Demographic Factors Affecting the Job Satisfaction of Mathematics Teachers: A Case Study of Kathmandu Municipality

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Abstract

Job satisfaction is a crucial factor for professionals. Job satisfaction among teachers reflects their high levels of professional motivation. This study investigated the effect of demographic factors on job satisfaction among secondary mathematics teachers in the Kathmandu Municipality. In quantitative research, a cross-sectional survey research design was used in this study. The data was collected through a validated structural questionnaire, which consisted of ten items on job satisfaction and eight demographic variables. The structural questionnaire was administered to a sample of 136 mathematics teachers over the course of one month (17 August–16 September). Data were entered in SPSS Version 26, and frequency, percentage, and multiple linear regression were used in the analysis of the data. The results of this study revealed that there is no statistically significant effect of demographic variables on the job satisfaction of mathematics teachers. Based on the findings of this study, I contend that demographic variables have no effect on job satisfaction among mathematics teachers. The study's limitations include the fact that demographic variables (gender, age, school type, school area, teaching experiences, educational level, and job position) explained only 6% of the variation in job satisfaction. Future research should be done on a larger scale to increase the number of demographic variables and sample sizes in other parts of Nepal and by other subjects' teachers. Similar studies could be done with basic-level and university-level mathematics teachers in Nepal.

*Keywords***:** job satisfaction, cross-survey, demographic variables, mathematics teachers, Nepal.

Introduction

Any educational system needs a strong foundation built on high-quality education. Teachers are the role models to students for providing knowledge, morals, and values as well as helping them become future-ready. In any professional discipline, job satisfaction is one of the key determinants (Jahan & Ahmed, 2018). For school teachers, job satisfaction may be a key element in strong job performance, which in turn leads to a positive motivational approach reflecting effective and efficient instructional activities (Chamundeswari, 2013; Patel, 2017). Therefore, head teachers must strengthen their leadership skills to increase their competency and increase job satisfaction. Job satisfaction is defined as how an individual feels about their work and how their head teacher is addressing their needs as a teacher (Song & Mustafa, 2015).

Teachers will love working at their jobs, for instance, if it makes them feel happy, delighted, or pleased. Therefore, institutional leaders should be concerned about teachers' job satisfaction to encourage and develop their workplace.

Teacher job satisfaction must be discussed in the educational environment, especially at Kathmandu in Nepal. Teachers in Nepal are divided into two groups, namely, public teachers who are appointed and given a fixed salary by the government, while private teachers are appointed and given salaries by private institutions. In terms of teacher status, those appointed as public teachers are more comfortable at work than private teachers because they receive salaries, gred, employe provident fund, insurance fund, expenses on the festivals, expensive allowances, uniform allowance, and local allowance. However, some public and private teachers still teach in various schools, despite having a minimal salary. This fact needs to be re-examined, what factors affect teachers' job satisfaction.

Previously, academics have investigated job satisfaction in general. Teacher job satisfaction is somewhat lacking, but what does exists indicates certain factors heavily influence teachers' satisfaction in their job that affects whether an authority can retain these teachers. The literature also offers evidence that lack of professional knowledge, skills, educational resources, and strategies, lower pay, less support of teachers, professional training, staff interactions, a competitive compensation, job security, organizational environment, atmosphere, and connectedness are all elements that have been demonstrated to boost job satisfaction (Edwards & Peccei, 2007; Josanov & Pavlovic, 2014; Lawrenson & Mckinnon, 1982; Maforah, 2015). Furthermore, according to Josanov and Pavlovic (2014), "The most commonly included criteria of teachers' satisfaction include nature of the work, working environment, interaction with students, teacher autonomy, School location, facilities and equipment, communication with parents, administrators and colleagues, and student behavior and abilities are some additional factors that may affect teachers' job satisfaction. Additionally, Asegid et al.(2014) also noted a significant influence between relationship, autonomy, recognition with leadership, promotion, and environment. However, the factors of salary and benefits are predictors that are omitted. In contrast to Asegid et al. (2014), Supatmi et al. (2013) discovered a significant direct influence of salary on team member job satisfaction, i.e., the greater the salary received by employees, the higher their job satisfaction. The research's empirical findings of show that finance is still considered a factor that significantly affects job satisfaction.

Additionally, a study on the job satisfaction of teachers was carried out in Nepal by Kayastha and Kayastha (2012), which looked into the possibility of very high levels of satisfaction with the work itself, with colleagues, and with work in general. Additionally, the study indicated that salary-related job satisfaction among teachers was low. According to Shrestha (2019), there is a correlation between job satisfaction and factors related to the teacher, such as years of service, the type of service, appointment, and education. However, there was no significant difference between job satisfaction and school types (Shrestha, 2019).

When the factors that contribute to teacher job satisfaction are missing, the atmosphere becomes stressful. Teaching content problems, such as a shortage of teaching resources, introducing new information, and developing a new curriculum, are linked to teacher stress (King et al., 2013). Meeting the needs of all students, finishing paperwork, evaluating data, grading papers, and dealing with student behavior are similar stressors for teachers (King et al.,

2013). However, a review of literature allowed researchers to probe whether studies of this type in school are limited, particularly in Nepal. Some studies found a satisfactory extent of job satisfaction in school (Chhetri, 2017; Kayastha & Kayastha, 2012; Khadka, 2010; Mondal et al., 2011; Thadathil, 2015). There are numerous fields for employment as job holders in this context. Among them are the teachers, and teaching is a major job. But in the literature review, salary, policy of the institute, environment of the institute, interaction with stakeholders, school location, teaching experiences, type of schools, educational level, and facilities were factors that affected job satisfaction, quality education, and student accomplishment. However, there is no study about the effect of demographic variables on job satisfaction by collecting precise and reliable data on secondary school mathematics teachers at Kathmandu Municipality. Considering this, the researcher had a question in his mind about the effect of the demographic variables on job satisfaction among mathematics teachers. Therefore, the purpose of this study is to investigate the effect of the demographic variables on job satisfaction among mathematics teachers in Kathmandu Municipality.

Research Hypothesis

This study was carried out in order to examine the effect of the demographic variables on job satisfaction among mathematics teachers. Therefore, the following research hypothesis was formulated for this study:

1. H_0: There is no statistical significant difference on job satisfaction based on demographic variables.

Methodology

This study used a cross-sectional survey research design within a quantitative framework. This design was the most effective since it attempted to examine the effect of the demographic variable on job satisfaction (Creswell, 2014). The population of this study was comprised of all mathematics teachers who have been teaching compulsory and optional mathematics at the secondary level in public and private schools in the Kathmandu Municipality in the academic year 2021–2022. In this study, there are two variables, which were demographic variables is independent variable and job satisfaction is dependent variable. According to the Education Development and Coordinate Unite of Kathmandu Municipality, there were total 158 basic level schools and 383 secondary schools in Kathmandu Municipality. These schools were divided into two groups: public and private. The total number of public secondary schools were 65 and private secondary schools were 383 and 50 schools were selected from each stratum by a simple random sampling method to make up the sample schools in the first stage. In the second stage, mathematics teachers were determined for the sample. All mathematics teachers who teach compulsory and optional mathematics at the secondary level of each sample school was taken for the study. Altogether 74 mathematics teachers of public and 62 mathematics teachers of private schools were the sample of teachers in two different stratum. Of those, 110 were male and 26 were female mathematics teachers for this study. The sample size determination formula is n ≥ 50 +8m (where m is the number of independent variables). For a regression analysis, a model with six independent variables, for instance, requires n = 50+(8)(8) = 114 is required minimum samples for this study (Green, 1991). Therefore, the total sample size n=136 for this study is appropriated. The structural questionnaire was the main tool for data collection. It has two sections, which are the demographic section and the job satisfaction section. The demographic

variable is developed to gather the teachers' background, and socio-demographic variables including gender, age, marital status, types of school, school area, teaching experience, educational level, and job position. A job satisfaction section is generated with ten closed-end items to measure job satisfaction. Items of job satisfaction were measured using a five-point Likert scale. The Cronbach alpha (Cohen et al., 2007) was used as the most common way of testing for internal consistency in behavioral science, and the test's reliability coefficient was 0.71 and the normality was tested (see Appendix-I). The researcher spent one month taking the data from a sample school. A structural questionnaire was administered to a sample of 136 (total number of mathematics teachers) mathematics teachers. Frequency, percentage and multiple linear regression were used to interpret and analyze the data using the SPSS 26 version.

Result and Discussion

Demographic Variables of Secondary Mathematics Teachers'

The demographic data examined for this study include teacher's gender, age, marital status, types of schools, school area, teaching experiences, educational level, and job positions as presented in the following discussion. The demographic variables of the data were analyzed in terms of frequency and percentage. The sample has more male mathematics teachers, with 80.9% (which constitutes 110 teachers) male mathematics teachers and 19.1% (which constitutes 26 teachers) female mathematics teachers. Concerning age, more teachers 49.3%, who constitute 67 teachers, fall under the age group between 30 and 40 years, followed by 29.4%, who constitute 40 teachers, who fall under the age group less than 30 years, followed by 16.2%, who constitute 22 teachers, who fall under the age group between 41 and 50 years, and 5.1%, who constitute seven teachers, who fall under the age group above 50 years. With regard to married status, 74.3% with 101 mathematics teachers had married, 23.5% with 32 teachers had single, 1.5% with two teachers had divorced, and 0.7% with one teacher had widowed. In addition, 54.4% with 74 had public mathematics teachers, and 45.6% with 62 had private mathematics teachers. Similarly, 80.1% with 109 had urban, and 19.9% with 27 had rural area school mathematics teachers.

The total number of mathematics teachers in the sample was 136, with the majority of teachers having work experience of between of 5 and 10 years; there were 44 mathematics teachers, accounting for 32.4% of the total. The second-highest respondents were of mathematics teachers with work experience of between 10 and 15 years; there were 39 teachers, which was 28.7% of the total. The third highest respondents were of mathematics teachers with work experience of between 0 and 5 years; there were 29 teachers, which was 21.3% of the total. The fourth highest respondents were of mathematics teachers with work experience of 20 and above 20 years; there were 11 teachers, which was 9.6% of the total, and the fifth highest respondents were of mathematics teachers with work experience of between 15 and 20 years; there were 11 teachers, which was 8.1% of the total. This can imply that the mathematics teachers have average work experience.

The total number of mathematics teachers was 136, with the majority of those teachers having a master's degree, accounting for 87 teachers, or 64% of the total. The second-highest teachers were of academic qualification at the bachelor level; there were 42 teachers, which was 30.9% of the total. There were only seven mathematics teachers with academic qualifications at

other levels, which makes up 5.1% of the total. This implies that the teachers are academically qualified, skilled, and capable at the school level.

Table 1 presents the various job positions held by the teachers in the schools. The total number of teachers was 136, with the majority of teachers in the third class that were 66 which was 48.5% of total. The second-highest teachers were at the temporary level which were 48, which was 35.3% of the total. The third-highest teachers had 16 teachers in second class who accounted for 11.8% of the total, and the fourth-highest teachers had six teachers in first level, accounting for 4.4% of the total. It is conventional to find that the school has lower level of teacher job position.

Table 1

Demographic Characteristics

Demographic Variables	Categories	Frequency	Percentage (%)
Gender	Male	110	80.9
	Female	26	19.1
Age	Below 30 years	40	29.4
	30-40 years	67	49.3
	41-50 years	22	16.2
	above 50 years	7	5.1
Married Status	Single	32	23.5
	Married	101	74.3
	Divorced	2	1.5
	Widowed	1	0.7
Type of Schools	Public	74	54.4
	Private	62	45.6
Schools Area	Rural	27	19.9
	Urban	109	80.1
Teaching Experiences	0-5 years	29	21.3
	5-10 years	44	32.4
	10-15 years	39	28.7
	15-20 years	11	8.1
	20 and above 20 years	13	9.6
Educational Level	Bachelor	42	30.9
	Master	87	64.0
	Other	7	5.1
Job Positions	First class	6	4.4
	Second class	16	11.8
	Third class	66	48.5
	Temporary	48	35.3
Total		136	100.0

Source: Field survey, 2022

Effect of Demographic Variables on Job Satisfaction

Linear regression analysis is a basic and commonly used type of predictive analysis. It is a set of statistical processes for estimating the dependent variables on the basis of independent variables. It includes many techniques for analyzing several variables when the focus is on the relationship between a dependent and one or more independent variables. The effect of job satisfaction under the demographic variables is $Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4$

Where Y= Job satisfaction,

β_0 = Constant parameter,

β_1, β_2, β_3, and β_4 are the parameters to be estimated.

Also, X_1= Gender,

X_2= Age,

X_3=Educational levels, and

X_4= Job positions.

Table 2 showed the computed R, R-squared significance, and F-value for the secondary mathematics teachers in the Kathmandu Municipality.

Table 2

A Summary of the R, R Square and Adjusted R Square in Regression Analysis of Demographic Variables

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics R Square Change	F Change	df1	df2	Sig. F Change
1	.323[a]	0.104	0.055	0.61616	0.104	2.131	7	128	0.045

a. Predictors: (Constant), Job positions of the teachers, Age of teachers, Gender of teachers, Educational level of the teachers, Teaching experiences of the teachers, Schools area, Types of schools
b. Dependent Variable: Job satisfaction

According to the analysis of the data in Table 2, there was a strongly positive relationship (Cohen, 1988) between the job satisfaction and the independent variables (gender, age, type of schools, schools area, teaching experiences, educational level, and job positions) of mathematics teachers with $R = 0.323$, and $F(7, 128)=2.131$, a significance level of p= 0.045 < 0.05 (α), and R^2= 0.104. This means that our model explains 10.4% of the variation in job satisfaction among secondary mathematics teachers by the independent variables, which is statistically significant for model fit but poor (Chatterjee & Hadi, 2012; Nunnally & Bernstein, 1994).

Table 3

Significant Level in Regression Analysis

Model		Sum of Squares	Df	Mean Square	F	Sig
1	Regression	5.663	7	0.809	2.131	0.045[b]
	Residual	48.596	128	0.380		
	Total	54.258	135			

a. Dependent Variable: Job satisfaction

Table 4
Effect of Demographic variables on Job Satisfaction

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
1 (Constant)	3.085	0.494		6.240	0.000		
Gender	-0.070	0.141	-0.044	-0.495	0.621	0.904	1.106
Age	0.106	0.081	0.136	1.307	0.193	0.642	1.557
Type of Schools	-0.155	0.111	-0.122	-1.394	0.166	0.913	1.095
Schools Area	0.230	0.146	0.145	1.578	0.117	0.824	1.214
Teaching experiences	0.010	0.057	0.019	0.175	0.861	0.615	1.626
Educational level	0.117	0.110	0.100	1.063	0.290	0.786	1.273
Job positions	-0.018	0.068	-0.023	-0.268	0.789	0.958	1.044

a. Dependent Variable: Jon satisfaction

According to the analysis of the data in Table 2, the regression coefficient between the independent variable gender and the dependent variable Job satisfaction was statistically insignificant, *r (128) = -0.070, t (128) = -0.495, p = 0.621 > 0.05,* so the job satisfaction of mathematics teachers decreased by *0.203* for one unit increase in the independent variable gender. This indicates that male teachers have higher job satisfaction than female teachers. Similarly, the regression coefficient between the independent variable schools type and the dependent variable Job satisfaction was statistically insignificant, *r (128) = -0.155, t (128) = -1.394, p = 0.166 > 0.05,* so the job satisfaction of mathematics teachers decreased by *0.155* for one unit increase in the independent variable schools type. This indicates that public school teachers have higher job satisfaction than private school teachers. Moreover, the regression coefficient between the independent variable job positions of teachers and the dependent variable Job satisfaction was statistically insignificant, *r (128) = -0.018, t (128) = -0.268, p = 0.789 > 0.05,* so the job satisfaction of mathematics teachers decreased by *0.018* for one unit increase in the independent variable job positions. This indicates that job satisfaction of first class teachers have higher than temporary teachers. The regression coefficient between independent variable age and dependent variable Job satisfaction was not statistically significant, *r (128) = 0.106, t (128) = 1.307, p =0.193 > 0.05,* so the job satisfaction of mathematics teachers increased by *0.106* for one unit increase of independent variable age which was not found to be a significant change. The regression coefficient between independent variable schools area and dependent variable Job satisfaction was not statistically significant, *r (128) = 0.230, t (128) = 1.578, p =0.117 > 0.05,* so the job satisfaction of mathematics teachers increased by *0.230* for one unit increase of independent variable schools area which was not found to be a significant change. The regression coefficient between independent variable teaching experiences and dependent variable Job satisfaction was not statistically significant, *r (128) = 0.010, t (128) = 0.175, p = 0.861 > 0.05,* so the job satisfaction of mathematics teachers increased by *0.010* for one unit increase of independent variable teaching experiences which was not found to be a significant

change. The regression coefficient between independent variable educational level and dependent variable Job satisfaction was not statistically significant, *r (128) = 0.*117*, t (128) = 1.063, p =0.290 > 0.05,* so the job satisfaction of mathematics teachers increased by *0.117* for one unit increase of independent variable educational level which was not found to be a significant change. Therefore, the independent variables gender, type of schools, and job positions of mathematics teachers do not contribute to the multiple linear model fit. However, age, schools area, teaching experiences, and educational level do not impact on job satisfaction of secondary level mathematics teachers.

Conclusion

Teacher job satisfaction is an important element of the quality of education, and there are strong relationships between them. Teacher job satisfaction determines their interest, motivation, and attitude toward work, which impacts their professional performance and, consequently, the quality of education. The aim of this study is to what demographic factors affect the teachers' job satisfaction in teaching learning activities in mathematics at the secondary level. The researcher concluded that the demographic factors (gender, age, types of schools, schools area, teaching experiences, educational level, and job position) do not affect the teachers' job satisfaction at the school level. Therefore, the state, local government, head teacher, and school management should make fair policies, a provide equal opportunities and scholarships for further study and receive job security from the government and other stakeholder groups in society for providing positive attitude in teaching learning activities at mathematics classroom. The limitation of the study is an adjusted R-square value 0.055. This means nearly 6% of variation in job satisfaction by the demographic variables (gender, age, types of schools, schools area, teaching experiences, educational level, and job position), and 94% of variation by other demographic variables. So, future research should be done with increasing the demographic variables and similar study could be done with basic-level and university-level mathematics teachers in Nepal. Furthermore, the research should include the views and understanding of school principals, education leaders at the local level and national or ministry levels.

Reference

Asegid, A., Belachew, T., & Yimam, E. (2014). Factors influencing job satisfaction and anticipated turnover among nurses in sidama zone public health facilities, South Ethiopia. *Nursing Research and Practice*, *2014*. https://doi.org/10.1155/2014/909768

Chamundeswari, S. (2013). Job satisfaction and performance of school teachers. *International Journal of Academic Research in Business and Social Sciences.*, *3*(5), 420–428.

Chatterjee, S., & Hadi, A. S. (2012). *Regression analysis by example*. shed by John Wiley & Sons, Inc., Hoboken, New. http://library.lol/main/F28583F14517B00AA7306D34F0348C53

Chhetri, S. B. (2017). Predictors and outcomes of employee engagement: Empirical study of Nepali employees. *Journal of Business and Management Research*, 2(1), 14–32. https://doi.org/10.3126/jbmr.v2il-2.18149

Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). Lawrence Erlbaum Associates. chrome-extension://efaidnbmnnnibpcajpcglclefindmkaj/https://www.utstat.toronto.edu/~brunner/old class/378f16/readings/CohenPower.pdf

Cohen, L., Manion, L., & Morrison, K. (2007). *Research methods in education* (6th ed.). London: Taylor & Francis Group.

Creswell, J. W. (2014). *Research Design : Qualitative, quantitativ and mixed methods*

approaches (fouth). Sage Publicatin, New Delhi. file:///E:/Research Books 2021(IMP)/Research-Design_Qualitative-Quantitative-and-Mixed-Methods-Approaches.pdf

Edwards, M. R., & Peccei, R. (2007). Organizational identification: Development and testing of a conceptually grounded measure. *European Journal of Work and Organizational Psychology*, *16*(1), 25–57. https://doi.org/10.1080/13594320601088195

Green, S. B. (1991). How many subjects does it take to do a regression analysis. *Multivariate Behavioral Research*, *26*(3), 449–510. https://doi.org/10.1207/s15327906mbr2603_7

Jahan, M., & Ahmed, M. . M. (2018). Teachers' job satisfaction: A study in secondary schools of Bangladesh. *Journal of Contemporary Teacher Education*, *11*(1), 71–91.

Josanov, V. I., & Pavlovic, N. (2014). Relationship between the school principal leadership style and teachers' job satisfaction in Serbia. *Montenegrin Journal of Economics*, *10*(1), 43–57.

Kayastha, D. P., & Kayastha, R. (2012). A study of job satisfaction among teachers, higher secondary school of Nepal. *International Journal of Evaluation and Research in Education*, *1*(1), 41–44. https://doi.org/10.11591/ijere.v1i1.752

Khadka, J. (2010). *Job satisfaction of institutional school teachers of Kathmandu district of Nepal*. Kathmandu University.

King, D. L., Rucker, K. J., & Duncan, D. W. (2013). Classroom instruction and FFA/SAE responsibilities creating the most stress for female teachers in the Southeast. *Journal of Agricultural Education*, *54*(4), 195–205. https://doi.org/10.5032/jae.2013.04195

Lawrenson, G. M., & Mckinnon, A. J. (1982). A survey of classroom teachers of the emotionally disturbed: Attrition and burnout factors. *Behavioral Disorders*, *8*(1), 41–49. https://doi.org/10.1177/019874298200800105

Maforah, T. P. (2015). Inner-city independent schools educators' job satisfaction and their motivation to quit. *Journal of International Education and Leadership*, *5*(2), 1–9.

Mondal, J., Shrestha, S., & Bhaila, A. (2011). School teachers: Job stress and job satisfaction, Kaski, Nepal. *International Journal of Occupational Safety and Health*, *1*(1), 27–33. https://doi.org/10.3126/ijosh.v1i1.5226

Nunnally, J. . C., & Bernstein, I. H. (1994). Psychometric theory. In *Mcgraw-hill, Inc* (3rd ed.). http://library.lol/main/81BC7485BC968C17EA4672B6423B4ED9

Patel, K. K. (2017). A study of Job Satisfaction of Primary School teachers. *International Journal of Research in All Subjects in Multi Languages*, *5*(5), 7–9.

Shrestha, M. (2019). Contribution of school related attributes on job satisfaction: a cross-sectional study on school teachers in nepal. *Malaysian Online Journal of Educational Management*, *7*(4), 23–44. https://doi.org/10.22452/mojem.vol7no4.2

Song, S., & Mustafa, M. (2015). Factors impacting on teachers' job satisfaction related to science teaching: A mixed methods study. *Science Education International*, *26*(3), 358–375.

Supatmi, M. E., Nimran, U., & Utami, H. N. (2013). Pengaruh pelatihan, kompensasi terhadap kepuasan kerja karyawan dan kinerja karyawan. *Profit: Jurnal Administrasi Bisnis*, *7*(1), 25–37. https://profit.ub.ac.id/index.php/profit/article/view/305

Thadathil, B. J. (2015). Job satisfaction among teachers in Nepal: A comparative study between government and private schools. *International Journal of Science and Research*, *6*(8), 727–729. www.ijsr.net/search_index_results_paperid.php?id=ART20176021

Appendix-I

Histogram

Mean = 3.57
Std. Dev. = .634
N = 136

Job satisfaction of mathematics teachers