Abstract
An aim of this research is to analyze the reliability factor between logical reasoning, numerical ability and perceptual speed which relates to the qualification of mother and father and hours spend to daily variables based on Karl Pearson Correlation Coefficient. These analyses help to students’ self development and level of confidence in their ability reason and can justify their thinking will increase and stimulate the skill positively. Based on framing the hypothesis, an analysis can be carried out by Karl Pearson’s correlation coefficient method and differential analysis (T-test) to find out by significant difference between the variable.

Keywords: Hypothesis of Reliable Factor Analysis, Karl Pearson Correlation Coefficient, Rapid Miner Tool, T-Test Analysis

1. Introduction
Human computer interaction is concerned with how people use the computer system to perform tasks, usually in a real life work setting. To evaluate the competing tasks by using usability criteria based on cognitive models. Cognitive processes is the process that involves knowledge, attention, memory, producing and understanding the language, problem solving and decision making. All these are very important for human behavior. An evaluation process can be followed by the GOMS model, KLM model and Cognitive complexity theory for the end-user through testing for knowledge task analysis, the collection of data can be stored in the database based on usability criteria which can be targeted in the system at the design stage of effectiveness, learning ability, and flexibility, attitude where the student skill can analysis effectively.

A. E. E. AlAli et al. discussed about the extraction of knowledge for discriminating male and female in logical reasoning for the students based on classification technique. In this paper, they identify the difference between female and male in logical reasoning, learning skills, achievement motivation, and their understanding of the efficiency of classroom interaction based on the correlation coefficient. Also, determine the relation between these domain values. Knowledge extraction has been done based on classification technique of ANN using genetic algorithm for the construction of the desired role model.

An approach to modeling collaborative and meta-cognitive data is presented by Sofia J. Hadjileontiadou et al. In this paper involves C/M-ANFIS model combines with sets of collaborative and Meta cognitive data, acquired with a suitable collaboration tool based on internet facilities which can be mediated by the students for analyzing the performance. The first concerns the quality of the individual collaborative performance, the second his/her emotional state during his/her performance and the third the impacts of his/her collaborative performance of his/her peer self-assessment, planning and self-adjustment procedures can be experimented from the students. Each peer reads the form and ‘ticks’ those statements that reflect his/her deficiencies. In this way the peer declares...
his/her intention to improve in the specific deficiencies during the forthcoming season of collaboration.

In most of an academic environment, the students focus only on subjects for attaining a good mark in the examination for their higher studies. It is not only an important for their carrier, they need also cognitive skill like thinking, innovative, quick remembering, attitude problem solving, decision making for analyzing the skill for their future thoughts to give peer motive to the respective students in an efficient manner.

According to the problem, the current study determines the following hypotheses such as

- To study the relationship between the skill of numerical ability and logical reasoning when the interaction of computer interface is fixed by conducting the online test.
- To study the relationship between numerical ability and perceptual speed, accuracy of testing.
- To study the relationship between logical reasoning and numerical ability of testing of the interaction of computer interface during the test conduct.
- To study the relationship between logical reasoning and perceptual speed, accuracy of testing from the interaction of computer interface during the test conduct.
- To find out the significant differences between scoring of numerical ability and parents qualification.
- To find out the significant differences between scoring of numerical ability and hours spent to study.
- To find out the significant differences between scoring of logical reasoning and parents qualification.
- To find out the significant differences between scoring of logical reasoning and hours spent to study.

From the above hypotheses, analysis can be carried out by Karl Pearson’s correlation coefficient method and differential analysis (T-test) to find out by significant difference between the variable.

### 1.1 Students Attributes

In this paper, the research can be focused on student model is a vital role in analyzing the knowledge of mental ability, attention and decision thinking to solve a problem in numerical ability, logical reasoning and perceptual speed accuracy in an efficient manner.

From Table 1 shows, the data collection of 150 students in NIA Institution, Pollachi, TamilNadu state which conducts online test based on the cognitive model interaction between students and the system. The domain values such as LR represent as a Logical Reasoning, NA represent as a Numerical Ability, P represents as perceptual speed and accuracy, Hours spent to study the students at home and parents qualification for analyzing the relationship between the skill level of scoring marks and with relevant variables.

From Table 2, represent metadata view of the data set, here role denotes as regulars, the domain value of LR, NA, P Hours spend to study daily as real type and Parents qualification as polynomial type which can be experimented in the rapid miner tool.

### 1.2 Numerical Ability

Numerical reasoning questions assess an ability of students to use numbers in a logical and rational way. The basic level of questions is taken for students in order to successfully complete the arithmetic method of solving the problem questions, numerical reasoning’s and are all measuring numerical ability rather than educational achievement. The questions, measure the students’ understanding of such things as number series, logical numbers and calculations.

### 1.3 Logical Reasoning

Reasoning and Analysis teach the candidate how to judge a problematic situation, take decisions and analyze according to solve the problem. Logical Reasoning and
From Table 3 shows the relationships between the LR and fathers qualification is -0.058, NA and Father Qualification is negative -0.054 and perceptual Speed and father qualification is -0.052 denoted as negative correlation coefficient of reliability, LR and Hours spent to study is -.052 denoted as negative correlation coefficient of reliability, LR and mothers qualification is .038 and LR and fathers qualification is -0.058 denoted as negative correlation coefficient of reliability.

From the given hypotheses, it can be analytically the relationships between the NA and LR is 0.774, NA and P is 0.862 denoted as positive correlation coefficient of reliability, NA and Hours spent to study is -0.017 denoted as negative correlation coefficient of reliability, NA and mothers qualification is .036 and NA and fathers qualification is -0.054 denoted as negative correlation coefficient of reliability.

From Table 3 shows the relationships between the LR and fathers qualification is -0.058, NA and Father Qualification is negative -0.054 and perceptual Speed and father qualification is -0.052 denoted as negative correlation coefficient of reliability, LR and Hours spent to study is -.052 denoted as negative correlation coefficient of reliability, LR and mothers qualification is .038 and LR and fathers qualification is -0.058 denoted as negative correlation coefficient of reliability.

From the given hypotheses, it can be analytically the relationships between the NA and LR is 0.774, NA and P is 0.862 denoted as positive correlation coefficient of reliability, NA and Hours spent to study is -0.017 denoted as negative correlation coefficient of reliability, NA and mothers qualification is .036 and NA and fathers qualification is -0.054 denoted as negative correlation coefficient of reliability.

With respect to perceptual accuracy the relationship between the P and LR is 0.839, P and NA is 0.862 denoted as positive correlation coefficient of reliability, P and Hours spent to study is -0.035 denoted as negative correlation coefficient of reliability, P and mothers qualification is 0.063 and P and fathers qualification is -0.034 denoted as negative correlation coefficient of reliability.

1.4 Perceptual Speed and Accuracy
Tests of perceptual speed and accuracy have stronger practical implications than manually realize. These tests are commonly used to identify errors or mistakes generally requires less intellectual complexity, but high ability to process information quickly and accurately under the period of time pressure.

2. Proposed Research Methodology
In this research work, the evaluation can be carried out in three stages. In first stage is input stage, the collection of data can be imported into the data repository file for analyzing the coefficient factor for pair variable which are denoted in the hypotheses.

In the second stage, by using Karl Pearson's coefficient method the analysis can be evaluated based on the respective equation which can be experimented in the rapid miner tool.

\[
r = \frac{N\sum XY - (\sum X)(\sum Y)}{\sqrt{N\sum X^2 - (\sum X)^2} \sqrt{N\sum Y^2 - (\sum Y)^2}}
\]

(1)

Also determine the significant difference between two variables such equations given as:

\[
t = \frac{r}{\sqrt{1-r^2}} \sqrt{N-2}
\]

(2)

Analytical Ability are to help the candidate to be alert for the future administrative situational problems. In this research, deductive reasoning, inductive reasoning is taken for analysis.

| Role       | Name               | Type       | Statistics          | Range              |
|------------|--------------------|------------|---------------------|--------------------|
| Label      | Specialty          | Polynomial | Mode=Ninth (150)    | Ninth (150)        |
| Regular    | LR                 | Real       | avg=+/-1            | [-1.098;10.175]    |
| Regular    | NA                 | Real       | avg=+/-1            | [-1.150;10.091]    |
| Regular    | P                  | Real       | avg=+/-1            | [-1.478;1.145]     |
| Regular    | Hours Spend to study daily | Real | avg=+/-1 | [-1.478;1.145] |
| Regular    | Mothers Qualification | Polynomial | Mode= Graduate(67) | Postgraduate(44), Graduate (67), elementary (24), doctorate(13) |
| Regular    | Fathers Qualification | Polynomial | Mode= Graduate(65) | Postgraduate(42), Graduate (65), elementary (23), doctorate(17) |

Table 3. Correlation between two variables in matrix

| Attributes | LR   | NA   | P     | Hours Spend to Studying Daily | Mothers Qualification | Fathers Qualification |
|------------|------|------|-------|-------------------------------|-----------------------|-----------------------|
| LR         | 1    | 0.774| 0.839| -0.052                        | 0.038                 | -0.058                |
| NA         | 0.774| 1    | 0.862| -0.017                        | 0.036                 | -0.054                |
| P          | 0.839| 0.862| 1    | -0.035                        | 0.063                 | -0.034                |
Table 4. Correlation between two variables in pair wise

| First Attribute | Second Attribute      | Correlation |
|-----------------|-----------------------|-------------|
| LR              | Father Qualification  | -0.058      |
| NA              | Father Qualification  | -0.054      |
| LR              | Hours are spent studying daily | -0.052 |
| P               | Hours are spent studying daily | -0.035 |
| P               | Father Qualification  | -0.034      |
| NA              | Hours are spent studying daily | -0.017 |
| NA              | Mothers Qualification | 0.036       |
| LR              | Mothers Qualification | 0.038       |
| P               | Mothers Qualification | 0.063       |

From Table 4 represents the pair wise table of the relationship between the variable.

From Figure 1 represents the attribute weights of a correlation coefficient matrix of the required relationship from the given Table 2 based on hypothesis.

From the above hypotheses significant value can be determined by equation 2.

- The significant value between the scoring of numerical ability and mother qualification is 0.1.
- The significant value between the scoring of numerical ability and father qualification is -0.2.

Table 5. Representation of Attribute weight of correlation matrix

| LR               | 0.09237357651541127 |
|------------------|---------------------|
| NA               | 0.055825637653142336 |
| P                | 0.01                |
| Hours are spent studying daily | 1.0 |
| Mother Qualification | 0.7398678353343454 |
| Father Qualification | 0.8719260498956729 |

Figure 2. Surface view of Correlation coefficient of two attributes based on Table 4.

- The significant value between the scoring of numerical ability and hours spent to study is –0.08.
- The significant value between the scoring of Logical reasoning and mother qualification is 0.1.
- The significant value between the scoring of Logical reasoning and further qualification is –0.3.
- The significant value between scoring Logical reasoning and hours spent to study is –0.2.

From Figure 2 and Figure 3 represent the surface view of the correlation coefficient of two attributes which derive the relationship between the variables for securing the data for the students.
3. Conclusion

In this paper, it can be concluded that the correlation coefficient of Logical Reasoning (LR) with mothers’ qualification, Numerical Ability (NA) and LR with Perceptual Speed (P) is related as a positive correlation with each other. Similarly, NA with LR and NA with P has also relates as a positively correlated with each other. Apart from the academic environment, the cognitive skill can be analyzed from students based on mental ability based on the correlation coefficient method in significantly different on mothers qualification is positively correlated and also analyzed in surface view.

4. References

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