ISSN No:-2456-2165

The Neurocognitive Epistemology of the Neuroplasticity Interaction on Working Memory into Neurocognitive Ability Test (Gat) or General Mental Ability (GMA) Capabilities of Pedagogy Concept Development Toward Medical and Allied Health Sciences Theories

Nizam, MK. The Impact and Neurocognitive ability on working memory of Pedagogy Epistemology Concept development theories of Medical and Allied Health Sciences. International Journal of Innovative Sciences and Research Technology.2020;5(2):388

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Abstract:- Cognition are action or process of acquiring knowledge and understanding through thought, experience and the sense drive on working memories into neurocognitive ability test (GAT) impact neurocognitive epistemology. These studies aim to examine the use of pedagogy concept development inter-relationship and its impact on the improvements in students' learning and identified neurocognitive epistemology capabilities on working memory. There are 232 totals of respondents for these studies. The studies designs were cross-sectional studies. Self-Administered booklet Questionnaire, Schematic Mapping of working memory Johan et al., (2015), metalinguistic development Gombert's concept (1992), Sean sample (GTAC, 2018) were used as instruments. The Pearson Correlation and One way – Anova were used to discover inter-relationship among students between group and listening skill and correlation association. P-values less than 0.05 were interpreted as significant. The achievements were 90% in advanced (Level 4) with higher in semester 1 than 2 and 3. Academic Performance (AP), Attitude Achievement (AA) and Level Competencies (LC) were higher in semester 1 on both genders. However, competencies attitude on Academic Achievement (AA) were higher in female than males. Prevalence on AHSE were 98%. Meanwhile, General mental abilities (GAT) among respondents were 89.9%. However, Neurocognitive Epistemology on working memory were 68%. There is significant and positive correlation association between group on listening, reading and writing; reading and listening among students, p value <0.05. In the Pedagogical Attitude content Knowledge (PACK) concept, there was positive Inter-relationship on Attitude content Knowledge (ACK), Pedagogical Attitude Knowledge (PAK) and Pedagogical contents Knowledge (PCK). The reliability were 0.871, while neurocognitive ability test (NAT) on brain region were validate in percentile (%ile) score more .20 showing that impact of pedagogy concept were strong and validated. The institute differ significantly high impact in their competencies, achievement and attitude among students in term of neuroplasticity interaction on working memory into neurocognitive ability test (NCAT).

Keywords:- *Pedagogy Concept, Neurocognitive Ability, Working Memory.*

I. INTRODUCTION

The guided by the language in education policy, all the allied health students required to take a course called Theories Medical and allied health sciences or known as MAPE 1132,1232 and 2131 to improve their competencies. Localized on working memories into neurocognitive ability test (GAT), being aware that their capability on impact neurocognitive epistemology of pedagogy concept development theories of Medical and Allied Health Sciences a need to recognize has been acknowledgement. It has also been emphasized that capability on working memories into neurocognitive ability test (GAT) could endanger the interlligibility. Focus on information processing and internal representations of experience and learning theory, neurocognitive learning theory are being used to cumulatively interact on the brain region with learning and relearning into neuroplasticity on working memory and emphasis on the biological bases of brain and neural activities in cognitive science. Expands the literature perspective on theories skills with the pedagogy epistemology concept development by describing the 4 major, readily measured relationship in component in English (reading, listening, writing and speaking), adverse performance profile (competencies, achievement, Attitude and Performance) among students age 19-31 years of

diverse backgrounds. Subsequently, has been carried out of the neuroplasticity interaction into cognitive ability and traits on working memory towards theories of Medical and Health Sciences perspective on frontal lobe, pariental lobe and temporal lobe among students age 20-25 years of diverse backgrounds were present to received theories.

Neurocognitive required understanding and responding to the ability to received and delivered it the task on working memory. It, therefore, includes abilities that help us grasp the information from learning and relearning, to attend to certain aspects of the theories in a focused way, to comprehend and make meaning of the information received via language or nonverbal modes, to be able to solve problems, to plan future actions, to evaluate our own thought processes, and so forth.

Neurocognitive ability to a process like attention, information processing speed, comprehension, working memory, planning, concept mapping formation, learning and relearning, memory, and insight. Therefore, neuroplasticity is the ability the prospect of new ways to improve learning and education, physical rehabilitation of the nervous system to respond to extrinsic or intrinsic stimuli by a reorganization of its function, structure, or connections with the concept of pedagogy epistemology were developed. It has therapeutic, influenced by the environment and internal states, such as motivation and attention and speculate that endogenous brain activity might, in theory, even serve as one of the stimuli of Hebbian plasticity.

Therefore, Pedagogy concept development has been carried out method of teaching and learning process to expand of the neuroplasticity interaction into cognitive ability and traits on working memory towards theories of Medical and Health Sciences perspective on frontal lobe, pariental lobe and temporal lobe among students age of diverse backgrounds were present to received theories in the Institution. Pedagogy concepts Inter-relationship in Allied Health Sciences were developed to evaluate method of teaching process in ordered of (i) Achievements Attitude (AA), (ii) Level of Attitude on gender (LA) and (iii) level of competencies (LC). Method of this design was reflected aspect of knowledge pertaining on competencies, Attitude and achievement of inter-relationship. There were Pedagogical Attitude content Knowledge (PACK), Pedagogical Attitude Knowledge (PAK), Attitude content Knowledge (ACK) and pedagogical content Knowledge (PCK). Neuroplasticity interaction into cognitive ability and traits on working memory were assess to evaluate in order of (i) cognitive integrated performance (CIP), (ii) cognitive integrated analysis (CIA), cognitive ability test (CAT) and cognitive assessment analysis (CAA). An implicit theory is to make explicit and visible the frames of reference through which individual teachers or lecturer perceived and process information. The exploratory may stimulate about competencies, performance attitude, and achievement and Neurocognitive ability on working memories of the pedagogy concept for teaching and learning in higher education.

A. Statement of Problem

Field in study of Medical and Health Sciences is a tough, realistically in order to recruited unite of Allied Health to understand the terminology as well as given the best therapeutic approach internally and community. Therefore the present study has been carried out to determine the relation and attitude study and to investigated the competencies in aspect perspective of gender attitude, level achievement and competencies and effectiveness in order to evaluate cognitive ability reflected on the skills, theories, performance academic and cognitive training indirectly and the same time measure the neuroplasticity component of the brain region among medical and allied health students were perceived theories in this institution. Researcher identified that level competencies and capability among students are evaluated through activity and 40% task of the examination.

Assessments on the examination and proper proceeding to evaluated skill competencies among study are not reliable and not significant to determined competencies among the paramedic students.

B. Rational of Study

Continues study on the Pedagogy Impact and epistemology capabilities has been carried out to determine the relation and attitude study and to investigate the competencies in aspect perspective of gender attitude, level achievement and competencies and effectiveness among paramedic. Therefore, focus on the Theories in High impact of the Medical and Allied Health perspective on the section of the brain region. The impact and neurocognitive pedagogy concept development on working memory includes the prospective use of information from the variety of the literary teks form in Medical and Allied health sciences theories. It, been promoted as a major of Pedagogy epistemology concept for using the term “working,” rather than “short-term,” memory. The temporarily maintained information depends on skills of the theories and concept were developed and structure of the task, as well as the context in which the task is performed and being assessed. These aspects provide the scaffold on which working memory proceeds into the task set, prospective planning, and other cognitive control operations are integral parts of working-memory processing.

ISSN No:-2456-2165

Conceptual and Theoretical Framework General Mental Ability (GAT) on working memory

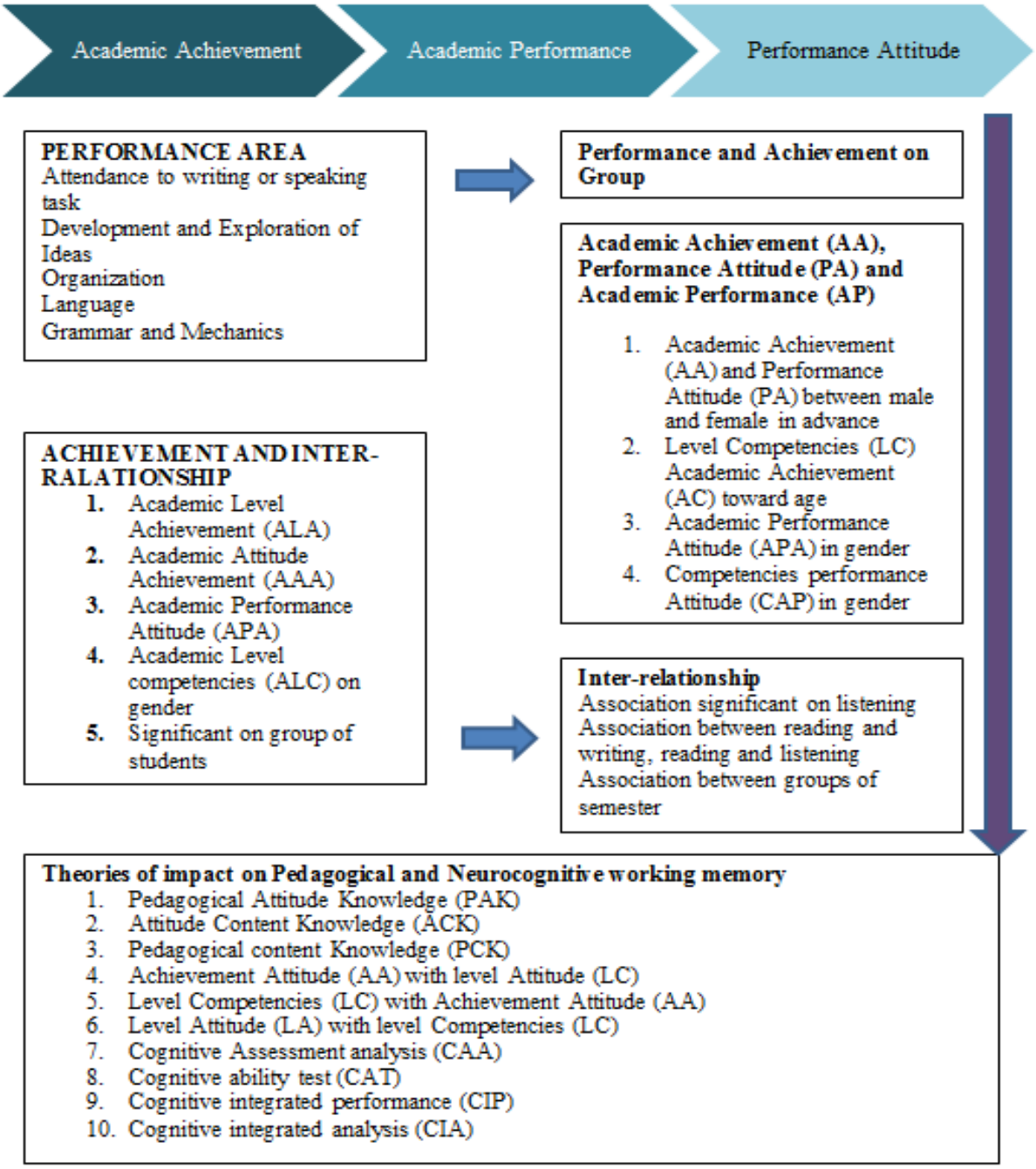

Figure 1: Conceptual and Theoretical Framework – The proposed model show relationship and outcome of Pedagogical and Neurocognitive

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Flow Mapping Theoretical Framework concept development with the impact Neurocognitive Epistemology of Pedagogy concept on working memory toward Neurocognitive ability test.

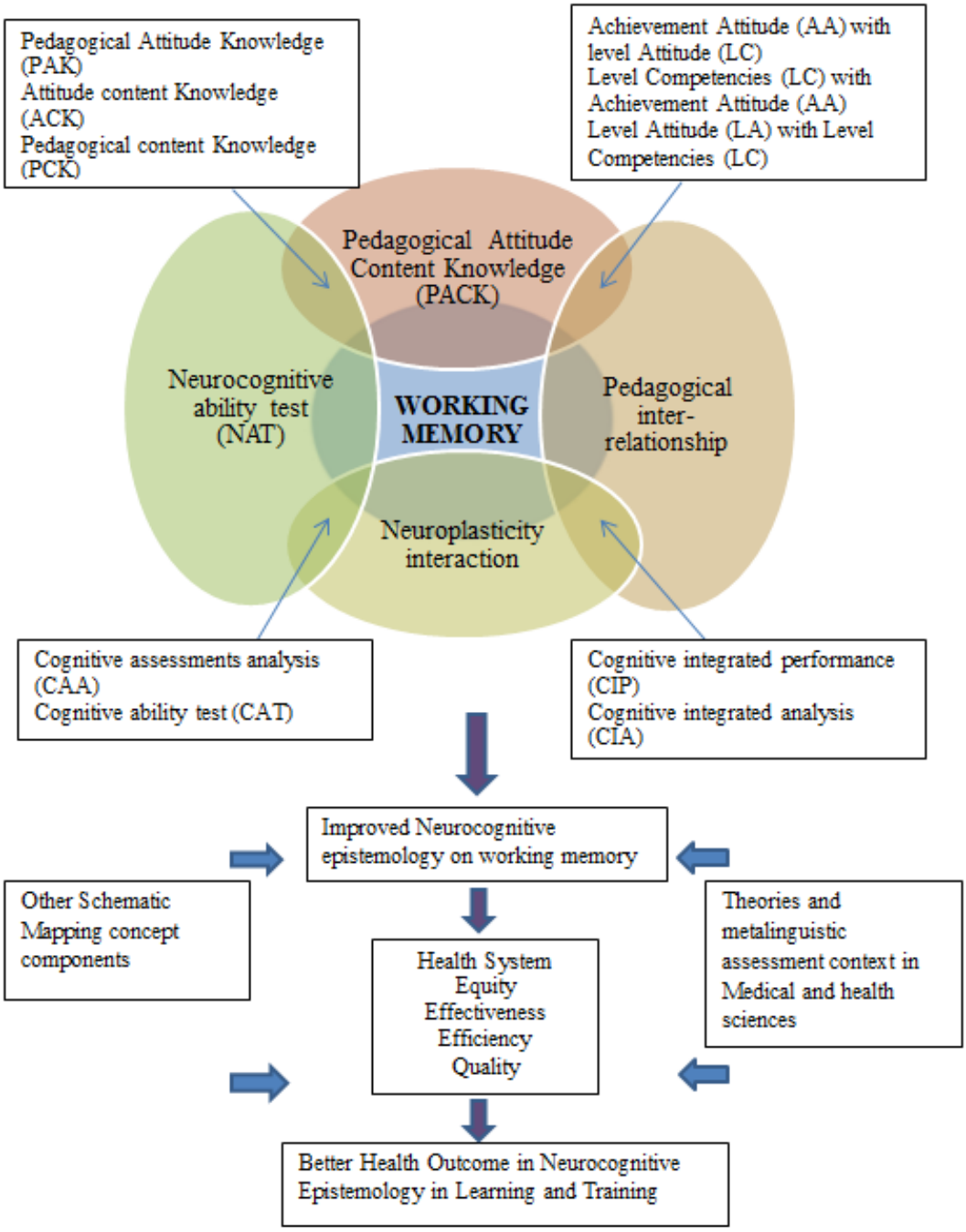

Figure 2: Flow Mapping Theoretical Framework – Pedagogy concept on working memory

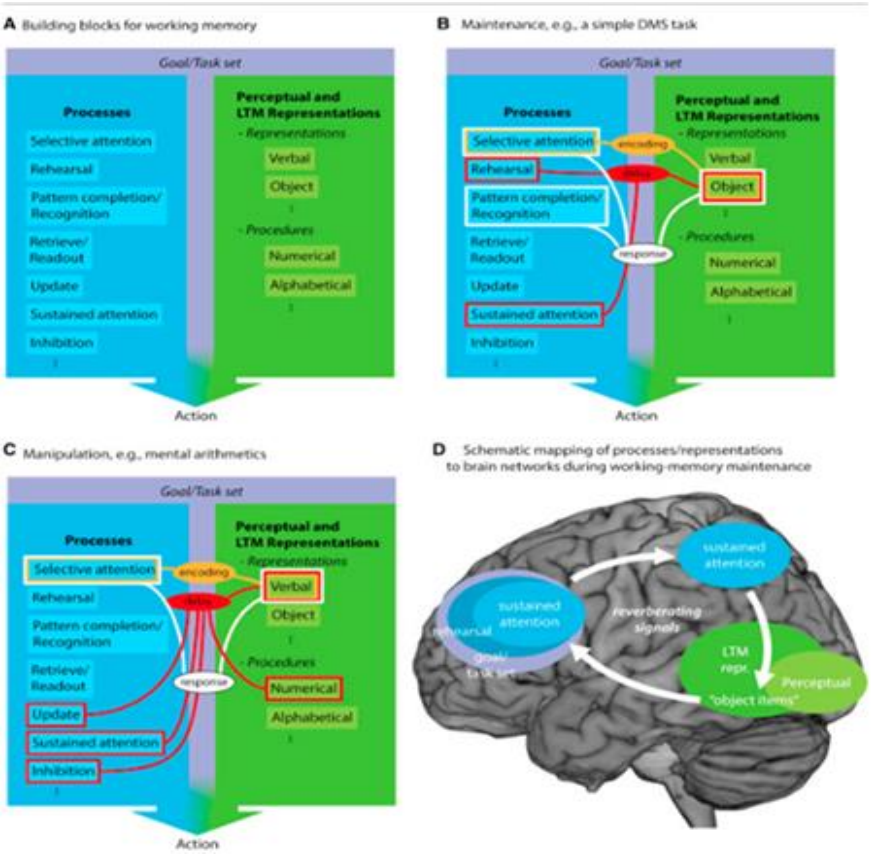

Fig 3:- Schematic Mapping of working memory Johan et al., (2015)

The integrated analysis component, Cognitive interactional process, comprehension metacognitive awareness and cognitive integrated analysis and performance by used the schematic mapping concept from Johan et al., (2015). The neuronal networks interact when solving a memory task and working memory can basically involve any kind of representation (verbal, visual, auditory, spatial, etc.), including various procedures or temporally ordered action sequences. The group of students will be given a similar task, and then each of the students will be presented it into the criteria provided as needed from the assignment. The concept of the brain region were a guided towards performance integrated into the pyramid are provided. This neurocognitive process view of working memory and involved on correspondingly to brain structures specifically to working memory. The extensions engage many different parts of the brain, where these representations are stored and often the information to be encoded into working memory. Working memory is the result of various combinations of processes that in other constellations can be functionally described in other terms than working memory. It should be emphasized that working memory, as conceptualized here, is a particular state of a representation (temporarily enhanced accessibility), regardless of the kind of representation. Cognitive assessment analysis (CAA) divided into 3 region of the brain by using Sean Sample (GTAC, 2018) to obtain %ile score. The functioning the lobe of the brain which is assessment focused on Frontal Lobe, Pariental lobe and Temporal Lobe. The frontal lobe region address on nine (9) categories; Planning (P), Reasoning (R), Problem solving (PS), Morality (M), Personality (P), Social Skills (SSs), Recognizing and Regulating Emotion (RRE), Motor function (MF) and Motor Speech area of broca (MS). Frontal lobe on Recognizing sensation (RS), Body position and object (BPO), Sense of time and space (STP), Reading and Comprehension area association between function of other lobes (RCL). Temporal lobe on understanding (U), Language (L), Hearing (H), Speech (S), Memory (M), Learning (L), Sensory speech area or Wernicke (SSW). The likers scale were used as achievement or cognitive ability metalinguistic analysis to reflected capability neuroplasticity interaction of the brain region in order to determined academic performance into neurocognitive ability test.

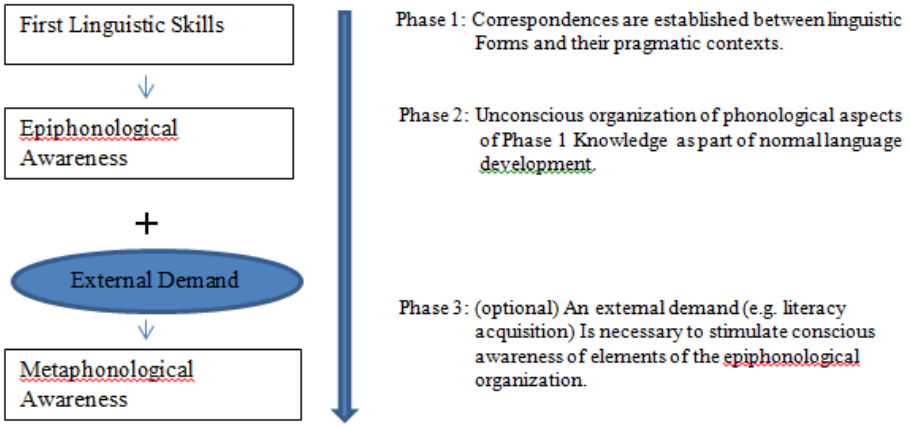

Fig 4:- Adopted from Theory of metalinguistic development Gombert's (1992) concept.

Phonological It is a kind of metalinguistic ability that requires the explicit knowledge of different sizes of phonological segments of spoken words as well as the conscious ability to notice, think about, and to manipulate those phonological units. Ability to conceive of spoken words as sequences of sound segments which correspond to the written units and access and manipulate those segments in words into the metalinguistic cognitive integrated on working memories.

Epiphonological awareness an implicit level of awareness of sublexical segments, but that is not accessible to consciousness and manipulation. It is component of cognitive assessment analysis (CAA) and cognitive integrated analysis (CIA) in the region of brain.

In contrast, metaphonological awareness more to explicit accessible to consciousness and manipulation the organization. They may be some continuum from epiphonological awareness to metaphonological awareness. Various awareness tasks may differ in terms of phonological units and difficulty levels, has consists of at least three components: Pedagogy concept, Neurocognitive ability, and working memory. To complete most phonological awareness tasks, these skills are required. In addition, phonological awareness should not be confused with phonic. It is not hard to see that phonic is related to phonological awareness, but it focuses on letter-sound knowledge. Therefore, contemporary theories research has focused to a large extent on word recognition.

Theories impact and neurocognitive on working memories were rare in research studies with development on teaching and learning method. Achievement test is usually constructed and standardized to measure proficiency and is measurable behavior in education a standardized series of test of the task. The teaching practices in the concept of pedagogy epistemology were developed in the multidiscipline of the task and references with the educational experience of students in learning and relearning into the working memory. Expected students in who have had more time learning the theories Medical and Allied Health sciences to have higher score in their performance and achievement show that it is not simple time spent learning and relearning on working memories task which determined performance. It, therefore measures the aspect of bahaviour that can be observed and assessed at a specific period of the time.

Implicit theories about teaching and learning are the foundation of the concept were developed for their everyday teaching and intergrative motivation as identify themselves with the culture. Literary text can be so difficult that learners don't understand them or understand them only by dint or time consuming and by using literary texts to promote the awareness and understanding of different cultural concepts. Their concern of attachment to receive the theories on metalinguistic awareness particular developed their short-term memories for solidarity and integration.

Attitude Achievement (AA) as the persistence shown by the learner in striving for a goal and motivated for success. Implicit theories have been investigated in the field of an education and the study of teaching and reference through which individual teachers perceived and process information. There are practically no significant differences in the intelligence between a male and female individual which can be traceable to sex differences. The advanced that girl as a group possessed more positive attitude than boys at all grade level, which is can traceable by the formula of pedagogy concept in the level of achievement. Focus is on students' beliefs regarding their intellectual ability and the role that such beliefs play in students' academic achievements (AA), Level competencies (LC), Achievements Attitude Performance (AAP), Level competencies (LC) and Level Attitude (LA). People Personal theories and implicit theories help to understand and explain why they behave in certain way. There is emerging consensus that working-memory maintenance results from the interactions among long-term memory representations and basic processes, including attention, that are instantiated as reentrant loops between frontal and posterior corticol areas, as well as sub-cortical structures. Meanwhile, a crucial role for working memory in temporary information processing and guidance of complex behaviour has been recognized for many decades. Working memory is the small amount of information kept in the

mind at any time and used when the memory task are present and Attention is understood to be a cornerstone of working-memory processes. The working memory capabilities of leaners grow with maturity, and educational practices should be based on an understanding of both the limitations and the educational possibilities. It is needed for various type of learning: comprehension, problem-solving, and goal-directed thinking. Educational principles are proposed to make the most of working memory for optimal learning throughout development. In short, the working memory is an active system of storing information and information processing, and is essential for the correct functioning of other complex cognitive functions with the metalinguistic and neurocognitive perspective. Measure of working memory and long term memory both have a strong association with measures of intelligence processing components of working memory appear to be related to intelligence has been used as a latent factors to model cognitive test performance and represent a central construct of working memory implies both a storage and a processing component. A popular account suggests that working memory involves a domain-independent executive component, often associated with processing in the prefrontal cortex, as well as several domain-specific components, associated with storage. There are at least two domain-specific prefrontal working memory networks that deal with visual-spatial and visual-object information.

This topic is concerned with selectivity in performance resulting from forces operating at all psychological levels, from sensation through cognition processes. Attention is the means by which learners actively process a limited amount of information from the enormous amount of information available through our sense, our stored memories, and our other neurocognitive processes on working memories integrated into neuroplasticity towards pedagogy concept. It includes both conscious and unconscious processes. The attention is not a single concept but the name of a complex field of study. In many cases, conscious processes are relatively easy to study. Unconscious processes are more difficult to study, simply because learners are not conscious of them and the metalinguistic concept are being use as interactional process as neuroplasticity. Attention allows learners to use their limited mental resources judiciously. By dimming the lights against many stimuli from outside (sensations) and inside (thought and memories), learners can highlight the stimuli that interest them. Heightened attention also paves the way for memory processes. However, Mood as the understanding of how the brain processes emotions, whether they are negative or positive, and how that functioning influences learner's capacity to attents to, perceive, and remember information. It, is a kind of emotion process whereby multiple areas of the brain enganged. The amygdala is engaged, not only in implicit emotional reaction, such as an unexpected fearful event, but also in explicit emotional learning, such as learning about a danger an remembering the information. The brain's emotional responses in the learner begin with the limbic system, which has been most widely recognized as the brain's emotional.

The above arguments clearly indicate that attention, working memory and mood are related and important in student learning. Working memory and attention are related in sense of neurocognitive integrated into neuroplasticity because the process of attention has its beginning when the brain remembers what the sense capture. Attention must be based on prior knowledge of the elements and learning is usually associated with memory and learning metalinguistic process. In fact, the process involves mood and and memory and, of course, both processes require attention.

ToM is the social-cognitive ability to understand human actions in term of the psychological states that motivate behavior, such as beliefs, emotions, desires, and intentions. EF refer to the cognitive processes that facilitate goal-directed action and problem solving, such as working memory, cognitive flexibility, inhibitory control, and self-monitoring and the skills are important for the conscious, effortful control of thoughts and behavior.

Cognitive training as the process of improving cognitive functioning by means of practice and/or intentional instruction and cognitive training studies have focused on two goals: application (I.e., designing a training intervention that is effective in practice), and theory (i.e., answering empirical questions about the functions that are being trained and the processes responsible for the desired change in learning and relearning. While determining the efficacy of training studies provide new insights into the processes of cognitive plasticity and the underlying neural mechanisms. Theory-based training studies can improve our understanding in learning and relearning of the specific functions on the working memory and the brain region that are being trained. In other studies, the benefits of vigorous exercise and motor learning for improving neurocognitive functions in older adults can be explained by one or all of the three theoretical accounts: information processing, executive functioning, and memory development (4)(31).

The prefrontal cortex is responsible for tasks that require semantic information processing, or the ability to understand the meaning behind language. This also means that the prefrontal cortex is associated with the formation of semantic memories-given that semantic memories are a type of information that is processed or obtained through the prefrontal cortex. The left prefrontal cortex is used for interpreting new meaning from words. However, it used less for remembering a meaning previously assigned to a word. It is hypothesized that activations in left inferior prefrontal cortex reflect a domain-specific semantic working memory capacity that is invoked more for semantic than for repeated semantic analysis of a word or picture, more when a response must be selected from among many than few legitimate alternative, and that yield superior later explicit memory for experiences. Specifically, the left inferior prefrontal cortex, especially the anterior and inferior parts of the gyrus, is shown to be associated with semantic mental activities (12).

That means this region of the brain experience increased energy metabolism (i.e. increase blood flow,

increased glucose intake) when a person performs mental operations related to semantics. In other words, the left prefrontal cortex is responsible for mental operation that involves understanding language meanings (12). Scientist have also found that people who are atypically right brain hemisphere dominant in language experienced activation in the right prefrontal cortex for semantic tasks. In other word, semantic functions belong to side of the brain that is dominant for language processing and is not necessarily bound to one side of the prefrontal cortex. It is just that the norm for many people is to have the left prefrontal cortex to be dominant for semantic language processing. Another observation that scientists have made is that novel semantic stimuli activates the left prefrontal cortex, leading to better explicit memory formation. That means performing a semantic task forms a memory for the person that can be actively recalled. Note that explicit memory is the type of memory that requires conscious recall, like facts, ideas, meanings, concepts, places, etc.

The human brain is highly plastic and adapts quickly to new experiences. There is evidence from studies showing altered brain activation in limbic and/or frontopariental regions for long-term meditation practitioners (2) and after training with working memory tasks (25). There are great changes in neural efficiency during development, which could make this perio well suited for training interventions. The maximum achievable performance could be constrained by the current level of structural brain development and cognitive functioning. Neuroimaging studies can provide a deeper level of insight in the underlying cognitive and neural processes that are involved during training (23). In this review, there are focus on (neuroscentific) training studies in the domain of cognitive control and working memory.

Neurocognitive ability test (GAT) as a general mental capability involving reasoning, problem solving, planning, abstract thinking, complex idea comprehension, and learning in sense. The most comprehensive taxonomy for cognitive abilities model derived by Carrol, (1993) and the first stratum consists of specific and narrow abilities, the second includes group factor and broad abilities, and the third stratum is general intelligence or g. neurocognitive ability test or general mental ability test (GAT) the best predictor to evaluate capability on memory task. Neurocognitive ability impacts on Level attitude knowledge performance through knowledge epistemology acquisition and high cognitive ability individuals are better equipped to acquire the knowledge needed to perform at the highest levels. Neurocognitive abilities are key competences that are needed to meet the challenges of job demands, education, and advanced training, societal expectations, and the demands of everyday life.

As such, the development of cognitive abilities is more strongly influenced by theories and adapted form of learning and relearning compared to other similar task in every day. The demands of status and widest responsibilities may encourage the development of these intellectual skills. Specifically training-related activation increases in middle frontal gyrus and superior and inferior parietal cortices (along with decreases in the cingulate cortex), which they attributed to an increase of working memory capacity in learning and relearning of the theories. The cognitive and neural processes involved, cognitive training may lead to increased activation, reduced activation, and/or a change in the spatial pattern of activation (26)(15)(19). The changes level of activation within the functional network that was already recruited before practice in the simple process-based training often. Neurocognitive training have demonstrated frontoparietal activation decreases in this respect, particularly if the training was very short in the learning and relearning in theories and application on training. It have also been observed after longer training periods (12)(32). There are several possible explanations for these activation decreases, including reduced reliance on executive control and error monitoring, increased speed of processing, repetition priming (i.e., implicit memory for task stimuli leading to faster identification), and/or increased specificity of neuronal responses in the underlying neural network (6).

The Cattell-Horn-Carroll (CHC) model is currently a popular account of human cognitive abilities which postulates a single general factor and several second-order group-level factors that theory best explains human intelligence. CHC model a general factor contributes to performance on all cognitive tests while the group level factors contribute to performance on specific subsets of test. Many theorists have asserted that the brain is the ultimate source of individual differences in cognitive abilities. Latent cognitive abilities have a neural basis which reflects their tendency to engage common brain areas and fruitful approach for investigating the basis of human cognitive abilities would be to understand how the brain produces intelligence. These group level factors are identified with cognitive processes such as working memory and speed of information processing. The Implicit hold that the general factor of the theories as accounts for most of the varience in cognitive test performance and that clinical interpretation should be primarily at the level of general intelligence. Theories of human mental abilities should be consistent with what is known in neuroscience.

In contrasts, Cognitive impairment stifles independence by making even the simplest everyday tasks seem challenging and burdensome. Through limiting one's ability to focus, encode, retain and manipulate information to make menial decisions, simple endeavors like traveling from one place to another, or completing a typical work assignment become arduous. This decreases productivity, and forces afflicted individuals to rely partially or wholly on the care of others. For most, this loss of independence can be crippling to one's morale, resulting in increasing isolation from family, friends and society. Not surprisingly, disorders with reduce cognitive ability share high comorbidity with decreased sociability, as well as anxiety and depression. A large body of research suggests that the prefrontal cortex (PFC) is critical in regulating these behaviours and that the balance between excitatory and inhibitory neurotransmission (E/I balance) play a

fundamental role. The PFC is a unique associative cortical region that receives multimodal inputs from sensory regions, limbic structures and neuromodulatory neclei (6) and is taxed with processing these heterogenous inputs to effectively guide ongoing behaviour. The seamless execution of a range of behaviors relies on the integration of past experiences and current goals to select appropriate behavioral programs. Across species, we deem the myriad abilities linked to the PFC as "executive functioning," and this category includes working memory, cognitive flexibility, planning, error-monitoring, decision-making, attention and social cognition. Subsequently, in neural plasticity cognitive and motor development plays an essential role in human brain maturity and a wide variety of daily function (10)(4). To make better sense of the close interactions between cognitive and motor skills across the lifespan, identifying the biological and environmental factors of human development is of particular interest (27)(7)(14)(28). Over the past few decades, researcher have made substantial efforts and progress in understanding the brain mechanism of functional changes and structural reorganizations in people at varying developmental stages. Lifetime cognitive and motor developments is closely related to each other (30)(38)(13)(20). Essentially, brain plasticity, neural maturation and cognitive development play an important role in cognitive and motor learning (22)(37).

Neural plasticity (also known as neuroplasticity, brain plasticity, cortical plasticity, cortical re-mapping) inherent characteristic or ability for lifelong skills learning and relearning. Specifically, neural plasticity refers to the capacity of the central nervous system (CNS) to alter its existing cortical structures (anatomy, organization) and functions (physiological mechanisms or processes) in response to experience, learning, training, or injury (17)(18)(3). When an individual acquires novel skills or information, the newly obtained experience will alter the neural maps, networks, pathways or circuits made up of countless neurons and synapses (Wall et al., 2002). Neural plasticity is, therefore, a biological foundation of the learning brain (35).

Pedagogy concepts Inter-relationship in Allied Health Sciences were developed to evaluate method of teaching and learning process in ordered of (i) Achievement Attitude (AA), (ii) Level of Attitude on gender (LA) and (iii) level of competencies (LC). Method of this design was reflected aspect of knowledge pertaining on competencies, Attitude and achievement of inter-relationship. There were Pedagogical Attitude content Knowledge (PACK), Pedagogical Attitude Knowledge (PAK), Attitude content Knowledge (ACK) and pedagogical content Knowledge (PCK). The impact and Neurocognitive on working memory play an essential role in order to development learning and relearning process in Medical and Allied Health Sciences theories. Neurocognitive ability test (GAT) reflected on the skills, theories, performance academic and cognitive training integrated on the neuroplasticity component of the brain region.

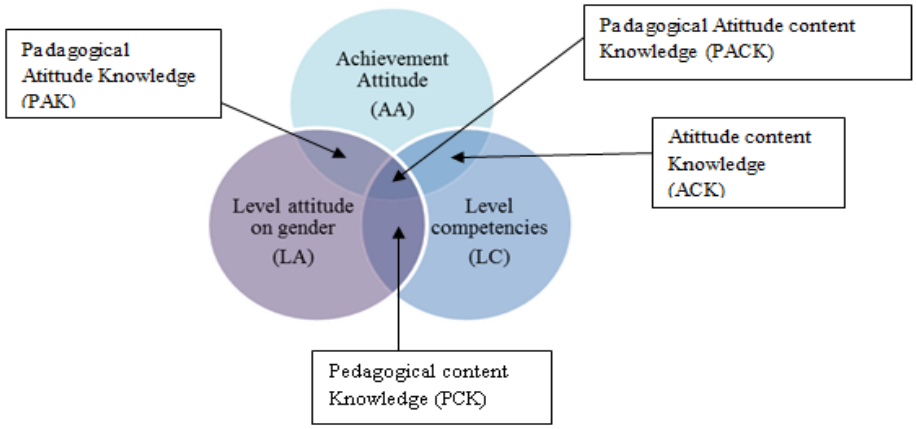

Fig 5:- Theoretical Framework: Inter-relationship of Pedagogy concept Allied Health Sciences English

II. METHODOLOGY

➢ *Study setting and Population*

These studies are a population-based Cross-sectional, Descriptive and Correlation study design to examine competencies and attitude practice, quantify the relationship of the Allied Health Sciences component perspectively. Subsequently, assessed validate and reliability GCAT, (2018) by Sean sample and Schematic Mapping of working memory Johan et al., (2015) a components integrated associated neuronal networks interact when solving a working memory task. Briefly, these studies been carried out in 2017 till 2020. There is 232 respondent involved in these study which are all respondent were received and obtain the theories were selected. The range is between 19-31 years old and distribution into the impact of pedagogy were systematic selected in Ministry of Health training institute were perceived study in Medical Assistants College, Alor Setar Kedah Darul Aman, Malaysia. The feasibility of the study and relevant modifications were made. The studies were approved by ethics. Consent were obtained from all the students before the study. Participants were explained that confidentiality of data was maintained. Results of the study were used for research purpose only and they are free to participate or withdraw from study at any time.

➢ *Study Instrument and data analysis*

A self-administered Booklet Questionnaire were adopted and modified from English for Allied Health Sciences, (2015), International English Language Skills (IELTS) and Malaysian University English test were used to 232 respondents. Likerts scale adopted and modified from Sean sample (GCAT, 2018) were used to assess Validate and reliability. Adopted and modified from TOEFL, Education English and MUET on Performance, Attitude in group using Likert Scale (1-3) were used for assessment validation. Meanwhile, Schematic Mapping of working memory Johan et al., (2015) were components integrated associated neuronal network interact when solving a working-memory task. All data were used to analyses association from the component using SPSS version 21.0. All data were analyzed by Statistical Package for Social Sciences (SPSS) software version 21.0. Socio-demographic data were analyzed descriptive statistic and were summarized as mean and standard deviation (SD). The data were analyzed by using mean, SD and Percentage. The Pearson Correlation and One way Anova were used to discover inter-relationship among students between group and listening skills and correlation associations. P-values less than 0.05 were interpreted as significant. Formula developed from the Pedagogy concept were evaluated the four component in the theories. Meanwhile, Likerts scale from Sean Sample (GCAT, 2018) were evaluated Validity and reliability percentile (%ile) score of the component of Cognitive assessment analysis (CAA) and Cognitive Integrated analysis (CIA) in the region of brain.

➢ *Validity and Reliability*

The Cronbach's Alpha is the most widely used method in internal consistency coefficient to establishing reliability. Cronbach, (1990) states that one way to assess the reliability index of a module is by using Cronbach Alpha method. Various methods of measurement can be used to determine the reliability of a measurement tool of the study (Mohd Salleh Abu & Zaidatun Tasir, 2001). The most common were; test-rates reliability, alternative from reliability and internal consistency reliability (Netemeyer, Bearden, & Sharma, 2003). In this study, the researcher tested the validity of the measurement instruments RCM protocol internal consistency using Cronbach alpha. There are no fixed standard found by local or abroad researchers in relation to the best coefficient reliability value. Reliability module is considered good and acceptable when index value more than .70 (Chua, 2006; Jackson, 2006). According to De Vellis (2003), there are five different alpha levels in scale development namely; undesirable (between .60 and .65), minimal acceptable (between .65 and .70), respectable (between .70 and .80), very good (between .80 and .90), consider shortening the scale (above .90). Another suggestion on reliability index value for accepting a new development module must be between .65 to .85 (Othman Mohamed, 2000). The impact and neurocognitive on working memory of Pedagogy concepts development inter-relationship in theories Medical and Allied Health Sciences was obtained .871 for 10 items. Meanwhile, a Sten score Validity and reliability is a standardized measure in 0 to 80. Sten score presented on a .20 point scale, a score of 1 indicated low performance for 3 section and score of 20 indicates high performance of the brain region.

➢ *Study Ethic*

The protocols conducted of the studies were explained to the respondents. The answers were confidential and only used for the purpose of academic research. Written informed consent or face to face validated to all participants were being acquired. Informed consent consisted of introduction of the research activities including purpose of the research, description of risk and benefits, assurance of anonymity and confidentiality, desclaimer on coercion, and option to withdraw (Burns & Grove 2005). The purpose, risk, and benefits were explained to potential participants. There were no identified risks.

III. RESULTS AND DISCUSSION

The currents study tries to look at the Achievement, Attitude and Performance with inter-relationship of 4 major components in theories Medical and Allied Health Sciences and assessed the impact and neurocognitive of pedagogy epistemology concept on working memory. There are 189 respondents were under socio-demographic, which is distributed to gender, age, ethnic group and group performance. In the first studies, there are 189 respondents, with 23.3% is among female and 77.7% are male those aged between 19 till 31 years old.

The majority of the respondents are Malay ethnic group with 94.7% in term of semester group; a bigger number of them 39.2% are in semester 3. Meanwhile, Theories of mind (ToM) the impact pedagogy epistemology is the theory of knowledge especially with regard to its method, validity and scope and distinction between justified belief and opinion into neurocognitive ability test on working memory. Executive Functioning (EF) an cognitive processes that facilitate goal-directed action and problem solving, such as working memory, cognitive flexibility, inhibitory control, and self-monitoring and are important for the conscious, effortful control of thoughts and behavior while drive into working memory for specifically information into neurocognitive ability with the impact of pedagogy epistemology concept. Therefore, the present data of descriptive results were conducted with divers background of the respondents is divided into 3 elements permanently component which is Age, Gender and ethnicity. Concern on cognitive ability reflected on the skills, theories, performance academic and cognitive training and the same time measure the neuroplasticity component of the brain region. There are 46 respondents with demographic characteristic varied across variety of ethnic Malay, Chinese and Indian (93.5%/2.2%/4.3%).

A. Achievement, Attitude and Performance

Achievement is capability individual to achieve the target with measurable a standardized series of test and regarded as action of completing or attaining by exertion. It subsumes anything won by exertion, a feat, a distinguished and successful action. .Achievement test is usually

constructed and standardized to measure proficiency in particular of subjects. Attitudes were influenced by their integrative motivation as they could easily identify themselves with the culture (9). The Level Attitude (LA) and Competencies as the persistence shown by the learner in striving for a goal and as a social factor on a par with variables such as "size of learning group" and "motivation" as an affective factor alongside cultural shock. Academic performance (AP) of a student can be regarded as the observable and measurable behaviour of a student in a particular situation. Performances are the observable or measurable behaviour of a person in a particular situation usually experimental situation. This means that performance measure the aspect of behavior that can be observed at a specific period. To determined performance, a performance test is conducted (29). Performance test as the type of mental test in which the subject is asked to do something rather than to say something.

B. Impact of Pedagogy concept theories

Competencies and achievement English performance skills (EPS) are important to evaluated language competencies skills. In the current study performance area among the semester 1, 2 and 3 revealed sixteen of the group were showed moderate and a five group were in strong by using the likert scale (1-3) and performance score mark assessment on performance assessment score sheet. Performance measures the aspect of behavior of the attitude that can be observed at a specific period of the time. In agreement with other studies (Gardner & Lambert, 1972). Level achievement among semester 1 until 3 were evaluated in level 1-4 (elementary, pre-intermediated, intermediated and advanced) most significantly were achieved in advanced (level 4) in theories medical and allied health skills. Achievement is capability individual to achieve the target with measurable a standardized series of test and regarded as action of completing or attaining by exertion. Level Competencies (LC) in aged were higher in 19 years old in semester 1. The correlations were found between student age and their performance in the entire four components. It was indicated that the younger students in the sample attained higher score than older students. It is not simple time spent in developed impact of pedagogy and neurocognitive ability test in teaching and learning process. The current figure is an activity group where manage well and workout on theories skill indirectly, in agreement with studies by Valdes, (1986). Believed influences not only their teaching practices but also the educational experience of students (14). Teachers develop and hold their own implicit theories about teaching and learning which supply them with a foundation for their everyday teaching in the classroom (11), while integration and solidarity are influenced of such a attitude in impact and neurocognitive on working memory of pedagogy concept development. Motivation as easily identifies them with the culture (9).

People show their concern of attachment to particular language or speech communities for solidarity and intergration (24). Academic Level competencies assessment (ALC) was subjective in their self-rating in semester 1 until 3. Using a dictionary on reading skill and difficult literary text were testing them capability to evaluated understanding among students and Literary texts can be so difficult that learner don't understand them or understand them only by dint or time consuming and wearisome dictionary work. Level attitude (LA) and Level Competencies (LC) were reflected in positive attitude on reading and writing performance in both genders.

In present study, competencies were reflected in positive attitude on reading and writing performance in both genders. Level Attitude (LA) as the persistence shown by the learner in striving for a goal and motivated to desire to achieve. In the literature, there is a controversy about the literary. Literary teks cannot provide additional benefits for the leaner in learning the theories are those obtained from standard course book. In addition, study skills were negatively affected on theories Medical and Allied Health Sciences competencies or call as theories impact and neurocognitive on working memories of pedagogy concept development concept. In the present study, female students were capable on attitude achievement (AA) than males, attitude toward effort and motivation among males and females are reliable onto a females student in Theories. Hypothesis are male there is higher than female in attitude were rejected. Focus is on students' beliefs regarding their intellectual ability and the role that such beliefs play in students' academic achievements and classroom behavior There is the strong evidence that girl as a group possessed more positive attitude than boys at all grades level (1). Meanwhile, in both gender purposes advanced more significantly higher toward semester 1 than 2 and 3, in agreement with other studies (32).

There are practically no significant differences in the intelligence between a male and female individual which can be traceable to sex difference (11). Meanwhile, there is significant association between group of student ($p=0.00$), ($p<0.05$). Effectiveness attitude among the gender were reflected performance on listening skills. Percentages in both genders are quite stable and resistance The significant correlation differences between listening and writing, reading and listening ($p=0.001$)($p<0.05$) in both gender and its association inter-relationship in the pedagogy concept development in theories Medical and Allied Health sciences on performance, competencies, achievement and attitude were determined. It was a limitation of this study that the assessment of students' on theories was based only on subjective measurements; the study would have benefitted if an objective measurements had also been utilised to determine whether students in enhance standard level of competencies and achievement performance with the actual theories on Medical and Allied health sciences. Nevertheless, the findings of this exploratory study may stimulate further research about competencies and performance attitude regarding theories on neurocognitive ability on working memory for teaching and learning in higher education.

ISSN No:-2456-2165

C. Association significant toward listening in semester 1, 2 and 3

In statistical analysis showed there were significant between listening skill among semester 1, 2 and 3 ($p=0.00$) ($p< 0.05$). Meanwhile, analysis with one-way Anova Test statistical levene showed there is no significant ($p>0.05$). test homogeneity of variances hypothesis are full filled. One-way Anova test resulted showed between listening skills among semester 1, 2 and 3 were significant ($p<0.05$). Hypothesis there is significant association among semester 1, 2 and achievement between group in semester 1, 2 and 3 in listening skills were accepted. The studies showed, there is differences between semester where the mean semester 3 were 8.1622, semester 1 were 7.6452 and semester 2, 7.2075. In the Post Hoc Test, there is no significant between semester 1 and 2, between semester 1 and 3, semester 2 and 1, semester 3 and 1. There is significant between semester 2 and semester 3, semester 3 and semester 2 in the group of students in listening skills on the semester.

D. Association Differences between Reading and Writing and Reading and Listening

In correlation between reading and writing skill, statistical analyzed there is significant value $p =0.001$. in These studies showed, there is association between reading and writing among students. If Competency is higher in reading, then there was associated with high in writing competency. Meanwhile if competency in reading are lower, then competency in writing are followed associated. However, in reading and listening skills, statistical showed significant or positive correlation association between reading and listening among students $p=0.001$. The result showed in pearson correlation towards reading and listening were dramatically positive significant ($r=0.237$, $p=0.001$). These studies showed, there is association between reading and listening among students. If competency is higher in reading, then there was association with high in listening competency. Meanwhile if compentency in reading are lower, then competency in listening are followed associated. The currents study, the Level competencies (LC) theories medical and allied health sciences skills were 92% in advanced and commonly reported semester 1 are higher than semester 2 and 3 in both gender. The aged was more to 19 and 20 years old among students in semester 1 until 3. The consanguinity relation on competencies, attitude and achievement were more on semester 1, aged 19 and 20, male students and ethnicity of Malay. Reading and writing, reading and listening which were significantly associated with the English Language skills in both gender. Attitude achievements were higher in Female paramedic students than males. Advanced (Level 4) more significantly higher toward semester 1 than 2 and 3 on competencies in both gender. Significant positive weak correlation differences between listening and writing, reading and listening in both gender.

The Pedagogical Content Knowledge (PCK), Prevalence on Achievement, Competencies, and Attitude Performance in Allied Health Sciences English were 98%. Pedagogy Attitude Content Knowledge (PACK) was interrelationship with Achievement Attitude (AA), Level Competencies (LC) and Level Attitude (LA) which the concept of Attitude Content Knowledge (ACK), Pedagogical Attitude Knowledge (PAK). Subsequently, in the control studies on neurocognitive among 46 respondents the schematic mapping concept were use as invisible tool representational components and associated neuronal network interact when solving a memory task. The groups of the students were assessing on the particular of subjects and were obtained the grading score on the cognitive integrated performance (CIP) and theories. The weighting were 40% on the group assessment analysis in the specific time frame which is every of the groups carry out more than 30% from the activities neurocognitive training. The all component reflected on the oral communication, idea of stimuli, decision maker, group assessment and interpreted integrated analysis in first activities. In the activities two, were assess pertaining to cognitive integrated analysis component and performance. Last but never less, metalinguistic analysis and interactional process and role play and performance were evaluated on the activities three and four. Meanwhile, cognitive integrated performances (CIP) were 100%.

The left prefrontal cortex is used for interpreting new meaning from words. However, it used less for remembering a meaning previously assigned to a word. It is hypothesized that activations in left inferior prefrontal cortex reflect a domain-specific semantic working memory capacity that is invoked more for semantic than for repeated semantic analysis of a word or picture, more when a response must be selected from among many than few legitimate alternative, and that yield superior later explicit memory for experiences. Prefrontal cortex responsible for tasks that require semantic information processing, or the ability to understand the meaning behind language and associated with the formation of semantic memories-given that semantic memories are a type of information that is processed or obtained through the prefrontal cortex. However, in the neurocognitive assessment, there are a few of number of the students were received below 10 marks on reading component (30%). The neurocognitive on working memory both have a strong association with measures of intelligence and long term memory and has been used a latent factors to model cognitive test performance on the cognitive ability test (GAT) construct implies both a storage and a processing component. Specifically, the left inferior prefrontal cortex, especially the anterior and inferior parts of the gyrus, is shown to be associated with semantic mental activities (16). The working memory is the small amount of information kept in the mind at any time and distorted in when every of task are required. It is needed for various type of learning; comprehension, problem-solving, and goal directed thinking. The working memory capabilities of learners grow with maturity, and educational practices should be based on an understanding of both the limitations and the educational possibilities.

Cognitive training studies have focused on two goal: application (i.e., designing a training intervention that is effective in practice), and theory (i.e., answering empirical questions about the functions that are being trained and the processes responsible for the desired change on the working memory on pedagogy epistemology concept development. Through the schematic mapping of working memory concept form Johan et al., (2015) as component of neuronal network interact when solving a memory, there are associated with the formation of semantic memories-given that semantic are a type of information that is processes or obtained through the prefrontal cortex. In addition, with the likerts scale by sean sample (GCAT, 2018) were present are percentile (%ile) score component to evaluated the qualitative indicator how well respondents has performed. The cognitive integrated analysis (CIA) of the group were assesses on brain of the region, there is some section were assess in the somewhat below average (2), Average (3) and above average (4). The components were divided into three regions which is Frontal lobe, Pariental lobe and Temporal lobe and every of the component were analysis based on their functionality and is appealing to speculate that endogenous brain activity might, in theory, even serve as one of the stimuli of Hebbian plasticity into the neuroplasticity on working memory. The efficacies of training studies provide new insights into the processes of neurocognitive on neuroplasticity and the underlying neural mechanisms. The theory-based training studies can improve our understanding of the specific functions in learning and relearning process that are being trained and why these functions are sometimes compromised. Basal ganglia are clusters of nerve cells surrounding the thalamus. These are an area in the frontal lobe of the left hemisphere called Broca's area. This region controls the movement of facial muscle, tongue, jaw and throat. If this area is destroyed, a person will have difficulty producing the sound of speech, because of the inability to move the tongue or facial muscle to form words. Meanwhile, in the left temporal lobe called wernike's area, damage to this area cause wernike's aphasia. An individual can make speech sounds, but they are meaningless (receptive asphasia) because that does not make any sense. As a result, on cognitive assessement analysis (CAA) in the metalinguistic analysis and interactional process among group of the students in term of region of temporal lobe were average (3) on the subcomponent were determined. In the context of cognitive integrated analysis (CIA) on brain region in Sten score with percentile score is presented as a numerical value between 0 and 80. There are no low performance neurocognitive regions on metalinguistic analysis and interactional processes on the brain were determined.

There are great changes in neural efficiency during development, which could make this perio well suited for training interventions. The maximum achievable performance could be constrained by the current level of structural brain development and cognitive functioning The human brain is highly plastic and adapt quickly to new experience. The altered brain activation in limbic and/or frontopariental regions for long-term meditation practitioners (7) and after training with working memory tasks (25)(21). Neuroplasticity the capacity of the central nervous system (CNS) to alter its existing corticol structures (anatomy, organization) and functions (physiological mechanism or processes) in response to experience, learning, training, or injury. Reflecting on the neural plasticity which means is an inherent characteristic of ability for lifelong skills learning and relearning. When individual acquires novels skills or information, the newly obtained experience will alter the neural maps, networks, pathways or circuits made up of countless neurons and synpases (Wall et al., 2002). Neural plasticity is, therefore, a biological foundation of the learning brain (35).

The most comprehensive taxonomy for cognitive abilities is the three strata models derived by Carrol (1993). The first stratum consists of specific and narrow abilities, the second includes group factors and broad abilities, and the third stratum is general intelligence or g (Ones et al., 2012). Neurocognitive ability as a general mental capability involving reasoning, problem solving, planning, abstract thinking, complex idea comprehension, and learning from experience impact on working memory of theories pedagogy concept development. The predictive validity of cognitive ability depends on the complexity of Pedagogy concept, Neurocognitive ability and working memory. The stronger validity coefficients observed for highly complex jobs and group assessment on cognitive ability test (CAT) of theories. The all the group were reach the higher level of the rating (Advance) by using formula on speaking assessment in the Pedagogy concept (PC). Meanwhile, cognitive ability test (CAT) perspective on the vital subcomponent task on the theories all the groups are received level 3 (intermediated). However, neurocognitive integrated association cognitive ability test (CAT) toward theories on Medical and health Sciences of working memory were 65.2% in advance and 34.8 % in intermediated for Year 2 Semester I (2019). Many theorists have asserted that the brain is the ultimate source of individual differences in cognitive abilities and fruitful approach for investigating the basis of human cognitive abilities would be to understand how the brain produces intelligence. Neurocognitive abilities test (GAT) among Medical and Health Sciences students were 89.9% (advance) in the impact on neurocognitive epistemology of pedagogy concept. However, in term of Neurocognitive Epistemology on working memory among the all respondents were 68% in the general mental abilities (GMA). Cognitive abilities have a neural basis which reflects their tendency to engage common brain areas Habeck et al., (2015). Therefore, theories of human mental abilities should be consistent with is known in neuroscience. Currently test of human mental abilities on neurocognitive ability epistemology are modeled by cognitive constructs of pedagogy concept such as learning, relearning, attention, working memory, and speed of information processing. In agreement with other studies (8). Essentially, brain plasticity, neural maturation and cognitive development play an important role in cognitive and motor learning (22)(37).

IV. THEORETICAL CONCLUSION AND RECOMMENDATION

Neurocognitive capabilities among the students may maintain and overestimate the theories competencies and therefore, need for improving their theories in skills, all of which is likely to negatively affect academic standard. In the long run, opposing beliefs among lecturers or tutors in Medical and Health Sciences and students may compromise students learning experience as well as their academic and professional success. Language competencies are important for teaching and learning in higher education as they determine how well students were able to understand and critically analyses knowledge pertaining to their subject. Subsequently, neurocognitive abilities are key competences that are integrated on impact of pedagogy concept to meet the challenges of job demand, education, advanced training, societal expectations, and the demands in the higher competencies. The results of the study suggest that the institute differ significantly high impact in neurocognitive ability impacts of epistemology pedagogy concept development working memories on their performance of achievement and attitude among students on theories of Medical and Allied Health Sciences.

Pedagogy concepts Inter-relationship in Allied Health Sciences were developed to evaluate method of teaching process in ordered of (i) Achievement Attitude (AA), (ii) Level of Attitude on gender (LA) and (iii) level of competencies (LC). Method of this design was reflected aspect of knowledge pertaining on competencies, Attitude and achievement of inter-relationship. There were Pedagogical Attitude content Knowledge (PACK), Pedagogical Attitude Knowledge (PAK), Attitude content Knowledge (ACK) and pedagogical content Knowledge (PCK). In the concept of pedagogy development, the studies were inter-relationship association impact on between Achievement Attitude (AA) with Level Attitude (LC) in development of Pedagogical Attitude Knowledge (PAK). Level Attitude (LA) were inter-relationship with Level Competencies (LC) in Development of Pedagogical Content Knowledge (PCK). In the Attitude Content Knowledge (ACK), there were inter-relationship between Level Competencies (LC) with Achievement Attitude (AA).

Neuroplasticity on working memory into neurocognitive ability test (GAT) at the region of the lobe were developed and play essential role in human brain maturity. Cognitive assessment analysis (CAA), cognitive integrated analysis (CIA), Cognitive integrated performance (CIP) and cognitive ability test (CAT) were in a positive tract when formula of Pedagogy concept were performed with the Medical and Allied Health Sciences theories in on working memory are being determined with the subcomponent. High cognitive ability individuals are better equipped to acquire the knowledge needed to perform their jobs at the highest levels.

RECOMMENDATION

Research is recommended to examine what kind of teaching and learning approaches may enable students to assess their Neurocognitive in the others region of the lobe to evaluated neuroplasticity interaction on neurocognitive ability test (NAT) and to prepare and motivate them for improving their theories in Medical and Allied Health Sciences so that success in their academic pursuits may be assured. The outcomes of such of research, specifically designed programs for an academic development in higher education are recommended to sensitise students for their possibly performance attitude and their impact on skill and learning approach.

AKNOWLEDGEMENT

Presentation inspiration and motivation have always played a key role in the success of any venture. I pay my deep sense of gratitude to institution to encourage me to the highest peak. I am immensely obligated to my friends for their elevating inspiration. I feel to acknowledge my indebtedness and deep sense of gratitude to Integrated Neuroscience Programmed (INP), USM given to me throughout the course. Accepted **ISSN no: IJISRT 20(2);388**. Greatest appreciation to all participants who had participated in this studies. Last, but not the least, my parents are also important inspiration for me.

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