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Mother's Level of Income on Students Perceptions of Campus Adaptations

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Abstract:

Objective: - The study aims to empirically test the relationship between types of campus adaptations across student's mother's level of income at engineering undergraduate B. Tech students pursuing a four-year study at Indian Institute of Technology (IIT's) and National Institute of Technology (NIT's) in India.

Method: - The Multivariate Analysis of Variance (Manova) test was run with SPSS vs. 21 to compare the student's campus adaptations of IIT's and NIT's by student's mother's level of income. Multistage random sampling with $n = 1420$ students were selected comprising of income upto 1,000 ($n = 27$), income limit of 1,001 – 5,000 ($n = 47$), income limit of 5,001 – 10,000 ($n = 49$), income limit of 10,001 – 20,000 ($n = 66$), income greater than 20,000 ($n = 238$), no income ($n = 911$) and students who dint know their parent's income ($n = 82$)

Result: - In Academic adaptation, students whose mother's income was 1,001 to 5,000, 5,001 to 10,000, 10,001 to 20,000 and students who were unaware of their mother's level of income had positive outcomes while students whose mother's income was upto 1,000, greater than 20,000 and no income had negative outcomes. In social adaptation, students whose mother's income was 1,001 to 5,000 10,001 to 20,000, greater than 20,000 had positive educational outcomes while students whose mother's income level was upto 1,000, 5,001 to 10,000, no income and students who were unaware of their mother's level of income had negative outcomes. In physical – psychological adaptation, students whose mother's income was 1,000 to 5,000, no income and students who were unaware of their mother's income level had positive outcomes while students whose mother's income was upto 1,000, 5,000 to 10,000, 10,001 to 20,000 and greater than 20,000 had negative outcomes. In institutional adaptation, students whose mother earned upto 1,000, 1,001 to 5,000, 5,001 to 10,000 had positive outcomes while students whose mothers earned 10,001 to 20,000, greater than 20,000, no income and students who were unaware of their mother earnings had negative outcomes.

Conclusion: - Campus adaptations do vary across student's mother's level of income influencing student's experiences at IIT's and NIT's

Keywords: socio economic status, parents, students, income, university, campus

1. Introduction

Parental care influences students' adjustment to college (Colwell, Pettit, Meece, Bates, & Dodge, 2001) where mother's financial concerns and hardships impact female students' adjustment (Lehman & Koerner, 2002). This indicates that gender biasness persists in resource allocation towards children's education among Indian households (Jose, 2003; Kingdon, 2005; Chaudhuri & Roy, 2006) and indeed socio economic status impacts academic performance (K. T. Johnson, 2003). The need to widen participation in higher education especially to students of low socio economic status by making financial changes in the key to funding (Bowers-Brown, 2006). For participation and attainment in science (Gorard & See, 2009); socio economic status along with cultural diversity impacts aspiration of students (Bowden & Doughney, 2009). Transfers too being a part of socio economic status influence college enrolment (Ghazal Aswad, Vidican, & Samulewicz, 2011) and academic achievement (Kalenkoski & Pabilonia, 2010). Thus there is a need to bridge socio cultural incongruity especially of students from low socio economic status that could impact their success in higher education (Devlin, 2011). In brief, relationship exists between social class and economic inequality (Albertini, 2013) impacting higher education aspiration of rural girls to a greater extent than urban students (Maheshwari & Singh, 2013). However though socio economic status scales vary rural and urban setting (Kulkarni, Ramesh Masthi, & Gangaboraiah, 2013a) parental spending on education differ from rural to urban area (Mussa, 2013) and Parental Credit Constraints impacts Children's College Education (Sorokina, 2013). In short, though Family Instability Impacts College Enrollment (Fomby, 2013) Child-Rearing Practices

and Socio-Economic Status have a special bearing on Educational Outcomes (Rohani, Yunus, & Ainuddin, 2013). lastly, the ever-persisting social class masculinity determines experiences of students on campus (Sweeney, 2014) with parental priorities more evidently seems as contributing to limited science learning experiences in the early years of students' life (Saçkes, 2014)

The study seeks to analyse the relationship among mother's level of income on campus adaptations of students with the following research question and research objective: -

1.1. Research Question

What makes campus adaptations of academic, social, physical - psychological and institutional attachment be unique across mother's level of income?

1.2. Research Objective

To examine the existence of variance among campus adaptations of academic, social, physical psychological and institutional across mother's level of income.

2. Campus Adaptation

2.1. Academic Adaptation

Career planning takes place at high school and students first approach their parents for advice on career (Witko, Bernes, Magnusson, & Bardick, 2005) as it is basically the family interdependence that influences academic adjustment (Tseng, 2004). The Early predictors of career development being parental influences (Ferreira, Santos, Fonseca, & Haase, 2007) can be beggeted for poor performance on direct causes like teaching strategies, content knowledge, motivation, laboratory use, and incomplete syllabus while indirect causes being parents and languageusage in learning (Mji & Makgato, 2006). The entrance examination or admission test score towards enrolment at university or institution is also backed up by family background and student characteristics where parental involvement impacts academic adjustment of students (Kuperminc et al., 2008) and family background results in status attainment (De Vries & De Graaf, 2008). Socio-economic and cultural factors effect self-efficacy affecting reading comprehension (Epaçan & Epaçan, 2010) determining learner's motivation and performance (L. C. Wang & Chen, 2011) and career aspirations in youth (Howard et al., 2011). Thus, family dynamics, psycho social stress factors have a bearing on academic adjustment and outcome based education (Rogobete, Smyth, & Franciscus, 2011). Further the selection of academic major of the program is also dependent on socio economic status (Misran et al., 2012) with Mother's' observed Differential Treatment of Adolescent Siblings Predicting College Attendance of Sisters Versus Brothers (Bissell-Havran, Loken, & McHale, 2012) indicates that parental support is vital for learning goal orientation and career decision making self-efficacy (Garcia, Restubog, Toledano, Tolentino, & Rafferty, 2012b). In short, parent's socio economic status impacts student's academic performance (Ghazi & Nawaz, 2013) where demographic and socio-economic contextual factors act as predictors in firstyear educational attainment (Mcmanus, Dewberry, Nicholson, & Dowell, 2013) and parental attachment vividly diversifying academic adjustment especially among first year students (Holt, 2014a)

2.2. Social Adaptation

Parental encouragement was found to have significant direct effects on learning experiences like grades in math and science and outcome expectancies (Ferry, Fouad, & Smith, 2000). The formal education and larger socio economic aspects impacts women's lives(Manjrekar, 2003) with parents and adolescent's communication influencing career development goals (Young et al., 2006). The career adaptability among urban adolescents is impacted by family, teachers, close friends and peer beliefs (Kenny & Bledsoe, 2005) where socioeconomic status and school grades determine educational outcomes differently among biological families and adoptive families (W. Johnson, McGue, & Iacono, 2007) leaving an off bearing that women's scientific employment impacts family formation (Blackwell & Glover, 2008). Thus, Attachment to Parents, of Female Students impacts Transition to College (Parade, Leerkes, & Blankson, 2010) where more often noticeably parents help to deconstruct the stereotypes of career choice in girls (Mutekwe, Modiba, & Maphosa, 2011). In short, family support and socio economic status determines adolescent girls in institutions (Eime, Harvey, Craike, Symons, & Payne, 2013) essentially highlighting the fact that parent's construction of science aspiration differ among children by gender (Archer et al., 2013) with socio economic status of social consciousness among low income status on part of students diversifies college involvement (C.-L. Wu, 2014)

2.3. Physical – Psychological Adaptation

2.3.1. Physical Adaptation

Socio economic status impacts health (Conroy, Sandel, & Zuckerman, 2010). The sustainable food system is the call of the hour to resolve disparities in access to healthy food, increase economic opportunities, conserve natural resources, and build a stronger, more local food system. (Pothukuchi & Molnar, 2015)

2.3.2. Psychological Adaptation

Marital status and structure of parents influence academic and psychological adjustment of students (Elbedour, Onwuegbuzie, Caridine, & Abu-Saad, 2002). Family Conflict, Divorce, and Attachment patterns impact social and psychological adjustment among college students (J. W. Hannum & Dvorak, 2004). Thus, family family influences psychological adjustment of students (Qin, 2008).

The ramifications of psychological control– guilt induction, parentification triangulation blurring in parent–adolescent relationships for girls’ individuation and adjustment (Maysless & Scharf, 2009) indicate that parenting styles impacts self-assertiveness among students (Alayi, Khamen, & Gatab, 2011) and parenting culture by moral parenting varies by gender and risk management (Shirani, Henwood, & Coltart, 2012). parents influence Incidence rates of emotional and behavioural problems (Gomez & Suhaimi, 2013) where students from low socio economic status among minority race face dearth of psychosocial resources leading to suicidal ideation (Perry, Pullen, & Oser, 2012). Thus, family attributes moulds college student’s academic self-concept (Dedonno & Fagan, 2013) where parental attachment, help seeking and social competence determines college adjustment (Holt, 2014b) and poor attachment to parents leads to depressive symptoms among college students shaping student’s initial emotional adjustment and psychological needs (Ažić, Dorčić, & Bećirević, 2015)

2.4. Institutional Adaptation

College origin impacts labour market outcomes especially for students from low socio economic status - institution (Tinto, 1981). The parental involvement as a support factor diversifies students’ persistence in science curriculum (Ratelle, Larose, Guay, & Senécal, 2005). Family and societal attitudes reveals retention patterns of women in science academic majors (Kurup & Maitheyi, 2011). Further students who are “at risk” face social and economic barriers that can make it difficult for them to complete degrees in engineering (Doerschuk et al., 2011). Thus, socio economic class impacts students experience in elite institutions (Hinz & Braxton, 2014) where parent’s socio economic status and family types impacts attrition of students (Eneji, A.E, Eneji, Obogo, & Dunnamah, 2013) and parental divorce or marital discord influence student persistence and academic achievement especially among first year students (K. M. Soria & Linder, 2014)

The study proposes the following research hypothesis: -

- H_0 : - Campus adaptations of academic, social, physical – psychological and institutional environments do not vary among undergraduate students by their mother’s Income level
- H_1 : - There is a significant difference in campus adaptations of academic, social, physical – psychological and institutional adaptations impacted by undergraduate student’s mother’s level of income gained.

2. Methods

2.1. Participant

The reference population were undergraduate 4-year B. tech students enrolled on a regular study mode at IIT’s and NIT’s. A total of 1460 students participated with 1420 of valid responses for an overall 97.26 percent participation rate after deducting the questionnaire that contained empty answers. Data was collected for 20 weeks across institutions of IIT’s and NIT’s. Of the 1420 undergraduate respondents on their mother’s income level, 1.90 % had income upto 1,000, 3.30 % had income from 1,001 to 5,000, 3.45% had income from 5,001 to 10,000, 4.64% had income from 10,001 to 20,000, 16.76 % had income greater than 20,000, 64.15 % had no income and 5.77 % students were not aware of their parent’s income level.

2.2. Sampling

Probability sampling technique of multistage sampling followed by cluster sampling in identification of institutes of IIT’s and NIT’s was adopted. This is followed up with stratified sampling in sample choice of undergraduate students’ population and simple random in collecting data from the chosen student population stated above.

2.3. Instrument and Procedure

The survey was conducted using a structured online questionnaire with reference to student’s campus and non - campus email accounts. At all times, the students were informed of the anonymous, confidential, and voluntary nature of their participation and any doubts that arose were clarified.

2.4. Measures

All the 21 items in the questionnaire were measured with rating on a five point Likert scale ranging from “1 = strongly disagree” to “5 = strongly Agree”. Reliability and validity of the questionnaire was tested

3. Data Analysis

Multivariate analyses of variance (MANOVA) were conducted to asses’ mother’s Income level group differences in campus adaptation. This was followed by discriminant analysis to determine the nature of effect of campus adaptations by each mother’s Income level group. There are several assumptions behind a MANOVA, including multivariate normality, linearity of relationships, low influence of univariate and multivariate outliers, homogeneity of variance– covariance matrices and an absence of multicollinearity. Each assumption was tested, and no serious violations were noted.

Campus Adaptation	1	2	3	4	M	SD
1.Academic Adaptation	1.00				2.60	0.702
2.Social Adaptation	.578	1.00			2.72	0.755
3.Physical – Psychological Adaptation	.523	.576	1.00		2.28	0.771
4.Institutional Adaptation	.576	.616	.789	1.00	2.14	0.784

Note: - n = 1420. Correlations greater than 0.05 are statistically significant ($p < 0.5$)

Table 1: Pearson Correlation

A Pearson product moment correlation analysis, that examined the relationship between campus adaptations revealed correlations greater than 0.05, hence statistically significant

3.1 Descriptive Statistics

Mother's Income Level	Academic		Social		Physical - Psychological		Institutional	
	Mean	Std. Dev	Mean	Std. Dev	Mean	Std. Dev	Mean	Std. Dev
Upto1,000 (n = 27)	2.55*	0.611	2.50	0.647	2.00	0.523	1.91	0.555
1,001 – 5,000 (n = 47)	2.64	0.739	2.83	0.751	2.33	0.756	2.30	0.747
5,001 – 10,000 (n = 49)	2.55	0.706	2.57	0.712	2.24	0.821	2.12	0.874
10,001 – 20,000 (n = 66)	2.50	0.632	2.69	0.863	2.41	0.883	2.26	0.818
Greater than 20,000 (n = 238)	2.57	0.704	2.76	0.718	2.24	0.736	2.08	0.739
No income (n = 911)	2.60	0.699	2.71	0.760	2.28	.773	2.14	0.788
I Don't Know (n = 82)	2.73	0.791	2.79	.0761	2.40	0.792	2.25	0.848
Total (n=1420)	2.60	0.702	2.72	0.755	2.28	0.771	2.14	0.784

Spss output 21 version

Table 2: Distribution of difference in dimensions of campus adaptations

The mean in the descriptive statistics indicate that among undergraduate B.Tech students, students enjoyed high level of social adaptation irrespective mother's income, with mother's income 1,001 – 5,000 ($M = 2.83$, $SD = 0.751$) income limit 5001 – 10,000 ($M = 2.57$, $SD = 0.712$) income limit of 10,001 – 20,000 ($M = 2.69$, $SD = 0.863$) income limit of greater than 20,000 ($M = 2.76$, $SD = 0.718$) No income ($M = 2.71$, $SD = 0.760$) and i don't know ($M = 2.79$, $SD = 0.761$) with exception to high level academic adaptation with mother's income upto 1,000 per month ($M = 2.55$, $SD = 0.611$)

However mother's income level across income limit had lower level of institutional adaptation with upto 1,000 ($M = 1.91$, $SD = 0.555$) income limit of 1,001 - 5,000 ($M = 2.30$, $SD = 0.747$), 5,001 – 10,000 ($M = 2.12$, $SD = 0.874$) 10,001 – 20,000 ($M = 2.26$, $SD = 0.818$) greater than 20,000 ($M = 2.08$, $SD = 0.739$) no income ($M = 2.14$, $SD = 0.788$) and i don't know ($M = 2.25$, $SD = 0.848$).

Further within Academic Adaptation, students whose mother's income limit they did not know had high level of impact on adaptation ($M = 2.73$, $SD = 0.791$) and 10,001 – 20,000 limit had low level of adaptation ($M = 2.50$, $SD = 0.632$)

In Social Adaptation, income limit from 1,001 – 5,000 had high level of impact on adaptation ($M = 2.83$, $SD = 0.751$) and upto 1,000 impacted in low level of adaptation ($M = 2.50$, $SD = 0.647$)

In Physical – Psychological adaptation, 10,001 – 20,000 had high impact on level of adaptation ($M = 2.41$, $SD = 0.883$) and upto 1000 impacted in low level of adaptation ($M = 2.00$, $SD = 0.523$)

In Institutional adaptation, 10,001 to 20,000 had high impact on student's level of adaptation ($M = 2.26$, $SD = 0.818$) and upto 1000 on student's low level of adaptation ($M = 1.91$, $SD = 0.555$)

Overall, across campus adaptations and mother's income level groups, students had high level of social adaptation ($M = 2.72$, $SD = 0.755$) and low level of Institutional adaptation ($M = 2.14$, $SD = 0.784$). However, within mother's income level, 1,001 – 5,000 had high level of social adaptation ($M = 2.87$, $SD = 0.751$) and upto 1,001 had low level of institutional adaptation ($M = 1.91$, $SD = 0.555$)

3.2. Inferential Statistics

The Box's M value of 69.023 indicates test of assumption of equality of covariance matrices are roughly equal as assumed with $p = 0.247$ ($p > 0.001$).

Using Manova test statistic of Pillai's Trace, there was a non-significant effect of mother's income on students' Academic, Social, Physical – Psychological and Institutional campus adaptations ($V = 0.020$, $F(24, 5652) = 1.201$ and $p = 0.228$) ($p > 0.05$).

Using Manova test statistic of Wilks Lambda, there was a non-significant effect of mother's income on students' Academic, Social, Physical – Psychological and Institutional campus adaptations ($\Lambda = 0.980$, $F(24, 4920) = 1.200$ and $p = 0.229$) ($p > 0.05$).

Using Manova test statistic of Hotelling's trace, there was a non-significant effect of mother's income on student's campus adaptations of Academic, Social, Physical – Psychological and Institutional ($T = 0.020$, $F(24, 5634) = 1.199$ and $p = 0.229$) ($p > 0.05$).

Using Manova test statistic of Roy's largest root, there was a non-significant effect of mother's income on student's campus adaptations of Academic, Social, Physical – Psychological and Institutional ($\Theta = 0.009$, $F(6, 1413) = 2.316$ and $p = 0.042$) ($p < 0.05$).

The univariate test statistic with Levene's test of equality of variances for each of the dependent variable is non-significant, i.e. $p > 0.05$ with academic adaptation of 0.368, social adaptation of 0.109, physical – psychological adaptation of 0.101 and institutional adaptation of 0.100 enabling the assumptions of homogeneity of variance being met.

However separate univariate analysis or ANOVA on the outcome with F (6,1413) for Academic, social, Physical – Psychological and institutional adaptation revealed a non-significant effect with F value (0.845) (1.119) (1.408) and (1.531) with p value (0.535) (0.349) (0.208) and (0.164)

Further the between – subjects SSCP matrix indicates that the sum of squares for the error SSCP matrix are substantially bigger than in the model (or mother's income) SSCP matrix, whereas absolute values of cross products are fairly similar. This pattern of relationship indicates that the relationship between dependent variables is significant than individual dependent variables themselves. Thus, to determine the nature of effect of age among dependent variables MANOVA is followed with discriminant analysis.

The first discriminant function explained 45.3% of the variance with canonical $R^2 = 0.09$; the second discriminant function explained 27.4% of the variance with canonical $R^2 = 0.006$; the third discriminant function explained 17.5% of the variance with canonical $R^2 = 0.004$; the fourth discriminant function explained 9.8 % of the variance with canonical $R^2 = 0.002$ indicates that the variance in the canonical derived dependent variable was associated for mother's income level.

In combination these discriminant functions did not significantly discriminate the mother's income level with the first function $\Lambda = 0.980$, χ^2 (24) 28.780, $p = 0.229$ ($p > 0.05$); The second discriminant function $\Lambda = 0.989$, χ^2 (15) 15.759, $p = 0.398$ ($p > 0.05$); The third discriminant function $\Lambda = 0.994$, χ^2 (8) 7.880, $p = 0.445$ ($p > 0.05$) and the fourth discriminant function $\Lambda = 0.998$, χ^2 (3) 2.823, $p = 0.420$ ($p > 0.05$). indicates the non-significant effect of discriminant functions.

The correlations between outcomes and the discriminant functions revealed that institutional adaptation loaded highly on first function ($r = 0.718$) indicating it contributed more to the mother's income level group separation (Bragman, 1970) than the relatively fair high loading in positive relationship in second function ($r = 0.237$) third function ($r = 0.593$) and fourth function ($r = 0.276$)

Physical – psychological adaptation loaded highly on first function ($r = 0.640$) indicating it contributed more to the mother's income level group separation than the relatively high loading in positive relationship with second function ($r = 0.369$) and third function ($r = 0.573$) negated by negative relationship in the fourth function ($r = -0.355$);

Social adaptation loaded highly on second function with ($r = 0.782$) indicating it contributed more to the mother's income level group separation than the relatively fair high loading in the first function ($r = 0.035$) third function ($r = 0.588$) and fourth function ($r = 0.203$)

Lastly, academic adaptation loaded highly on third function with ($r = 0.998$) indicating it contributed more to the mother's income level group separation than the relatively fair high loading in positive relationship with fourth function ($r = 0.052$) with negative relationship in the first function ($r = -0.034$) and second function ($r = -0.024$)

3.3. Findings

The mother's income upto 1,000 had positive outcomes on students institutional (0.087) adaptation with negative outcome in academic (-0.269) Social (-0.310) and physical – psychological (-0.098) adaptation

The mother's income from 1,001 to 5,000 had positive outcomes on academic (0.121), social (0.087), physical – psychological (0.048) and institutional (0.225) adaptation.

The mother's income from 5,001 to 10,000 had positive outcomes on students' academic (0.089) and institutional (0.002) adaptation with negative outcome on social (-0.212) and physical – psychological (-0.068) adaptation.

The mother's income from 10,001 to 20,000 had positive academic (0.321) and social (0.044) adaptation with negative outcome in physical – psychological (-0.126) and institutional (-0.033) adaptation.

The mother's income greater than 20,000 had positive social (0.102) adaptation with negative academic (-0.111), physical – psychological (-0.040) and institutional (-0.008) adaptation

The mothers with no income of students had positive outcomes on students physical – psychological (0.006) adaptation with negative outcome on academic (-0.003) social (-0.012) and institutional (-0.006) adaptation.

The students who did not know on an average on their parents' earnings had positive academic (0.062) and physical - psychological (0.191) adaptation with negative outcomes in social (-0.021) and institutional (-0.038) adaptation.

Conclusion: - The often-called support system of the house, the mother always lends a helping hand to the family through various sources of occupations serving income. The income of the family is always added up by an extra hand put at work. In this study though majority of the mothers were home makers, it could never be dampened that a mother's contribution to her child's educational expenses is never too less. The virtual 'saver' of the family in terms of expenses could emerge up as 'saviour' in her child educational expenses contributing her share to vividity of child's experiences at college campuses.

Implication: - The cross-sectional study highlights that mothers level of income influences students' nature of adaptations at campus it could also have a long term bearing on affluent expenses of the student as his or her demands have a greater chance of being fulfilled by either of the parent, where a mother could hold a domineering hand. The study could extend its introspection as future work on students' nature of spending which could have a significant impact on students' nature of adaptability at college campuses.

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