A Study of Achievement and Intelligence Level of Students in Secondary Education in Nepal with Regard to Education Stream

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ABSTRACT

   (Purpose) The purpose of this study was to compare the academic achievement and intelligence level of Secondary School students of science, management, and education streams to identify the enrollment trend of students in teacher education in Nepal. (**Methods)** In this study, 150 secondary school students belonging to eight schools were selected including 50 from each science, management and education stream. For academic achievement, grade point averages of Secondary Education Examination were collected from school records and a standardized intelligence test was used to identify intelligence level. **(Results)** Mean score of grade point averages and intelligence test of science stream students was greater than management stream students and average scores of management stream students were greater than education stream students. Analysis of variance revealed that there was significant difference among the mean scores of science, management, and education stream students at significance level $\alpha = .01$. Results show that the students with higher academic achievement and intelligence level are enrolling in science stream, average are in management stream and with low academic achievement and intelligence are in education stream, that is, teacher education. Review of previous studies and reports revealed that intelligent person are not attracting towards teaching profession and the condition is same till now. **(Implications)** Educational policy makers and stakeholders of Nepal should pay proper attention to make teaching profession attractive so that high achievers and intelligent persons may enroll in teacher education and quality of education could be raised. **(Additional Materials)** G. C. Ahuja Group Test of Intelligence (GGTI-A) used in this study to compare the intelligence of students studying in science, management, and education streams was developed by Dr. G. C. Ahuja, Former Research Officer, Central Institute of Indian Languages Mysore and published by National Psychological Corporation, Agra (India). Mean, variance and ANOVA were used as quantitative techniques; Scheffe's formula was used as post hoc analysis to calculate the pair wise *F*- ratio. Grade point averages and intelligence scores were enlisted in appendices.

KEYWORD

Academic achievement; Intelligence; Educational stream; Teacher education; *F*-test

ABBREVIATIONS

ANOVA	:	Analysis of Variance
ARNEC	:	All Round National Education Committee
DIQ	:	Deviation Intelligence Quotient
GGTI	:	G. C. Ahuja Group Test of Intelligence
GPA	:	Grade Point Average
HSTS	:	High School Transcript Studies
NEC	:	National Education Commission
NESP	:	National Education System Plan
NNEPC	:	Nepal National Educational Planning Commission

ACKNOWLEDGEMENT

INTRODUCTION

One of the most important concerns all over the world is no doubt "Education". No matter who we are, or what profession we perform, we have things to say about this important issue. The impact of globalization make us to know about the newly developed concept and aspects of education and we criticize the existing educational system in the countries we live in, comment on the new systems around the world or suggest new ways of teaching and learning. The impact of education is most crucial for human being. The effectiveness of any educational system depends upon the teachers or the educational leaders who actually perform this profession. The lives of all learners are shaped by the teachers (Doyran, 2012).The quality of basic education provided to our children is largely influenced by the quality of our teachers in the schools that's why a strong system of quality teacher education should be developed so that the nation's education system can be improved through quality teacher education (Mallison as cited in Menon and Rama, 2006).

Purpose of this study was to compare the academic achievement and intelligence level of students of secondary education in Nepal enrolling in science, management and education streams, and hence to

identify enrollment trend of students towards teacher education with regard to their academic achievement and intelligence level. Teaching is an art and science as well. Each person cannot be a capable teacher. In Nepal, a teacher training centre has been established in 1949 in Kathmandu to develop basic education and was closed in 1953. In report of Nepal National Education Planning Commission (NNEPC) "Education in Nepal-1954" four principles were developed by focusing primary teachers. The first principle is teacher should be capable for teaching; second is teacher should be responsible and having general education; third is teacher should be skilled and must have ability to develop skills on learners, and fourth is teacher should be individually well developed (NNEPC, 1954).

As per recommendation of the report of NNEPC-1954, Normal School was established in Nepal to provide trainings for primary and lower secondary level teachers and produced 3000 school teachers but 50% of those quit this profession either due to lack of their interest in teaching profession or due to being delay on appointing them as teachers (All Round National Education Committee [ARNEC], 1961). After dissolution of first elected government of Nepal in 1960, another educational committee named as All Round National Education Committee was formed in 1961 which mentioned in its report," it seems that after passing School Leaving Certificate Examination, students goes to other livelihoods as such as possible and adopt teaching profession only after discarded from other professions" (ARNEC, 1961).

In Nepalese educational history, National Education System Plan (1971-1975) is taken as one of the most important effort for development of education. This plan has been made the provision of salary and other allowances of teachers equal to the other government employees (National Education System Plan [NESP], 1975). College of Education was established in 1956 to produce high school teachers. But this College of Education has been made constituent institute of Tribhuvan University after its establishment in 1959 and four years B. Ed. Program run by College of Education was broken down in two year I. Ed. and two year B. Ed. program. The importance of teacher education was reduce after avoidance of compulsory teacher training to be permanent teacher by His Majesty's Government of Nepal with third amendment in education act on 1980 (National Education Commission [NEC], 1992).

As teacher is an important aspect of educational programme and hence responsible for learning of students, quality of education, and effectiveness of overall educational program, that's why teacher should be intelligent, creative and bearing high educational achievement. Educational objectives determined by curriculum assure the educational achievement for particular grade and level. Academic achievement is defined as the extent to which a learner is profiting from instructions in a given area of learning i. e. achievement is reflected by the extent to which skill and knowledge has

been imparted to him (Crow and Crow as cited in Lawrence and Deepa, 2013). Despite a long history of research and debate, there is still no standard definition of intelligence. This has lead to some to believe that intelligence may be approximately described, but cannot be fully defined. Indeed, a formal definition of intelligence, called universal intelligence was developed (Legg and Hutter, 2006), which has strong connections to the theory of optimal learning agents (Hutter, 2005).

Examination of teacher quality focuses on four categories of teacher quality indicators- teacher qualifications, teacher characteristics, teacher practices, and teacher effectiveness. A stronger correlation exists between the achievements of secondary school students and their teachers' subject area expertise (Goe, 2007). It implies that teacher's qualification and ability are crucial factors for effective teaching/learning. In developed countries comparatively more attention is paid towards teacher education and its impact can be seen in the achievement of students of those countries. The High School Transcript Studies was conducted periodically in America to explore the relationship between course taking patterns and student achievement, as measured by the National Assessment of Educational Progress. Overall GPAs on the years 1990, 1994, 1998, 2000, 2005, and 2009 were observed increased as 2.68, 2.79, 2.90, 2.94, 2.98, and 3.00. (National Center for Education Statistics, 2009).

Previous studies show so many aspects, which are either directly related to academic achievement of students or affect it. Two domains (self-emotion appraisal and understanding of emotion) of the emotional intelligence are significantly and positively associated with the respondents' academic achievement (Mohzan, Hassan and Halif, 2013). The result related with academic achievement revealed that when students put more effort in to studying research methods and statistics, they were likely to indicate an increase in knowledge and confidence in dealing with subject (Li, 2012).

There exists a significant positive relationship between academic achievement and intelligence (Agarwal, 2002; Deary, Strand, Smith and Fernandes, 2007) while there exist a mild positive relationship between social intelligence and academic achievement (Baggiyam and Pankajam, 2017). In another study, significant difference was found among high, average, and low IQ category of secondary school students on academic achievement (Chandra and Azimmudin, 2013). Findings of this study revealed that significant relationship exists between self-confidence and academic achievement of elementary school students. Similarly, no significant difference was found in the self-confidence of male and female elementary school students (Verma and Kumari, 2016). There was a significant positive correlation between perceived verbal-linguistic, body-kinesthetic, logical-mathematical, musical intelligence and academic achievement of the students and it shows moderate correlation (Ahvan and Pour, 2016).

Policy related to teacher education and eligibility criteria for enrollment also play vital role in teacher education. In India, the eligibility condition for entry in existing B. Ed. courses is 50% marks in graduation (Ministry of Human Resource and Development [MHRD], 2016) but in Nepal, the eligibility criteria for admission in grade-11 is minimum GPA 2 for science stream including minimum C+ in science and mathematics, and D+ in English, Social Studies and Nepali. Minimum GPA for other streams/subjects is 1.6, and for education stream, minimum GPA is 1.6 including grade D+ in HPE (Health Population and Environment), English, Nepali, and Science (Ministry of Education [MOE], 2016).

As is the school, so is society. And as is the teacher, so is the school (Mallison as cited in Menon and Rama, 2006). This shows how teacher is responsible for development of society. In present, despite much criticism and development of alternative approaches of education, formal education is broadly used in global context. Teacher is an important aspect of educational process that creates the appropriate environment and delivers knowledge, skill and attitude to the learner. Without a capable teacher, the educational process cannot be run smoothly and to produce capable teacher, there should be made the provisions of enrollment of creative, intelligent, and high educational achievement achiever students in education stream or teacher education.

METHODS

As information collected for this study was quantitative in nature, the research design was quantitative. In this study, descriptive survey method was used to collect necessary data. Altogether eight schools of Bheemdatt municipality, Knachanpur, Nepal were selected using disproportionate stratified random sampling method, four from each government and institutional sectors. To collect required data, total 150 students of grade 11, 50 from each stream science, management and education were selected by using simple random sampling method.

GPAs of previous grade (grade-10) were taken from school records as academic achievement (See appendix-1) and GGTI (G.C. Ahuja's Group Test of Intelligence); a standardized intelligence test was used to measure intelligence (See appendix-2) of the students. This intelligence test was published by National Psychological Corporation Agra (India). Gardner classifies intelligence in seven categories as Verbal/linguistic, Body/kinesthetic, Musical/rhythmic, Logic/mathematic, Visual spatial, Interpersonal, and Intrapersonal (Carter, 2005). But total 8 sub-tests: Following Directions (Additional test), Classification, Analogies, Arithmetic Reasoning, Vocabulary, Comprehension, Series and Best Answers are included in GGTI. Maximum marks are 126 (excluding the 9 marks of additional test which is used to just motivate students); total time provided for test is 32 minutes (4 minutes per sub-test) and for instructions and practice is 35 minutes.

Reliability of this test has been calculated by two methods. The coefficient of reliability obtained by test retest method was found to be .84 ± .021 and reliability coefficient by split-half method (correlation between scores on odd and even items) was .951 ± .004 and reliability of the full test obtained by Spearman- Brown Prophecy formula was .974 ± .003. The validity of the battery of seven tests was calculated by five methods namely: Symond's method (11.187), 27% upper and lower groups (39.80), Lawshe's Nomo graph (1.59), Flanagan's product-moment 'r' coefficient (.543), and Kelley's method (1.555) and were found fairly high (Ahuja, 2009).

To obtain the data related to intelligence of the selected students, researcher visited to the all selected schools and administered standardized intelligent test. During the administration of Ahuja's Group Test of Intelligence, all the instructions related to total test (eight sub-tests) mentioned in the manual, are carefully given to participated students. Test was strictly conducted within provided time (four minutes per test) and answer sheets were collected. After administering the test in all selected eight schools, scoring was done carefully by the help of scoring stencils provided with the test to obtain scores.

The test is standardized on the basis of students studying in English medium schools and language used in the test is English. The selected students of Government schools for this study were belonging to Nepali medium. But in Nepal, English language is a compulsory part of the curriculum from grade up to secondary education; even undergraduate level and the English language used in this test is very simple, questions included in the test are common that's why researcher assumed that the reliability, validity, and measurement of the intelligence of students (even the students of Nepali medium) won't affected by the medium of the test. However, the questions given in the test IV (arithmetic) are translated in Nepali language by researcher for students of Nepali medium to minimize the effect of the medium of the test. Some print mistakes found in practice examples of test V and test VIII were also corrected by researcher during the administration of the test.

As the data collected for this study was numerical in nature and research design was quantitative, statistical procedures were used in this study. Mean, correlation, variance and ANOVA were used to analyze the collected data.

RESULT AND DISCUSSION

Results and discussion related to GPAs

To analyze the collected data (Appendix-A), arithmetic means, and variances were calculated by using MS Excel. From table 1, means of the GPAs of students in science, management and education streams were found as 3.235, 2.518 and 1.846, and variances as 0.145, 0.153 and 0.031 respectively. Mean GPA of students in science stream is greater than mean GPA of management stream and mean

GPA of management stream is greater than mean GPA of education stream. Values of variances of management, science and education streams are in descending order. It means GPAs of the students in management stream has greater variability than GPAs of the students in science and education streams i.e. students with variable GPAs enrolled in management stream while, GPAs of students in science and education streams are comparatively consistent.

Table 1

Stream wise means and variances of GPAs

Stream	Mean	Variance
Science	3.235	0.145
Management	2.518	0.153
Education	1.864	0.031

In America, a study conducted by HSTS in high school graduates revealed that their average GPA on four point scale is 3.00 (National Center for Education Statistics, 2009) but this study shows that the stream wise average GPAs of students of science, management, and education streams are 3.24, 2.52, and 1.86. Average GPA of students of all streams (science, management, and education) is 2.54. Here, although average GPA of students of science stream is slightly exceeding the national average GPA of America but average GPA of students of management stream is less than; and average GPA of students of education stream is approximately half of average GPA of America's high school graduates. Overall average GPA of Nepalese students is less than American students.

Although, mean GPA of students in science stream is highest and students in education stream have least mean GPA, it could not said whether this difference is due to the tendency of students enrollment in science, management and education streams or due to sampling error. To determine the significance of mean difference of GPAs researcher apply the statistical technique ANOVA. As there were three groups and difference of mean GPA was analyzed on the basis of stream only (single independent variable), one-way ANOVA was applied. Calculations are performed on MS Excel.

From table 2, sum of squares and degrees of freedom for between groups are 47.03 and 2 respectively. Similarly, sum of squares and degrees of freedom for with in groups are 16.19 and 147 respectively. Mean squares, that is variance for between groups is 23.515 and variance for within groups is 0.110. Here, variance for between groups represents the influence of independent variable educational streams and variance for within groups represents the influence of sampling error (Best and Kahn, 2010). The ratio of these two variances is the value of *F* which is 213.41. Tabulated or critical values

for degrees of freedom for greater variance 2 and smaller variance 147 that is, (2, 147) at the significance levels 5% (α = .05) and 1% (α = .01) are 3.057 and 4.752 respectively.

Here, calculated value of F is highly greater than both critical values at significance levels 5% as well as 1%. Hence, the null hypothesis (H_0) "There is no significant difference among the achievements of the students of science, management and education streams" is rejected. This result shows that there is highly significant difference among the mean GPAs of students of science, management, and education streams.

Table 2

Summary of ANOVA for GPAs

Source of Variation	SS	Df	$MS = \frac{SS}{df}$	$F = \frac{MS_b}{MS_w}$	p-value	Critical Values	
						0.05	0.01
Between Groups	47.03	3-1=2	23.515	213.41	3.37E-44	3.057	4.752
Within Groups	16.19	150-3=147	0.11014				
Total	63.22	150-1=149					

Significance of the difference can also be tested by comparing the p-value with the level of significance. The p-value is probability of getting the observed value of the test statistic to support null hypothesis. In other words, p-value is the probability for null hypothesis to be true at particular significance level. For 5% significance level (α = .05), H_0 will be true if p-value > 0.05 and will be false (rejected) if p-value $\leq$ 0.05. Here, from table 2, p-value is calculated as 3.37E-44 that is, 3.37×10^{-44} which is negligible or very near to zero and less than both the significance levels 5% and 1% that is .05 and .01. Thus, the null hypothesis is rejected and it can be concluded that there is significant difference among the mean GPAs of the students of science, management, and education streams. Generally, significance is interpreted on the basis of p-value as in table 3.

Table 3

Interpretation criteria of significance on the basis of p-value

p-value	Interpretation
< 0.01	Very strong evidence against H_0
0.01< p-value < 0.05	Strong evidence against H_0
0.05 < p-value < 0.10	Some weak evidence against H_0
p-value >0.10	Little or no evidence against H_0

In this study, p-value $\ll$ .01, therefore from table 3, it can be concluded that there is very strong evidence against H_0 that is there is very highly significant difference among the mean GPAs of students of science, management, and education streams.

ANOVA only determines that whether there is significant difference among the means of three or more groups or not but it doesn't tell us that this significant difference is between all possible pairs of given groups or only some particular pairs. If the result of ANOVA or F-test concludes that there is no significant difference among the means of given groups, then it can be said that there is no significant difference between all possible pairs of given groups. But if the conclusion is that there is significant difference among the means, it can't be said that the significant difference is between all the possible pairs of given groups. The difference may be significant between all possible groups or between some particular groups only. In this study, although difference was found to be highly significant according as analysis of covariance, however it can't be said that the difference is significant between all three groups/streams or it is significant between any of the two groups only. To identify the significance of differences pair wise, Scheffe test was conducted as post hoc analysis.

Scheffe (1957) has introduced a test for post hoc analysis, which reduces the probability of making a type I error (Singh, 2012). Scheffe's following formula was used to calculate the pair wise F ratio:

$$F = \frac{(M_1 - M_2)^2}{SD_w^2 (N_1 + N_2)/N_1 N_2}$$

Where, M_1 and M_2 are respective means of two groups, N_1 and N_2 are number of subjects, and SD_w^2 is mean square or variance of within groups. F-values of science stream vs. management stream, management stream vs. education stream, and science stream vs. education stream are presented in table 4.

Actually, F test gives the average of F-values of separate pair wise groups and by post hoc analysis, pair wise F-values are calculated. Now, to compare these F-values, firstly critical values obtained by ANOVA according as the df (2, 147) for significance levels 5% and 1% should be multiplied by K-1 that is number of groups minus one (Singh, 2012). Here, number of total groups is 3; therefore critical values are multiplied by 2 and gives 9.173 for significance level 5% and 14.258 for significance level 1%.

As all F-values of science vs. management, management vs. education, and science vs. education streams are greater than both the critical values at significance levels 5% and 1%, it can be concluded that there is significant difference between the mean GPAs of science and management streams, management and education streams, and science and education streams separately at the significance level of 1%. Relatively, there is low significant difference between the mean GPAs of science and

management streams and management and education streams, and high significant difference between the GPAs of science and education streams but absolutely, there is very high significant difference among the GPAs of all three streams science, management, and education.

Table 4

Description of pair wise *F*-values for GPAs

Streams	*F*-values
Science vs. management	116.669
Management vs. education	97.081
Science vs. education	426.648

This statistical analysis of GPAs of students of science, management, and education streams clearly justify that the students of same GPAs are not equally enrolling in science, management, and education streams. After passing SEE (grade-10), students with higher GPAs are enrolling in science stream; with average GPAs are enrolling in management stream, and students with lower GPAs are enrolling in education stream.

Estimation of validity of data collection tool (GGTI)

Validity can be defined as the agreement between a test score or measure and the quality it is believed to measure. Validity of a test represents the extent of accurate measurement what it is supposed to measure (Kaplan and Saccuzzo, 2011). Accuracy of the measurement is determined by the validity of the test. It is one of the most important characteristics of standardized test. Although, GGTI is standardized test and standardized tests are generally valid, however, criterion related validity of G. C. Ahuja's Group Test of Intelligence was established by researcher correlating scores obtained by the test with stream wise as well as whole GPAs of the students. Pearson's correlation coefficients, thus obtained, are tabulated in table 5.

Table 5

Coefficients of correlation between GPAs and GGTI scores

Streams	Science	Management	Education	Total scores
Pearson's (r)	.03	.70	.29	.85

Correlation coefficients of GGTI scores and GPAs of students in science, management, and education streams are .03, .07, and .29 respectively. Here, correlation between the intelligence scores and GPAs of science stream students is negligible, correlation between scores and GPAs of management stream students is high, and correlation between scores and GPAs of education stream students is low. Clearly, correlation coefficient (.70) between scores and GPAs of management stream is indicating high validity of GGTI and correlation coefficients (.03 and .29) between scores and GPAs of science and education streams are although negligible and low but these correlation coefficients are low not due to the low validity of the GGTI. These coefficients are low due to the homogeneity of the GPAs in education and science streams which is also justified by the low variances of GPAs and scores of science and management streams (Table 1 and 6). However, these negligible and low correlation coefficients are also supporting high validity of the test. Correlation coefficient between total scores and GPAs of all selected students is .85 which is clearly indicating that GGTI is highly valid tool.

Results and discussion related to intelligence scores

Using MS Excel, arithmetic means and variances were calculated to analyze the collected data (Appendix-B) and were tabulated in table 6. Mean scores of students enrolled in science, management, and education streams were found as 79.76, 42.74, and 22.52 respectively. Mean score of education stream students is least. Students of management stream have mean score greater than mean score of students of education stream while mean score of science stream students was found highest. Similarly, variances of scores of science, management and education streams were found as 120.2628, 334.1555 and 49. 39755. The ascending variance of scores of education, science, and management streams show that the students with variable intelligence are enrolling in management stream, comparatively the students with less variable intelligence level are enrolling in science stream and least variable intelligence that is students with consistent intelligence are enrolling in education stream.

Table 6

Stream wise means and variances of scores

Stream	Means	Variances
Science	79.76	120.2678
Management	42.74	334.1555
Education	22.52	49.39755

Here, mean scores of students in science, management and education streams are different, it could not said whether this difference is due to the tendency of students enrollment in science, management

and education streams or due to sampling error. To determine the significance of mean difference of scores, researcher applies the statistical technique ANOVA. As there were three groups and difference of mean scores was analyzed on the basis of stream only (single independent variable), one-way ANOVA was applied. The summary of ANOVA is arranged in table 7.

From table 7, sum of squares of between groups and within groups are 84262.44 and 24687.22, and their degrees of freedom are 2 and 147 respectively. Dividing sum of squares by their respective degrees of freedom, mean squares or variances of between groups and within groups were obtained as 42131.22 and 167.9403 respectively. *F*-value is the quotient of variances of between groups and within groups and was found as 250.87. Now significance of the mean scores can be determined by comparing *F*-value with tabulated or critical values at proper significance levels. In this study, for *df* (2, 147) and at 5% ($\alpha = .05$) and 1% ($\alpha = .01$) levels of significance, critical values are 3.057 and 4.752.

Table 7

Summary of ANOVA for scores

Source of Variation	SS	Df	$MS = \frac{SS}{df}$	$F = \frac{MS_b}{MS_w}$	p-value	Critical Values	
						0.05	0.01
Between Groups	84262.44	2	42131.22	250.8703	4.08E-48	3.057	4.752
Within Groups	24687.22	147	167.9403				
Total	108949.66	149					

As *F*-value is highly greater than both the critical values 3.057 at $\alpha = .05$ and 4.752 at $\alpha = .01$, null hypothesis (H_0)," There is no significant difference among the intelligence level of students of science, management and education streams" is rejected strongly, and it can be concluded that there is highly significant difference among the scores of students of science, management, and education streams at significance level of 1%. In this study, *p*-value (probability for supporting H_0) was found 4.08E-48 or 4.08×10^{-48} which is less than both the significance levels 5% and 1% that is .05 and .01. If *p*-value is less than any particular significance level, the null hypothesis is rejected. Thus, on the basis of *p*-value also, null hypothesis is rejected. In this study, *p*-value is less than .01 even very close to zero, from table 3; *F*-test provided very strong evidence against null hypothesis, and it can be said that there is very high significant difference among the mean scores of students of science, management, and education streams.

Here, result of *F*-test is just telling about the overall significant difference of mean scores and is unable to determine the pair wise significance of difference. To identify the pair wise significance of differences, Scheffe's test was used as post hoc analysis. Pair wise *F*-values of science vs. management streams, management vs. education streams, and science vs. education streams were tabulated in table 8.

Pair wise *F*-values of science vs. management streams, management vs. education streams, and science vs. education streams are 204.013, 60.862, and 487.735 respectively. Here, critical values should be multiplied by number of total groups minus one to compare with pair wise *F*-values, and these multiplied critical values at the significance levels 5% ($\alpha = .05$) and 1% ($\alpha = .01$) are respectively 9.173 and 14.258. All the pair wise *F*-values are obviously greater than critical values at significance levels 5% and 1% that's why it can be concluded that there is significant difference between the mean scores of students of science and management streams, management and education streams, and science and education streams.

Table 8

Description of pair wise *F*-values for scores

Streams	*F*-values
Science vs. management	204.013
Management vs. education	60.862
Science vs. education	487.735

Comparatively, the difference of mean scores between management and education streams is less significant than the mean scores of science and management streams, and the difference of mean scores between science and management streams is less significant than science and education streams, but absolutely, there is very high significant difference in mean scores of students of science and management streams, management and education streams, and science and education streams.

In this study, results of analysis of variance of GPAs and intelligence scores of science, management, and education stream students are supporting each other. Means of both GPAs and scores were found to be significantly different for science, management, and education stream students. The nature of significance for GPAs and scores was also found similar. In both analyses, means of students of management and education streams are less significantly different than means of students of science and management streams, and means of students of science and management streams are less significantly different than the means of students of science and education streams. Pair wise mean

differences of both GPAs and scores were found very highly significant for science and management streams, management and education streams, and science and education streams. Nature of variances of intelligence scores also found as similar to variances of GPAs. Intelligence scores were found comparatively consistent for students of education stream, less consistent for students of science stream, and highly dispersive for students of management stream.

GGTI manual provides guidelines for interpretation of intelligence scores on the basis of Deviation Intelligence Quotients (DIQs). Test scores; age wise DIQs, and classification only related to average scores of students of science, management, and education streams are given in table 9.

Average scores of students of science, management, and education streams are 79.76, 42.74, and 22.52 respectively. By rounding off, these scores can be converted in to 80, 43 and 23. In this study, most of the students were belonging to the ages 15, 16 and 17 years. Here, the average score of students of science stream lies in the test score interval 80-84. For this interval, age wise DIQs for both girls and boys are ranging from 102 to 105 and lie in DIQ interval 90-109. It means, on the basis of average scores, normal or average students are enrolling in science stream. Interpreting in the same way, from table 9 borderline defective students are enrolling in management stream while, the students enrolled in education stream were found mentally defected (according to GGTI manual). Although, this interpretation is based on average test scores of students, however most of the individual scores are also supporting this interpretation.

Table 9

Description of test scores, DIQs and classification

Streams	Test scores	Age wise DIQs						DIQs	Classification
		15 yrs		16 yrs		17 yrs			
		Boys	Girls	Boys	Girls	Boys	Girls		
Science	80-84	103	105	102	105	102	103	90-109	Normal or Average
Management	40-44	79	79	75	79	77	79	70-79	Borderline Defective
Education	20-24	62	59	59	62	56	62	Below 70	Mentally Defective

Source: GGTI (2009)

CONCLUSIONS

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Mean of GPAs of students of science stream is highest while students in education stream bearing the least mean. Stream wise variances of GPAs indicating that, the students of consistent GPAs are enrolling in education stream. Similarly, students of less variability in GPAs are enrolling in science stream, and students with higher variability are enrolling in management stream.

Result of *F-* test showed that the difference among mean GPAs of students of science, management, and education streams is highly significant. Post hoc analysis (Scheffe's test) further determined that the difference is significant not only overall, the pair wise mean difference of GPAs of science and management streams, management and education streams, and science and education streams were also highly significant.

To compare intelligence of students, scores were obtained by using the intelligence test GGTI. Here also the students with high mean intelligence score were found to be enrolled in science stream, average mean score in management stream and the students with low mean score were enrolled in education stream. ANOVA showed that there was highly significant difference among the mean scores of students of science, management, and education streams overall as well as pair wise separately.

As found in previous studies, that academic achievement and intelligence have positive significant correlation; in this study also researcher found that there is very high correlation (.85) between the intelligence level and achievement of the students.

All Round National Education Committee has mentioned in its report that after passing high school education, students goes to other livelihoods as such as possible and adopt teaching profession only after discarded from other professions (ARNEC, 1961) and after more than 5 decades it seems that the situation regarding teacher profession isn't changed, till now students with high achievement and intelligence level are attracted towards other professions/streams and students with low achievement and intelligence level are frequently enrolling in education stream which is directly related to the teacher education.

The difference in intelligence level of students of science, management, and education streams is also clearly seen by converting test scores in DIQs. Classification of DIQs shows that students of average, borderline defective and mentally defective are respectively enrolling in science, management, and education streams.

It is said that if a doctor is not qualified, lives of some patients are in danger, if an engineer is not qualified, some buildings may destroyed, but if a teacher is not qualified, then the whole society may destroyed. The view," As is the school, so is society. And as is the teacher, so is the school" also supporting the thing that not only the future of the students but wellness of the society is also directly

related to qualified teacher. Quality, ability and skill of the teacher directly or indirectly depends upon his/her educational achievement and intelligence level. In Nepal, so many previous educational commissions/committees realized that intellectual man power is not attracted towards teacher profession/teacher education on past days. This study also revealed that till now, the situations are unaltered and high educational achievement achievers and intelligent students are not being attracted towards the education stream/teacher education.

In India, minimum 50% marks in graduation are recommended for entry in existing B.Ed. courses (MHRD, 2016), but in Nepal the criteria for admission in grade-11 are determined such that the student with GPA 1.6 (in four point grading system) can enroll in education stream (MOE, 2016). Even in B. Ed. Program, there are provisions for enrollment of students with minimum marks (passing marks) in corresponding previous grades. These weak provisions and policies regarding enrollment in teacher education and least attraction towards teaching profession are making the students with low achievement and intelligence level to enroll in teacher education.

IMPLICATION

The results are pointing towards the enrollment trend of students in teacher education. Students of high and average achievement and intelligence level are enrolling in other than education streams. Enrollment of students of low achievement and intelligence level in education stream may have serious and negative long term impact in teacher education and hence on the entire education system of Nepal. To make the learning-teaching effective and improve the quality of education, the criteria for enrollment in teacher education should be immediately reviewed and teaching profession should be made attractive so that the students with high academic achievement and intelligence level may be enrolled in teacher education.

RECOMMENDATION

This study was based on very limited area and sample. To make it more reliable and generalizable, another study should be conducted by taking broad area and large sample. Additional research is needed to explore the job satisfaction of teachers in teaching profession.

CONFLICT OF INTEREST

No conflict of interest.

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Appendix-A

Description of GPAs of science, management and education streams

Science	Management	Education
3.70, 3.65, 3.55, 3.45, 3.55, 3.55, 3.75, 3.60, 3.45, 3.55, 3.40, 3.10, 3.75, 3.60, 3.80, 3.55, 3.55, 3.10, 3.55, 3.60, 3.55, 3.60, 3.45, 3.65, 3.45, 2.65, 3.15, 3.05, 3.05, 2.80, 3.35, 2.95, 3.00, 3.05, 2.85, 2.65, 3.20, 3.00, 3.60, 2.75, 2.50, 2.65, 2.75, 2.95, 2.75, 2.95, 3.65, 2.55, 2.80, 2.80	2.55, 2.35, 2.65, 3.50, 2.60, 2.50, 2.80, 2.65, 2.65, 2.80, 2.05, 2.90, 2.80, 2.75, 2.80, 2.05, 2.90, 3.15, 3.10, 3.30, 2.30, 2.65, 3.55, 2.70, 2.65, 2.05, 1.90, 2.20, 2.30, 2.35, 2.60, 2.15, 2.15, 2.05, 2.15, 2.35, 2.45, 2.25, 2.40, 2.80, 2.95, 1.90, 2.25, 2.20, 2.25, 2.40, 2.55, 2.30, 2.00, 2.25	1.80, 1.90, 2.00, 2.45, 1.80, 1.75, 2.05, 1.85, 2.15, 1.70, 1.80, 1.75, 1.65, 2.05, 1.70, 1.95, 1.95, 1.90, 2.00, 1.90, 1.60, 1.90, 1.75, 1.85, 1.80, 1.75, 2.10, 1.90, 1.75, 1.90, 1.70, 1.75, 1.70, 1.75, 1.80, 2.20, 1.60, 1.75, 1.85, 2.20, 1.95, 1.80, 2.10, 2,05, 1.55, 1.80, 1.75, 1.65, 1.95, 1.95

Appendix-B

Description of intelligence scores of science, management and education streams

Science	Management	Education
72, 90, 68, 84, 72, 83, 83, 81, 79, 89, 94, 52, 81, 68, 88, 87, 86, 66, 91, 94, 71, 97, 56, 94, 79, 30, 55, 36, 45, 33, 81, 64, 65, 45, 61, 75, 50, 72, 92, 40, 36, 50, 37, 47, 65, 47, 75, 50, 69, 48	74, 36, 50, 67, 65, 65, 49, 46, 52, 51, 31, 38, 57, 52, 59, 32, 38, 69, 54, 88, 40, 65, 90, 43, 62, 18, 42, 33, 21, 18, 23, 25, 19, 44, 42, 33, 22, 24, 45, 29, 41, 14, 37, 35, 20, 31, 57, 17, 32, 42	20, 13, 12, 21, 25, 17, 14, 21, 40, 21, 26, 16, 22, 28, 19, 27, 35, 20, 21, 19, 16, 14, 19, 9, 26, 19, 33, 25, 25, 21, 25, 21, 21, 33, 22, 29, 17, 17, 29, 33, 30, 18, 26, 41, 32, 16, 20, 20, 17, 15