

INSTRUCTIONAL GAMES: IMPLICATIONS FOR CURRICULUM AND INSTRUCTION.

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ABSTRACT: Little attention has been given to the educational value of instructional games despite its many advantages in enhancing the teaching and learning process. This paper portrayed the importance of instructional games in the teaching and learning process. The Constructivist Learning Theory was used to show the relevance of instructional games, and the advantages and limitations of instructional games were used to form the background of the implication of instructional games for curriculum and instruction. Two games were developed by the researcher Abgrace SUBADD game and Abgrace filling-the-Chart game based on the ASSURE model and Objective first rationale model respectively to serve as a model of an instructional game. It was recommended that curriculum developers should shift focus from the designing of learning contents to learning experiences that are interesting and captivating to learners and strategies should be taken to ensure that teachers appreciate the use of instructional games, and effectively utilize it.

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INTRODUCTION

Effective teaching and learning requires the utilization of appropriate methodologies and pedagogies to meet the needs and demands of students of this present generation and also, to be in line with the varying events in the educational system worldwide (Mohammed, 2014). The act of

learning can be overwhelming, tiring and burdensome for anybody and these results in learners exhibiting certain behavior that hinder learning. Students' describe the conventional schooling experience as boring, and many of the dropouts in high schools said their decision to leave school was because the classes were not interesting and there was no

motivation to work (Brigeland, Bilulio, and Morison, 2006). At present using the right teaching methods are the major concerns in curriculum implementation because it is through these methods that the specific objectives are attained (Mohammed, 2014).

Different instructional materials including contemporary instructional materials have been utilized to increase engagement and motivation in the classroom but none is able ease the learner's boredom and stress students face while learning. Liu and Chu (2010)³⁰ indicated that instructional games have enormous benefit and possibility to stimulate students to be actively involved in the teaching and learning process than other instructional material. Instructional games come with different forms of entertainment, and therefore it is a useful tool for encouraging students learning (Prensky, 2003).

Play is very common with children. Children play games because it is in their nature to explore their environment. Robert (2010),⁴⁶ sees playing of games as a normal characteristics or way of life of a student with disregard to their class level, gender or age. Robert (2010)⁴⁶ posits that students indulge in playing one game or another when in school with their classmates, or with a friend. Amr, (2012)⁴ acknowledged Vygotsky (1976)⁵⁸ the Russian Psychologist who said that the activity of play should not be conceived as purposeless, it is rather a purposeful activity for a child as pleasure is something that cannot be easily explained but something people desire to experience. There is a natural tendency in every child to play. Playing

games gives the child the opportunity to engage in cognitive building activities which enables the child solves problems without depending on the teacher (Ekukinam, 2014). It overcomes the boredom and fatigue a student feels after engaging in a long series of learning or work. Instructional games provides active learning which is very essential as it makes students responsible for their own learning and engages them in exciting and meaningful activities (Prince, 2004).

Classrooms are one of the few places where learners are not encouraged to play games. Although games are being used by some teachers as a part of their instructional strategies, most teachers never try using it, and those who try, use instructional games to whirl away time and not for instruction (Robert, 2010). Researchers are advocating that games is a capable form of instruction that can both motivate students and engage them in acquiring skills important in the development of a nation. (Aldrich, 2004; Foreman, Gee, Herz, Hinrichs, Prensky, and Sawyer, 2004; Prensky, 2001; Quinn, 2005). In the teaching and learning process, students are captivated and engaged when they encounter an interesting challenge and when they have opportunity of discovering things for themselves. New instructional materials such as instructional games hold great hope for learners and the teaching and learning process as they help to shape the teaching and learning environment by giving opportunity for students to manipulate, explore and relax and learn without fear. Shaffer, Squire, Halverson, and Gee, (2005)⁵¹ supports this view as they posit that instructional games make "players think, talk, and

act” and the rich virtual environments it creates are what make games a potent choice for learning.

INSTRUCTIONAL GAMES

Instructional games refer to all types of games that can be used to facilitate learning such as: board games, computer games, locally constructed or commercial games, physical games, puzzle games, online games, card games, etc. Many people believe the definition of game to be all about fun which is wrong. In fact, some games are quite complicated and extremely serious. Some games are competitive, cooperative and interactive in nature while some are just for fun (Harris, 2009). Longman Dictionary of Contemporary English³¹ defines a game as an activity in which people compete with each other according to agreed rules. Instructional games are games built to teach a particular subjects or a skill (Prensky 2001). According to Prensky (2001)⁴⁰, game is a form of play that teaches us goals, interaction, and rules, in problem solving, all encompassed as a story. It gives to learners the basic skills they need to learn effectively by providing fun while learning, intrinsic motivation, ego satisfaction, creativity, social interaction and positive attitude towards the subject. Byrne (1995)¹⁰ defined instructional games as a kind of play governed by rules that should be enjoyed. It is not just a means for relaxation after a long day of activities, but a means of making the learners understand the subject better.

A working definition of instructional games are games designed to enhance learning through

play governed by rules in order to reduce the rigid and regimental process of teaching and learning to a more flexible one.

The function of any instructional game is to promote learning. This function is constant no matter the type instructional game whether commercially produced, student or teacher made. If the game produced does not enhance learning then it is not an instructional game. To be sure, educational games are not a panacea intended to replace all other methods of instruction. Their function is, at best, one of supplementing the many existing practices which have been recognized as sound teaching methods, and have withstood the test of time. Students’ are more involved in learning when their learning experiences are active and exploratory. Prensky (2001)⁴⁰ believes that instructional games help shape students’ experiences and achievement because students prefer rich graphics and multitasking interfaces.

Instructional games should be treated as important and not as a secondary activity that whirl away time when there is no class activity. Games should be inculcated at every step in a lesson, provided that they are appropriate for the class to achieve its stated objectives.

THEORETICAL BASIS FOR THE STUDY

The theoretical bedrock upon which this paper is anchored is the Constructivist Learning theory by Jerome Brunner 1960. Constructivism theory is based on the idea that no individual is passive but all individual are active entity that can actively

construct their own knowledge. A constructivist classroom can be identified when students interact together, and construct reality together. A constructivist learning environment provides multiple representation of reality. Constructivist learning theory places emphasis on knowledge construction instead of knowledge reproduction (Jonassen, 1994).

The verb "to construct" comes from a Latin word "construere" which means to arrange or give structure (Mahoney, 2004). Constructivist posit that learners construct their own knowledge themselves both in an individually or socially constructed setting. The constructivist opine that knowledge is not mechanically acquired but through active construction of the constraints and offerings of the learning environment (Charlotte and Robert, 2005).

Constructivist theory emphasizes deep understanding and concept development rather than development of skills or behaviours as the aims of education. Furthermore, this development and deep understanding are constructions of active learner reorganization. The fundamental principle of constructivism is that knowledge is not transmitted directly from one known to another, but is actively built up by the learner. Learning involves individual constructions of knowledge that come about through interactions with one's environment or culture (Rieber, 1996). Therefore learners are viewed as those that construct their own knowledge of the world. The constructivist belief argues that learning is an active and constructive process and human beings can construct their own information or

knowledge on the basis of cultural or social context.

The learner is not a blank slate (tabula rasa) but a person filled with past experiences and social and cultural factors which are utilized in solving problems. They are not empty jars into which knowledge is deposited (Feldman, 2004). For learning to be efficient and effective, knowledge should be exclusively constructed by the learners through play, social discourse and exploration (Amory and Seagram, 2003).

The central point of constructivism is that whether there is an objective reality or not, learners can actively and effortlessly construct and reconstruct their own reality in order to understand what they are taught. If a new lesson to be taught to students is consistent with the student's previous knowledge, it will be easy for the lesson to be integrated in them but if is different from the existing knowledge structure, the students will just memorize the knowledge for examination sake. Therefore, it is possible to say the learner has learnt nothing (Mohammed, 2014). For effective learning the constructivist contend that learners should be taught with methods there are used to. Learners play games all their live no matter the age or level therefore the use of games won't be strange to the learners but captivating because it is something there are used to. Teaching based on previous experience promotes intrinsic motivation.

APPLICATION OF INSTRUCTIONAL GAMES IN DIFFERENT SUBJECT AREAS

The psychological and educational benefits of instructional

games have become global and it is even encouraged for use by parents, curriculum experts and the government (Presky, 2001)⁴⁰. Games have long been employed as an instructional material. Games based learning is not entirely a new innovation. Bradshaw and Lowenstein (2007)⁸ discoursed that game based learning is an ancient technique. (Kermit, 1974)²⁷ posits that games were used to train soldiers for war and through the ancient game of chess, noblemen of the Middle Ages learned strategies of war. Researches carried out by Bala and Musa (2006)⁷, Odo, (2007)³⁶, Fakrogha (2015)¹⁸, Tuzun, Yilmaz-Soylu, Karakus, Inal, and Kizilkaya, (2009)⁵⁵, and Ke, (2009)²⁶ suggest that games based learning is suitable for different subjects like mathematics, English, biology, geography, physics, computer science respectively.

Kimble in Okoro (2011)³⁸ defined learning as a relatively permanent change in behavior potentiality that occurs as a result of reinforced practice. Steinkuehler (2010)⁵¹ defined learning, as a process of acquiring knowledge, skills and routines. Learning occurs in many different situations; for example, learning in connection with memorization, the acquisition of physical and intellectual skills, solving problems, learning by trial and error, rather sudden is insightful learning, the establishment of attitudes, interest, character traits, and the acquisition of mannerisms and gestures (Udokang and Okoro, 2004). Learning is successful when the students are fully engaged and active (Carini, Kuh and Klein, 2006).

Instructional games have been developed and used in different subject areas in accordance with the objectives

that are to be achieved. These games include simulated and non-simulated games, computer games, locally constructed and commercial games, etc.

In teaching mathematics, (Bala and Musa 2006)⁷ examined 133 senior secondary students to check the effect of the number based game in the study of number bases. The result of the two research questions formulated revealed that there was a significant difference in the mean achievement scores of students in the experimental and control group. The researchers concluded that learning with games have an outstanding effect on students' academic achievement and provides an interactive learning condition. Also, Suzidelyte (2012)⁵² carried out a research on the effect of video games on the cognitive and non-cognitive skills of children. The results of the analysis show that games significantly affect children cognitive skills and improve their knowledge of mathematics in solving problems that pertains to life. It was also discovered that playing games doesn't bring negative behavior or lower the cognitive skills in children.

In a language class, Ekuinam (2010)¹⁰ developed an instructional board game tagged: 'Figure-Out Game' as a medium of enhancing the development of English Language registers among the Nigerian youths. Results of the analysis of the pilot test showed that the game was not only challenging, but educative and interesting and could be utilized in the acquisition of appropriate English Language vocabulary. Also, Davoud, Davoud, and Mojtaba (2013)¹³ compared instructional games and conventional method on vocabulary

improvement and retention in Iranian EFL students. A pretest was given to find out if there were any significant differences between the two groups. It was revealed that there was no significant difference between the two groups. After the treatment, a post-test was given. The results showed that both groups performed better after both types of instruction were used in teaching. In order to evaluate the efficiency of the two methods of teaching an independent sample t-test was conducted. The results of the t-test showed that, although both instructional approaches increased the performance of the learners', the teaching with instructional games was more successful in long term vocabulary retention than the conventional approach.

In teaching geography, (Tuzun, Yilmaz-Soylu, Karakus, Inal, and Kizilkaya, 2009)⁵⁵ carried out a research on 24 students who were presently in their fifth grade. Tuzun *et al.* used a 3D computer game in teaching geography in comparison to the traditional method of teaching. The result of the research posited that the performance of the student did not only improve significantly, the students were more motivated to learn. Games based learning provides a student-centered learning process which may improve motivation.

An economics game was used in teaching students of economics. A semi-structured interview carried out by Vanwyk (2013)⁵⁷ on a quota sample of 14 economics student revealed that the games used was a helpful tool which improved their learning, enhanced their academic achievement, created a cooperative relationship amongst classmates and brought a real

experience on the operation of markets. It also developed individualized learning among the students.

In a pilot study, Elson, Ostapski, Caltaghan, Walker, (2010)¹⁶ developed a crossword puzzle game to teach students concepts in government and non-profiting accounting. The feedback gotten from the students showed they had a great experience in the learning process and enjoyed the game also, they experienced improvement in their learning. Other students got interested in the lesson because the teaching material was a new innovation. The researchers believe that games will help bridge the gap a learner needs to cover to be successful in learning and in examinations.

WAYS OF DEVELOPING INSTRUCTIONAL GAMES

With all the benefits accrued to games, not all games are to be utilized as a medium of instruction. Some games are developed just for fun with no educational benefit attached to it. Instructional should be designed to support the achievement of instructional objectives backed with a good design model (Hays, 2005)²³. Teachers and game developers should bear in mind that games are not reality. Therefore the activities to be encountered in games should have some forms of reality by providing real competitive environment backed up with rules where a learner is to achieve a goal.

For a game to be accepted as a medium of instruction it should possess the following characteristics.

- The game designed must support the stated instructional objectives.

- The game must provide opportunity for learners to have meaningful interaction with the learning content.
- The game must provide means for evaluating the learner's performance to see if the intended instructional objectives of the lesson have been achieved.
- The game must provide a means for immediate feedback. The feedback should be given to the learners as soon as possible for corrective measures or remediation. (Robert, 1995).
- The game should be developed based on the ability level of the learners. If the task to be accomplished is too difficult, the students may give up easily and may become bored if it is too easy.

There are various models or principles used in the designing instructional materials which can also be inculcated in the development of an instructional game. This principles or models guide or give direction on what should be done in each step of the development process. Some of the models or principles include:

The Deterministic Principle

This principle detects that in designing instructional material, every facet of the instructional system should be determined. The instructional system for consideration may include the curriculum, learners, teachers, evaluation techniques, etc.

ADIE model (A-analysis, D-design, I-implementation, E-evaluation)

This model stipulates that analysis should be carried out before the actual designing and implementation of the instructional material. Evaluation should be carried out to check the effectiveness of the instructional material.

Objective first rationale model

This model places emphasis on the formulation of objectives before the designing process. Abgrace Filling-the-chart game was developed based on this model. See Appendix II.

ADE model (A-analysis, D-design, E-evaluation)

This model stipulates that in designing an instructional material, analysis should be carried out first before designing the material, and there should be evaluation to test for effectiveness. The analysis could include needs analysis, curricular analysis, objective analysis, learner's analysis, etc.

ASSURE model

The ASSURE model is of the opinion that in designing an instructional material, the following should take place orderly.

- A- Analysis. There should be analysis of need to know problems to be solved via the instructional material.
- S- Statement of objective: Statement of objective should be formulated to guide the design.
- S- Selection of media resources: Media resources should be selected to match with the objectives. Cost of the material, accessibility, durability, portability, and availability of the material should be taken into consideration.
- U- Utilization of materials: The instructional material designed

should be sufficiently utilized or they become noise factors.

- R- Required learners responses: Instructors should be highly interested in the responses of learners to know if there is a significant influence of the instructional material on the student. Some of the responses may include facial expression, attitude development, interest generation, reasoning abilities, answering of questions, etc.
- E- Evaluation: Evaluation is to be carried out to give valid judgment on the effectiveness of the instructional material designed. Abgrace SUBADD game was developed based on this model. See Appendix I.

In designing an instructional game any of the models can be used. In addition to any model selected there should be development of specific rules to govern the game and the criteria for winning in the game (Hays, 2005). Player's instruction manuals and teachers' manuals should also be developed.

ABgrace Filling-the-Chart Game

ABgrace Filling-the-Chart game is a game designed by the researchers using the Objective first rationale model to teach vocabulary development in English Language to students that fall between the age brackets of 10 to 12years. Based on the design model used, the specific objective of this game is that at the end of the lesson in which this game will be used as an instructional material, the students should be able to form words with letters of the alphabet. See Appendix II.

The researchers believes that if this game is inculcated into English Language classes it will motivate and encourage a learner to read variety of literatures and English Language textbooks to learn and develop more words in order to do better in the game which unknowingly to the learner makes him improve more in his vocabulary development.

Abgrace SUBADD GAME

Abgrace SUBADD GAME is a board game to be played with a die or dice, designed by the researchers using the ASSURE model to teach subtraction and addition skills to students that fall between the age brackets of 6 to 10years. The ASSURE model emphasis that an analysis must be carried out to check for problems the intended instructional material is expected to solve. Subtraction and addition in mathematics lessons especially in primary schools has been a problem to learners hence this game was developed to solve this problem.

The game has subtraction and addition problems in it that the student is expected to solve during the gaming process. The numbers in the board will enable a student count forward and backward to enable him do the addition and subtraction problems easily. The game is very interesting because with time, the learners will not depend on the numbers on the game to add or subtract, but they will be able to do it on their own. This game provides opportunity for effective cognitive development. See Appendix I.

ADVANTAGES OF INSTRUCTIONAL GAMES

There are many advantages of using games in the classroom:

1. **Instructional games enhance learning:** Learning requires a great deal of effort; games help students to make and sustain the effort of learning. The use of innovative educational games in the classroom can increase enthusiasm and reinforce previously presented didactic information. (Bailey 1999). Games increase attention span and concentration.
2. **Games are useful in providing for individual differences:** Games Provide Personalized Learning where schools tailor education to ensure that every pupil achieves the highest standard possible (OECD, 2006, p. 24). Hays (2005)²³ opines that games enhance cognitive learning, and students' can learn from games. Games should be chosen because they provide learners with different characteristics the interactive experiences that help them meet instructional objectives.
3. **Instructional games act as motivator and interest builder:** instructional games provides a positive, interactive alternative method of teaching and information sharing especially when the students feel tired (Bailey 1999). Odenweller (1998)³⁵ opines that games increase students' involvement, motivation, and interest in the material taught, and allows the instructor to be creative and original when presenting topics. Motivation can be assessed by

the amount of involvement players demonstrate in a game. Wishart (1990) in Hays (2005)²³ examined three game characteristics (control, challenge, and complexity) to determine their effects on learner involvement. This research demonstrates that specific game designs can positively affect learning outcomes. Thus, it is important to design instructional games that increases learner's involvement most especially the slow learners.

4. **Instructional games challenge students:** Games challenge students to apply information, thus allowing them to evaluate their critical thinking skills. It creates a challenging constructively competitive atmosphere that facilitates interaction among students in a friendly and fun environment.
5. **Instructional games ease stress and boredom:** Games are a welcome break from the usual routine of the classroom learning. Games can be used to make practice periods pleasant and successful. Tuan and Doan (2010)⁵⁴ believe that instructional games help reduce the stress of learning a new lesson because it provides a relaxed environment. They also noted that sometimes learners are lazy and do not want to do the tasks asked of them in class; providing games is one way to get readers motivated to participate and engaged in learning rather than being forced to learn.

6. **Instructional games encourage students to interaction:** Instructional games encourage team learning, cooperation and active peer-to-peer instructions are strongly reinforced by educational games (Bailey 1999, Franklin, Peat, and Lewis, 2003).
7. **Instructional games make learning student-centered:** Games reduce the authoritarian role of the teacher, and produce more desirable teacher-student relationships. Games provide an aspect of realism that requires students to make their own decisions and evaluate their own results. Instructional games changes the role of a teacher from that of an instructor, organizer, or moderator of a class. It reduces the dominion a teacher has over the class. The teacher introduces the concept in the lesson and rules for the game and observes while the students take charge. (Sanchez, Morfin, Campos, 2007).
8. **Instructional games can act as an evaluation tool:** Instructional games can act as an evaluation tool because it exposes the weaknesses and strength of the students. The teacher evaluates while observing the students; the teacher notes the strength and weakness of the students and students get their feedback immediately even without the help of the teacher. (Sanchez, Morfin, Campos, 2007, Rothman, 2011). Instructional games provide a better form of assessment for quantifying

knowledge and abilities than the traditional methods. Assessment occurs at the same time with the gaming process. Players are provided immediate feedback; they know if they have lost or are still in the game, they know if they are to proceed to the next level or try again, they know the exact area of weakness and try to excel in that area in order to remain in the game. Students do not need to depend on teachers for assessment because it occurs naturally in the game (Ash, 2011, Mania, 2012). Games provide the capacity to obtain data about students' academic strengths and weakness in order to proffer solution therefore games can also provide diagnostic evaluation.

LIMITATIONS OF INSTRUCTIONAL GAMES

Instructional games have suffered many criticisms. The most mentioned limitation of using instructional games in the classroom is the probability of students losing focus and deviating from the content of the lesson and becoming fully absorbed in the game (Pastore and Falvo, 2010). They get engrossed with winning in the games thus frustrating the objectives of the lesson. Some students get addicted that they spend more time playing games than studying. More so, lazy students stop studying under the pretence of learning with games. (Bakar, Inal, and Catigay, 2008)

Karen (2006)²⁵ opines that students with special needs may be embarrassed by their lack of knowledge or may choose to zone out or misbehave to avoid a potentially

embarrassing situation, which can also lead to decreased motivation to succeed. Another issue is that the game doesn't necessarily engage every student throughout the game instead students are made to take turns (Karen 2006). Some students are technologically advanced than others due to the fact that some have the opportunity of playing variety of games at home while others lack this opportunity due to family background. (Okoro, 2011). This lack of opportunity may result in lack of confidence on the part of the learner thus hindering the effective implementation of the curriculum.

Instructional games can be expensive to purchase or produce. Squire (2011)⁵³ advises that in such a situation, the students should be paired two to one game. In a game that requires less than two persons, a time limit should be set and followed accordingly.

Most teachers exhibit negative attitude towards change and technology. (Ajaps, 2015). Some teachers may lack the qualification needed to inculcate games into their lesson plan and might find it even more difficult teaching with games in a 40 minutes period (Sandford, Ulicsak, Facer, and Rudd, 2006). Kirriemuir and McFarlane (2004)²⁹ observed that teachers complain that instructional games have a weak relationship with the curriculum.

Most parents and members of the society are yet to see the educational benefits of instructional games in the classroom. Parents from the low background see it as sheer waste of time and waste of money. They prefer the traditional teaching method they

are conversant with (Evans 2012, Rapini 2012).

Implication for Curriculum and Instruction

Curriculum experts should develop instructional games and encourage teacher's to use available games in the teaching process. Regardless the type of games, if the games go in line with the stated objectives, and well designed, it can simultaneously help student's build their problem solving skills while enjoying the learning process (Harris, 2009).

Truancy is reduced in children that are relaxed and comfortable in their classes. Therefore, school administrators should provide and encourage teachers to use games to provide a learning environment devoid of tension or fear. This will make a student more relaxed and more attentive in the classroom (Davoud, Davoud, and Mojtaba 2013).

The Nigerian curriculum consist of subjects that appear abstract in nature such as history, mathematics (Odo, 2007)³⁶, geography (Ajaps, 2015)¹. Hays (2005)²³ opine that instructional games can exemplify the abstract ideologies of a subject. Therefore teacher training colleges should provide opportunities where trainee teachers can be trained on how to develop and use instructional games in their different subject areas.

Lessons in the curriculum that require more of instructional games for students understanding should be allocated enough time or placed close to break period in the time table to overcome the complaint of time by teachers.

Students taught with games should be properly guided so they will not lose focus in achieving the

objectives. The curriculum should specify the activities the students are to engage in during the gaming section.

Where games are not available, funds should be given to teachers either to purchase or improvise a game.

In order to strengthen the relationship between curriculum and instructional games, the curriculum should specify clearly the importance of games in the understanding of a particular lesson.

CONCLUSION

The success of instructional games in the teaching and learning process depends largely on the teachers who are to ensure that it is effectively utilized. Teachers play a fundamental role in the effective implementation of games as an instructional material in addition to their impact on their learners. Teachers should be academically sound in their subject and be ready to embrace new technologies and innovations so they can be a positive influence to their students. Most students take their teachers as role models and will want to love what their teacher loves. Therefore, a student will appreciate games as a medium of instruction if his teacher does same. The main concern of curriculum development is the learners. Therefore, teachers should use teaching methods and materials exciting to students, this way they will get attracted and motivated to learn. Teachers should understand that students no matter their level enjoy fun. Therefore they should endeavour to make the students know that all subjects can be interesting to study.

RECOMMENDATIONS

Curriculum designers should pay close attention to the development of instructional games. Emphases has been placed so much in the development of curricular content it is time they shift the focus from designing curricular content to designing learning experience because when the learning experience in poor and uninteresting the objectives of the content may not be achieved.

The curriculum is ever dynamic to meet the needs of learners who desire task that are active, exploratory, enjoying, rich and interesting. But the teaching methods are static because of teacher's attitude towards change, innovation, or anything away from the methods they were trained. Strategies should be taken to ensure every teacher incline to change. Games should be suggested as part of the instructional materials in the different subject curriculum given to teachers to implement.

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APPENDIX 1

Abgrace SUBADD GAME

SUBJECT: MATHEMATICS
LESSON: SUBTRACTION AND ADDITION
AGE: 6 - 10 YEARS

SPECIFIC OBJECTIVE: At the end of the game, the students will improve in their subtraction and addition skills.

PROCEDURE:

1. Each player should be given different color of plastic counter for counting.
2. Each player should roll one die. The player with the highest number starts first.
3. Each player in turn rolls two of the dice and count the number gotten from the thrown dice with the plastic counter provided.
4. The player should carry out whatever mathematical problem is given in the box his counting stops.
5. The player that successfully gets to 100 emerges the winner of the game.

- * The number of plastic counters given to the students can be increased to increase the difficulty level of the game.
- * Number of Players - Minimum of two Players.

Abgrace SUBADD game creates a wonderful way for children to learn subtraction and addition skills with some basic supplies, creativity and little imagination by the teacher or guardian, the possibilities for learning and fun are endless.



Abgrace

SUBADD GAME

$7 + 4 = 11$
 $21 - 8 = 13$

Abgrace SUBADD GAME

100	99	98	97	96-12	95	94	93	92	91+9
81	82	83	84	85	86	87	88	89	90
80	79	78	77	76+7	75	74-10	73	72	71
61	62	63	64-10	65	66	67	68	69	70
60	59	58	57+3	56	55	54	53	52	51
41	42	43	44	45	46	47	48	49	50+18
40	39	38	37-10	36	35	34	33	32+5	31
21	22	23	24+7	25	26	27	28	29	30
20	19	18	17+23	16	15	14	13	12	11
1	2+7	3	4	5	6	7	8	9-8	10

APPENDIX II

ABgrace Filling-the-Chart Game

ALPHABETS	NAME	PLACE	ANIMAL	FOOD	THING
A					
B					
C					
D					
E					
F					
G					
H					
I					
J					
K					
L					
M					
N					
O					
P					
Q					
R					
S					

T					
U					
V					
W					
X					
Y					
Z					

Abgrace Filling-the-Chart Game

Subject: English language

Lesson: Vocabulary Development

Age: 10-12years

Specific objectives: At the end of the lesson, the students should be able to form words with letters of the alphabet.

Procedure

1. The charts should be shared to as many that are to compete in the game.
2. Biro or pencil should be made available to the learners.
3. Ballot papers numbered from 1 to the number of learners participating in the game should be presented to the participants. Whoever picks number 1 starts the game while others follow accordingly.
4. The first player should choose any letter of his choice and say it loud for the participants to hear.
5. Immediately the letter is chosen all the participant is expected to fill a name, place, animal, food and thing that start with the letter mentioned. For example: If letter D is mentioned, one can fill Dominic for name, Desert for place, Dog for animal, Doughnut for food, and Desk for thing.
6. The first player to fill up the row in the letter mentioned should count 1 to 10 loudly. Immediately the player counts up to ten everyone is expected to stop filling the chart. The chart should be distributed amongst the players for scoring.
7. The Name, Place, Animal, Food, and Thing carry 2 marks. A complete filling of each row carries 10 marks and a complete filling of the chart carries 260 marks. When the chart is completed, it should be shared amongst the players for scoring to avoid bias. The marks should be summed up. The player with the highest mark emerges the winner.