International Journal of Research Available at https://journals.pen2print.org/index.php/ijr/

e-ISSN: 2348-6848
p-ISSN: 2348-795X
Volume 06 Issue 10
September 2019

Trend Analysis of Student's Performance in Mathematics at Credit Level in West African Senior Secondary Certificate Examination From 2011-2018 In View Of Vision 20:2020 and Beyond.

[1]Na'allah Zakaria, [2]Ebenezer Dowtiro Dogo, [3]Christopher A Kukwi

[1,2,3]Department of Mathematics, Kaduna State College of Education Gidan Waya, Kafanchan. Nigeria.(zakarianaallaa@gmail.com)

ABSTRACT:*This study investigated and analyzed the student's performance at credit level in mathematics in May/June West African Senior Secondary Certificate Examination (WASSCE) in Kaduna State and across the twelve (12) Zones from 2011-2018. The main objectives were to investigate the pattern of student's performance at credit level in mathematics within the period of 2011-2018 in the State and to test the level of significance between the Observed (2011-2018) and the predicted performance (2019-2026) and as well as its implication on vision 20:2020. Secondary data was used of the WASSCE mathematics results of 253,681 students who sat for WAEC FROM 2011-2018 were collected from the Education Resource Centre, Ministry of Education Kaduna. Data were analyzed with NCSS and Ms-Excel with XLSTAT ADD-IN software. Comparism between observed percentages of student with credits and the forecasted percentage was carried out with two sample t-test, where significance was determined at the probability of 0.05(p=0.05). The result revealed that on the average, the Observed percentage of Students with credits was 14.5% with a standard deviation of 9.74 for all the Zones from 2011-2018 compared with the predicted percentage of 43.9% with the standard deviation of 8.98 for the next 8 years (2019-2026). The Observed t-value obtained at 14 df was 6.26 and then computed p-value was 0.00 (p< 0.005) which provided enough evidence for the rejecting of null hypothesis. Finally, it was recommended that an immediate step should be taken toward improvement from poor performance in mathematics and investigation into key factors responsible should prioritize.*

KEYWORDS: Mathematics, Students' performance, Nigeria Vision 20:2020.

INTRODUCTION

Mathematics is being applied on our daily endeavors by both the illiterates and literates even when they can't figure such activities as mathematics in application. It was assumed to be developed in response to the needs of the society and whose competence is vital to every individual in order to have meaningful and productive life (Kajuru and Bello, 2012). This maintains harmony with the view of Bature (2012) who posited that Mathematics has an important role in the progress of civilization whereby through mathematics man raised from primitive stage when he finds it extremely difficult to even count to such an advanced stage of development. Due to the centrality and importance of Mathematics to man's existence and development of his society, many Nations had made it a compulsory subject from primary to secondary level of Education for all citizen of the country and even set up centres for the study and development of Mathematical sciences. A case in point is the establishment of the National Mathematical Centres Abuja in Nigeria by decree number 40 0f 1989 and now by an Acts of 2004 (Azuka, 2016).

Mathematics has been described as the bed rock of any scientific, technological, economic and societal development, this among many reasons proved the assertion that the gap between the developed and the developing countries is the gap in the teaching and learning of mathematics (Azuka, 2016).

In line with this Thomaskutty and George (2007) accentuated the versatile nature of mathematics by identifying seven educational values of mathematics which includes: Practical or Utilitarian values, Disciplinary values, Cultural values, Societal values, Moral values, Aesthetic values and Recreational values. The existing literatures have revealed positive relationship between performance in SSCE (WAEC) and student's achievement at the tertiary level of Education. The fact that performance in SSCE (WAEC) is an indicator of the potential of a nation to actualize her economic goals has been alluded to by Obioma and Salau (2007), in this study which indicated that WASSCE was the best single predictor of students' Cumulative Grade Point Average (CGPA) at the tertiary level of education. While the Federal Ministry of Education in her strategic plan (2009)

e-ISSN: 2348-6848
p-ISSN: 2348-795X
Volume 06 Issue 10
September 2019

made a vision20: 2020 statement that Nigeria will be one of the top 20 economies in the world and the vision is to "become an emerging economic model delivery solid eduction policy and management for public good". The summary of Nigeria vision 20:2020 strategic framework (NPC, 2009) is as follows: -

The vision: A large, strong, diversified, sustainable and competitive economy that effectively harnesses the talents and energies of its people and responsibly exploit its natural endowments to guarantee a high standard of living and quality of life to its citizen. In creating the platform for success area of immediate policy focus are: correcting the weakness in revenue allocation, intensify the war against corruption, entrenchment merit as a fundamental principle and core value, fostering private sector, powered non-oil growth to build the foundation for economic diversification, expansion of investment in critical infrastructure, investing in human capacity development to enhance national competitiveness. Addressing subsisting threats to natural security, deepening reforms in the social sector and extending to sub-national levels.

Statement of the Problem

Kaduna state due to her quest for man-power development and capacity building has been over time the state with leading number of tertiary institutions among all the nineteen Northern States of the Federation, which among other reasons makes it stands out as the "Center of learning". Much have been done by both the past and present Government toward improvement of students learning outcomes, man-power development, capacity building and optimal access of the available tertiary institutions available in the State and beyond. The data from research and Examination Bodies (NECO/WAEC) have shown an uncompromising poor achievement in mathematics at national level by students. This will render many (majority) ineligible to enter tertiary institution, denies them further capacity building and advance skills acquisition which could eventually put at risk the future career of the major percentage of the youth been the most vulnerable class of citizen and a great setback to vision 20:2020. This study had examined the trends of students' achievement at credit level in mathematics in May/June WASSCE in Kaduna State from 2011-2018 in highlight of vision 20:2020 and beyond, an indicator for man power development and capacity building in education.

The Objectives of the Study

1. To investigate the pattern of student's rate of Mathematics performance at credit level in WASSCE from 2011-2018 in Kaduna State.
2. To investigate the pattern of student's Mathematics performance at credit level in WASSCE across the respective Zones in Kaduna State from 2011-2018.
3. To examine the expected rate of Student's performance in Mathematics at credit level from 2019-2026 base on the trend of 2011-2018.
4. To infer the implication of the investigated and predicted pattern of rate of students' performance on vision 2020 and beyond.

Research Questions

1. What is the pattern of student's Mathematics performance at credit level in WASSCE from 2011-2018 in Kaduna State?
2. What is the pattern of student's mathematics performance across the twelve (12) Zones within the State in WASSCE from 2011-2018?
3. What are the expected rate of Student's Mathematics performance at credit level in WASSCE at Kaduna State from 2019-2025?
4. What is the implication of the observed and predicted rate of students' performance at credit level in Mathematics on Nigeria vision 2020 and beyond?

Hypotheses

1. There is no significant difference between the observed and predicted student's rate of Mathematics performance at credit level in WASSCE in Kaduna State.
2. There is no significant difference between the observed and predicted respective Zones rate of Mathematics performance at credit level in WASSCE in Kaduna State.

International Journal of Research Available at https://journals.pen2print.org/index.php/ijr/
e-ISSN: 2348-6848
p-ISSN: 2348-795X
Volume 06 Issue 10
September 2019

PERFORMANCE RATE BY CREDIT AND UNRELEASED RESULTS IN KADUNA STATE

Year	Number who sat for WASSCE	Number of those who had credits	Percentage	Unreleased results	Percentage
2011	35214	1271	4.76	8480	24.08
2012	33105	2903	8.77	4609	13.92
2013	36291	1075	2.96	2677	7.37
2014	25794	4999	19.49	4338	16.91
2015	27772	3566	12.8	1974	7.12
2016	29877	4648	15.56	2221	7.43
2017	31249	8231	26.34	1531	4.8
2018	34520	9518	27.88	385	1.12

METHODOLOGY

Descriptive survey design of the longitudinal type was adopted in the research. The target population was the total of 256,281 of (public) senior secondary SS III students who registered for the May/June West African Senior Secondary Certificate Examination conducted by WAEC within the time frame of 2011-2018 among the twelve (12) Zones of all the Senior Secondary Schools in Kaduna State. Purposeful sampling technique was used based on the objectives of the study to analyzed the WASSCE mathematics results of 253,681 students who sat for the examination within the same period. The WASSCE mathematics result of students was collected from Education Resource Centre (ERC) ministry of Education Kaduna State forms the instruments for data analysis. The data were analyzed with NCSS and MS-Excel with XLSTAT ADD-IN Software. Procedure used were Trend analysis with graphical illustration along with Dickey-fuller test root test for ADF (stationary). Comparism between observed percentage of students with credits and the forecasted percentage was carried out with the two sample t- test. Significance was determined at probability of 0.05(p=0.05). Performance over the next eight years (2019 to 2026) was then forecasted.

RESULT AND DISCUSSION

For the 8years, the overall mean percentage of students who obtained credit in mathematics was 14.5% with a standard deviation of 9.7% for the twelve Educational zones of the state. The minimum percentage of students with credit was 3.0% with a maximum of 30.4%. The highest mean percentage of students with credit was obtained in Riga Chikun Educational zone with 21.0 and a standard deviation of 24.2%. The least percentage performance was in Achau Education zone with 9.0 and a standard deviation 6.4%. Table 1 shows a summary of the percentage performances of students in the twelve Educational zones along with the aggregate percentage performance for all the zones.

Table 1: Summary of mean percentage of students with credit in mathematics over the 8year period.

Variable	Min	Max	Mean	S. D	RMSE	MAE	MPE
Achau	0.8	19.0	9.0	6.4	4.3	168.0	-141.6
Birni Gwari	0.7	33.4	10.2	11.0	11.9	9.3	-111.7
Giwa	1.9	32.8	13.7	10.4	9.4	7.6	-66.0
Godogodo	3.0	37.2	19.9	11.0	11.9	9.1	-57.6
Kachia	0.0	21.0	10.2	7.4	4.7	3.9	
Kaduna	1.7	29.6	14.7	10.3	11.4	9.8	-71.5

e-ISSN: 2348-6848
p-ISSN: 2348-795X
Volume 06 Issue 10
September 2019

Kafanchan	3.8	36.1	18.2	11.1	14.7	12.6	-56.5
Lere	0.4	26.4	13.9	10.7	10.4	6.8	-119.0
Riga Chikun	0.2	78.0	21.0	24.2	21.4	14.1	-55.1
Sabon Tasha	1.6	32.9	14.1	10.8	9.3	7.5	-38.5
Zaria	2.3	27.8	11.7	9.7	12.6	9.8	-62.6
Zonkwa	3.2	37.8	17.8	12.1	10.3	8.2	-48.2
All zones	3.0	30.4	14.5	9.7	6.9	4.9	37.0

Note: RMSE= Root Mean Squared Error
MAE = Mean Absolute Error
MAPE = Mean Absolute Percentage Error
MPE = Mean Percentage Error

Trend in mathematic performance by students in all the Zones for the 8 years' period. Figure 1 shows the trend in percentage of students with credit for each of the eight years along with predicted performance for the next 8years (2019 to 2026). There was actually a progression in the sequence which went general low in 2013. From 2015 upward to 2018 there was a gradual increase in the sequence in the number which from the forecast for the next eight years will continue to increase a linear trend

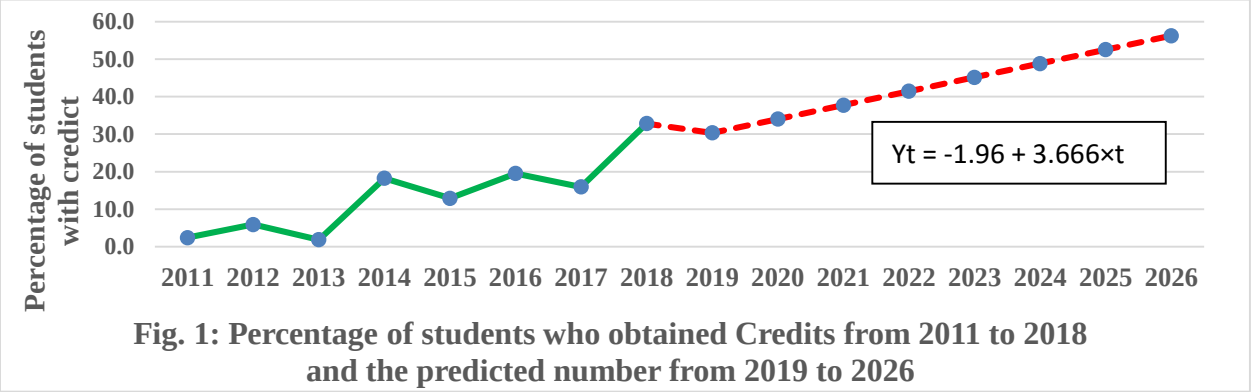

Fig. 1: Percentage of students who obtained Credits from 2011 to 2018 and the predicted number from 2019 to 2026

The equation for the trend Yt = -1.96 + 3.666×t where Yt is the next successive percentage number of students with credit in mathematics and xt is the time period. The accuracy measures obtained were Mean Absolute Percentage Error (MAPE) for the forecast was 44.476 while the Mean Absolute Deviation (MAD) was 3.036 and 12.420 was obtained as the Mean Square Deviation (MSD). From these observations, percentage number of students with credit in the state is likely to increase for the next eight years.

Pattern of student's Mathematics performance at credit level in WASSCE across the respective Zones in Kaduna State from 2011-2018.
Anchau educational zone had a relatively high percentage of students with credit in mathematics but observed variability in the series over the years was relatively as shown in Figure 2

International Journal of Research Available at https://journals.pen2print.org/index.php/ijr/
e-ISSN: 2348-6848
p-ISSN: 2348-795X
Volume 06 Issue 10
September 2019

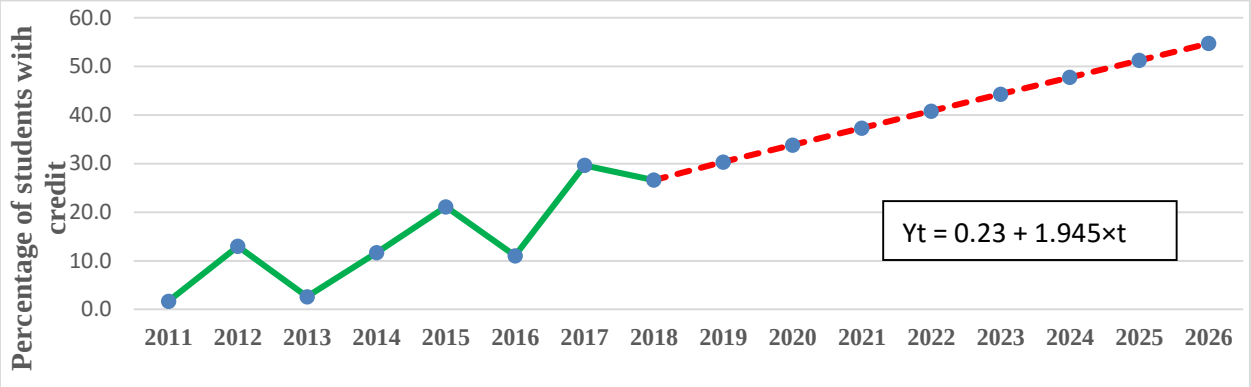

Fig. 2: Linear trend of students who passed mathematic at credit level in WASCE from 2011 to 2018 with predicted number from 2019 to 2026 for Achau zone

The predict progression for Anchau is smoother than was observed for the overall zones. The trend equation obtained for Number of students with mathematic was Yt = 0.23 + 1.945×t, showing that previous performance may not have much effect on subsequent observation.The forecast shows a better prospect in Percentage of students with credits in Mathematic in the next eight years.

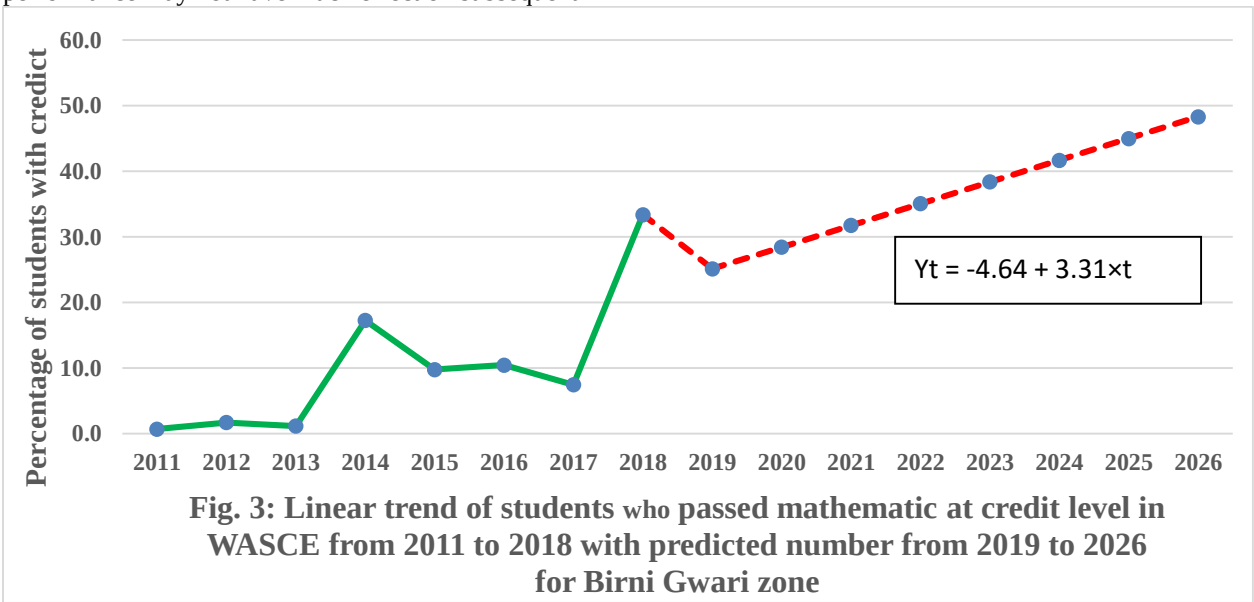

Fig. 3: Linear trend of students who passed mathematic at credit level in WASCE from 2011 to 2018 with predicted number from 2019 to 2026 for Birni Gwari zone

For Birni Gwari zone Percentage of students in mathematics were generally poor between 2011 and 2013. There was an increase in 2014 tended to decrease from 2015 to 2017. In 2018 there was a dramatic increase which fell in 2019 according to the predicted percentage performance. But progression was maintained as shown in the forecast between 2020 and 2026. The measures of accuracy imply that the percentage of students with credits in Mathematic would increase over the next eight years.

International Journal of Research Available at https://journals.pen2print.org/index.php/ijr/
e-ISSN: 2348-6848
p-ISSN: 2348-795X
Volume 06 Issue 10
September 2019

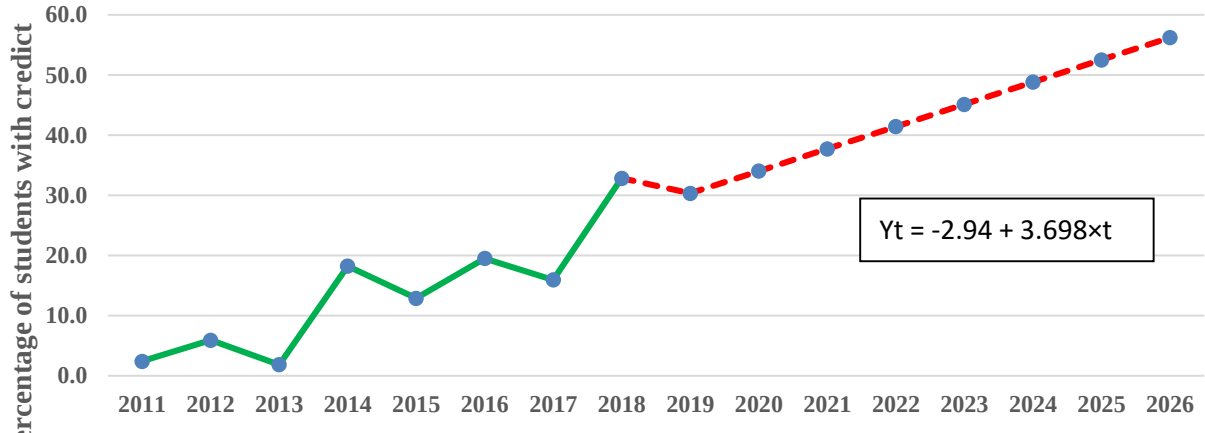

Fig. 4: Linear trend of students who passed mathematic at credit level in WASCE from 2011 to 2018 with predicted number from 2019 to 2026 for Giwa zone

The percentage of students with credits in Mathematic in Giwa zone not consistent as there were more oscillatory trends in the first three years of 2011 to 2013. Percentage performance increased in 2014 and again decreases in 2015 with rise in 2016 and a fall in 2017. In 2018, there was a major increase and tended to have declined again in 2019 as shown in the predicted curve. Upward to 2026, the prediction shows that percentage of students with credits in mathematic would likely increase for the 8years of forecast.

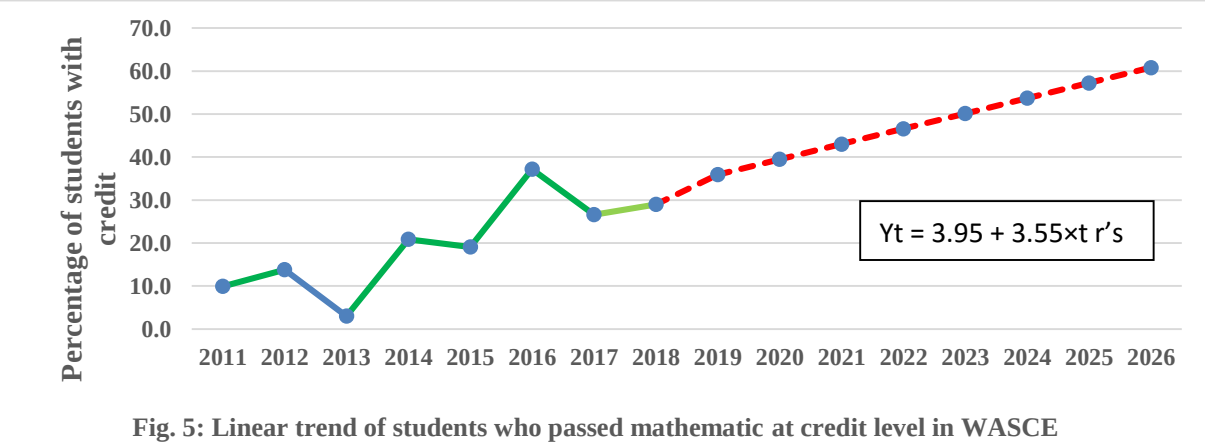

Fig. 5: Linear trend of students who passed mathematic at credit level in WASCE from 2011 to 2018 with predicted number from 2019 to 2026 for Godogodo zone

Percentage performance of students with credits in Godogodo zone fell greatly in 2013 more than the two preceding years of 2011 and 2012. Thereafter, there was successive increase from 2014 to 2016 where the maximum percentage of students with credits was obtained. The figure fell in 2017 and rose slightly in 2018. From 2019 to the end of the predicted years, there was gradual increase. These are clear indication that the percentage performance of students with credit in mathematics in the zone is like to increase on a linear basis.

International Journal of Research Available at https://journals.pen2print.org/index.php/ijr/
e-ISSN: 2348-6848
p-ISSN: 2348-795X
Volume 06 Issue 10
September 2019

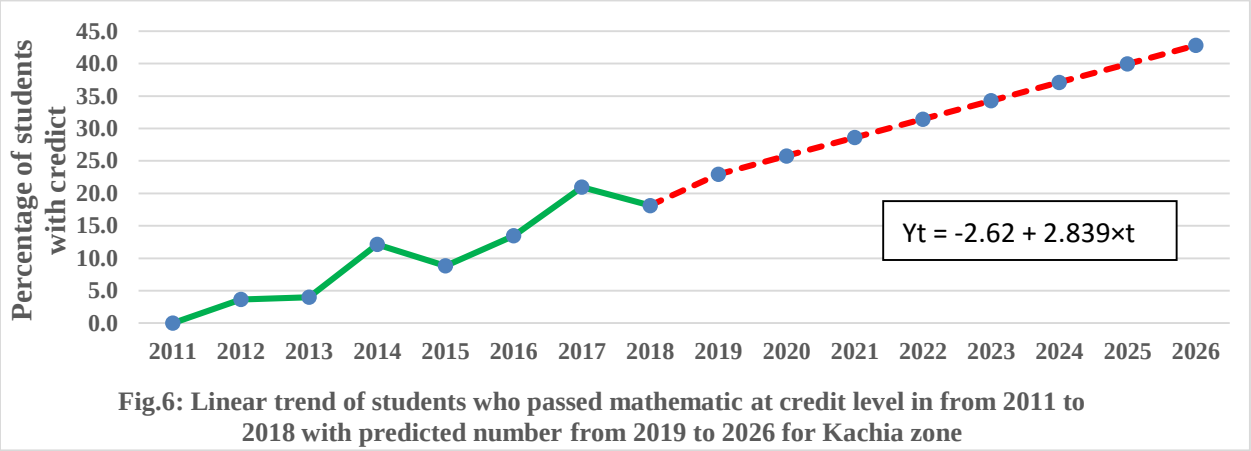

Fig.6: Linear trend of students who passed mathematic at credit level in from 2011 to 2018 with predicted number from 2019 to 2026 for Kachia zone

For Kachia zone, a near linear progression was maintained for the first eight 8years on which the forecast was based, the only exceptions were in 2015 and 2018 when percentage of students with credits decreased respectively. These are clear observations that there would be a steady increase in the percentage of students with credit in mathematics in the following 8years.

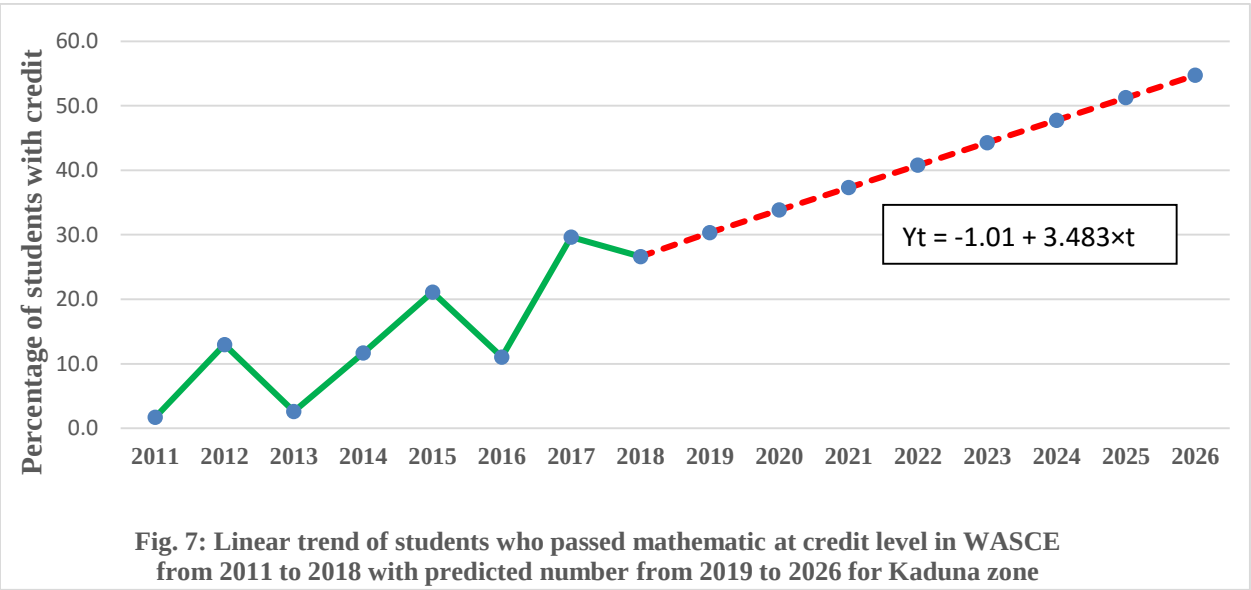

Fig. 7: Linear trend of students who passed mathematic at credit level in WASCE from 2011 to 2018 with predicted number from 2019 to 2026 for Kaduna zone

The percentage of students with credits in mathematic in Kaduna zone was particularly low in 2011 and 2013 but a linear trend was obtained between 2014 and 2015 but declined in 2016. There was a rapid rise in 2017and the forecast for the next 8years followed a linear trend. These indications imply that percentage of students with credits in mathematics would increase on a linear trend in the next 8years.

e-ISSN: 2348-6848
p-ISSN: 2348-795X
Volume 06 Issue 10
September 2019

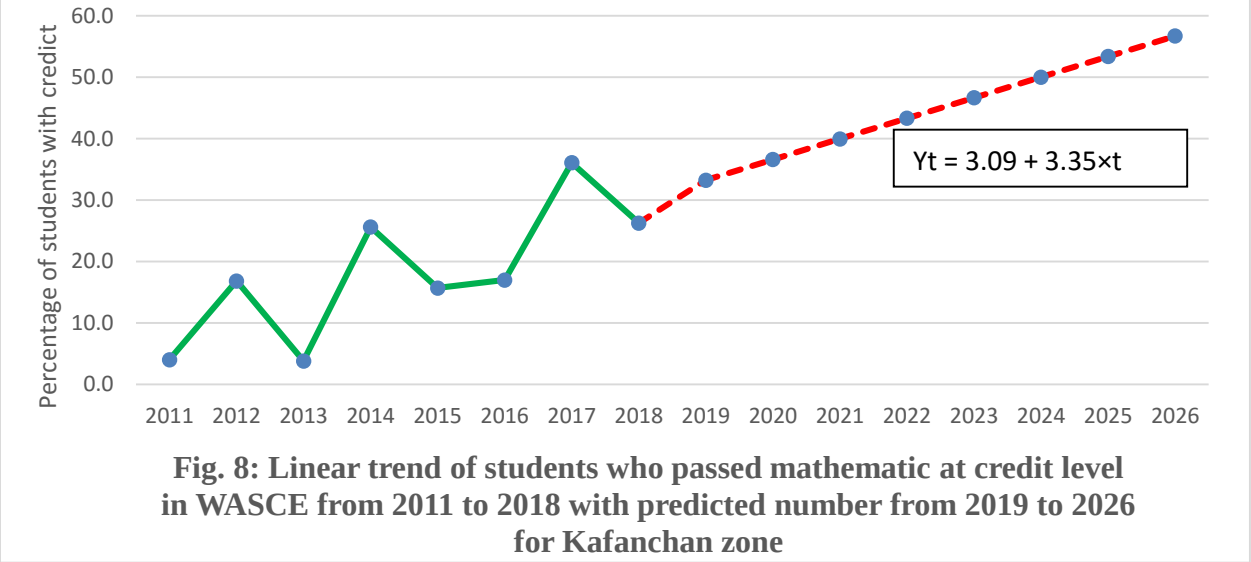

Fig. 8: Linear trend of students who passed mathematic at credit level in WASCE from 2011 to 2018 with predicted number from 2019 to 2026 for Kafanchan zone

The performances of students in Kafanchan Zone were generally good with the exception of 2011 and 2013. And from the forecast, performances would likely increase on a linear trend. From the forecast, percentage performance of students would increase on a linear trend in the next 8years.

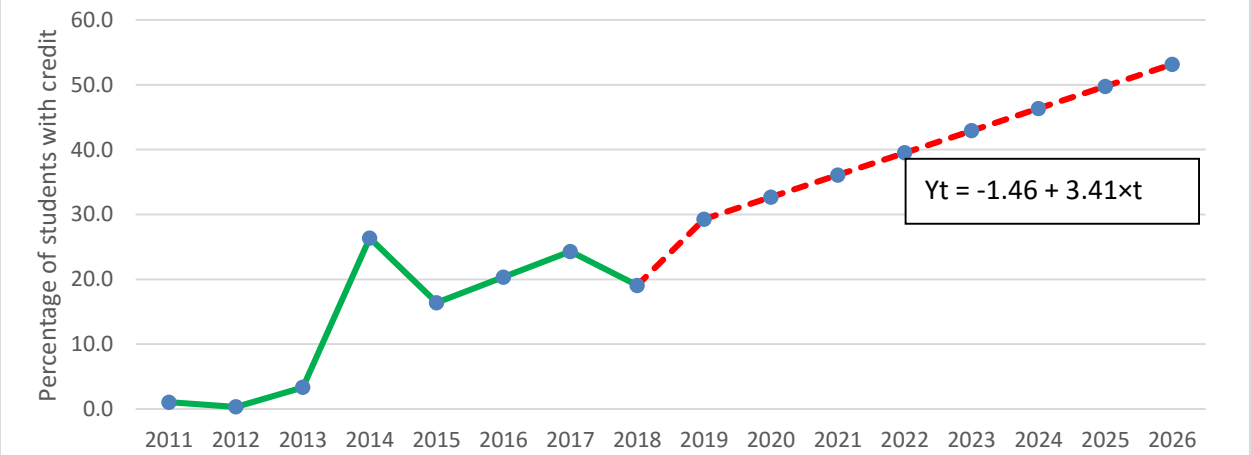

Fig. 9: Linear trend of students who passed mathematic at credit level in WASCE from 2011 to 2018 with predicted number from 2019 to 2026 for Lere zone

Percentage of students with credit in mathematics was very low in Lere Zone from 2011 to 2013. There was increase in 2014 which declined again in 2015 but remained relatively within 25% between 2016 to 2018. The forecast showed a rise in the rate of performance for the next 8years.

International Journal of Research Available at https://journals.pen2print.org/index.php/ijr/
e-ISSN: 2348-6848
p-ISSN: 2348-795X
Volume 06 Issue 10
September 2019

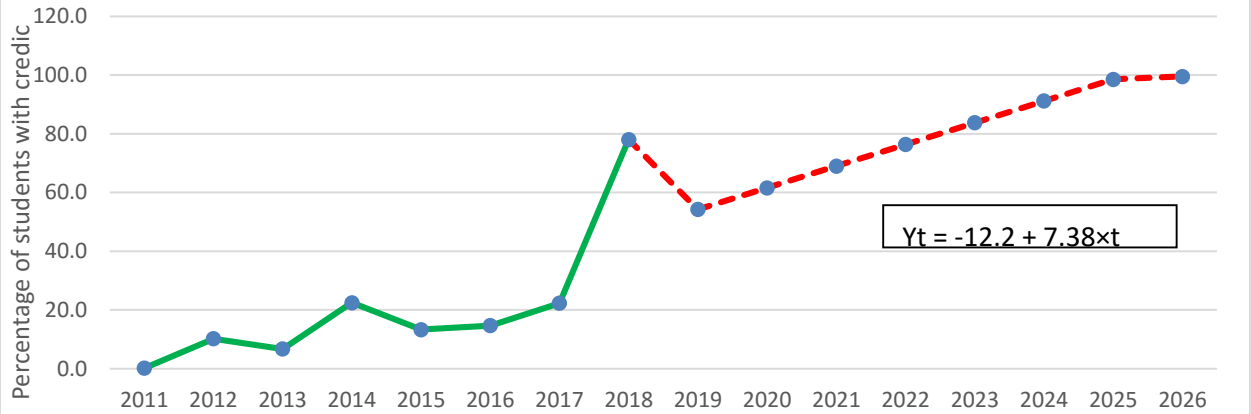

Fig. 10: Linear trend of students who passed mathematic at credit level in WASCE from 2011 to 2018 with predicted number from 2019 to 2026 for Riga Chikun zone

Percentage of students with credit in mathematic was generally low in Riga Chikun zone from 2011 till 2017. There was a rapid increase in 2018 which dropped in 2019 according to the forecast. The forecast for the 8years is expected to be a dramatic increase in the percentage number of students with credit in mathematics within the zone.

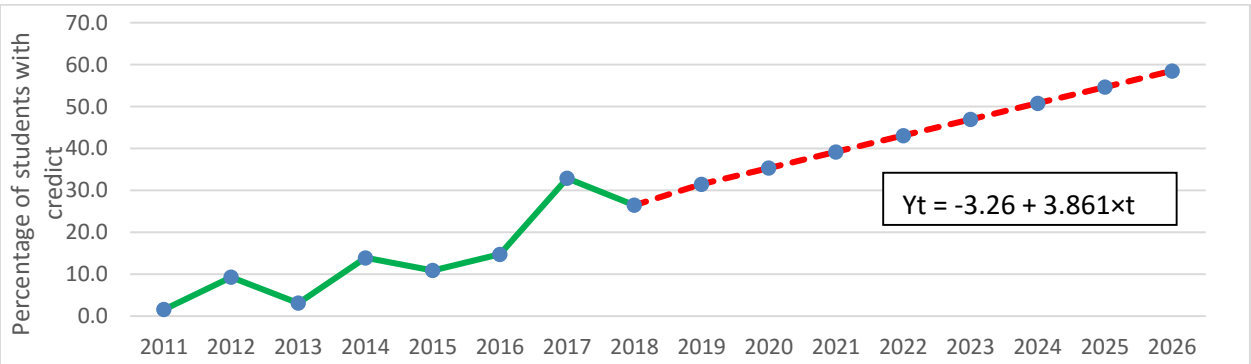

Fig. 11: Linear trend of students who passed mathematic at credit level in WASCE from 2011 to 2018 with predicted number from 2019 to 2026 for Sabon Tasha zone

Percentage of students with credit in mathematic were generally below 20% between 2011 and 2016 in Sabon Tasha Zone. There was a major rise in performance in 2017 which declined in 2018. There is likely to be a steady increase in the number of students with credits in mathematics within the zone in the next 8years.

e-ISSN: 2348-6848
p-ISSN: 2348-795X
Volume 06 Issue 10
September 2019

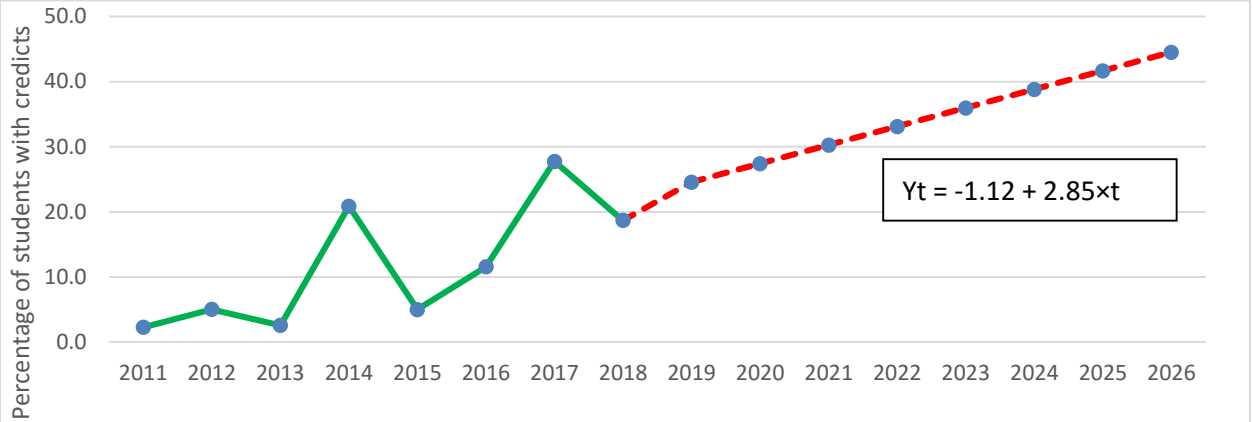

Fig. 12: Linear trend of students who passed mathematic at credit level in WASCE from 2011 to 2018 with predicted number from 2019 to 2026 for Zaria zone

The highest performance Zaria Educational zone was obtained in 2017 and 2014 respectively. In 2018, performance decreased below 20% and rose from 2019 on a linear basis till the end of the forecast. The trend equation is Yt = -1.12 + 2.85×t with accuracy measures of MAPE =65.489, MAD = 5.119 and MSD = 38.849. The forecast implies that percentage of students with credit in mathematic would likely increase dramatically of the next 8years

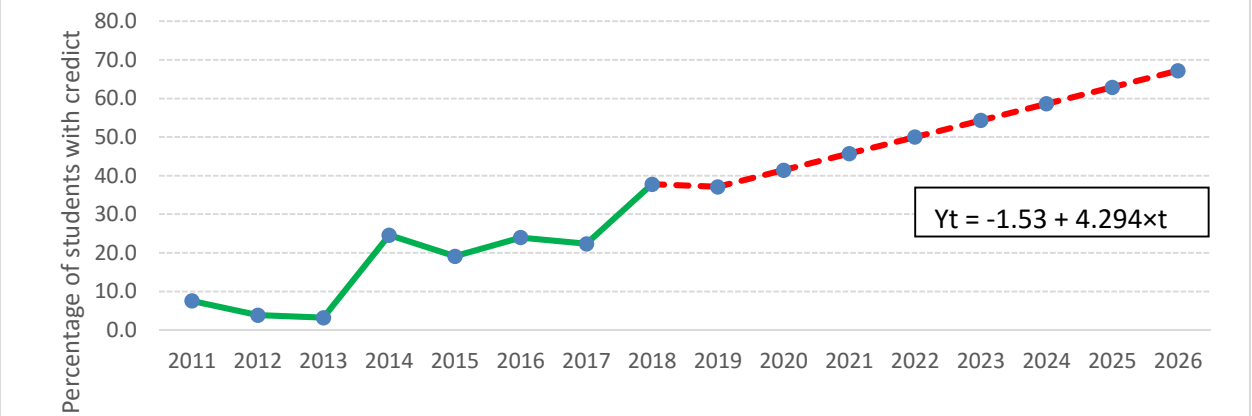

Fig. 13: Linear trend of students who passed mathematic at credit level in WASCE from 2011 to 2018 with predicted number from 2019 to 2026 for Zonkwa zone

The percentage of students with credits in mathematics in Zonkwa Zone was relatively high in 2011 but declined between 2012 and 2013. In 2014 performance rose and did not fall drastically till 2017. There was a rise in 2018 which declined slightly in 2019 as shown in the forecast. These observations showed that the performance of students in the zone is likely to increase dramatically over the 8years period.

Test of Hypotheses

There is no significant difference between the observed and predicted student's rate of Mathematics performance at credit level in WASSCE in Kaduna State.

The overall percentages of students across the 12 zones in the 8 years of 2011 to 2018 were compared here with the forecast for the next 8 years (2019 to 2026). Table 2 shows a summary of the two sample t-test result.

Table 2: Two sample t-test on observed percentage number of students with credits and forecasted percentage for all zones.

Status	N	Mean	Std. Deviation	t-value	DF	P-value
Observed	8	14.5	9.74	6.262	14	.000
Forecast	8	43.9	8.98			

The result revealed that on the overage, the observed percentages of students with credits was 14.5% with a standard deviation of 9.74 for all the zones from 2011 to 2018 compared with the predicted percentage of 43.9 with a standard deviation of 8.98 for the next 8years (2019 to 2026). The observed t-value obtained at 14 df was 6.262 and the computed p-value was 0.000 ($P < 0.05$). These observations provided enough evidence for rejecting the null hypothesis.

There is no significant difference between the observed and predicted respective Zones rate of Mathematics performance at credit level in WASSCE in Kaduna State.

Table 3 showed the summary of the comparison between the observed and predicted percentages of students with credits in mathematic across the twelve educational zones.

Table 3: Two sample t-test on observed percentage number of students with credits and forecasted percentages for independent zone.

Zones	Status	N	Mean	Std. Deviation	t-value	DF	P-value
Achau	Observed	8	9.0	6.38	5.529	14	.000
	Forecast	8	24.5	4.76			
Birni Gwari	Observed	8	10.2	10.95	5.496	14	.000
	Forecast	8	36.7	8.11			
Giwa	Observed	8	13.7	10.38	6.074	14	.000
	Forecast	8	43.3	9.06			
Godogodo	Observed	8	19.9	11.03	5.724	14	.000
	Forecast	8	48.4	8.70			
Kachia	Observed	8	10.2	7.37	6.340	14	.000
	Forecast	8	32.9	6.95			
Kaduna	Observed	8	14.7	10.33	5.882	14	.000
	Forecast	8	42.5	8.53			
Kafanchan	Observed	8	18.2	11.07	5.505	14	.000
	Forecast	8	45.0	8.21			
Lere	Observed	8	13.9	10.67	5.698	14	.000
	Forecast	8	41.2	8.36			
Riga Chikun	Observed	8	21.0	24.23	5.581	14	.000
	Forecast	8	79.3	16.88			
Sabon Tasha	Observed	8	14.1	10.81	6.082	14	.000
	Forecast	8	45.0	9.46			
Zaria	Observed	8	11.7	9.66	5.416	14	.000
	Forecast	8	34.5	6.99			
Zonkwa	Observed	8	17.8	12.06	6.073	14	.000
	Forecast	8	52.2	10.52			

For Achau, the observed percentage of students with credit for the eight years was 9.0 with standard deviation of 6.38 while the forecasted percentage for the next eight years was 24.5% with a standard

e-ISSN: 2348-6848
p-ISSN: 2348-795X
Volume 06 Issue 10
September 2019

deviation of 4.76%. The observed t-value was 5.529 at df=14. The computed p-value was 0.000 (P < 0.05). The observation for Birni Gwari was 10.2% with a standard deviation of 10.95 as observed percentage performance while 36.7 with standard deviation of 8.11% was forecasted. The observed t-value was 5.496 and the computed p-value was 0.000 (p < 0.05). The result for Giwa revealed that on the overage, the observed percentages of students with credits was 13.7% with a standard deviation of 10.38 from 2011 to 2018 compared with the predicted percentage of 43.3 with a standard deviation of 9.06 for the next 8years (2019 to 2026). The observed t-value obtained at 14 df was 6.074 and the computed p-value was 0.000 (P < 0.05).

For Godogodo, the observed percentage of students with credit for the eight years was 19.9 with standard deviation of 11.03 while the forecasted percentage for the next eight years was 48.4% with a standard deviation of 8.70%. The observed t-value was 5.724 at df=14. The computed p-value was 0.000 (P < 0.05). The observed percentage of students with credit for the eight years for Kachia was 10.2 with standard deviation of 7.37 while the forecasted percentage for the next eight years was 32.9% with a standard deviation of 6.95%. The observed t-value was 6.340 at df=14. The computed p-value was 0.000 (P < 0.05). For Kaduna, the observed percentage of students with credit for the eight years was 14.7 with standard deviation of 10.33 while the forecasted percentage for the next eight years was 42.5% with a standard deviation of 8.53%. The observed t-value was 5.882 at df=14. The computed p-value was 0.000 (P < 0.05). The result for Kafanchan revealed that on the overage, the observed percentages of students with credits was 18.2% with a standard deviation of 11.07 from 2011 to 2018 compared with the predicted percentage of 45.0 with a standard deviation of 8.21 for the next 8years (2019 to 2026). The observed t-value obtained at 14 df was 5.505 and the computed p-value was 0.000 (P < 0.05). For Lere, the observed percentage of students with credit for the eight years was 13.9 with standard deviation of 10.67 while the forecasted percentage for the next eight years was 41.2% with a standard deviation of 8.36%. The observed t-value was 5.698 at df=14. The computed p-value was 0.000 (P < 0.05).

Result for Riga Chikun revealed that on the overage, the observed percentages of students with credits was 21.0% with a standard deviation of 24.23 from 2011 to 2018 compared with the predicted percentage of 79.3 with a standard deviation of 16.88 for the next 8years (2019 to 2026). The observed t-value obtained at 14 df was 5.581 and the computed p-value was 0.000 (P < 0.05). The observed percentage of students with credit for the eight years in Sabon Tasha 14.1% with standard deviation of 10.81 while the forecasted percentage for the next eight years was 45.0% with a standard deviation of 9.46. The observed t-value was 6.082 at df=14. The computed p-value was 0.000 (P < 0.05). For Zaria, the observed percentage of students with credit for the eight years was 11.7% with standard deviation of 9.66 while the forecasted percentage for the next eight years was 34.5% with a standard deviation of 6.9. The observed t-value was 5.416 at df=14. The computed p-value was 0.000 (P < 0.05). The result for Zonkwa revealed that on the overage, the observed percentages of students with credits was 17.8% with a standard deviation of 12.06 from 2011 to 2018 compared with the predicted percentage of 52.2 with a standard deviation of 10.52 for the next 8years (2019 to 2026). The observed t-value obtained at 14 df was 6.073 and the computed p-value was 0.000 (P < 0.05). From the observations across the zones, there was significant difference between the observed and predicted percentages of students with credit in Mathematics in WASSCE in all the Zones of the State. The null hypothesis is therefore rejected.

LIMITATION

Figures used in the study did not include influence of external factors like students' environment, socio-demographic variables and other factors that can affect performance. Prediction is basically on observed values of the 2011 to 2018 performances.

CONCLUSION

The average observed trends of student's performance in May/June WASSCE Mathematics in Kaduna State within the period of 2011-2018 is in line with the trend at the National level which is also less than 50% as provided by WAEC and other researchers (Maduabum *et al.* 2006; Okigbo *et al.* 2008; Okaneme, 2011, Adeiza, 2011; Azuka 2012, Musa *et al.* 2014). This indicates a great challenge for the posterity of the State in the aspect of Human capacity development, advanced skills acquisition and professional development and growth in Science Technology, Engineering and Mathematics Education (STEME) within the Zones, state and at national level. The implication of sluggish progress from the predicted rate of performance at credit level on the economic growth is that, majority of the youth will be incapacitated to gain admission into the available

tertiary institutions, where the youths are offered different opportunities for skill acquisition and professional advancement at various field of human endeavor and this could eventually cause a major setback to vision 20:2020.

RECOMMENDATIONS

1. An immediate step should be taken towards the improvement of poor performance in Mathematics within Kaduna State.
2. Wholistic research could be embarked upon to identify the key factors responsible for poor performance in Mathematics that has stunted the growth of the teeming youths professionally.

REFERENCE

[1]. Adeiza, A. (2011). Avoiding A Repeat of Mass Failure in Subsequent WAEC/NECO Examinations. Retrieved on 24th April, 2013 at http://www.peoplesdailyonline.
[2]. com/news/education/2348.
[3]. Azuka, B. F. (2016). Role of mathematics in enhancing good governance in Nigeria. A paper presented at the 53rd Annual Conference of the Mathematical Association of Nigeria (MAN) held at Ahmadu Bello University, Zaria, Nigeria.
[4]. Bature, I. M. (2012). The role of Mathematics in the Development of Nigerian Economy. A paper presented at 31st Annual Conference of the Nigerian Mathematical Society (NMS) held at Department of Mathematics Ahmadu Bello University, Zaria, Nigeria between 2nd October- 5th October, 2012.
[5]. Federal Ministry of Education (2013). National Policy on Education, Abuja: NERDC.

[6]. Federal Ministry of Education (2007) Ten Year Strategic Plan, Abuja.
[7]. Kajuru, Y. K. and Bello, A. S. (2012). Effect of enrichment package on mathematics achievement among secondary school students in Adamawa State. A paper presented at the 49th Annual conference of the mathematical association of Nigeria (MAN) held at National Mathematical Centre, Kwali, Abuja between 2nd September – 7th September, 2012.
[8]. Maduabum, M.A., and Odili, G.A. (2006). Analysis of Students' Performance in General Mathematics at SSCE level in Nigeria 1991 – 2002. *Journal of Research and*
a. Curriculum Teaching, 1, 1, 64 – 68.

[9]. Musa M. and Dauda S. E. (2014). Trends Analyses of Students' Mathematics Performance in West African Senior Secondary Certificate Examination from 2004 to 2013: Implication for Nigeria's Vision 20:2020. *British Journal of Education.* 2, 7, 50-64.

[10]. National Policy on Education (2004). Section 4: Pimary Education.
[11]. National Planning Commission (2009). Nigeria Vision 20:2020 Economic Transformation Blueprint. The Presidency, Abuja, Nigeria.

[12]. Obioma, G., & Salau, M. (2007). The Predictive validity of public Examinations: A case study of Nigeria. A paper presented at the 33rd Annual Conference of International Association for Educational Assessment (IAEA) held in Baku, Azerbaijan, 16 – 21 September.

[13]. Okaneme, G. (2011). Preventing Mass Failure in SSCE (NECO) Examination. Nigerian Commentaries. Retrieved March, 12, 2013 at nigeriacommentary.blogspot.com/2

[14]. Okigbo, E. C., & Osuafor, A. M. (2008). Effect of using mathematics laboratory in teaching
[15]. mathematics on the achievement of mathematics students. *Educational Research and*
[16]. *Review*, 3, 8, 257 – 261.

[17]. Thomaskutty, P. G. & George, M. (2007). Mathematics and Civil Society. Retrieved 1102/2014. *http://www.en.wikipedia.org/wiki/civil*