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The Relationship between Ability in Learning and Task Difficulty of Secondary School Students in South 24 Parganas

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Abstract:

The present study was constructed to inquire the relationship between ability in learning and task difficulty of secondary schools in North 24 Parganas (W.B). The study population consists of all secondary schools in North 24 Parganas. The sample for the present investigation is made by selecting almost 207 secondary school students using the random sampling method from the target population. Two self made questionnaires, i.e. ability in learning scale for students (ALSS) and task difficulty in learning scale for students (TDLSS) are used to collect the data. Mean, standard deviation, t-test, analysis of variance and correlations have been used by the researchers for analysing and interpretation of data. The study showed that student's ability in learning and task difficulty in learning was significantly correlated.

Keywords: Ability, Task Difficulty

1. Introduction

Ability is a relatively internal and stable factor over which the learner does not exercise much direct control. According to the attribution approach to achievement motivation is mediated by causal attribution for success and failure. It implied that a critical task in the embellishment of an attribution theory approach to the enlargement of achievement motivation is to illustrate the development of fundamental attribution for success and failure (Weiner 1972, 1974). Ability is the vital personal causes of success and failure (Heiders, 1958). Ability is classified as stable internal factor and it is consistent and stable while effort is unstable and changes. Spinatha (2006) suggested that general cognitive ability is the strongest and only predictor on academic achievement. Sharma et al. (2011) introduced that one of the most significant concerns of education is to certify that the child is capable to make use of most of his abilities and capabilities to accomplish to his maximum level. According to Naderi (2009) each student is unique and has his or her own educational desires. The success of these needs is essential for an individual's effort and pursuit to accomplish the academic excellence. Spinatha and Rohde (2006) indicated that general cognitive ability continuous to add to the forecast of academic achievement.

Task difficulty is an external and stable factor that is largely beyond the learner's control. Glassman and Wang (2004) focused on relationship among tasks, student cognition, motivation and emotion, working from a cognitive information processing perspective. According to Blumenfeld, Mergendaller and Swarhout (1987) the tasks socialize student's expectation about academic work. Working from a cognitive information processing perspective, Doyale (1983) distinguished between low-level task that emphasize recognition, memory skills, and algorithmic process. Task also is related to how student's interpreted and experiences the curriculum (McCaslin and Good, 1996). Ames (1992), Brophy (2004), Pintrich and Schunk (2002) introduced that task factor associated with motivation include moderate challenge; features that stimulate interest or curiosity and enhance students control, and embedded short term goals. Recent research in classroom promotes a different conception of the most engaging task as having features teachers and students can manipulate to suit their teaching and learning needs. Miller and Meece (1999) suggested that student's from every classroom expressed a strong preference for high challenges task, with the strongest support coming from average and low achieving student's. Perry (1998) introduced that complex task increased student's opportunities to regulate their learning by allowing them to make choice and control challenges to suit their learning needs and preferences.

1.1. Objectives of the Study

- To find out the relationship between student's ability in learning and student's task difficulty in learning.
- To compare the student's ability in learning under different categorical variables.
- To compare the student's task difficulty in learning under different categorical variables.

1.2. Hypothesis of the Study

- H₀1: There is no significant relation exists between students' abilities in learning and students' task difficulties in learning.
- H₀2: There is no significant difference in student's abilities in learning between male students and female students.
- H₀3: There is no significant difference in student's task difficulty in learning between male students and female students.
- H₀4: There is no significant difference in student's ability in learning between rural students and urban students.
- H₀5: There is no significant difference in student's task difficulties in learning between rural students and urban students.
- H₀6: There is no significant difference in student's ability in learning between boys' school, girls' school and co-ed school.
- H₀7: There is no significant difference in student's task difficulty in learning between boys' school, girls' school and co-ed school.

2. Methodology of the Study

2.1. Variables

2.1.1: Major variables: Students Ability in learning and Task Difficulty in learning.

2.1.2: Categorical variables:

- i. Gender (boy's and girls')
- ii. Location of school (urban and rural)
- iii. Types of school (boy's school, girls' school and co-ed school)

2.2. Population

All the secondary school students in North 24 Parganas under West Bengal Board of Secondary Education (W.B.C.H.S.E) were the population in the study.

2.3. Sample and Sampling Procedure

For the present study the researcher was used random sampling method for data collection. Data for this preliminary analysis were collected from 270 high school students attending four different high schools in the district of south 24 parganas, West Bengal. All students were 14 years of age and they were in Form Four of secondary education. There were 147 (54.44%) males and 123 females (45.56%). Of these 270 students, 125 (46.29%) students' were belonging in rural area and 145 (53.71%) students' belonging in urban area. The table also showed that all of this sample, there were 84 (31.11%) boys' school students', 76 (28.15%) girls' schools students' and 110 (40.74%) co-ed schools students.

2.4. Tools of the Study

In this research, the researcher had used two types of tools i.e.-

1. Self made ability in learning scale for students (ALSS). Reliability of the scale was computed by Cronbach's Alpha through SPSS 20.0 version and the reliability was found 0.778.
2. Self made task difficulty in learning scale for students (TDLSS). Reliability of the scale was computed by Cronbach's Alpha through SPSS 20.0 version and the reliability was found 0.707.

3. Data Analysis and Interpretation

3.1: H₀1: There Is No Significant Relation Exists between Students' Abilities in Learning and Students' Task Difficulties in Learning.

Variable	N	'r'- value	P-value (2 tailed)
Students' Abilities In Learning	270	.751*	0.035
Students' task difficulties In Learning			

Table 1: correlation between ALSS and TDLSS

*. Correlation is significant at the 0.05 level (2-tailed).

Table 1: shows that the 'r' = .751 and 'p' = 0.035 which is less than 0.05 (p < 0.05). It indicates that the correlation between students' abilities in learning and students' task difficulties in learning is significantly correlated at 0.05% level of significance and confidently we have reject the null hypothesis.

3.2: H₀2: There Is No Significant Difference in Student's Abilities in Learning between Male Students and Female Students.

Variable	Gender	N	Means	df	't' - value	P-value (2 tailed)
Student's Ability in Learning	Male	147	117.2473	268	1.654*	.158
	Female	123	115.3481			

Table 2: Independent sample test of ALSS - gender

*. 't' is not significant at the 0.05 level (2-tailed).

Table 2 indicated that the calculated value of $t'_{(268)} = 1.654$ and $p' = .158$. The computed value indicates that $0.05 < p$. Hence the mean scores of student's ability in learning according to gender are not significant at 0.05% level of significance. Thus the null hypothesis is retained. It means there is no significant difference exists between males and females abilities in learning.

3.3: H_{03} : There Is No Significant Difference in Student's Task Difficulty in Learning between Male Students and Female Students.

Variable	Gender	N	Means	df	't' – value	P-value (2 tailed)
Student's Task Difficulty in Learning	Male	147	84.774	268	1.347*	.041
	Female	123	82.354			

Table 3: Independent sample test of TDLSS- gender

*. 't' is significant at the 0.05 level (2-tailed).

Table 3 indicated that the computed value of $t'_{(268)} = 1.347$ and $p' = .041$. Here, the computed p value indicates that $p < 0.05$. Hence the mean scores of student's task difficulty in learning according to gender are significant at 0.05% level of significance. Thus the null hypothesis is rejected. It means significant difference exists between male and females students' task difficulties in learning.

3.4: H_{04} : There Is No Significant Difference in Student's Ability in Learning between Rural Students and Urban Students.

Variable	Location of school	N	Means	df	't' – value	P-value (2 tailed)
Student's Ability in Learning	Rural	125	116.324	268	2.158*	.014
	Urban	145	120.352			

Table 4: Independent sample test of ALSS- location of school

*. 't' is significant at the 0.05 level (2-tailed).

Table 4 indicates that the calculated value of $t'_{(268)} = -2.158$ and $p' = .014$. Here $p > 0.05$. Hence the mean scores of student's ability in learning according to strata are not significant at 0.05% level of significance. Thus the null hypothesis is not rejected. It means significant difference exists between urban and rural student's abilities in learning.

3.5: H_{05} : There Is No Significant Difference in Student's Task Difficulties in Learning between Rural Students and Urban Students.

Variable	Location of school	N	Means	df	't' – value	P-value (2 tailed)
Student's Task Difficulty in Learning	Rural	125	78.45	268	1.479*	.027
	Urban	145	81.59			

Table 5: Independent sample test of TDLSS- location of school

*. 't' is significant at the 0.05 level (2-tailed).

Table 5 indicates that the computed value of $t'_{(268)} = 1.479$ and value of $p' = .027$ ($p < 0.05$). Hence the mean scores of student's task difficulty in learning according to location of school are significant at 0.05% level of significance. Thus the null hypothesis is rejected. It means significant difference exists between rural and urban student's task difficulties in learning.

3.6: H_{06} : There Is No Significant Difference in Student's Ability in Learning between Boys' School, Girls' School and Co-Ed School.

		Sum of Squares	df	Mean Square	F	P-value (2 tailed)
Student's Abilities in Learning	Between Groups	449.234	2	221.254	3.214*	.148
	Within Groups	21487.174	267	100.248		

Table 6: one way sample test of ALSS- types of school

*. 'F' is not significant at the 0.05 level (2-tailed).

Table 6 depicts that the computed value $F_{(2, 204)} = 3.214$ and $p = .148$ which is higher than 0.05 ($p < 0.05$). Hence, it should be taken as not significant at 0.05% level of significance. Consequently we have to not rejecting the null hypothesis. Thus a significant difference definitely not exists on the means of students' abilities in learning in relation to the types of school, i.e. boys' school, girls' school and co-ed school.

3.7: H_07 : There Is No Significant Difference in Student's Task Difficulty in Learning between Boys' School, Girls' School and Co-Ed School.

		Sum of Squares	df	Mean Square	F	P-value (2 tailed)
Student's Task difficulty in Learning	Between Groups	754.326	2	369.279	6.798*	.065
	Within Groups	12657.741	204	64.214		

Table 7: one way sample test of TDLSS- types of school

*. 'F' is significant at the 0.05 level (2-tailed).

Table 7 depicts that the computed value $F(2, 204) = 6.798$ and $p = .065$ which is less than 0.05 ($p > 0.05$). Hence, it should be taken as not significant at 0.05% level of significance. Consequently we have to retain the null hypothesis. Thus a significant difference not exists on the means of student's task difficulties in learning in relation to among variables, i.e. boys' school, girls' school and co-ed school.

4. Major Findings

- On the basis of students ability in learning with relation to their gender significant different exist between male students ability in learning and female students ability in learning. In the context of mean score (mean score of male students is 117.2473 and female students is 115.3481) boys students are better ability to engage in learning than the female students.
- The study reveals that urban and rural students differ significantly. In the context of mean (mean score of urban students are 120.352 and rural students are 116.324) score the researcher found that urban students have better ability in learning than the rural students.
- On the basis of different types of schools, the researcher found that significant difference does not exist according to students' ability in learning.
- The present study shows that male and female student' differ significantly in their task difficulty in learning. The mean value of task difficulty in learning indicating that (mean score of male students is 84.774 and female students is 82.354) male students are better able than the female students' to engage in their task. This happens due to their ability and efforts towards learning.
- On the basis of secondary school students task difficulties in learning according to their strata the study shows that significant difference exist between urban and rural secondary school students. According to their mean score (mean score of urban students are 81.59 and rural students are 78.45) urban students have better task difficulty in learning than the rural students.
- The findings of the study shows that significant difference not exist between boys' school students, girls' schools students and co-ed school students'.
- Significant and positive correlation exists between student's ability in learning and task difficulty in learning.

5. Discussion and Conclusion

Task difficulty was generally established as a major thing that affects subjects' presentation in the sense that an easy task is performed quicker than a difficult task (Wickens, 1984). The explanation of "easy" tasks and "difficult" tasks was determined by evaluating the performance, the improved the task was performed, and the easier it was (Wolfe et al, 1989, Spitzer and Richmond 1991). This explanation was somewhat confusing because of the supposition of a direct relationship between performance and task difficulty. The present study found that student's task difficulty in learning and ability in learning is significantly and positively correlated. This study also supported Center, D. B., Deitz, S. M., Kaufan, M. E (1982) and Winett, R. A., Battersby, C. D., & Edwards (1975) that an appropriate match between student ability and task difficulty is a effective influence on in appropriative behaviour in the classroom. This study will be helpful in all section of education system. The study helps to generate a basic concept about the relationship between student's ability in learning and task difficulty in learning. . This proposed research work will help to improve the student's attitude towards learning also.

6. References

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