



Impacts of Adolescents' Behavioural Indices on Effective Teaching and Learning of Science and Technology in Secondary Schools in Makurdi Metropolis, Benue State

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Abstract

This study was carried out to assess the impacts of adolescents' behavioural indices on effective teaching and learning of science and technology in secondary schools in Makurdi Metropolis, Benue State. Expo-facto research design was used in this study. The population of the study was 126 respondents selected from 21 public secondary schools in Makurdi metropolis. The sample of the study was 72 drawn from 12 public secondary schools through simple random sampling technique using balloting system. The instrument for data collection was Adolescents Behavioural Indices Assessment Questionnaire (ABIAQ) developed by the researchers. The instrument was validated by three experts whom, ascertained that the items of the instrument adequately measured the variable of the study. The reliability of ABIAQ was calculated using Kuder-Richardson 20 formula which gave the value of 0.79. Research questions were answered using means and standard deviations. The findings of the study reveal that adolescents' behavioural indices have negative impacts on teaching and learning of Science and Technology. The study also showed that the use of appropriate strategies will redirect adolescents' behaviour in positive direction for effective teaching and learning. Based on these findings, it was concluded that; these behaviours if not properly handled, remain threats for the effective teaching and learning of science and technology. Recommendation was that; effective strategies should be used for handling adolescents' behaviours in secondary schools by school administrators and teachers.

Keywords: Adolescents, Behavioural Indices, Effective Teaching and Learning, Science and Technology

Okwara, K. O., & Upu, F. T. (2019). Impacts of adolescents' behavioural indices on effective teaching and learning of science and technology in secondary schools in Makurdi Metropolis, Benue State. *International Journal of Scientific Research in Education*, 12(5), 632-640. Retrieved [DATE] from <http://www.ijrsre.com>

INTRODUCTION

Adolescence is the period between childhood and adulthood which begins at the puberty when adult roles and sexual characteristics started manifesting in the adolescents (Ekong, 2007). According to Hander and Mendle (2007), the cessation of adolescent varies from individuals. However, to educational psychologists adolescent began at twelve years and terminated when an individual is eighteen years of age, while for others adolescent persists into twenty or even thirty years of age. Biologists' defined adolescent as the physical transition by the onset of puberty and termination of the physical growth and cognitive developmental tasks of the individual (Archibong & Akpan, 2017). Adolescents cognitive developmental tasks is defined as the changes in the ability of an individual to think abstractly and multidimensional; as well as the period of preparation for adult roles and functions (Christie & Viner, 2005; & Arnett, 2007; Dorn & Biro, 2011).

Cognitive developmental tasks influence all aspects of adolescents' lives which lead to behaviours and characters that are typical of adolescence phase, which enables them to meet the requirements for adulthood. Suffice to say that the major developmental tasks of the adolescents usually signal its conclusion is the capacity and willingness of a growing youngster to fall out of the parental influences and become an independent learner. During this period, school and the larger society played important roles in either fostering or hindering positive learning or self-internalization of an individual (Archibong & Akpan 2017).

Adolescents itself is the sum total of all that adolescents can call their own. It is the system of behaviours, ideas, attitudes, skills, values, dispositions and distinctive centre of interactions as well as experiences. Zimmerman and Schunck (2003) asserted that adolescent itself is a very sensitive period because adolescent's exposure to wrong information can have negative impacts on the society and national development. Emergence of the adolescents self does not happen simply because a developing youngster grows older and taller, but occurs as result of interpersonal interaction and experiences they have over time. Olayiwola and Ajayi (2013) maintain that adolescents' cognitive developmental task of self can cause them confusion, insecurity and undue stress which in most cases leads to behavioural indices that have implications on effective teaching and learning of science and technology.

Behavioural indices are the anti-social or defiant behaviour exhibited by adolescents in inappropriate way and time that are against the norms, rules and regulations of the school and society at large (Kembe, 2005). These behaviours includes; physical aggression, verbal aggressions, rudeness, stealing, cruelty, bullying, disrespect, dishonesty, substance abuse, alcoholism, delinquency, truancy, defiance, naughtiness, vulgarity, disobediences, assault, damage to properties, verbal abuse, lack of remorse, examination malpractice and hooliganism, among others (Archibong & Akpan 2017).

Behavioural indices of adolescents in secondary schools today, if not properly check at this level will hamper effective teaching and learning of science and technology. Several psychological theories such as Gagne hierarchical theory of learning, have emerged that could make learning of science and technology more effective. Gagnes (1965) hierarchical theory of learning is associated with adolescents' developmental tasks that aid teaching and learning of science and technology. This hierarchy of tasks shows what should be learned with the desired new learning task at the top (i.e. the terminal task or desirable behaviour).

Implications of adolescents' behavioural indices on teaching and learning of science and technology remain a controversial issue for many parents, social workers, teachers, stakeholders in education. Researchers like Simatwa (2012), Olayiwola and Ajayi (2013), and Mohammed and Muktar (2016) argue that adolescents' behavioural indices pose a great threat on effective teaching and learning of science and technology which are instruments for sustainable national development. They reported that there is a growing awareness of a need

for multidisciplinary approach for the treatment of behavioural indices in schools. This means that principals and teachers should work in consultation with social workers, psychologists, parents, and school counsellors as to provide good mentorships to adolescent's students.

Mentoring here means the process of promoting constructive feedbacks in the lives of the adolescents through support, guidance, and instruction which are needed to aid smooth transition to adulthood (Dorn & Biro, 2011; & Simatwa, 2012). Good mentorship links parents, principals and teachers to adolescents, with the aim of reassuring innate worth of adolescents by instilling values, guiding curiosity and encouraging their positively youthful lives (Harden & Mendle 2007; Olayiwola & Ajayi, 2013). This shows that for adolescents to be functional member of the society he/she need good mentorship and sound education in science and technology to learn basic appropriate knowledge and skills in their immediate environment. This is because education is the vehicle for engineering and transforming human behaviours, attitudes and skills towards empowerment for self-reliance and sustainable national development (Adejoh & Ekele, 2014). Fafunwa (2004) posits that education of the adolescent is the aggregate of all the processes by which individuals develop abilities, attitudes and other forms of positive values including scientific and technological knowledge and skills for the development of the society. Development is a comprehensive of economic, social, culture and educational process, aims at the constant improvement of the well-being of the individuals.

The important of Adolescents for national development cannot be over emphasis; because adolescents are leaders of tomorrow. This shows that adolescents' behaviours and attitudes have great impacts on effective teaching and learning of science and technology for sustainable national development. This is why principals and teachers are doing their best to ensure that all the students in secondary schools perform well in both; academically and persons of good moral behaviour to avoid any negative impact on them and the societies (Mohammed & Mukhtar, 2016). As much as principals and teachers are doing their best for adolescents to behave and do well academically; yet the report on the adolescents' behavioural indices in secondary schools and poor achievement today is still on the increase, one begin to wonder what need to be done to ensure effective teaching and learning of science and technology for sustainable national development. This necessitated the researchers to carry out this study, as to investigate the impacts of adolescents' behavioural indices on effective teaching and learning of science and technology in secondary schools.

Statement of the Problem

The review of literatures had shown that education in science and technology as a process of impacting knowledge, abilities, skills, attitudes, norms and values of the society to adolescents for sustainable national development has been hampered by adolescents' behavioural indices in our secondary schools today. Adolescents behavioural indices in secondary school nowadays has become immediate concerned to the stakeholders in education, teachers, principals, science educators, and researchers in education. This is because behavioural indices of the adolescents in secondary schools today pose great challenges for effective teaching and learning of science and technology for sustainable national development. It is important to note that teachers, schools administrators and stakeholders in education are ensuring that all students in secondary schools should perform well both academically and in good behaviour to avoid any negative impact on them and the society.

Principals and teachers are doing the best to ensure that adolescents should behave well both morally and academically, still the report on the adolescents' behavioural indices in secondary schools today show that the problem is still on increase. This requires a research work of this kind to be conduct to find out the missing gap in the principals' and teachers

techniques in handling adolescents' behavioural indices in secondary schools in Makurdi Metropolis of Benue State. This prompted the researchers to carry out this research work to investigate strategies for curtailing negative impacts of adolescents' behavioural indices on effective teaching and learning of science and technology in secondary schools.

Purpose of the Study

The main purpose of this study is to investigate impacts of adolescents' behavioural indices on effective teaching and learning of science and technology in secondary schools in Makurdi metropolis, Benue state. Specifically the study is designed to:

- Identify adolescents' behavioural indices that have impacts on effective teaching and learning of science and technology in secondary schools in Makurdi Metropolis.
- Identify the strategies for handling adolescents' behavioural indices in secondary school for effective teaching and learning of science and technology.
- Examine the extent of effectiveness of the strategies for handling adolescents' behavioural indices in secondary schools for effective teaching and learning of science and technology.

Research Questions

The following research questions were raised to guide the study:

- What are adolescents' behavioural indices that have impacts on effective teaching and learning of science and technology in secondary schools in Makurdi Metropolis?
- What are the strategies for handling adolescents' behavioural indices in secondary school for effective teaching and learning of science and technology?
- What is the extent of effectiveness of the strategies for handling adolescents' behavioural indices in secondary schools for effective teaching and learning of science and technology?

METHODOLOGY

Expo-facto research design was used in this study to collect and analyse data from the sample of the study. The population of the study was 126, comprised 84 science teachers and 42 school administrators selected from 21 public secondary schools in Makurdi metropolis. The sample of the study was 72 drawn from 12 public secondary schools through simple random sampling technique using balloting system. The instrument for data collection was structured questionnaire titled; Adolescents Behavioural Indices Assessment Questionnaire (ABIAQ) developed by the researchers for the purpose of this study.

The instrument was divided into three parts with 45 items all together. Part one with 15 items sought information on adolescents' behavioural indices in secondary school in the study area. Part two with 15 items dealt with the strategies for handling adolescents' behavioural indices, while part three with 15 items centred on the effectiveness of the strategies for handling adolescents' behavioural indices. Part 1-2 of the instrument anchored on Strongly Agree (SA=4 points), Agree (A=3 points), Disagree (D=2 points) and Strongly Disagree (SD=1 point) rating scale for the positively worded items and in the reverse order for the negatively worded items. Part 3 anchored on four point scale of Very Effective (VE=4 points), Effective (E=3 points), Slightly Effective (SE= 2 points) and Not Effective (NE=1 point) respectively.

The mean score of 2.50 and above is agreed while the mean score below 2.50 is disagreed. On the other hand mean score of 2.50 and above is considered effective while

mean score below 2.50 is considered not effective on the strategies for handling of adolescents behavioural indices.

Instrument was given to three experts to determined content and face validity. One was from the Department of Curriculum and Teaching Benue State University while two were from Measurement and Evaluation, Department of Educational Foundations and General Studies, Federal University of Agriculture Makurdi. The experts ascertained that the items of the instrument adequately measured the variable of the study. The reliability of ABIAQ was calculated using Kuder-Richardson 20 formula which gave the value of 0.79. This value indicated a positive relationship within the test items which showed that the instrument is both internally consistent and reliable. Mean and standard deviation were used to answer the research questions.

RESULTS

Research Question 1: What are the adolescents’ behavioural indices that have impacts on effective teaching and learning of science and technology?

The means and standard deviations of the respondents on adolescents’ behavioural indices having impacts on effective teaching and learning of science and technology are presented in the Table 1.

Table 1: Means and Standard Deviations of the Respondents on the Adolescents’ Behavioural Indices in secondary school

S/N	Item	Mean	SD	Remark
1.	Truancy/absenteeism	3.58	1.03	A
2.	Aggressiveness behaviour	3.34	1.04	A
3.	Absconding of lessons	2.75	1.07	A
4.	Examination malpractice	3.52	1.03	A
5.	Rudeness/hooliganism	3.98	0.98	A
6.	Violent demonstration	3.34	1.02	A
7.	Disrespect to teachers	2.97	1.05	A
8.	Lack of respect to school constituted authority	2.89	1.05	A
9.	Stealing	2.68	1.06	A
10.	Indolence/neglect of class work	2.86	1.02	A
11.	Cheating on given assignment	3.98	0.98	A
12.	Smoking at school premises	2.34	1.02	D
13.	Drinking of alcohol	2.50	1.09	A
14.	Wilfully Destruction/vandalism of school properties	3.24	1.02	A
15.	Fighting/bulling	3.61	1.03	A
Cluster Mean and Standard Deviation		3.17	.93	A

N=72

On the basis of Table 1, the study reveals that the respondents agreed ninety three-point-three percent (93.3%) that the listed items (1-11 and 13-15 items) as the adolescents’ behavioural indices that are having impacts on effective teaching and learning of science and technology in Makurdi metropolis. The study also reveals that respondents disagreed six-point-seven percent (6.7%) that the listed item (that is item 12) as the adolescents’ behavioural indices having impacts on effective teaching and learning of science and technology.

The represented mean scores; Decision mean =2.50; 93.3% of adolescents’ behavioural indices have negative impacts on effective teaching and learning of science and technology in Makurdi metropolis with means ranging from 2.50-3.98. On the other hand item 12 as adolescents’ behavioural indices having impacts on effective teaching and learning of science and technology was not accepted by the respondents. However the cluster mean

scores of 3.17 with a standard deviation of 1.03 is above the mean cut-off point of 2.50 indicated the agreement of the respondents on adolescents' behavioural indices having negative impacts on effective teaching and learning of science and technology. The standard deviation of 1.03 implies that the respondents homogenously agreed that the adolescents' behavioural indices negatively affect effective teaching and learning of science and technology

Research Question 2

What are the strategies for handling adolescents' behavioural indices in secondary school for effective teaching and learning of science and technology?

The means and standard deviations of the respondents on the strategies for handling adolescents' behavioural indices in secondary schools for effective teaching and learning of science and technology are presented in the Table 2.

Table 2: Means and Standard Deviations of the Respondents on the Strategies for Handling Adolescents' Behavioural Indices in Secondary Schools for Effective Teaching and Learning of Science and Technology

S/N	Item	Mean	STD	Remark
1.	Desirable behaviour should be rewarded	3.32	1.04	A
2.	Teacher should be fair/impartial in disciplining adolescents	2.74	1.07	A
3.	Punishment should be given to adolescent immediately when misbehaved	2.87	1.06	A
4.	Corporal punishment should be used	2.50	1.08	A
5.	Dialogue with the err adolescent	3.98	0.98	A
6.	Deprivation with any position of authority like prefect or class monitor	2.44	1.02	D
7.	Suspension from classroom activities	2.87	1.05	A
8.	Expulsion from school	2.12	1.05	D
9.	School guidance counsellors should be involved	2.76	1.05	A
10.	Where possible, teachers should involve social workers	2.65	1.04	A
11.	Teachers should improve on their personality/competence where necessary	3.87	1.02	A
12.	Parents should be invited for useful discussion concerning their children/wards	3.41	1.02	A
13.	Identification of the type of students enrol in school	4.00	0.03	A
14.	School curriculum should restructure to suit immediate environment of the adolescents	2.64	1.06	A
15.	Parents and teachers should provide good mentorship for adolescents to emulate	3.36	1.03	A
Cluster mean and standard deviation		3.03	0.95	A

N=72

The findings in Table 2, shows that the respondents agreed eighty six-point-seven percent (86.7%) with the listed items (1-5, 7, 9-15 items) as strategies for handling adolescents' behavioural indices in secondary schools for effective teaching and learning of science and technology. The study also reveals that the respondents disagreed thirteen-point-three percent (13.3%) with the listed item (that is item 6 and 8) as the strategies for handling adolescents' behavioural indices in secondary schools for effective teaching and learning of science and technology.

The represented mean scores; Decision mean=2.50; 86.7% of strategies for handling adolescents' behavioural indices in secondary schools for effective teaching and learning of science and technology in Makurdi metropolis with mean scores ranging of 2.50-4.00. On the other hand item 6 and 8, as strategies for handling adolescents' behavioural indices in secondary schools for effective teaching and learning of science and technology with mean

scores of 2.44 and 2.12 respectively which are less than bench mark of 2.50 was not accepted by the respondents. However the cluster mean scores of 3.03 with a standard deviation of 0.95 is above the mean cut-off point of 2.50 indicates the agreement of the respondents on strategies for handling adolescents' behavioural indices in secondary schools for effective teaching and learning of science and technology. The standard deviation value of 0.95 implies that the respondents homogenously agreed with the strategies for handling adolescents' behavioural indices in secondary schools for effective teaching and learning of science and technology in Makurdi Metropolis.

Research Question 3: What is the extent of effectiveness of the strategies for handling adolescents' behavioural indices in secondary schools for effective teaching and learning of science and technology?

The means and standard deviations of the respondents on the effectiveness of the strategies for handling adolescents' behavioural indices in secondary schools for effective teaching and learning of science and technology are presented in the Table 3.

Table 3: Means and Standard Deviations of the Respondents on the Effectiveness of the Strategies for Handling Adolescents' Behavioural Indices for Effective Teaching and Learning of Science and Technology

S/N	Item	Mean	STD	Remark
1.	Desirable behaviour should be rewarded	3.32	1.04	E
2.	Teacher should be fair/impartial in discipline adolescents	2.74	1.07	E
3.	Punishment should be given to immediately when misbehaved	2.87	1.06	E
4.	Corporal punishment should be used	2.50	1.08	E
5.	Dialogue with the adolescent who err	3.98	0.98	E
6.	Deprivation with any position of authority like prefect or monitor	2.44	1.02	NE
7.	Suspension from classroom activities	2.87	1.05	E
8.	Suspension from school	2.12	1.05	NE
9.	Involvement of school guidance counsellors	2.76	1.05	E
10.	Where possible, teachers should involve social workers	2.65	1.04	E
11.	Teachers should improve on their personality/competence	3.87	1.02	E
12.	Parents should be invited for useful discussion concerning their children/wards	3.41	1.02	E
13.	Identification of the type of students enrol in school	4.00	0.03	E
14.	School curriculum should restructure to suit adolescents	2.64	1.06	E
15.	Parents and teachers should provide good mentorship for adolescents to emulate	3.36	1.03	E
Cluster Mean and Standard Deviation		2.91	1.04	E

N=72

The findings in Table 3, shows that the respondents agreed eighty six-point-sevenpercent (86.7%)with the listed items (1-5,7 and 9-15 items) as the effective strategies for handling adolescents' behavioural indices for effective teaching and learning of science and technology. The study also shows that respondents disagreed thirteen-point-three percent (13.3) that item; 6 and 8 are not effective strategies for handling adolescents' behavioural indices in secondary schools for effective teaching and learning of science and technology.

The represented mean scores; Decision mean=2.50; 86.7% of the effectiveness of strategies for handling adolescents' behavioural problems in secondary schools for effective teaching and learning of science and technology in Makurdi metropolis with mean scores ranging of 2.50-4.00. On the other hand 13.3% that is, item 6 and 8 are not effective strategies for handling adolescents' behavioural problems in secondary schools for effective teaching and learning of science and technology with mean scores of 2.44 and 2.12 respectively.

However the cluster means scores of 3.03 with a standard deviation of 0.95 is above the mean cut-off point of 2.50 shows that respondents agreed with the listed items as effective strategies for handling adolescents' behavioural problems in secondary schools for effective teaching and learning of science and technology. The standard deviation value of 0.95 indicates the homogeneity of the respondents' agreement on the effectiveness of the strategies for handling adolescents' behavioural indices in secondary schools for effective teaching and learning of science and technology in Makurdi Metropolis.

DISCUSSION

The result from Table 1, indicates that respondents agreed 93.3% that the listed items (1-11 and 13-15 items) are the adolescents' behavioural indices that have impacts on effective teaching and learning of science and technology in Makurdi metropolis. The study also reveals that respondents disagreed 6.7% with item 12 (smoking at school premises) as the adolescents' behavioural indices having impacts on effective teaching and learning of science and technology. The result of this study is in consonant with that of Christie and Viner (2005); and Dorn and Biro (2011) who pointed out those anti-social behaviours exhibited by adolescents in secondary school such as disrespect for elders, teachers, norms and values of the society have negative impacts on teaching and learning of science and technology. They stressed that adolescents do not have regard to the constituted authority as the result they indulge in various devious behaviours like examination malpractice, cultism activities, pirating, substance abuse, gangsters, hooliganism, aggressive behaviours, and resentment, making of unnecessary noise during teaching and learning process, bullying fellow learners, and absconding of lessons for the detriment of effective teaching and learning.

The findings in Table 2, shows that the respondents agreed eighty six-point-seven percent (86.7%) with the listed items (1-5, 7 9-15 items) as strategies for handling adolescents' behavioural indices in secondary schools for effective teaching and learning of science and technology. The study also reveals that respondents disagreed 13.3% that two items out fifteen (item 6 and 8) are not good strategies for handling adolescents' behavioural indices in secondary schools for effective teaching and learning of science and technology.

To ascertain the effectiveness of these strategies the result of analysis presented in Table 3, shows that the respondents agreed 86.7% with the following items (1-5, 7, 9-15 items) as the effective strategies for handling adolescents' behavioural problems in secondary school for effective teaching and learning of science and technology. The findings of this study agree with that of Mohammed and Mukhtar (2016) who reveal that for adolescents to behave well in school they need appropriate strategies and good mentorship from parents and teachers. In another development the result of this study confirm Simatwa (2012) who asserts that the process of managing adolescent student behavioural problems in school should start with the identification of the type of students' enrolment in school.

CONCLUSION

Based on the findings of the study the researchers concluded that; adolescents' behavioural indices in secondary schools are multidimensional and pose great threat on effective teaching and learning of science and technology.

Recommendations

Based on the results of the study the researchers recommended that; parents, teachers and adults should use effective strategies for handling adolescents' behavioural problems as well as providing good mentorship that aim at promoting constructive feedbacks in the lives of the adolescents for the effective teaching and learning of science and technology.

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