

# Influence of Digitized Record Keeping Practices on Administrative Effectiveness of Public Senior Secondary School Principals in Lagos State, Nigeria

Abari Ayodeji Olasunkanmi, Olowu Sulaimon Babatunde & Oniyide Olawale Idris

*Department of Educational Management, Lagos State University, Ojo*

## KEYWORDS:

Record keeping Practices, Digitized Record Keeping, Administrative effectiveness.

## WORD COUNT:

200

## CORRESPONDING EMAIL ADDRESS:

ayodeji.abari@gmail.com

## ORCID NUMBER:

## ABSTRACT

This study examined the influence of digitized record keeping practices on administrative effectiveness of public senior secondary school principals in Lagos State, Nigeria. The study adopted a descriptive survey research design. Population consisted of 327 Principals, Vice Principals and EMIS Officers from the 327 public senior secondary schools in Lagos State. Disproportionate sampling technique was adopted to select 101 principals, vice principals and EMIS Officers. Administrative Effectiveness of Secondary School Principals Questionnaire ( $r = 0.84$ ) and Digitized Record-Keeping Practices Questionnaire ( $r = 0.84$ ) were used to gather the data. Mean and standard deviation were used to answer research questions. Hypothesis was tested using Pearson's Product-Movement Correlation, at 0.05 level of significance. Findings revealed that principals of public senior secondary schools in Lagos State are effective in the coordination of instructional programmes, school resources and instruction (Weighted Mean = 3.29); administrators in Lagos State Nigeria averagely practiced digitized records keeping (weighted mean = 2.48); digitized records keeping practices significantly influence administrative effectiveness of principals ( $r = 0.568$ ,  $p$ -value = 0.000). Based on the findings, it was recommended that senior secondary schools in Lagos State should be furnished with 21<sup>st</sup> century internet facilities to make digitization of school records easier for administrators.

## HOW TO CITE

Abari A.O, Olowu S.B & Oniyide O.I. (2024). Influence of Digitized Record Keeping Practices on Administrative Effectiveness of Public Senior Secondary School Principals in Lagos State, Nigeria. *Educational Perspectives*, 13(1), 7-16.



## Introduction

Secondary education is that important educational level which assists the nation in the realization of its laudable educational and national objectives. It is, thus, a catalyst for the achievement of economic and national development (Wagbara & Ukaigwep, 2019). Secondary schools like any other formal organisation is established on bureaucratic administrative structures headed by a leader usually called the principal. Secondary education is an important level of education which helps to prepare the individual for useful living within the society and for higher education. (Federal Republic of Nigeria, 2014). Secondary education helps to provide for the learner the opportunities to acquire the needed skills and knowledge for advancement and development.

Today, secondary schools are of a two-tier system of Junior and Senior Secondary Schools each of a 3-year duration programme (Abari, Mohammed & Oyetola (2012). Secondary schools are administered by principals who are accountable to the authorities that appointed them. As principals, they are expected to perform administrative functions including: planning, organising, supervising, staffing, evaluating, coordinating, leadership and purchasing and maintenance of instructional materials, equipment and facilities. The effectiveness of the principals, as administrators of their schools, depends on the extent to which they perform the above administrative functions effectively.

As observed by Olatunji (2015), Nigeria has a complex philosophy of Education which can only be achieved through a sound administrative procedure. Secondary schools administration is therefore the process of coordinating the use of material and human resources in education in the implementation of secondary educational

programmes to achieve the target educational objective most efficiently in terms of the use of resources. The principal is the administrative head of secondary schools in Nigeria, who is expected to have proven qualities and knowledge to achieve the objectives of secondary education (Louis-Omiyi & Igenegbai, 2021).

Principalship is a well-established position of the chief executive who provides instructional leadership by coordinating curricula, co-curricular programmes and is responsible for the general administration of the secondary school. The principals being instructional leaders are at the vantage positions to supervise, monitor, assess, evaluate and disseminate current information on educational issues and modern teaching techniques to teachers in order to stimulate them for scholarship and best practices in curriculum delivery (Danbaba, Panshak & Ibrahim, 2021). The principal performs administrative duties such as implementing secondary school education policies and decisions of the Ministry of Education by controlling the day-to-day administration of the school. In that process, the school principal directs teachers to use their energies for the maximum attainment of the set goals of the institution (Louis-Omiyi & Igenegbai, 2021).

Administrative effectiveness is an administrator's capability to harness available resources in an organisation to achieve pre-determined goals. Administrative effectiveness is multi-faceted and is observed in the way an organizational leader manages the operations, correspondences, and activities of the organization. OkonEffong (2015) described administrative effectiveness as the outcome of an administrator's role as a human resource manager, implementer of policies and programmes, finance manager, community



relations officer, disciplinarian, as well as an enhancer of creativity. Administrative effectiveness is therefore the result of the leadership prowess in achieving organizational goals.

Admittedly, the entire administrative function of administrative officer revolves around information circulation. Information circulation as a measure of administrative success is closely associated with communicative skills of an administrator (Okonu, 2017). According to Sharp in Otamiri and Juanita (2022), the chief aim of communication is to effect change in someone, that is, to shape action or to secure inactiveness in the total interest of a business enterprises. It is a cord that binds people together in an organization. However, a situation where updates and correspondences are accessed by authorized members of an organization could be regarded operationally as information circulation. It could equally be seen as the ability of an administrative staff to make available relevant information contents like letters, circulars, reports, etc. available to designated persons.

Information circulation is then said to be effective when it is circulated to recipients at the right time, within the time schedule for such information to be enhanced (Okonu, 2017). In this course, there is need, therefore, for an administrative officer to systematically and carefully circulate information to its department, units or other outlets at the right time to promote right actions among its users (employees), thus enabling them to attain predetermined goals and objectives at the right time.

An attainment target is some strategic contribution to the higher objective of an organization that could take the form of revenues generated, costs avoided, revenues recovered, percentage improvement in some process, something above and beyond your

normal day-to-day duties and responsibilities (Preye, 2019). Now, those daily duties and responsibilities may be tactics that support the strategic contribution. Conceptually, target attainment is defined as the ability of employees at all levels to effectively carry out assigned targets within record time or before deadlines. The attainment of goal could be seen as one of the better way of examining successful administration. The extent to which jobs, assignments, and clerical targets are met on time and up to standard could be seen as target attainment (Kokoma, 2016). The manager and other employees are expected to be up and doing in preparation of documents, information dissemination, and carrying out their day to day official duties for administrative success.

Effective coordination is a testimony of how successful the administrative system noted by Clement (2018), the whole essence of administrative machineries is to arrange and get office processes and activities well-coordinated. Effective coordination is an ideal state where work schedule and all activities of an office are clearly and properly organized to the point that work flows in an orderly manner. Nevertheless, as conceptualized within the context of this study, effective coordination is seen as a work situation where roles, assignments and arrangement of duties are properly organized to the point that work flows smoothly. Effective coordination is one where the administrative system pre-planned activities and ensures that instructions are followed to the letter. Administrative staff in such a work setting are well organized and they go by the rules and schedules rather by impulse.

Administrative coordination refers to effective planning, effective organizing, effective staffing, effective directing, effective reporting, and effective budgeting. The activities of any business venture including hotels can only be said to be effectively coordinated when all there



is proper planning, when reports are been made to the right person at the right time. For there to be an effective coordination in the workplace especially hotels, a clear definition of roles and responsibilities must be emphasized (Viinamäki cited in Otamiri & Juanita, 2022).

Records are important tools for effective planning and administration of school. Maintenance of school records, which provide critical and crucial information on the acts and events that occur in schools, is highly valued by regulatory bodies in Nigeria for efficient planning and decision-making; teaching Service Commission (TESCOM), Ministry of Education (MoE), and other organizations primarily rely on records (Olowu, 2023). School records occupy strategic position in the effective and efficient organization administration of the school for the document the planning and implementation of appropriate course of actions allowing proper monitoring of activities/tasks. Records are important because they serve as major information tool that sustains the school and aids in achieving educational goals and objectives.

Records restore teaching competence and maintain the trend in the history of teaching and learning process. Education law demands that every educational institution should keep certain administrative records and teachers' professional records. There are other records not required by law, but which are kept because they provide a useful source of information not only for members of the school community but also for people outside it (Josephine, 2014). Therefore, because of their usefulness, school records should be easily accessible but at the same time they should be safely kept where they cannot be easily destroyed. The usefulness of school records depends on their being accurate, complete, reliable and easy retrieval at swift pace.

Enarniroro (2018) in Elujekwute, Agbo, and Uwalaka (2021) stated that the Nigeria situation in the business of record keeping and effective management in secondary school system has not attained good success due to insufficient provision of ICT facilities, fund and management components, which has made electronic record keeping ineffective. For any organisation to thrive well in this 21<sup>st</sup> century, digitized records keeping is essential (Enarniroro (2018), Cited in Elujekwute, Agbo, and Uwalaka 2021). Therefore, school records should be easily assessable because of their usefulness but at same time kept safely where they cannot be easily destroyed. In digitalize system of school record, data record keeping capacity requirement define how much school record is needed to run an application, a set of application or data sets.

Digitalization of school record is the act of creating and maintaining records in organization through digital system that enable the authorities take goal oriented decision and assess the progress of the organization at a glance or holistically. Digitalization of school record devices can hold and store information both temporarily and permanently. Digitalize school record tools includes cloud storage, internet content sharing and document control. According to Sabastine (2024), the cloud storage is managed remotely and made available over a network. Basic features are free to use but upgraded version is paid monthly as a per consumption rate. In the view of Krishna (2019), it is a way of storing data online through ICT instead of a local computer, which requires an internet connection in order to upload, modify, and share documents.

In the twenty-first century, school record is digitalized to achieve administrative effectiveness, it is no more necessary for organizations to keep records in files and drawers for fear of being vulnerable to



destruction by rodents, fire, flood and the like. Proper school records in the twenty-first century is done by digitalize system, electronically, as enhanced information management system that involve the use of cloud and internet. This system could save secondary school administrators from the embarrassment which may likely occur when records are inappropriately kept, which could hinder decision making process and likely make schools ineffective.

Records are essential elements of decision making in educational sector and are an integral part of any viable organisation. However, in spite the importance of recordkeeping in the provision of basic information for decision making, it is no more expedient for organizations to keep records in files and drawers for fear of being vulnerable to destruction by pets, rodents, fire, flood and the like. Proper record keeping in the 21<sup>st</sup> Century is done electronically, as an enhanced information management system which involves the use of electronic devices such as computers, CD Roms, flash drives, etcetera.

However, it is perceived that records in most public secondary schools in Lagos State are still traditionally kept on pieces of papers stocked away in files, which are parked inside drawers, lockers, book shelves and boxes. Though, Lagos State government has been deploying electronic gadgets across public secondary schools in the state through creation of an Information Technology (IT) platform known as Education Maintenances and Information System (EMIS), which involves the use of electronic record-keeping (flash drive, memory cards, CD Roms, flash drives, audio recorders, and other information management devices) for proper record keeping, digitization of records using cloud base storage, interment-content sharing, and document control / folder management to enhance administrative effectiveness of

secondary schools still needed to be given attention. Thus, the education industry is bound to be deprived of useful information that could be used in making critical decisions if traditional methods of record keeping persists in secondary schools. The seeming administrative ineffectiveness experienced in schools could be traced to poor record keeping systems, which usually result into loss of vital information, falsification of data, inadequate retrieval of information as at when needed all of which could lead to administrative ineffectiveness. Therefore, if principals must remain relevant in secondary school administration, their mode of record keeping ought to be digitized in keeping with best global practices for decision making and administrative effectiveness.

### **Purpose of the Study**

The main purpose of the study is to examine the influence of digitized record keeping practices on administrative effectiveness of senior secondary schools in Lagos State, Nigeria. Specifically, the study:

- i. examined the extent of effectiveness of principals of public senior secondary schools in the administration of their schools in Lagos State, Nigeria.
- ii. ascertained the digitized records keeping practices in public senior secondary schools in Lagos State, Nigeria.
- iii. examined the relationship between digitized records keeping practices and administrative effectiveness of public senior secondary school principals in Lagos State, Nigeria.

### **Research Questions**

Based on the above stated objectives, the following questions were answered in the study:



- i. To what extent are principals of public senior secondary schools effective in the administration of their schools in Lagos State, Nigeria?
- ii. To what extent do senior secondary school administrators in Lagos State, Nigeria practiced digitized records keeping?

### Research Hypotheses

The following hypotheses would be formulated to be tested at 0.05 significance level:

**H<sub>01</sub>** There is no significant relationship between digitized records keeping practices and administrative effectiveness of public senior secondary school principals in Lagos State, Nigeria.

### Methodology

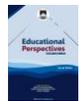
The study adopted descriptive survey design. The population of the study consisted of 327 Principals, 327 Vice Principals (Administration) and 327 Education Maintenance and Information System (EMIS) Officers in 327 public senior secondary schools across the six Education Districts of Lagos State. Disproportionate sampling technique of 31 percentage of each district was adopted to select 101 public senior secondary schools across the six Education District. Therefore, a total of 101 principals, 101 vice principals (administration) and 101 EMIS Officers, totaling 303 respondents were used for this study. The research instruments employed for this study are Administrative Effectiveness of Secondary School Principals Questionnaire (AESSPQ) and Digitized Record-Keeping Practices Questionnaire (DRKPQ) that was responded to by the Principals, Vice Principals (Admin), and EMIS Officers respectively. Each research instrument had two sections, sections A

and B. Section seeks information on personal data of respondents. Section B of Administrative Effectiveness of Secondary School Principals Questionnaire (AESSPQ) contained 15 structured items, in line with the dimensions of administrative effectiveness on a four-point likert scale of Very Effective (VE)<sup>4</sup>, Effective (E)<sup>3</sup>, Rarely Effective (RE)<sup>2</sup>, Not Effective (NE)<sup>1</sup>. Equally too, Section B of Digitized Record-Keeping Practices Questionnaire (DRKPQ) contained 7 structured items on a four points likert scale of Very High Extent (VHE)<sup>4</sup>, High Extent (HE)<sup>3</sup>, Little Extent (LE)<sup>2</sup>, No Extent (NE)<sup>1</sup>. The instruments were taken through content validity scrutiny. The instruments' reliability was conducted to check the extent of internal consistency of the research instruments. This process identified the flaws in the instrument such as the difficulty in comprehending the items, and ambiguities. Cronbach alpha coefficient of each instrument was calculated after the instrument have been administered on 15 public senior secondary schools' teachers who were not be part of the study sample in Lagos state. The overall reliability coefficient of 0.84 obtained showed the instruments are highly reliable. Descriptive statistics of tables, mean and standard deviation was used to answer the research questions while inferential statistics of Pearson's Product-Movement Correlation (PPMC) was used to test hypothesis one at 0.05 level of significance.

### Results

#### Research Question 1

To what extent are principals of public senior secondary schools effective in the administration of their schools in Lagos State, Nigeria?



S/N	Target Attainment	Mean	SD	Remark
1	Attainment of school goals	3.30	0.66	Effective
2	Performance of students in Senior School Certificates Examinations	3.21	0.69	Effective
3	Performance of students in quiz, debate and sporting competitions	3.32	0.78	Effective
4	Attainment of State’s minimum benchmark for each school	3.26	0.82	Effective
5	Attainment of conducive school climate	3.31	0.81	Effective
	<b>Weighted Mean</b>	<b>3.28</b>	<b>0.75</b>	<b>Effective</b>
<b>Information Circulation</b>				
6	Prompt circulation of information within and outside the school	3.33	0.75	Effective
7	Involvement of Teachers in Decision making	3.27	0.71	Effective
8	Maintenance of Good Rapport with Public	3.26	0.86	Effective
9	Provision of data as at when needed	3.28	0.75	Effective
10	Retrieval of data as at when needed	3.23	0.76	Effective
	<b>Weighted Mean</b>	<b>3.27</b>	<b>0.77</b>	<b>Effective</b>
<b>Effective Coordination</b>				
11	Coordination of school resources	3.32	0.78	Effective
12	Organization of instructional programmes	3.26	0.82	Effective
13	Organizational control	3.33	0.75	Effective
14	Supervision of instruction	3.27	0.71	Effective
15	Human resources management	3.26	0.86	Effective
	<b>Weighted Mean</b>	<b>3.29</b>	<b>0.78</b>	<b>Effective</b>

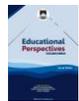
Table 1 reveals that principals of public senior secondary schools are effective in the attainment of school goals and objectives (Weighted Mean = 3.50). Also, principals of public senior secondary schools in Lagos State are effective in the area of information circulation (Weighted Mean = 3.27). Furthermore, principals of public senior secondary schools in Lagos State are effective in the coordination of instructional programmes, school resources and instruction (Weighted

Mean = 3.29). This implies that principals of public senior secondary schools are effective in the administration of their schools in Lagos State, Nigeria.

**Research Question 2**

To what extent do senior secondary school administrators in Lagos State, Nigeria practiced digitized records keeping?

S/N	Statements	Mean	SD	Remark
1	Storage of school records electronically in computers and computing devices	2.72	0.35	High Extent
2	Storage of school records digitally in the cloud (i.e. Google Drive) for preservation	2.31	0.42	Average extent
3	Conversion of Storage of school records to digital form for preservation	2.44	0.39	Average extent
4	Storage of school records on mail for easy retrieval	2.36	0.58	Average extent
5	Creation of data bank for storage of school records	2.27	0.26	Average extent
6	Usage of internet for keeping and management of school records	2.41	0.44	Average Extent
7	Dissemination of information through internet facility	2.84	0.51	High Extent



<b>Weighted Mean</b>	<b>2.48</b>	<b>0.4</b>	<b>Average extent</b>
----------------------	-------------	------------	-----------------------

Table 2 reveals that principals of senior secondary schools in Lagos State stores school records electronically in computers and computing devices to a high extent (mean = 2.72). Similarly, they highly dissemination information through internet facility (Mean = 2.84). However, they averagely stores school records digitally in the cloud (i.e. Google Drive) for preservation (mean = 2.31). Also, the principals' extent of converting school records to digital form for preservation is average (mean = 2.44); storage of school records on mail for easy retrieval is also average (Mean = 2.36); averagely creates data bank for storage of school

records (mean = 2.27); and averagely uses internet for keeping and management of school records (mean = 2.41). This implies that public senior secondary school administrators in Lagos State, Nigeria averagely practiced digitized records keeping (weighted mean = 2.48).

**Hypothesis One**

There is no significant relationship between digitized records keeping practices and administrative effectiveness of public senior secondary school principals in Lagos State, Nigeria.

Variable	N	Mean	SD	Df	Cal. r-Value	P-value	Decision
Digitized record-keeping practices	303	3.27	.48	301	0.568	0.000	Rejected
Administrative effectiveness	303	2.48	.77				H01

From table 3, the p-value of .000 was compared with the significant value of .05. Since the p-value of .000 was less than the significance level .05, the hypothesis was then rejected. This implies that there was weak relationship between digitized records keeping practices and administrative effectiveness of public senior secondary school principals in Lagos State, Nigeria.

**Discussion of Findings**

Research question one investigated the extent principals of public senior secondary schools are effective in the administration of their schools in Lagos State, Nigeria. Findings revealed that principals of public senior secondary schools are effective in the administration of their schools in Lagos State, Nigeria. The finding agreed with that of Ereh and Okon (2015) who found that principals of public secondary schools in Lagos State are effective in discharging their duties”.

Research question two investigated the extent senior secondary school administrators in Lagos State, Nigeria practiced digitized records keeping. Findings revealed that senior secondary school administrators in Lagos State, Nigeria averagely practiced digitized records keeping (weighted mean = 2.48). The finding disagreed with the findings of Okolocha and Baba (2017) who found that administrators in Nigeria do not optimally possess skills for electronic record management.

Research hypothesis one investigated the relationship between digitized records keeping practices and administrative effectiveness of public senior secondary school principals in Lagos State, Nigeria. Finding revealed that there is significant relationship between digitized records keeping practices and administrative effectiveness of public senior secondary school principals in Lagos State, Nigeria. The finding agreed with earlier researchers such as Onweh, Etim, and Eniang (2012) who found out a



significant relationship between digitized record keeping and administrative effectiveness and relationship between adequate financial records keeping and administrative effectiveness.

### Conclusion

On the basis of the findings, it could be deduced that digitized record keeping practices influences administrative effectiveness of senior secondary school principals in Lagos State. Principals of public senior secondary schools are effective in the administration of their schools in Lagos State, Nigeria. However, senior secondary school administrators in Lagos State, Nigeria averagely practiced digitized records keeping.

### Recommendations

- i. Senior secondary schools in Lagos State should be furnished with 21<sup>st</sup> century internet facilities to make digitization of school records easier for administrators.
- ii. Senior secondary school principals, vice-principals, EMIS officers and teachers should be consistently train and re-train on digitization of school records to enhance effective administration of secondary schools.

### References

- Abari, A. O., Mohammed, M. O. B & Oyetola, I. O (2012). Organizational identity and effectiveness of public and private senior secondary schools in South West Nigeria. *Problems of education in the 21<sup>st</sup> century*40; 7 – 16.
- Clement, M. (2018) *Introduction to educational administration, planning and supervision*. Ikeja: Joja Press Limited.
- Danbaba, A. S., Panshak, T. N. & Ibrahim, M. M (2021). A Educational Leadership Practices in Secondary Schools: The Role of Principals in Goal Achievement. *Sapientia Foundation Journal of Education, Sciences and Gender Studies (SFJESGS)*, 3 (1); 191 – 200
- Elujekwute, E. C. Agbo I. O & Uwalaka, M. C. (2021). Influence Of School Records Keeping On The Management Of Secondary Schools In Zone ‘A’ Senatorial District Of Benue State, Nigeria *Sapientia Foundation Journal of Education, Sciences and Gender Studies (SFJESGS)*, 31(1) 59 – 76.
- Elujekwute, Z. C. Agbo, I. O Uwala, M. C. (2021). Influence of School Records Keeping on the Management of Secondary Schools in Zone ‘A’ Senatorial District of Benue State, Nigeria *Sapientia Foundation Journal of Education, Sciences and Gender Studies (SFJESGS)*, 3(1)59 – 76
- Federal Republic of Nigeria (2014), National Policy on Education (6th Edition) Lagos, NERDC Press
- Josephine, N. O (2014). Record keeping practices of secondary school principals: an Enugu State education zone study. *International Journal of Education and Research* 2 (10); 383-393
- Kokoma, D. (2016) Comparative study of the administrative effectiveness of Head teachers in public and private schools in Ekiti State Nigeria. *Journal of Educational Administration*. 5 (2) 196-200.
- Krishna, M. (2019). 15 Best FREE Cloud Storage & Online Drives (2021 Update). Retrieved from <https://www.guru99.com/free-cloud-storage.html>
- Louis-Omiyi, E. O., & Igenegbai, P. (2021). Principals’ characteristics and administrative effectiveness in public secondary schools in Edo State, Nigeria. *International Journal of Educational Administration, Planning & Research*, 13(1), 92-101. <https://doi.org/10.5281/zenodo.5619801>
- Okolocha, C. C. & Baba, E. I. (2017). Assessment of skills possessed by secretaries for effective electronic records management in Polytechnics in North-Central, Nigeria. *Global Journal of Management and Business Research*. 17(1)
- Okon- Effong, U. (2015). Effective administration of secondary schools in Cross –River state:



A Panacea for Academic Excellence  
*Science Journal of Sociology and Antropology*, 10 (3), 213-219.

- Okonu, B. (2017) *Introduction to educational administration, planning and supervision*.
- Olatunji (2015) Refocusing education in Nigeria: Implication for funding education management. Lead paper presented at Federal College of Education (FCE) Conference on “Refocusing on Education”. Asaba, November 27-30.
- Olowu, S. B. (2023). Influence of Electronic Record Keeping on Planning and Decision Making of Secondary School Administrators in Lagos State. *Journal of Capital Development in Behavioural Sciences* 11 (2); 92 – 107.
- Otamiri, S., & Kakatei, J., (2022). Business Whatsapp and Administrative Communication Health in Hotels in Rivers State *International Journal of Management, Accounting and Human Development* 11 (1) 79-86.
- Preye, J. (2019) *Educational Administration: Theory and practice*. New Delhi: Vikas-publishing House PVI Limited.
- Sabastine, T (2024). Digitalization of school record for enhanced effective administration in public senior secondary school in Rivers State. *International Journal of Innovative Education Research* 12(1):83-94
- Saiful Farik, M.Y. & Yusof, Z. M. 2018. The role of electronic records management (ERM) for supporting the decision-making process in Yemeni Higher Professional Education (HPE): a preliminary review. *Journal of Technology (Sciences and Engineering)* 73(2): 117-22.
- Wagbara, C. D. & Ukaigwep. C. (2019). Principals’ Leadership Styles and Administrative Effectiveness in Public Senior Secondary Schools in Rivers State *International Journal of Research and Innovation in Social Science (IJRISS) III(X)* 529-536