**Metacognition and Its Relation to Preferential**

**Strategies of Problem Solving for Faculty of**

**education Students.**

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 **Summary of the Study**

**Problem of the Study:**

One often concentrates on thinking processes results more than

concentrating on thinking processes themselves, However, everyone got his own inner mental structure which distinguishes him from others, So everyone got his own believes which are either concerned with his knowledge, abilities, cognitive abilities and mental abilities or concerned with his personal traits and emotional status. These believes are the main stay of metacognition concept.

One may fail to solve the problem and takes him along time or reaches to a surficial solution, not for his incapability to produce suitable ideas, but for mistaking in evaluating these ideas. The researcher thinks that this mistake in evaluation doesn't come from cognitive factors but from metacognitive factors and this mistake in evaluation stands as an obstacle to human using his knowledge suitably.

 One's preferring to a strategy more than other strategies in solving problems is a reflect to one's cognitive preferring which is considered one of the individual differences between individuals. One's believing in a strategy's efficiency or effectiveness and easiness or difficulty in implementing it is an important reason of preferring a strategy rather than others. This belief results from his awareness to his cognitive abilities and at the same time reflects his ability to value his abilities, cognition and evaluating it, and also evaluating the problem situation confronted with.

 The researcher argues that the high level of metacognition helps one to prepare and process information. As a result the deep level of preparing and processing doesn't appear to be a load on preparing and processing system. so, the person who got a high level of metacognition tend to using strategies which require a deep level of preparing and processing, as he believes in easiness in implementing them and their effectiveness in reaching the desired solution.

**The study attempts to answer the following questions** :

1. Do metacognition (knowledge and skills) of students in the Faculty of

Education differ according to sex, academic major and the interaction

between them?.

2. Is there a relationship between metacognition (knowledge and skills

and Preferential Strategies in Problem Solving ?

**Objectives of the Study :**

The current study attempts to:

1. Identify the differences between male and female students regards their metacognition ( knowledge and skills ) .

2. Identify the differences between Scientific and literary major students

regards their metacognition ( knowledge and skills ).

3. Discover the interaction effect between sex and academic major on

metacognition ( knowledge and skills ).

4. Discover the relationship between metacognition ( knowledge and

skills ) and Preferential Strategies in Problem Solving.

**Significance of the Study :**

The importance of this study can be explained as follows:

1. Effective influence of metacognition with its two elements knowledge

and skills in instructional results, and it should be developed for students to achieve good instructive results.

2. using metacognition helps students to play a positive role in their

learning process so, it should be embodied to educational curriculum as

it plays an important role in improving performance in different fields.

3. Highlighting a reason of educational results weakness which is "

concentrating on the cognitive quantity and ignoring quality one. And

this direction doesn't lead to learning. The goal of learning is creating

persons who are able to solve life problems to promote their society.

And that doesn't come, but by encouraging student to using his intellect

and his cognitive processes and abilities.

4. The study results may be useful in directing those who are responsible

for the educational process to this important field( metacognition) which

gained a huge importance in the previous period in the foreign

environment as it plays an important role in students' understanding to

their cognitive abilities and this role reflects on achievement in different

academic fields.

**Hypotheses:**

1. There are no significant statistical differences between the mean scores of students of both sexes on metacognitive knowledge and skills scales.

2. There are no differences between the mean scores of Students (of both literary and scientific majors) on metacognitive knowledge and skills scales.

3. There is no significant interaction effect between sex and major scores on metacognitive knowledge and skills scales.

4. There is a statistical correlation between the students' scores on

metacognitive knowledge and skills scales and their scores on

Preferential Strategies in Problem Solving scale .

**Procedures**

(1)Sample:

The sample of the study was selected from male and female students in

literary and scientific sections in the Faculty of Education, Mansoura

University (2006-2007), Egypt. The sample was consisted of (658) students whose ages ranged from twenty and twenty-one years.

(2) Instruments:

The researcher used the following instruments:

1. metacognitive knowledge Scale (Prepared by the researcher)

2. metacognitive skills scale (Prepared by the researcher)

3. Preferential Strategies in Problem Solving scale (Prepared by the

researcher)

(3) Statistical Procedures:

1. T- test .

2. Confirmatory Factorial Analysis.

3. Two-Way ANOVA.

4. Pearson's Correlation Coefficient.

5. One-Way ANOVA .

6. Tokey's test for Multiple Comparisons.

**Results:**

1. There are no significant statistical differences between the mean scores of male and female students on dimensions of metacognitive knowledge and skills scales.

2. There are significant statistical differences between the mean scores of scientific and literary majors students favoring of scientific students on declarative knowledge.

3. There are significant statistical differences between the mean scores of scientific and literary majors students favoring of literary students on

planning skill.

4. There are no significant statistical differences between the mean scores of scientific and literary majors students on dimensions of metacognitive knowledge scale (procedural knowledge, conditional knowledge, and total score) and metacognitive skills scale (monitoring, evaluation, and total score)

5. There is no significant interaction effect between sex and major scores on dimensions of metacognitive knowledge and skills scales.

6. There is a positive statistical relationship between students' scores on

dimensions of metacognitive knowledge scale (declarative knowledge,

procedural knowledge, and total score) and their scores on working

forward-backward, and visualization strategies .

7. There is a positive statistical relationship between students' scores on the dimension of conditional knowledge and their scores on visualization strategy

8. There is a negative statistical relationship between students' scores on the dimensions of metacognitive knowledge scale (procedural knowledge, and total score) and their scores on means-ends analysis strategy .

9. There is no statistical relationship between students' scores on the dimensions of metacognitive knowledge scale (procedural knowledge,

and total score) and their scores on analogy, and free production

strategies.

10. There is no statistical relationship between students' scores on the

dimension of declarative knowledge and their scores on means-ends

analysis, analogy, and free production strategies.

11. There is no statistical relationship between students' scores on the

dimension of conditional knowledge and their scores on means-ends

analysis, working forward-backward, analogy, and free production

strategies.

12. There is a positive statistical relationship between students' scores on the dimension of monitoring skill and their scores on means-ends analysis strategy .

13. There is no statistical relationship between the students' scores on the dimension of monitoring skill and their scores on working forward backward, analogy, and free production strategies.