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ROLE OF MATHEMATICS IN ICT BY ENHANCING FAMILY DYNAMIC

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Abstract

Mathematic is a physical science dealing with the logic of quantity, shape and arrangement. Also connection between people and their environment through these kinds of mathematical activities people design ways to meet their needs in efficient ways. This is a way of having that role of mathematic in ICT by enhancing family dynamic. This paper seeks to investigate and examine mathematic for ICT Enhancing family dynamic. Usefulness of mathematic in human daily activities, role of mathematic in science, role of mathematic in ICT, family dynamic, what influence family dynamic, family structural, Influences of Parenting Behaviors and Family Environments, issues that influence family dynamics, social inequalities, education family mediation and ICT. How do family dynamic, influence young people behavior, benefit of hosting a family mathematics night event. This paper establish the link between mathematic in ICT by enhancing Family dynamic

Keywords: Mathematic, ICT, Enhancing, Family dynamic.

Introduction

Mathematics is often defined as the study of topic such as quantity, structure, space and change. These topics provide the major subdivision of mathematics into: arithmetic's, algebra, geometry, and analysis. These major disciplines within mathematics arose out of the need to do calculations in commerce and trade. Apart from an engineer, a businessman, an industrialist, a banker, even a laborer has to calculate his wages make purchases from the market, and adjust the expenditure to his income. But is mathematics all about calculation?

Information and Communication Technology (ICT) is defined as "the combination of informatics technology with other related technologies specifically communication technology" (UNESCO, 2000). ICT is an umbrella term that includes any communicating device or application, encompassing: Radio, Television, cell phone, computer, Internet, wireless network and any other related communication mediums. ICT in education means "teaching and learning with ICT". Using computers and Internet in classrooms, teachers can explain complex instructions and ensure students comprehension. Also teachers are able to create interactive classes. In the new digital age, Information Technology (IT), or Information Communication Technology (ICT) is the major factor in shaping the new society. ICT tools have changed the ways people communicate resulting in significant transformations in industry, agriculture, medicine, business, engineering, and other fields. ICT has the potential to transform the nature of education, teaching methods, and the role of students and teachers in the learning process. The new technologies challenge the conventional concept of teaching, learning methods, and materials; and it reconfigures how teachers and learners access knowledge. To meet this challenge schools must embrace ICT tools for teaching and learning to move towards transforming the traditional paradigm of teaching (Sawyer,Williams and Hutchson, 1997). More recently technology has been introduced in education to make it more productive and more individualized. Educational technology has made tremendous progress in the last few decades. In Nigeria the implementation of ICT in schools is at its initial stages. Teachers need to enhance their basic knowledge and skills in ICT as well. There are two main reasons for the increased use of ICT in education. In the future, there may be an "Information Appliance," a device

that combines telephones, televisions, VCRs, and personal computers. This device would deliver digitized entertainment, communication and information. The basis for the information appliance may be personal computers, although it may come in various sizes, shapes and degrees of portability. The device will probably become increasingly "User Friendly" and will have multimedia capabilities (Sawyer, et 1997).

To enhance the use of computers in schools and to achieve the required educational goals, computers can be installed in individual classrooms, in central computer labs, libraries, and teachers planning rooms, or moved from room to room on mobile carts, depending on the requirements and resources available in the schools (Pandey, 2001). Throughout history, technology has played a vital role in society. Technology may be regarded as a tool or a machine, a process, system, environment, epistemology, an ethic, the systematic application of knowledge, materials, tools and skills to extend human capabilities. Thus, technology includes not only tools and machines, but also their impact on processes and systems, on society, and on the way people think, perceive and define their world. Over the past few decades, a particular dimension of technology has come to permeate nearly all aspects of human life. Information technologies, comprising computers and their peripherals, computer software, the Internet and electronic multimedia, are becoming part of our daily existence at an ever-increasing rate. This reality also forms the need to integrate information technology into curricula for various subject areas. (UNESCO, 2000). ICT is an umbrella term that includes any communicating device or application, encompassing: Radio, Television, cell phone, computer, Internet, wireless network and any other related communication mediums. ICT in education means "teaching and learning with ICT". Using computers and Internet in classrooms, teachers can explain complex instructions and ensure students comprehension. Also teachers are able to create interactive classes.

Family is defined as a specific group of people that may be made up of partners, children, parents, aunts, uncles, cousins and grandparents.

Family dynamics are the pattern of relating. Or interactions between family members. Each family system and its dynamics are unique, although there are some common patterns. All families have some helpful and some unhelpful, or even abusive,

dynamics. even where there is little or no present contact with family, a young person will have been influenced by dynamics in earlier years. Family dynamics often have a strong influence on the way young people see themselves, others and the world, and influence their relationships, behaviors and their wellbeing. An understanding of the impact of family dynamics on a young person's current needs.

Usefulness of mathematics in human daily activities

We all should understand the way number is applied to measure lengths, volume, weight, area, density, temperature, speed, acceleration and pressure. Estimation and approximation helps to check economic waste in every life. The study mathematics will form in the habit of clarity, brevity, accuracy, precision n and certainty in expression and this will go a long way in giving us much-needed unity in this nation. In homes, offices, marketplaces and playgrounds get involved in one argument or the other. The success in any argument depends on persuading and there is nothing more persuasive than a logic argument. The importance of mathematics is an indispensable tool for a successful and balanced human existence on earth. Mathematics help man to sharpen his understanding and definition of religious concepts. Such as eternity, heaven, spirit life, power salvation wisdom strength, light, hope faith, righteousness, glory blessing truth, grace, peace, neighbor, sun and death can each be defined with mathematical rigor and precision (Osah-Ogulu and Odili, 2000).

Role of mathematics in science

Mathematics and science have a long and close relationship that is of crucial and growing importance for both mathematics apart from being an intellectually stimulation discipline, is continuously being developed to meet the changing requirement of physics, chemistry biology social sciences psychology, engineering and even law to mention a few. Every occupation within the medical field relies heavily on mathematics elementary mathematics , geometry and algebra are all obviously crucial to advance in new technology, saving lives and curing diseases.

Modeling; mathematical models helps us to clarify relationship among a systems

Components as well as their relative significance through modeling speculation about a system are giving from that allows them to be examined qualitatively from many angles; in particular modeling allows the detection of discrepancies between theory and ., i.e mathematics formulae models may be applied to test the structural and functional soundness of the design before it is mass produced thus saving millions of dollars and untold time computer aided design is becoming increasingly important in this type 0f use and it is all based on application of mathematics.

Language of mathematics:

The universal language of mathematics acts across cultures and uses carefully defined terms and concise symbolic representation to add precision to communication. Attahiru (2019) the grammar of the language, its proper usage is determined by the rule of logic. The study of mathematics form in students the habit of clarity, brevity, accuracy, precision and certainty in expression and this go a long way to unite us in this country. The success in any argument depends on one persuading his opponent and there is more persuasive than logical argument. Therefore, the idea of logic rest valid conclusion upon the validity and consistency of assumptions and definitions to eliminate frequent conflicts in homes. The vocabulary of mathematics language consists of symbols such as addition, subtraction, summation, square root, differentiation, integration etc.

Role of mathematics in ICT

Mathematics have dominated scene in the aircraft technological development especially by way of research aeronautics and in the structure of aircraft itself. All the mathematical results obtained from the solution of these equations to decisions on viscosity of the air, the steadiness of the motion of the aero plane, external forces acting on the body of the aero plane, the condition to the air traffic have largely relied on the use of electronics digital computer, which is a major branch of mathematics. All these ideas depends so much on the knowledge and application of mathematics that one could almost say without mathematics, the world could not have what it is today.

What are influences of family dynamics?

Some of the many influences of family dynamics include:

1. Nature of the parents' relationship
2. Having a particularly soft or strict parent
3. Number of children in the family
4. Personalities of family members
5. Dynamics of previous generations (parents and grandparents families)
6. Nature of attachments in family (i.e. secure insecure)
7. Broader systems-social. Economic, political including poverty
8. Level and type of influence from extended family
9. Family values, culture and ethnicity, including beliefs about gender roles, parenting practices or status of family members
10. Events which have affected family members, such as an affair, divorce, trauma, death, unemployment, homelessness

Family Structural issues that influence Family Dynamics

The factors that influence dynamics are different for each family. It also revolves around class, social factors, financial stability, culture, and so on. These factors can maintain or fracture the base of a family.

1. The nature of the relationship shared by the parents
2. Having a parent who is soft or way too strict
3. Having a greater number of children in the family

4. A mix of personalities living under one roof
5. An absent parent
6. Too many family problems drug abuse, violence, mental disabilities, etc
7. Effect of external events – illness, death, trauma, etc
8. Parents belonging to different cultures and values
9. Dynamics practiced by older generations
10. Influence from extended family

Influences of Parenting Behaviors and Family Environments

Family influences on the development of emotion can be seen in parenting practices, emotional family climate, and different emotional learning experiences. Particularly, supportive parenting and parental involvement play an important role in the development of emotional competence in adolescents. For example, parents' warmth and positive expressivity were related to adolescents' effortful control a temperamental characteristic contributing to emotion regulation which in turn predicted low levels of aggression and delinquency. On the other hand, harsh parenting and lack of parent involvement are associated with impulsivity, aggression, noncompliance, moodiness, and low self-esteem among adolescents. In addition, attachment seems to be specifically influential for the effectiveness of emotion regulation, because attachment patterns established in early life represent specific ways of interactive regulation behavior with the caregiver. In adolescence, secure attachment is associated with effective emotion regulation and social competence shown in interactions with parents and peers.

Social inequalities, education, family mediation and ICT

We live in an era where the role played by ICT is increasingly prominent and is shaping the type of society (Castells, 2009), with it being acknowledged that technologies are expanding peoples forms of interaction, collaboration and activity, and making

available new learning possibilities, goals, contexts and opportunities to acquire and exchange knowledge with others. (UNESCO, 2014).

However, one of the biggest challenges facing information societies in the world today is linked to inequality and the power relationships which underlie them (Hendrix, 2005), an issue which has been called info-exclusion, in the digital divide or the digital gap. The use of computers and the internet, with a slight easing of social inequalities between children and adolescents of age.

The purpose of increasing the use of information and communication technology (ICT) in schools. Among the many possibilities attributed to the use of ICT in a school setting, it is thought that the computer and the internet are tools for encouraging new practices and new pedagogical relationships. As a result of the increase in public spending in this field, ICT have become more widely available in schools. The use ICT by children in both school and home setting also raises questions regarding the relationship between school and family when looked upon as a relationship between cultures (Silva et al., 2015). ICT may boost school-family communications, becoming a (material) means which is able to contribute to the (social-cultural) mediation process (Silva et., 2015) between the school culture and the local culture. Conversely, it may be that some of the traces marking this relationship persist.

How Do Family Dynamics Influence Young People Behaviour

Family' roles

People take on different roles or functions within the family System. These roles may be the result of family dynamics. The Way that people behave and interact in their roles may not be as a result of conscious choice. Some of the more common roles that young people take on in a family include;

Peace-keeper

A young person may be unintentionally playing role the role of 'peace-keeper', mediating and reducing tension between conflicting parents. Their behavior may be in

response to their unconscious anxiety about family breakdown. This role may Lead them to stay as a child in their family rather than to move towards Age-appropriate independence.

Family structural issues

The structural family therapy approach conceptualizes families as comprising 'parent, 'couple' and 'children' subsystems. Family dynamics can become complex when a child in the family is brought into the parenting subgroup, and inappropriately or excessively joins a parent in parenting younger siblings.

Benefits of hosting a family mathematics night event

1. Builds strong family-school partnerships. Gone are the days when a parents' role in their child's school was simply being the room parent or helping with the fall carnival. Today's school actively engages parents around student learning and nifty numbers family math night is a perfect example of this in action.

2. Broadens volunteer opportunities for parents. Like kids, parents arrive with different skills and interest. Hosting a family math's night event opens up an opportunity for the parents who want to get involved on a more academic level.

3. Creates a sense of community. Parents, kids, teachers, and administrators all gathered together for a common purpose. This shared experience contributes to positive school climates and builds community.

4. Promotes family involvement with math. Fall carnivals, and spring fling all are great ways to involve parents in their child's school experience. But a nifty numbers family math's night is unique because it purposefully connects parents to classroom learning and reinforces the role they have as active participants in the education of their children.

5. Reinforces what goes on in the classroom. Consider nifty numbers the fun way of getting math homework done. The national council of teachers of mathematics and common core state standards aligned activities are hands-on, fun, and engaging, making them the perfect way to build on learning.

Conclusion

The role mathematics play vital in ICT for the use of mathematics and especially now with the support of the mathematical processing and control machine called the computer, important development are in ICT and family dynamics.

Recommendations

1. Mathematics teachers should ensure appropriate application of wide range of technologies for effective teaching and learning in mathematics classroom.

2. Mathematics teachers should develop ICT skills by specialty the necessity of continuous professional learning for effective development their teaching

3. Curriculum planner should involve teachers planning their curriculum for proper teaching and learning. They should incorporate in the curriculum many areas that have been superseded by technology as soon as possible.

4. The application of ICT was found effective for learning mathematics at secondary level. To make its application more effective in education, students should be trained in ICT from the grass root level. Therefore, it is recommended that Information and communication technology (ICT) should be introduced ways of using software to revamping of mathematics education.

5. ICT should be integrated into all other subjects of the curricula at primary and secondary school levels.

6. Teachers should develop or revise their early child- hood learning standards or guidelines to reflect the teaching-learning paths described knowledge and perspectives this affords, it is important to review their early learning and development standards and guidelines to ensure that they reflect an appropriate emphasis on early mathematics. Curriculum developers and publishers should base their materials on the principles and teaching-learning paths

7. Mathematics provides guidance to families and how they can help children develop key mathematical ideas and skills. Furthermore, professionals working with families should be given training focused on early mathematics knowledge and skills, as well as have access to programs and resources on home-based mathematics activities.

References

Attahiru .A (2019**)** Restructuring Effective Utilization Of Information And Communication Technology (ICT) In Curriculum Development Of Mathematics In Secondary Schools. A paper presented at COEASU North West Zone 7TH Annual Conference at Shehu Shagari College of Education December 2019.

Bennett, S., Mston, k. & kervin, L. (2008). The digital native debate: A critical review of the evidence. British journal of educational technology, 39(5), 775- 786.

Castells, M. (2009). The information age: economy, society and culture- the rice of network society(vol. I). Oxford, UK: Blackwell

Hendrix, E.(2005). Permanent injustice: Rawls' theory of justice and the digital divide. Educational technology & society, 8(1), 63-68. http: // www.ifets.info/journals/8-9/9.pdf

Osah-ogulu, D.J. & Odili, G.A (2000). A Mathematics centred schematic model for realizing theprime sectoral values of the 21st century. Human society. Nigeria journal of professional Research in pedagogy Psychotherapy 1)2) 78-87

Pandey V.C (2001). *Digital Technologies and Teaching Strategies*.Isha Books Publisher, Delhi. P. 94-168.

Sawyer, Williams, and Hutchinson (1997).*Using Information Technology* A Practical Introduction to Computers and Communications, publisher Tom Tasonn, USA, P. 1-8.

Silva, P., Diogo, A., Coelho, C. Fernandes, C. & Viana, J. (2015). Children's Practices of ICT and social inequalities. http://hdl.handle.net/1822/40832 (b00k).

UNESCO (2000) The Dakar Framework for action. UNECO France

UNESCO (2014) . http://unesdic.unesco.org/image/0022/002277/227770por.pdf