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APPLICATION OF FUZZY COGNITIVE MAP IN (AJEL) ACTIVE, JOYFUL, EFFECTIVE LEARNING FOR PRIMARY LEVEL STUDENTS

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ABSTRACT

Fuzzy Cognitive Maps are fuzzy structures that strongly resemble neural networks and they have powerful effect as a mathematical tool for modeling complex systems. FCM combines the robust properties of fuzzy logic and neural networks. In the past, there has been a lot of development in the curriculum and in learning strategies like Actively Based Learning for the Primary School Students for effective, stress free learning. Teachers have the great responsibility of sharing their knowledge in journey of each child's life, as facilitator guide. Strategies need to be adopted to make the environment positively, delightful, building an emotional balance in children to learn freely and joyfully. Childhood is the most important phase of one's life to prepare a proper foundation filled with rich experiences and opportunities for achieving the purpose of learning and sense of well being. So active, joyful and effective learning is possible by the whole hearted effort of the teachers through gentle approach and understanding. This study is to analyze and prioritize various factors that will enhance AJEL in the classroom.FCM is a tool for formalizing understandings of conceptual and causal relationship. Since crisp logic cannot accurately represent human understanding we use fuzzy logic to represent truth values on a continuous scale from 0 to 1, providing mathematical methods for representing concepts and causalities that are true to some degree.

KEYWORDS: *FCM, Fuzzy Logic, ABL, AJEL*

INTRODUCTION

Robert Axelrod (1976) who was a political scientist introduced cognitive maps to represent social, scientific knowledge. Bart Kasko introduced fuzzy cognitive map in the year 1986 (Vasantha and Samarandache) [19]. Axelrod's cognitive maps are signed digraphs (Bart kasko, 1985) [4]. FCMs are a qualitative alternative approach to dynamic systems (Jose Aguilar, 2005). FCMs combine the robust properties of fuzzy logic and Neural Networks (Jose Aguilar, 2005) [11]. FCMs are typically signed fuzzy weighted diagraph involving feedback, consisting of nodes and directed edges between them. The nodes usually represent behavior concepts of the system and the edges represent cause and effect relations between the concepts [7].

Childhood is a unique phase of life during which children develop several skills and confront new life tasks. This is a special time of growth and change and so special care and resources are required to educate children

(Seema Singh, 2014) There are several benefits of joy in the classroom (Kohn, 2004). [16]. Children achieve higher level of cognition, when they are active and free. So, environment enhances learning. Hence, certain learning strategies are proposed by the experts. Teachers play an important role in developing learning abilities in the classroom. So we analyze the factors that encourage active, joyful and effective learning in the class room, given by (Endah Yanuarti) [9] which involves 8 steps. By applying them, the influencing factors are focused.

Literature Review

Though there are improvements in the recent past in the mathematical materials which are available for use in classrooms, but there remains a great amount of work to be done in the area of attitudes toward motivation for learning (William M.FitzGerald, 1960) [20].

During the early development period, children need a suitable learning environment with proper learning sequence. Childhood is a remarkable human phase of life in which children need to enjoy developing skills through activity based learning like making and doing things, experimentation, reading, asking, listening, discussion, and thinking, reflecting and expressing oneself in speech, movement or writing both individually and collectively. So when strategies are used to reduce stress, building positive emotional environment they gain emotional resilience, pleasure as well as knowledge. Hence the teacher's responsibility is to create appropriate learning environment to make the journey of sharing and construction of knowledge joyful (Seema Singh, 2014) [16].

It is felt that learning approaches are theoretical, abstract and less attention to context (Karnasih and Soeparno, 2000). So learning in Primary Schools needs to be done by manipulating real objects as objects of study. This will help in learning to bring out innovative ideas creatively and joyful learning. Thus a set of mathematical teaching aids that are equipped with realistic math work sheets which are designed in the form of game called Kopermatik. She opines that effectiveness of learning with Kopermatik is high, showing high score for learning achievement. (Sri Subarinah, 2011) [17].

When joy and comfort are scrubbed from the classroom, students are distanced from effective information processing and long term memory storage. They become bored, anxious instead of enjoying pleasure, but only engaged. Brain research tells us that when the fun stops, learning often stops too (Judy Willis - 2007) [12].

Education for all is the universal call echoed in our country and the world at large. Quality of schools has to be improved and child-centered ideas are utilized in teacher-training programmes and school reforms across the continents of Africa and Asia with the aim of creating child friendly, democratic learning environments. He says that child centred models based on learning cards, pedagogy used by him does not seek to hand over to greater control to children in the instructional aspects of pedagogy, despite reform. (Arathi Sri Prakash – 2010) [2].

Joyful learning is an example of pedagogy reform implemented in rural primary school in Karnataka. He realized what it means to introduce child central pedagogic resources in low income, rural Indian comfort after analysis he reveals how the social control of knowledge acquisition can remain unchallenged, and hidden by the rhetoric of this child centred pedagogy. (Arathi Sri Prakash – 2009) [3].

Real objects as objects of study should be used for Learning in Primary Schools, enabling them to bring out innovative ideas and for joyful learning. Hence the use of Kopermatic which comprises math work sheets designed in

the form of game is introduced. It is found that learning strength with high score for learning environment. (Sri Subarinah, 2011) [17].

Cognitive Map

Cognitive mapping is the task of mapping a person's thinking about a problem or issue (Tolman, 1948). A cognitive map is the representation of thinking about a problem that follows from the process of mapping [26].

Cognitive maps can be defined as mental images and concepts that are built to visualize and assimilate information. Visualization, the act of organizing information in visual spaces, is applied to both spatial tasks such as design and nonspatial tasks such as strategic planning [25].

Cognition can be used to refer to the mental models, or belief systems, that people use to perceive, contextualize, simplify, and make sense of otherwise complex problems [26].

FCM Methodology

The fuzzy indicates that FCMs are often comprised of concepts that can be represented as fuzzy sets and the causal relations between the concepts can be fuzzy implications. A directed edge E_{ij} from concept C_i to concept C_j measures how much C_i causes C_j. In simple FCM's directional influences take on trivalent values {-1,0,+1}, where -1 indicates a negative relationship, 0 no causative relationship and +1 a positive relationship. In general, the edges E_{ij} can take values in the fuzzy causal interval [-1,1] allowing degrees of causalities to be represented :

- $E_{jk} > 0$ indicates direct (positive) causality between concepts C_j and Ck. That is the increase (Decrease) on the value of C_k
- $E_{jk} < 0$ indicates inverse (negative) causality between concepts C_j and C_k. That is the increase (Decrease) in the value of C_j leads to the decrease (increase) on the values of C_k.
- $E_{jk} = 0$ indicates no relationship between C_j and C_k

The Algorithim for performing FCM is given as follows based on (Vasantha Kandasamy and Smarandache, 2003)

Step 1: Read the input vector I (t)

Step 2: Give the connection matrix, E

Step 3 : Calculate the output vector $O_{(t)} = I_{(t)}{}^{X} E$

Step 4: Apply threshold to output vector $O_{(t)} \sim I_{(t+1)}$

Step 5: If $(I_{(t+1)} = I_t)$, stop

else go to step 1.

End

Problem Description

The development of reason has long been an important aim of education. Both Aristotle and Plato argued that the promotion of reason should be a central aim of education. Education is vital to every man and is valued by every nation.

It is seen as a development agent. Every country's development is measured by quality education and literacy rate.

Umoh (2006) has rightly observed education helps the individual to develop physically, mentally, morally, spiritually and emotionally by providing suitable environment, teaching him new knowledge, attitudes and skills that will enable him to be useful to himself and to society. Education at this level stray means the learner's feet to climb the educational ladder to the zenith of areas, attainment of a good foundation is local, Primary education, a bed rock must bring to the learner's elementary of general knowledge of science, helping them to use and operate scientific objects and gadgets, so that they may suffice with the foundational knowledge as they advance to higher levels. FRN (2004) enumerated the grabs of primary education

- Inculcate permanent literacy and numeracy and ability to communicate efficiently.
- Lay a sound basis for scientific and reflective thinking.
- Give citizenship education as basis for effective participation and contribution to the life of the society.
- Mould the character and develop sound attitude of morals in the child.
- Develop in the child ability to adapt to the child's changing environment.
- Give the child opportunities for developing manipulative skills that will enable the child to function effectively in the society within the limits of the child's capacity.
- Provide the child with basic tools for further education involvement, including preparation for trades and craft of the locality.

To actualize the Primary Education we need to follow innovative methods (Innovative ways) are paved to make it actualize with suitable learning environment. Active learning methods are introduced to make learning joyful and effective where the focus is on the subject.

- Active learning shifts the focus from the teacher and his native engagement with the material. Through active learning techniques and modeling by the teacher, students shed the traditional role as passive receptors and learn and practice how to approach knowledge and skills and use them meaningfully.
- "Active learning involves providing opportunity for students to meaningfully talk and listen, write, read and reflect on the content, ideas, issues and concerns of an academic subject (Meyers & Jones 1993, P.6)
- Through this, the children learn with interest aid they learn maximum when they engage with course material and actively participate in their learning whereas in the traditional method lot of information, concepts are loaded on their minds.
- Active, joyful and effective learning is a conception which helps teachers to apply the content of the subject matter to the reality of the world and thus motivating the students t make connections between knowledge and its applications to the lives as family members, citizens and workers (Rekdale 2005) Learning process can involve captain steps defined as follows :

Understanding Children and Characteristics

The knowledge of early childhood theory is essential to know the thoughts and feelings and in helping them to care for people and joyful learners (Seema Singh, 2014). [16]

To understand the character of the children, teachers need to know the case study of the child (Baker, Gract and Morlock, 2008). It is interesting that children find security in rhythm ritual and repetition. Albert Einstein says "Learn through play, play is the highest form of research". Since play enables them to have wonderful ideas, to narrate own words and to hold challenges. Susen Howard comments the art of education is the art of living. The nature of primary schools is to seek long belongingness they enjoy the culture of love, warmth and beauty than curriculum (Howard 2006). Children like to explore with wonder. So the teacher's greatest challenge is to guide their inquisitiveness. Hence they need to find ways to playful movement and to link learning with physical activity. Children seek independence and mastery. "Never help a child with a task at which he finds he can succeed" (Maria Montessori). Primary learners seek to assert power and gain control over their world (Erikson, 1959) child take pride in accomplishing their small tasks even like building a tower, tying their shoes or caring for seedlings. They delight in sharing and celebrating their accomplishments with others through speaking, writing, mime, art or drama. When their work is taken seriously by the teachers and design environments and activities they provide autonomy and mastery [24].

Knowing Each Child Personally

Teacher's play an important role in the trajectory of students through the formal schooling experience (Baker, Grant and Morlock, 2008). Teachers have the unique opportunity to support students academic and social development at all levels of schooling (Baker ex al, 2008, Bronfinbrenner 1979, Bronfinbrenner and Morris, 1998, Mc Cormick, Cappella, O' Connor and Mc Clowry in press). Teachers who support students in the learning environment can positively impact their social and academic outcomes, which is important for the long term trajectory of school and eventually employment (Baker ex al, 2008, O' Connor ex al, 2011, Silver ex al 2005). When teachers form positive bonds with students, classrooms become supportive spaces in which students can engage in academically and socially productive ways (Hamre and Pianta 2001) [8].

- Learning process differs from child to child due to the presence of biological and psycho logical difference. Many researchers try to stress that learning styles are one of the important concepts of research to slow learners difference and varied needs (Keefe, 1987).
- All learners have individual attributes relating to their learning process (Reiff, 1992).
- Learning problems are frequently not related to the difficulty of the subject matter but rather to the type of and level of cognitive processes required to learn the material (Keefe and Ferrell, 1990).
- Dramatic improvement in students achievement in cases where learning styles have been taken into account show that the way things are taught had a greater impact than the consent covered in a course of study (Dumn, 1993).

- It is believed that when teachers are able to analyse the differences and needs of their students, the educational process is likely to become optimized for both students and teachers (Fairhurst and Fairhurst, 1995)
- Emphasizes learning styles as cognitive, affective and psychological traits that serve as relatively stable indicators of how learners perceive, interact with and respond to the learning environment (Keefe 1987).
- each individual's concentration on, mental processes, internalization and retain of new and difficult information stem from his specific learning style (Dunn and Dunn, 1986).
- Teachers try various ways to enhance the students' academic achievement. All the parents and committed teachers think invariably that their children must be successful. For this to be achieved teachers need to identify the children's learning styles. Some may have multi styles and mono styles.
- Learning styles differ between gifted and under achievers, between the learning disabled and average achievers (Dunn and Dunn, 1996).
- Slow achievers tend to have poor auditory memory. Thought they want to do well they can't retain what they have heard in the teacher dominated classroom (Dunn and Dunn, 1986).
- Matching teaching and learning styles can significantly enhance academic achievement in the Primary and Secondary level (Smith and Renzulli, 1984).

Hence teachers need to identify the learning styles and speed of their learning and try to guide them for effective learning.

Use Children Behavior in Learning Organization in the Classroom

Teachers are to be keen in observing the children's behavior in the classroom. If they notice their characters for example, joining in groups and enjoying the learning getting help from peers and if they are comfortable in the presence of their own classmates' then teacher can be confident that peer teaching can enhance learning. These are different groups namely teaching cycle groups, co-operative groups, peer tutoring etc. Creating such a positive environment in the classroom will surely increase the learning ability of children. We need to use instructional grouping because that all students learn, vary from their capacity.

Develop Children's Critical Thinking

Critical thinking is defined as correct thinking in the pursuit of relevant and reliable knowledge about the world. It is described as reasonable, reflective, responsible, and skillful thinking that is focused on deciding what to believe or do. "We should be teaching children how to think; instead we are teaching them what to think." (Clament and Lochhead, 1980).The aim of teaching critical thinking is to improve thinking skills so that they are better prepared to succeed in the world. Mostly our education transmits to students firstly the content of the discipline that is 'what to think'. Secondly the correct way to understand and evaluate their subject matter that is how to think.' The second ability is called critical thinking. All educational disciplines agree mostly that we fail to impart critical thinking.

Hence critical thinking has to be developed in the classroom by making children to ask appropriate questions, gather relevant information, (efficiently and creatively sort through this information) reason logically by trained and knowledgeable teachers by imparting proper information skills. Hence children can be trained to answer open ended questions, different tasks to think logically by reasoning out and come to reliable and trustworthy conclusions about the problem and live successfully.

The aim of education is helping students to solve the problem by teaching them how to think by combining creative thinking and critical thinking. That is teaching them how to generate ideas and to evaluate ideas. [18].

Richard Paul, an advocate of critical thinking says "Alternative solutions are often not given; they must be generated or thought up. Critical thinkers must be creative thinkers as well generating possible solutions in order to find the best one" [31].

Developing Classroom as Interesting Learning Environment

It is interesting to note the relationship between environment constructs and its multiple outcomes, including learning, 'engaging motivation, relating with one another socially and group dynamics. Behaviour is a function of people's personal characteristics and environment. In the physical environment, researchers find that behavioural problems increases as class size increases. Hence teacher-to-child ratio is one of the concerns regarding environment. One of the characteristic of an effective classroom environment manager is to intentionally provide organizational instruction at the start of the academic year. The role of the teacher in the classroom environment is essential his / her behavior especially teacher development and school culture, which affect the classroom environment. Helen Patrick and colleagues (Patrick, Ryan and Kaplan, 2007) found that there is a strong positive relationship between students 'level of motivation and engagement.' Teachers need to draw classroom management plans and due efforts in building better relationships with students. Teachers are to be motivated and encouraged to concentrate more on learning tasks than on the outcome or grade, though it is more difficult if the importance of education is placed on accountability and high stakes jerking [1].

Teachers need to motivate their children and encourage to create something and exhibit in the classrooms as they do in Active Based Learning (Tamil Nadu) for primary students. What they display becomes their learning source. This brings forth high level achievement as they produced what they have retrieved.

Using Environment as Learning Resources

Classroom management is a skill of an effective teacher. It is the integration of the learning environment of a group of individuals with in a classroom setting. Usually teacher communicates information about teacher's beliefs on the content and the learning process. A better classroom is in which the teachers takes total responsibility for guiding students actions and constitute a different learning environment, then where students are encouraged and taught to claim responsibility for their active behaviors. Way of approaching content also varies according to their settings. The interrelated nature of classroom management and curriculum depends on the correlation between instructional activity and management complexity.

Maintaining the learning environment through decision making concerning students and the classroom is the key factor of classroom management. Teachers need to focus on group processes for maintaining learning environment. The obstacle for flowing instruction is in attention to transitions between activities, lessons, subjects or class periods.

Transitions can become effective if only if students are able to move from one activity to another physically and also cognitively. If the teachers become aware of the importance of the complexity and multidimensionality of the classroom management, it will create a difference in the levels of children [29].

Hence teachers are the instruments to create suitable atmosphere of free learning and higher achievement. Learning is enhanced when they touch, feel, observe and experience. So real available objects should be brought to the classroom from the rich environmental resources.

Giving Feedback to Improve Learning Activities

The success of classroom learning is very much dependent on how students relate to each other, what the classroom environment is, how effectively students co-operate and communicate with each other and what roles the teacher and learners play (Dornyei and Murphy, 2003).

Self reflecting on the learning will empower the students as learners. It enables the primary students marking every learning and language process. Self evaluation can be done formally or informally for primary students.

Though Bloom was convinced of individualization learning, which is beneficial he felt that it would not be suitable for mass public education [27].

So he insisted the search for group methods which will be equally effective as one-to-one tutoring (1984 a.b.Bloom). Bloom also said in one-to-one tutoring giving feedback is easy to identify the mistakes and clarify immediately and further followup is easy (Gurkey 2010). Assessment for learning is any assessment which has the purpose of promoting students learning with origin. Any assessment activity which provides information for teachers and students to use it as feedback in assuring themselves and one another will enable them modify their teaching and learning activities. (Black, Harrison, Lee, Marshall and William, 2004, P.10). Dylan William so integrating assessment with instruction may influence power to increase student participation and to improve learning outcomes. In the classroom students have to be encouraged to interact to share their own ideas, reflections or their own pregained knowledge in the concept. / Teacher needs to observe continuously the activities, behavior strategy or test which could provide a total picture of a child's learning. Students could be encouraged to reflect their growth, their own potential and the areas to be grown and their goals [6].

Differences Between Children Active Physically and Mentally

In the classroom, it is the teacher who has to recognize child as a natural corner and knowledge as a product of child's own activity. Outside the classroom, we enjoy children's curiosity, inquisitiveness, and inventiveness. They are actively involved with the world around them by exploring, responding, finding new things and making meaning, whether we can find the same attitude in the classroom. It is the teacher who has to invoke such experiences for the child through learning activities. They should be continuously observed specially relation with oneself, other and group. It is here that they learn the hand on experience of integrating what they learn and do. Cognitive development includes attitudes, emotions and morals which are linked to the growth of language, mental representation, concepts and reasoning. As they develop met cognitive capabilities they come to aware of their own beliefs and capacity to regulate their learning. Children are capable naturally for effective learning. They develop capacity, curiosity; inquisitiveness and inventiveness are the special characteristics of children. They can learn in a variety of ways through own experience, making and doing things,

exploring the creativity, experimenting things, reading, making, listening, asking, thinking and reflecting and expressing oneself in speech, writing both through individualization and with others. For these opportunities have to be provided by the teacher in the classroom. Hence the teacher can easily differentiate the capacity of each child and differentiate their physical activity and mental capacity through their ability to face the teacher, peer and the classroom and through their expression of emotions. Motivated teacher would not be satisfied with the busy activities [30].

Algorithmic Approach of FCM

To derive an optimistic solution to the problem with unsupervised data the following steps are implemented.

Step 1

Fuzzy cognitive map is a directed graph with concepts like policies, events etc. as nodels and causalities as edges. It represents causal relationship between concepts. If increase (or decrease) in one concept, leads to increase (or decrease) in another, then give the value 1. If there exists no relation between two concepts; then value 0 is given. If increase (or decrease) in one causalities decreases (or increases) another, then gave the value -1. Thus FCMs are described in this way.

Step 2

When the nodes of the FCM are fuzzy sets then they are called fuzzy nodes.

Step 3

FCMs with edge weights or causalities from the set { -1,0,1 } are called FCMs.

It is necessary to note that all matrices associated with an FCM are always square matrices with diagonal entries as zero.

Step 4

Consider the nodes or concepts $C_1 \ldots C_n$ of the Fcm. Suppose the directed graph is drawn using edge weight $\in$ {-1, 0, 1 }. The matrix E be defined by E= (e_{ij}) where e_{ij} is the weight of the directed edge $c_i c_j$. E is called the adjacency matrix of the FCM, also known as the connection matrix of the FCM.

Step 5

Let $C_1, C_2, C_3 \ldots C_n$ be the nodes of an FCM A = $(A_1, A_2 \ldots A_n)$ where $a_i \in \{0,1\}$ A is called the instantaneous state vector and it demotes the on-off position of the node at an instant

$$a_i = \begin{cases} 0 \text{ if } a_i \text{ is OFF} \\ 1 \quad \text{if } a_i \text{ is ON where I = 1,2,…n.} \end{cases}$$

Implementation of FCM

To find the most impact factor for primary students active, joyful and effective learning, we use the following factors which are listed below:

F_1 – Understand children characteristics.

F_2 – Knowing each child personally.

F_3 – Use children behavior for a learning organization in the classroom.

F_4 – Developing children's critical thinking, creativity and ability to solve the problem.

F_5 – Developing classroom as interesting learning environment.

F_6 – Using environment as learning resources.

F_7 – Giving feedback to improve learning activities.

F_8 – Differentiate children active physically and mentally

Targeted FCM

The corresponding connection matrix M is

	F_1	F_2	F_3	F_4	F_5	F_6	F_7	F_8
F_1	—	1	0.85	0.9	0.65	0.80	1	1
F_2	1	—	0.9	0.95	0.75	0.85	1	0.9
F_3	1	0.9	—	0.60	0.80	0.85	0.9	0.85
F_4	0.99	0.95	0.80	—	0.90	0.65	0.85	0.75
F_5	0.90	0.75	0.95	0.60	—	0.85	1	0.95
F_6	1	0.60	0.65	0.60	1	—	0.50	0.60
F_7	1	1	0.90	0.95	1	0.55	—	0.60
F_8	0.95	1	1	0.85	0.70	0.55	0.80	0.95

CALCULATION

Step 1

Let F_1 = (1 0 0 0 0 0 0 0) Now let us consider a single state element through the matrix and multiply it with the relation Matrix M. Let us (take the state vector F1) start understanding children's characteristics as ON state and all the other modes are in the OFF state.

$F_1.M$ = (0 1 0.85 0.9 0.65 0.80 1 1)

$\longrightarrow$ (1 1 1 1 1 1 1 1) = F_1^1

Threshold value is calculated by assigning 1 for the values > 1 and 0 for the values < 0 the symbol ' $\longrightarrow$ ' represents threshold value for the product of the result.

Now multiply F_1^1 with the Matrix M.

$F_1^1.M$ = (6.84 6.2 6.05 5.45 5.8 5.1 6.05 5.65)

= (1 1 1 1 1 1 1 1) = F_2^1

Therefore $F_1^1 = F_2^1 = F_2$

So here F_2 is the fixed point.

Therefore F_1 = (1 1 1 1 1 1 1 1)

Step 2

Let F_6 = (0 0 0 0 0 1 0 0)

Now we consider a single state element through the matrix and multiply it with the relation matrix M.

For this, let us state use environment as learning resources as ON state and all the other nodes are in the OFF state.

F_6.M = (1 0.60 0.65 0.60 1 0 0.50 0.60)

$\longrightarrow$ (1 1 1 1 1 1 1 1) = A_1^1

Thresholding is calculated by assigning 1 for the values > 1 and 0 for the values < 0.

Now we multiply A_1^1 with the matrix M

A_1^1.M = (6.84 6.2 6.05 5.45 5.8 5.1 6.05 5.65)

$\longrightarrow$ (1 1 1 1 1 1 1 1) = A_2^1

Therefore $A_1^1 = A_2^1 = F_3$

So here F_3 is the fixed point.

Therefore F_6 = (1 1 1 1 1 1 1 1)

CONCLUSIONS

Classroom must be filled with book, art supplies writing materials and hands on math manipulative plants, animals and materials collected on field trips that will increase inquisitiveness of children in their learning experiences. Creating a conducive, delightful climate for children to make them free to find, select and assemble their learning especially during childhood and adolescence (Kroustalakis).

An optional classroom climate is characterized by low levels of conflict and disruptive behavior, smooth transitions from one type of activity to another, appropriate expressions of emotion, respectful communication and problem solving, strong interest and focus on task and supportiveness and responsiveness to individual differences and students 'needs' (La Paso & Pianta, 2003)

Bruner claims "any subject can be taught effectively in some intellectually honest form to any child at any stage of development. (William M.Fitz Gerald, 1963).

Mr. Farland says "Motivation activates the energy which ends in learning, keeps it on alert and guides it (Kassotakis of Flouris).

Motives are considered as the fundamental modulators of behavior and undoubtedly is the main factors of learning. Education is constant procedure of influencing the ways of teaching and learning through the interactive relationship between the teacher and the student by understanding the characteristics of every child assuring the security the child needs.

"Education is the sum of influences a man gets throughout his life from his environment may be natural, family, ecological, social and cultural.

So, the understanding of the teacher towards each child characteristics will enhance the learning environment for the students and when the environment is used as learning resources, the learning will be doubled and successful. Hence both the factors are more impactful in AJEL.

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