Transportation | 69 | 84 |
| Family | 56 | 98 |

Table 3 shows percentage variables in the post COVID-19 challenges.

All the variables show increase after the post COVID-19 lockdown which indicates that there is significant difference between the challenges resulting from the pandemic and the post lockdown. Here again the null hypothesis is rejected.

Hypothesis HO₄: There is no significant difference between the new trends proceeding from the COVID-19 pandemic and the ease of the lock down.

Table 4: Chi-square X^2 calculated on the significant difference between the new trends proceeding from the COVID-19 pandemic and the ease of the lockdown.

| Trends | Pre lockdown | Post lockdown |
|---------------|--------------|---------------|
| Automation | 57% | 82% |
| Manufacturing | 70% | 60% |
| Social Media | 61% | 92% |

Table 4: There is a slight difference between the new trends and the ease of the lockdown with two of the variables showing positive relationship and one of the variables showing a negative relationship. The null hypothesis is again rejected.

Hypothesis HO₅: There is no significant difference from people's response to the challenges and new trends after the lockdown.

Table 5: Chi-square X^2 calculated on the significant difference between people's response to the challenges and new trends after the lockdown.

| Group | Pre lockdown | Post lockdown |
|-------------------|--------------|---------------|
| People's response | % | % |
| New cases update | 78 | 42 |
| Social distances | 93 | 34 |
| Medical checkups | 65 | 50 |

Table 5 shows how people respond to the challenges and new trends brought in by the pandemic after the lockdown. It shows a decline in responses. The null hypothesis is retained

IX. DISCUSSION/SUGGESTIONS

The summary of the findings of this study are as follows:

There is a high knowledge of science education among the Nigerian populace. This has significantly affected the general outlook on the pandemic. This is because over the years and in this period of the pandemic, science education is seen as a key player in the move to end the pandemic. Nevertheless, the responses of people to the prevalence of the pandemic do not show commendable result. The observation of the COVID-19

protocol is significantly low in the side of the citizens. Furthermore, the challenges and new trends brought in by the pandemic have both positive and negative effects on the people. For instance, the compulsory introduction of e-learning during the lockdown has increased the benefits of electronic media as a key advancement in education. Also in terms of technology and the economy, Robots due to the need for social distances are now making production both faster and more efficient as compared to when manual labour was widespread. However, the digital marketing trends are growing stronger with more websites being opened daily. On the other hand, the negative impact of the lockdown is glaring on the people more especially the closure of businesses and laying off of staff in many places of work have brought in untold hardship in many families.

X. SUGGESTIONS

The following suggestions are therefore made: the health and safety of the citizens of a nation is very paramount to the life of the people. With many people still in doubt of the reality of the COVID-19 pandemic and its widespread in Nigeria, it is still needful to observe the COVID-19 protocols for the health and safety of others. This is because the transmission rate has no excuse for ignorance, it therefore becomes imperative to be forewarned. The government on her part should not play down on her role to protect lives as a requirement in governance. This is because the force in which measures are taken by the government in combing the spread of this virus after the lockdown cannot be compared to what it was at the inception of its outbreak in the nation. It therefore shows that to an extent we have a system that is insensitive to the plights of the masses.

XI. RECOMMENDATION/CONCLUSION

The following recommendations were made based on the research findings:

1. Science education is vital at this time of the pandemic, therefore those in the field should ensure its widespread.
2. It is concluded that the COVID-19, pandemic may not leave the earth as soon as possible; it therefore becomes needful for everyone to live its reality and do all that is necessary to reduce its spread.
3. The government must recall its sole duty to protect lives and therefore develop a more effective measure to curtail the spread of the virus.
4. Medical practitioners and health workers should be effectively protected in their fight against the deadly virus since they are more susceptible to infection.
5. The religious bodies should understand that there is difference between faith and reality and therefore educate their professors of faith to separate faith from realities.
6. Palliatives should be given on regular bases as to boost the immune system which is likely to direct pandemic entrance.

XII. CONCLUSION

Critically, the study examines the role of science education in the midst of the challenges and new trends after the lockdown. The overall result shows a high knowledge of the role of science education in the face of the pandemic however, the responses of the people to keep abreast with the challenges and new trends of the COVID-19, especially after the lockdown does not portray the possibility of combing the virus among us. With many people still in doubt of the reality of the virus increases the susceptibility of its continuous widespread as we see the figures of new cases and mortality rate on daily increase.

REFERENCES

- [1] Ally, B. (2020). Thinking about Science Education for the future: Symposium. New Zealand Association for Research in Education (NZARE).
- [2] Australian Government (2020). Corona virus (COVID-19), information for Australian travelers.
- [3] Chimazzi, M. Davis J.T, Ajelli, M. et al (2020). The effect of travel restrictions on the spread of the 2019 novel corona virus (COVID-19) outbreak. *Science* 368 (6489) 395-400.
- [4] Doyin, O. (2020). Corona virus, what Nigerians can do post lockdown, University of Lagos, Lagos.
- [5] Fidelis, M. (2020). Al Jazeera media network.
- [6] John, K. G. (2015). Science education, international encyclopedia of the social and behavioural sciences, second edition.
- [7] Karen, F. Z. (1996). Book science/technology/society as reformed in science education.
- [8] Keith, T. (2021). Science education, University of Cambridge.
- [9] New York Times (2020). Corona virus travel restriction across the globe.
- [10] Ogolodum, M. P, Mbaba AN, Alaziga N, et al (2020). Knowledge, attitude and fear of health workers towards the Corona virus disease (COVID-19) pandemic in South-South Nigeria. *Journal of Health Science* SP ISSN:002
- [11] Sultan, A. Abdulelah, Abukhalaf, Ali A., et al (2020). Impact of lockdown on COVID-19 prevalence and mortality during 2020 pandemic: Observational analysis of 27 countries. *European Journal of Medical Research* 25, Article number: 56
- [12] Todd, C., Wayne Marlville and Byung-Yeol Park (2020). Science teacher education in the times of COCID-19 pandemic. *Journal of Science Teacher Education* Vol.31-Issue 5. Wikipedia Last Edited on 20th January, 2021. Yomi, K. (2020). World economic forum. Quartz.