ASSESSING METACOGITIVE STRATEGIES AMONG PUPILS WITH LEARNING DISABILITIES (PLD) IN SPECIAL EDUCATIONAL CENTR, KHARTOUM, SUDAN

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Abstract:

  This study was conducted during (2014- 2015) in special educational center, Khartoum, Sudan. The study aimed to investigate the assessing of metacogative strategies among (PLD). The researcher used descriptive methods as well as they applied, questionnaire of metacognitive, designed by the researcher. The community of this study consisted pupils with (LD). Sample was chosen randomly included (23) pupils. Researcher used SPSS depends on many tests such as T-test for one sample, (ANOVA) . Finally, the results are as following: The level of metacognitive strategies among (PLD) is positive, there are no significant differences in metacognitive strategies among (PLD) according to the level classroom, there are no significant differences in metacognitive strategies among (PLD) according to the age variable.
  Key words: assessing, metacognitive strategies, learning disabilities.

1. Introduction:

   The time being it became necessary to, teaching metacognitive strategies, among pupils with learning disabilities gives them, the key to understanding their own learning, It shows them ways to take responsibility for the way in which they learn, rather than expecting to be a passive recipient waiting for the next transmission of information, a knowledge of metacognition on the parts of both the teacher and pupil is an important factor in facilitating, the assessment for learning process, it makes sense that an awareness and understanding of how we learn could affect upon the way in which we learn. For more than a century educationalists have been suggesting that, paying conscious attention to the learning process could influence how we acquire knowledge and understanding, thirty years of research in this area indicates that awareness and application of metacognitive skills supports learning for pupils Special Education Support Service (2009). Metacognitive is an important aspect of human intelligence and higher learning, recognition that metacognitive is not just a private internal activity but also socially situated, in this context, the purpose of this research is to develop and validate a metacognitive construct that provides the opportunity to assess metacognition in online discussions. Furthermore, the Community of Inquiry (CoI) theoretical framework provided the conceptual coherence to construct, operationalize and

interpret metacognition in an online collaborative inquiry (Akyol.Z@ Garrison, R. (2011). Metacognitive has been defined as "thinking about thinking", involves the ability to think about own cognitions, to know how to investigate, to draw conclusions, to learn from, to put into practice what has been learned in addition referred to as the knowledge about and regulation of one's cognitive activities, under this inclusive definition, a series of metacognitive terms have been presented through the years, additionally included metacognitive beliefs, metacognitive awareness, metacognitive experiences, metacognitive knowledge, feeling of knowing, judgment of learning, theory of mind, meta-memory, metacognitive skills, executive skills, higher-order skills, meta-components, comprehension monitoring, meta-learning, learning strategies, heuristic strategies, and self-regulation (Rahman.F@ Masrur.R (2011.135). Metacognitive regulation refers to mental activities used to regulate cognitive strategies to solve a problem (Jacobse, A.E. Harskamp. E.G (2012). There are three types of metacognitive knowledge that each play a role in learning and problem-solving, declarative knowledge: "knowing what, procedural knowledge: "knowing how", conditional knowledge, "knowing when", Self-regulation on the other hand, self-regulation component three essential skills are Planning, Monitoring and Evaluation (Special Education Support Service (2009). Moreover, there are multiple types of cognitive knowledge (declarative, procedural, conditional) as well as different types of cognitive regulation (planning, monitoring or regulating, and evaluating). Metacognition also entails affective and motivational states, including concepts such as effortful control and inhibitory Emily R. Lai (2011)

1.2Assessment of Metacogative: The bereft define of Assessment is the process of collecting, recording, understanding, using, and reporting information over time about a child's progress and achievement in developing knowledge, skills and attitudes. Special Education Support Service (2009). With online methods, actual learner behavior is coded on externally defined criteria by external agencies Marcel V.J. Veenman, (2014).

1.3Measurement of Metacognition: one of the basic problems of the study in the field of metacognition is to develop and use valid tasks for measuring metacognitive ability. Although several methods of measuring metacognition are used, however each method has advantages and limitations, to take observations of metacognitive abilities, to obtain information about strategies, metacognition and motivation in academic tasks. Select proper cognitive tasks for emergence of metacognitive abilities. Use an instrument that measures metacognition with psychometric properties on various populations. Use a variety of qualitative and quantitative methods with each student Rahman.F@ Masrur.R (2011).

Literature review:
 Emma, David .S. Anthony, Fleming .M.(2014) This study cosseted to investigating of metacognitive strategies among pupils with learning disabilities (PLD), it identified a marked decrease in perceptual metacognitive efficiency with age and a non-significant decrease in memory metacognitive efficiency. No significant relationship was identified between executive function and metacognition in either domain. Annual decline in metacognitive efficiency after controlling for executive function was 0.6%. Decreases in metacognitive efficiency may explain why dissociations between behavior and beliefs become more marked as we ageToit. D. Stephan@ Kotze.G (2009) the findings indicate that planning strategy and evaluating the way of thinking and acting were used most by both teachers and learners. Journal-keeping and thinking aloud were used least by teachers and learners. Jayapraba. G. (2013) revealed that the metacognitive instructions were most effective

in enhancing academic achievement, there is significant relationship between metacognitive awareness and achievement. Ahmad Alhaqbani & Mehdi Riazi (2012) indicated that these students perceived problem solving reading strategies to be more useful than global and support strategies, a statistically significant relationship was found between participants' self-rated Arabic reading ability and their overall strategy use, problem-solving strategies, and global strategies. Finally, it was found that African background students reported more global strategy use than Asian background students, and junior and senior students reported consistently higher strategy use in all the three strategy categories compared to the first and second year students. Williams. A. Helen, et al (2011) showed that the learning protocols slipped readily into teachers' typical lesson designs, scaffolded teachers' delivery of strategy instruction, and scaffolded some students' acquisition of strategy knowledge, although progress was sometimes slow Rahman.F@ Masrur.R (2011) suggests that metacognition is not a single variable or even the eight variables that were derived from the original survey. Jayapraba.G (2013) indicate that the metacognitive instructions were most effective in enhancing academic achievement, there is significant relationship between metacognitive awareness and achievement. Al – Dawaideh.M.Ahmad @ Abdu Al-Saadi. I (2013) demonstrated that female participants read more, and performed better academically, and these results were statistically significant. No significant statistical difference existed for reading performance linked to area of specialization, except on the global subscale where variance was visible between junior students and students with learning disabilities. The reading performance of students with learning disabilities was superior. In addition, statistical variance was observed regarding the interaction between variables. Veenman, M.V.J., et al (2014) refer to substantiate the expected gender-age interaction in the metacognition data. Females started low at (14) years, recovered at (15) years, and peaked at (16) years, whereas males started positive at (14) years, declined at (15) years, and recovered at 16 years. Posttest data show a significant effect of age with improved learning performance at (16) years. Implications for the study of metacognitive development are discussed. Akyol.Z @Garrison,R (2011) refer to provided evidence of metacognition indicators in student discussion postings and the frequency of these indicators increased over time. Helen Askell-WilliamsH, et al (2012 metacognitive strategy use and demonstrated that students' cognitive and metacognitive strategy knowledge has substantial room for improvement, we collaborated with teachers to embed explicit cognitive and metacognitive strategy instruction, using learning protocols, into regular class lessons, showed that the learning protocols slipped readily into teachers' typical lesson designs, scaffolded teachers delivery of strategy instruction, and scaffolded some students' acquisition of strategy knowledge, although progress was sometimes slow. Akyol.Z@ Garrison, R (2011) indicated that provided evidence of metacognition indicators in student discussion postings and the frequency of these indicators increased over time.Coskun, A (2011) revealed that the experimental group did statistically better in the test. The implication of the study is that metacognitive strategy training should be incorporated into the regular listening teaching program to help students become more listeners that are effective. Palmer .C. Birjandi. P@ Tabataba'I.A (2012) the aim of this study is to explore the effect of metacognitive strategy instruction on the listening performance of EFL university students, the results revealed that experimental group significantly outperformed the control group on the posttest measure. Molenaar.I, et al (2010) showed that no effect of scaffolding on group performance, nor on the acquired individual domain knowledge, but a small effect on acquired individual metacognitive knowledge, with respect to the effects of different forms of scaffolds, we found a small effect on group performance, on transfer of individual. Jafarigohar.M @ Khanjani .A (2014) finding that text difficulty had significant effect on metacognitive reading strategy use with problem-solving

strategies being affected most. The interview data revealed that the participants in this study benefited from various MRSs such as planning, summarizing and translating especially when the text was difficult. Moreover, EFL instructors need to consider the difficulty level of reading materials to trigger the learners' metacognitive reading strategy use. Jo An. Yun @ Li Cao. L (2014) revealed that metacognitive scaffolding had positive effects on students' design problem solving processes but did not have a significant effect on design outcomes. Regarding metacognitive skills, the experimental group showed significant improvement in the planning subscale. Mandcishin .S@ Kendir.F (2013) It was observed that the students in the experimental group had developed a better attitude toward geometry and mathematics, which might be attributed to the improvement in their self-confidence. Furthermore, these students had developed the ability to perceive the importance of problem solving, to understand problems, to be involved in planned studying, and to control and be aware of the problem solving process. Jbeili.I (2012) showed that student's in-group CL significantly outperformed their counterpart's in-group T in mathematics conceptual understanding and procedural fluency, revealed the treatment group to have significantly higher scores on two different measures of creativity compared to their matched peers. In addition, students in the treatment condition performed significantly better on a summative design thought model project that included a metacognitive thinking scale and was judged by external design experts, scores on a measure of metacognitive awareness revealed stability over time for the comparison group but not the treatment group indicating an intervention effect. Du Toit.G.F@ Wilkinson.A.C (2013) indicated that a statistically significant impact on learner metacognition in respect of the MAI total score, the Knowledge of cognition (KC) factor, the regulation of cognition (RC) factor, and the subscales Declarative knowledge, Planning, and Monitoring, so that here the aims of this study to assessing metacognitive strategies among (PLD), in addition investigating the differences in metacognitive strategies. The important of this study to high lighting of metacognitive strategies, and it using in learning applications, or operations in academic situations and their life style. To verify these aims should be answer following questions are:

1. What the level of metacognitive strategies among (PLD) in special educational center?
2. What the differences in metacognitive strategies according to the level classroom variable?
3. What the differences in metacognitive strategies according to the age variable**?**

2. METHOD AND TOOLS
2.1 Method Research Approach: In a study, the researcher used descriptive method, depend on analytical technique. In addition, were consists of questionnaire adapted by the researcher.

2.2 Study Group:
It formed from male and female student with learning difficulties in special educational center, Khartoum, Sudan (46) of male and female pupils with learning difficulties. Also consisted major of learning difficulties teams there are including learning difficulties teachers, normal classroom teachers, directors of learning difficulties programs and directors of educational.

2.3 Sampling:
The researcher used a simply random sampling method. The sample was conducted with (23) pupils, also including (12) males and (11) females.

2.4 Supervisors-Questionnaire Technique:

The questionnaire was conducted by the researcher, is formed from (42) phrases distributed into three dimensions, knowledge organization includes (14) phrases, knowledge treatment includes (16) phrases, knowledge of knowledge includes (12) phrases.

In order to ensure the validity and reliability of the questionnaire form, it distributed to four instructors who had completed their doctorates and this form developed in accordance with the opinions of the instructors, then pilot were conducted and the value of reliability was found. It was about (0.83) and after that, the questionnaire forms became ready for application.

2.5 Practical Procedures:

   The principle of voluntarism was the pre-condition of participating in questionnaire. For the questionnaire, an explanation was prepared. The goal of the research and how the study would be carried out were clearly stated in it. In addition, it was emphasized that the identities of the participants would remain confidential. During the questionnaire, written forms were used. Questionnaire took place between 1-3 month, and the researcher used E-mailing technique to answering the questionnaire.

2.6 **Data Analysis:**

After collecting data, the researchers used many tests are T- test for one sample, T-test for independent samples test, one-way analysis of variance (ANOA) to examine the study hypotheses depend to SPSS program.

3-RESUlTS:

3.1. What the level of metacognitive strategies among pupils with learning disabilities? To answer this question, the researcher used (T) test for one sample, table (1) shows the result. When we compare the mean respectively (21.20), (27.77), (19.31, with stander mean (25.5), (18), (21) we found the mean is greater than stander mean and the significant level (0.05) is greater than the sig value (0.00), this is means that the level of metacognitive strategies among (PLD) is positive (high than normal level..

3.2 What are the differences in metacognitive strategies according to the level classroom variable?

To answer this question, the researcher used one way analysis of variance (ANOVA), table (2) shows the result. When we found (f) values are respectively (1.19), (0.89), (0.58), are not significant at the level (0.05) there means, there are no significant differences in metacognitive strategies according to the level classroom variable.

3. 3 What are the differences metacognitive strategies according to the age variable?

To answer this question, the researcher used one way analysis of variance (ANOVA), table (2) shows the result. When we found (f) values are respectively (0.93), (064), (1.34) are not significant at the level (0.05) there means, there are no significant differences in metacognitive strategies according to the age variable.

Tables show the results:
Table (1) show the level of metacognitive strategies among pupils with learning disabilities:

Groups	N	Test value	Mean	std	T value	df	SG	Significant
Knowledge of knowledge	23	25.5	21.20	7.70	3.31	34	0.002	Above moderate
Knowledge treatment	23	18	27.77	5.58	5.06	34	0.000	high
Knowledge organization	23	21	19.31	5.50	1.82	34	0.79	Above moderate

Table (2) show the differences in metacognitive strategies according to the level classroom variable.

Groups		Sum of Squares	df	Mean Square	F	Sig.	Significant
Knowledge of Knowledge	Between Groups	236.17	2	118.083	1.19	o.35	No significant
	Within Groups	890.08	9	98.898			
	Total	1126.25	11				
Knowledge treatment	Between Groups	53.08	2	26.542	0.89	0.44	No significant
	Within Groups	269.83	9	29.981			
	Total	322.92	11				
Knowledge organization	Between Groups	92.42	2	46.208	0.58	0.58	No significant
	Within Groups	722.50	9	80.278			
	Total	814.92	11				

Table (3) what are the differences in metacognitive strategies according to the age variable.

Groups		Sum of Squares	Df	Mean Square	F	Sig	Significant
Knowledge of Knowledge	Between Groups	389.75	4	97.44	0.93	0.50	No significant
	Within Groups	736.50	7	105.21			
	Total	1126.25	11				
Knowledge treatment	Between Groups	86.75	4	21.69	0.64	0.65	No significant
	Within Groups	236.17	7	33.74			
	Total	322.92	11				
Knowledge organization	Between Groups	353.50	4	88.36	1.34	0.34	No significant
	Within Groups	461.42	7	65.92			
	Total	814.92	11				

DISCUSIONS:

1. **The level of metacognitive strategies among pupils with learning disabilities is (above moderate, high, above moderate),** on line Ahmad Alhaqbani.A & Mehdi Riazi. M (2012) refer to junior and senior students reported consistently higher strategy use in all the three strategy categories compared to the first. On line, Jbeili.I (2012) indicated Scores on a measure of metacognitive awareness revealed stability over time for the comparison group but not the treatment group indicating an intervention effect. In addition, Du Toit.G.F@ Wilkinson.A.C(2013) indicated that a statistically significant impact on learner metacognition in respect of the MAI total score, the Knowledge of cognition (KC) factor, the regulation of cognition (RC) factor, and the subscales Declarative knowledge, Planning, and Monitoring, on line Jbeili.I (2012) showed that students significantly outperformed students in mathematics conceptual understanding and rocedural fluency, in addition Mandcishin .S@ Kendir.F(2013) it developed a better attitude toward geometry and mathematics, which might be attributed to the improvement in their self-confidence, ability to perceive the importance of problem solving, to understand problems, to be involved in planned studying, and to control and be aware of the problem solving process, the improvement in their attitude toward geometry and mathematics led to a corresponding increase in their achievement, on line Jo An. Yun @ Li Cao. L (2014) indicated that regarding metacognitive skills, the experimental group showed significant improvement in the planning subscale, in addition Jafarigohar.M @ Khanjani .A (2014) finding that text difficulty had significant effect on metacognitive reading strategy use with problem-solving strategies being affected most, the interview data revealed that the participants in this study benefited from various MRSs such as planning, summarizing and translating especially when the text was difficult. Moreover, EFL instructors need to consider the difficulty level of reading materials to trigger the learners' metacognitive reading strategy use, on line Coskun. A (2011) refer to implication of the study is that metacognitive strategy training should be incorporated into the regular listening teaching

program to help students become more listeners that are effective. In addition, Akyol.Z@ Garrison,R (2011) indicated that provided evidence of metacognition indicators in student discussion postings and the frequency of these indicators increased over time, on line Helen Askell-WilliamsH, et al (2012) metacognitive strategy use and demonstrated that students' cognitive and metacognitive strategy knowledge has substantial room for improvement, we collaborated with teachers to embed explicit cognitive and metacognitive strategy instruction, using learning protocols, into regular class lessons, showed that the learning protocols slipped readily into teachers' typical lesson designs, scaffolded teachers delivery of strategy instruction, and scaffolded some students' acquisition of strategy knowledge, although progress was sometimes slow, in addition Jayapraba. G (2013) revealed that the metacognitive instructions were most effective in enhancing academic achievement. Multiple regression analysis shows that there is significant relationship between metacognitive awareness and achievement. Researcher refer that metacogative improving pupil's skills, to help them in, exercises, practice activities and life style.

2. There are no significant differences in metacognitive strategies according to the level classroom variable. Most of the studies conducted in this regard did not indicate differences in grade level as far pointed to the differences between the experimental and control groups, Jbeili.I (2012) metacognitive awareness revealed an intervention effect, on line Molenaar.I , et al (2010) showed that no effect of scaffolding on group performance, nor on the acquired individual domain knowledge, but a small effect on acquired individual metacognitive knowledge, with respect to the effects of different forms of scaffolds, we found a small effect on group performance, in addition Birjandi.P@ Tabataba.I.A (2012)The aim of this study is to explore the effect of metacognitive strategy instruction on the listening performance of EFL university students. The results revealed that experimental group significantly outperformed the control group on the posttest measure, on line Coskun, A. (2011), the analysis of the test scores using t-test revealed that the experimental group did statistically better in the test.

Researcher found that the level of the class has no significant impact on the growth of metacognitive strategies, the basic level divided into three rings, the first ring include first, second and third, the reason of divided the basic level into three rings, the same growth aspects, And the sample formed from the first ring so that this is reason for no significant impact on metacognitive strategies.

3. There are no significant differences in metacognitive strategies according to the age variable, this result are dis agreed with, this result, was disagreed with, Palmer .C. Emma, et al (2014) refer to substantiate the expected gender-age interaction in the metacognition data. Females started low at (14) years, recovered at (15) years, and peaked at (16) years, whereas males started positive at (14) years, declined at (15) years, and recovered at 16 years. Posttest data show a significant effect of age with improved learning performance at (16) years, on line Veenman, M.V.J., et al (2014) finding substantiate the expected gender-age interaction in the metacognition data. Females started low at (14) years, recovered at (15) years, and peaked at (16) years, whereas males started positive at (14) years, declined at (15) years, and recovered at 16 years. Posttest data show a significant effect of age with improved learning performance at (16) years.

Researcher found that the age of sample have no significant impact on metacognitive strategies**.** The reason of no significant is the sample age very narrow between (9-11) and this age is same period so cold later childhood, that means all sample have same aspects on mental growth.

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