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Association of Demographic Predictors with Multidimensional Aspects of Students' Engagement and Their Academic Performance In High Schools of Southern Punjab, Pakistan

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ARTICLE DETAILS	ABSTRACT
History: Accepted 30 May 2020 Available Online 30 June 2020	<i>The present study addressed the major demographic predictors affecting the integrated paradox of students' engagement and their academic performance in high schools of Southern Punjab, Pakistan. By using multistage sampling technique, N=2758 high school students were sampled out through cross sectional survey research design. The findings of the study revealed that students of highly educated parents i.e. up to tertiary level, residing in family size of 5-10 members and having middle class socio-economic status were more engaged in studies and performed better in exams. In conclusion, gender, parental education, socio-economic status, family size, family type and geographical residence were the major demographic factors affecting students' academic outcomes. Usage of social constructionism strategies, analytical thinking and multifarious instruction techniques can be helpful in increasing the students' academic outcomes.</i>
Keywords: Demographic, Predictors, Multidimensional, Engagement, Paradox, Academic Performance	
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1. Introduction

In contemporary world, high school education is centered on the question that how students become engaged in the process of learning and what causes them to disengage from classroom context? To answer this question, social scientists, educators and researchers have studied the major predicting factors that engage or disengage the students and affect their academic outcomes in high schools (Furlong & Christenson, 2008; Green et al., 2012). These academic outcomes comprised of two major aspects i.e. Students' Engagement (SE) and their Academic Performance (AP). Relating this, SE represents the motivation level of students to remain intact towards their studies. It mainly comprises

of four types i.e. behavioral, emotional, cognitive and agentic engagement (Betts et al., 2010; Reeve et al., 2011). Behavioral Engagement (BE) refers to students' compliance towards school rules and their behavioral conduct in classroom context (Finn & Zimmer, 2012; Rumbereger & Rotermund, 2012) while Emotional Engagement (EE) talk about students' attachment, feelings and belonging towards academic activities (Appleton et al., 2008; Pekrun & Linnenbrink-Garcia, 2012). Additionally, Cognitive Engagement (CE) illustrates the students mental integration and cognitive attachment towards the process of learning (Fredricks et al., 2004) while Agentic Engagement (AE) refers to students contribution in the flow of instruction during classroom hours (Reeve & Tseng, 2011).

Previous literature endorsed that students who are engaged in the process of learning also get better grades in exams (Lawson & Maysn, 2015). The operational view of SE in motivation literature shows that SE and their AP are linked in the form of paradox (Davis & McPartland, 2012; Reeve, 2012). This paradox is operational through various predictors in the academic domain. In endorsement with these predictors, the learning context of the developing countries revealed that the role of family, teaching staff, peer group school context, learning activities and resource materials in determining SE and their AP cannot be ignored. Despite these stakeholders participation, the role of demographic factors such as sex differentials, family type, family size, parental education and geographical head also affect the students' academic outcomes (Reeve et al., 2004; Suryadarma et al., 2006). Based on this rational of the study, the major objective of the present research was to find out the association between demographic predictors and students' academic outcomes.

Fig.1- Demographic predictors affecting SE and their AP in high schools of Southern Punjab, Pakistan

2. Methodology

All high school students of Southern Punjab (Pakistan) were the universe of the present study. Accordingly, the students who were enrolled in affiliated high schools from Board of Intermediate and Secondary Education (BISE) were targeted for sample selection through multistage sampling technique. In this technique, schools, class sections and then respondents were selected through simple random and proportionate sampling technique respectively.

Based on nature and objectives of the empirical data, there were three major sections of the research instrument. The first section comprised of demographic variables such as sex differentiation, family size, family type, parental education (segregated as father and mother education), household head and geographical division of the respondent. The second section of the study instrument comprised of SE scale along with its four major dimensions i.e. BE, EE, CE and AE. To assess the dimensions of SE variable, Behavioral Engagement Sub Scale (BESS) was used which was devised by Miserandino (1996) (also see the usage of BESS in empirical works of i.e. Jang et al., 2009; Skinner et al., 2009a). Afterwards, Emotional Engagement Sub Scale (EESS) was used which reflected the students emotional feelings and attachment with school (Wellborn, 1993). Despite EESS, Cognitive Engagement Sub Scale (CESS) was also used which illustrated the students' mental efforts, original thinking and analytical powers for mastering the learning techniques (Wolters, 2004). Afterwards, Agentic Engagement (AE) scale was used which ensured the contribution of students in the process of learning during instruction hours (Reeve & Tseng, 2011). The third section of the study used AP scale developed by Du-Paul et al. (1991). This Academic Performance Rating Scale (APRS) was used to investigate Academic Success (AS), Academic Productivity (APro), Impluse Control (IC), Academic Skill Development (ASD) and grades attained for measuring the performance of students in exams.

Before data collection, pre-testing was done with 40 respondents' and changes were made in the said instrument. Afterwards, the schools were approached and the students were given an open environment in which they could respond in a non-biased manner. The ethical approval for the research was given by Institutional Review Board (IRB), University of the Punjab, Lahore. Afterwards, the data was analyzed by using SPSS (V-21) through frequency, percentage, means and standard deviations.

3. Results

Table No. 3.1: Demographic profile of the respondents (N=2758)

Demographic variables	Categories	Frequency (%)
Sex	Male	1753 (63.6)
	Female	1005 (36.4)
Family size	<5 members	952 (34.5)
	5-10 members	1077 (39.1)
	>10 members	729 (26.4)
Family type	Nuclear	944 (34.2)
	Extended	1099 (39.9)
	Joint	715 (25.9)
Father education	Illiterate/Equivalent	423 (15.3)
	Primary/ Equivalent	502 (18.2)
	Secondary/Equivalent	735 (26.6)
	Tertiary/ Equivalent	629 (22.9)
	Any Other	469 (17.0)
Mother education	Illiterate/Equivalent	433 (15.7)
	Primary/ Equivalent	517 (18.7)
	Secondary/Equivalent	674 (24.5)
	Tertiary/ Equivalent	791 (28.7)

	Any Other	343 (12.4)
Household head	Father	1578 (57.2)
	Mother	185 (6.7)
	Any other male	940 (34.1)
	Any other female	55 (2.0)
Geographical division	Multan	1095 (39.7)
	DG Khan	803 (29.1)
	Bahawalpur	860 (31.2)

3.1 Demographics of the Respondents

The demographics in Table 3.1 illustrated that N=1005 (36.4%) respondents were female students while N=1753 (63.6%) were male students in the targeted locale. N=1077 (39.1%) respondents' belonged to the family size of 5-10 members while N=952 (34.5%) were the residents of <5 family members. The family type showed that N=1099 (39.9%) were living in extended family system while N=944 (34.2%) were living in nuclear family system. Alternatively, N=715 (25.9%) respondents lived in joint family system while N=729 (26.4%) were residing in family size of >10 family members. Parental education as the major prerequisite of SE and their AP is also mentioned in the said table. In this regard, N=423 (15.3%) fathers and N=433 (15.7%) mothers were illiterate while N=735 (26.6%) fathers and N=674 (24.5%) mothers were having secondary education. The tertiary education level illustrated that N=629 (22.9%) fathers and N=791 (28.7%) mothers were literate up to tertiary level. N=1578 (57.2%) respondents indicated that their fathers were the head of the households while N=185 (6.7%) declared their mothers as household head. The residence variable illustrated that N=1095 (39.7%), N=803 (29.1%) and N=860 (31.2%) respondents' were from Multan, DG Khan and Bahawalpur division respectively.

Table 3: Association of socio-demographic variables with multidimensional aspects of students' overall engagement, its multidimensional aspects and their academic performance in BISE affiliated high schools of Southern Punjab, Pakistan (N=2758)

Demographic variables	AE	BE	EE	CE	SOE*	AP
Sex						
Male	23.26 ± 6.308	20.12 ± 5.652	17.29 ± 5.516	34.36 ± 9.463	41.60 ± 6.244	40.49 ± 3.681
Female	18.71 ± 5.686	25.27 ± 6.918	20.63 ± 7.285	39.73 ± 11.116	57.78 ± 9.390	59.90 ± 7.176
Family size						
<5 members	23.32 ± 6.603	20.80 ± 5.628	19.41 ± 6.677	36.14 ± 10.538	70.95 ± 7.858	55.12 ± 6.730
5-10 members	26.88 ± 7.887	22.77 ± 6.364	21.88 ± 7.563	34.48 ± 8.167	74.06 ± 8.771	49.69 ± 5.295
>10 members	22.34 ± 6.449	25.23 ± 7.820	17.45 ± 5.521	32.01 ± 7.724	68.64 ± 6.813	45.98 ± 4.851
Family type						
Nuclear	27.55 ± 6.445	23.59 ± 6.769	19.07 ± 6.693	38.68 ± 6.272	76.25 ± 8.448	52.62 ± 6.289
Extended	23.52 ±	25.08 ±	18.07 ±	37.41 ±	71.23 ±	48.42 ±

	5.258	6.626	5.523	12.491	7.572	5.189
Joint	22.72 ± 5.345	26.54 ± 7.705	21.60 ± 6.832	35.70 ± 9.929	73.81 ± 7.782	51.56 ± 5.262
Father education						
Illiterate/Equivalent	20.52 ± 5.657	21.36 ± 5.596	17.19 ± 5.760	35.63 ± 9.940	70.06 ± 36.610	48.07 ± 4.574
Primary/ Equivalent	20.70 ± 5.754	22.03 ± 5.884	18.62 ± 5.660	37.97 ± 9.653	71.14 ± 36.837	49.95 ± 4.724
Secondary/Equivalent	21.59 ± 6.464	23.46 ± 6.665	19.37 ± 6.447	38.04 ± 10.300	72.50 ± 38.697	51.51 ± 5.265
Tertiary/ Equivalent	21.79 ± 6.521	22.11 ± 6.723	19.07 ± 6.327	38.34 ± 10.584	71.35 ± 37.286	50.34 ± 5.350
Any Other	20.79 ± 5.754	21.43 ± 6.219	18.51 ± 6.166	35.52 ± 9.340	71.12 ± 36.685	49.73 ± 4.668
Mother education						
Illiterate/Equivalent	20.35 ± 5.336	22.22 ± 6.508	18.38 ± 6.612	35.01 ± 9.266	72.28 ± 35.199	49.43 ± 4.598
Primary/ Equivalent	20.48 ± 5.555	22.96 ± 5.858	19.27 ± 6.741	35.14 ± 9.658	73.96 ± 36.982	50.73 ± 4.901
Secondary/Equivalent	20.57 ± 5.685	23.34 ± 6.794	19.57 ± 6.955	37.46 ± 10.312	77.68 ± 37.969	51.52 ± 5.725
Tertiary/ Equivalent	21.47 ± 6.485	21.74 ± 6.617	17.44 ± 5.762	38.37 ± 10.642	79.07 ± 39.942	55.47 ± 6.384
Any Other	19.33 ± 5.233	22.80 ± 5.665	17.72 ± 5.824	35.78 ± 9.235	71.77 ± 34.813	49.97 ± 4.399
Household head						
Father	21.83 ± 6.997	22.66 ± 6.625	17.24 ± 5.794	38.11 ± 11.852	76.22 ± 43.522	48.81 ± 5.954
Mother	20.17 ± 6.792	23.47 ± 6.729	19.71 ± 6.835	36.53 ± 10.144	75.21 ± 42.332	46.20 ± 4.744
Any other male	19.74 ± 7.541	21.95 ± 5.825	16.45 ± 5.581	36.72 ± 10.543	68.89 ± 40.382	45.38 ± 5.787
Any other female	19.52 ± 5.881	22.52 ± 6.627	17.06 ± 6.272	34.73 ± 9.552	64.62 ± 38.237	43.31 ± 4.456
Geographical residence						
Multan	26.38 ± 6.547	26.82 ± 6.692	22.53 ± 5.775	28.82 ± 6.957	98.94 ± 18.510	54.65 ± 6.623
DG Khan	24.02 ± 6.209	27.77 ± 6.627	23.63 ± 5.812	22.50 ± 5.528	87.34 ± ±14.602	50.78 ± 5.043
Bahawalpur	21.97 ± 5.559	25.96 ± 5.618	28.49 ± 4.194	19.49 ± 4.247	82.42 ± 12.747	47.83 ± 3.761
Wealth index						
Poor	20.28 ± 6.329	22.29 ± 6.425	18.09 ± 6.591	37.10 ± 10.437	71.36 ± 37.751	50.74 ± 5.598
Middle	21.75 ± 6.439	22.46 ± 6.717	18.44 ± 6.671	38.22 ± 10.534	72.36 ± 39.743	51.73 ± 6.842
Rich	20.61 ±	21.37 ±	17.62 ±	38.76 ±	70.41 ±	49.54 ±

	6.438	5.516	6.633	10.531	38.520	5.469
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*SOE refers to students overall engagement which includes multidimensional aspects of SE such as BE, EE, CE and AE

3.2 Association of demographic dynamics with students' overall engagement, its multidimensional aspects and their academic performance

The data in Table 3.2 illustrated that male students in the targeted locale were more agentically engaged ($M \pm SD_m = 23.26 \pm 6.308$) in comparison with female students ($M \pm SD_f = 18.71 \pm 5.686$). Additionally, female students were more behaviorally and emotionally engaged ($M \pm SD_f = 25.27 \pm 6.918$, $M \pm SD_f = 20.63 \pm 7.285$) as compared to their male counterparts ($M \pm SD_m = 20.12 \pm 5.652$, $M \pm SD_m = 17.29 \pm 5.516$). Resultantly, the overall engagement level and AP of female students' was more persistent ($M \pm SD_f = 57.78 \pm 9.390$, $M \pm SD_f = 59.90 \pm 7.176$) in comparison with their male counterparts ($M \pm SD_m = 41.60 \pm 6.244$, $M \pm SD_m = 40.49 \pm 3.681$). The results also demonstrated that family with large size i.e. >10 members were more behaviorally engaged in their studies ($M \pm SD_{>10fm} = 25.23 \pm 7.820$) as compared to the students who belonged to low family size i.e. $M \pm SD_{5-10fm} = 22.77 \pm 6.364$ or $M \pm SD_{<5fm} = 20.80 \pm 5.628$. The students with 5-10 family members were more agentically ($M \pm SD_{5-10fm} = 26.88 \pm 7.887$) and emotionally ($M \pm SD_{5-10fm} = 21.88 \pm 7.563$) engaged in their academic domain in comparison to the students with >10 or <5 family members.

As per family type was concerned, the students with nuclear family were more agentically ($M \pm SD_n = 27.55 \pm 6.445$) and cognitively ($M \pm SD_n = 38.68 \pm 6.272$) engaged in academics as compared to the students' who belonged to extended and joint family members. Moreover, these students became overall more engaged in their studies ($M \pm SD_n = 76.25 \pm 8.448$) and performed well in exams ($M \pm SD_n = 52.62 \pm 6.289$). Conversely, the respondents who belonged to joint family type became more behaviorally ($M \pm SD_j = 26.54 \pm 7.705$) and emotionally ($M \pm SD_j = 21.60 \pm 6.832$) engaged in their studies as compared to nuclear and extended family system. The data also showed that children of highly educated parents i.e. up to tertiary level were agentically ($M \pm SD_{fte} = 21.79 \pm 6.521$, $M \pm SD_{mte} = 21.47 \pm 6.485$) and cognitively ($M \pm SD_{fte} = 38.34 \pm 10.584$, $M \pm SD_{mte} = 38.37 \pm 10.642$) more engaged in their studies in comparison with the respondents with less educated parents. Additionally, the respondents whose mothers were educated up to tertiary level were overall more engaged in their studies ($M \pm SD_{mte} = 79.07 \pm 39.942$) and performed well in exams ($M \pm SD_{mte} = 55.47 \pm 6.384$).

The data demonstrated that the respondents' whose fathers were the head of household became agentically ($M \pm SD_{fhh} = 21.83 \pm 6.997$) and cognitively ($M \pm SD_{fhh} = 38.11 \pm 11.852$) more engaged in high schools. Conversely, the respondents whose mothers were the head of household were behaviorally ($M \pm SD_{mhh} = 23.47 \pm 6.729$) and emotionally ($M \pm SD_{mhh} = 19.71 \pm 6.835$) engaged in their studies. The respondents whose head of the household was father were more engaged in studies ($M \pm SD_{fhh} = 76.22 \pm 43.522$) and performed well in exams ($M \pm SD_{fhh} = 48.81 \pm 5.954$). The extending facts for geographical division divulged that the respondents from Multan division were agentically ($M \pm SD_{MUL} = 26.38 \pm 6.547$) and cognitively ($M \pm SD_{MUL} = 28.82 \pm 6.957$) more engaged in their studies. Overall SE and AP were more persistent in Multan division (SE: $M \pm SD_{MUL} = 98.94 \pm 18.510$, AP: $M \pm SD_{MUL} = 54.65 \pm 6.623$) as compared to other divisions of the study area.

The wealth index among the targeted respondents' divulged that students who belonged to middle class became agentically ($M \pm SD_{WI} = 21.75 \pm 6.439$), behaviorally ($M \pm SD_{WI} = 22.46 \pm 6.717$) and emotionally ($M \pm SD_{WI} = 18.44 \pm 6.671$) more engaged in high schools. Comparatively, the students of high status showed more CE ($M \pm SD_{WI} = 38.76 \pm 10.531$) in comparison with students' who belonged to middle and poor socio-economic class. The statistical tests also illustrated that the targeted

respondents' of middle class became overall more engaged in their studies ($M \pm SD_{WI}=72.36 \pm 39.743$) and performed well in exams ($M \pm SD_{WI}=51.73 \pm 6.84$).

4. Discussion

The model presented by Finn (1989) and later on elaborated by Christenson et al. (2008) put forth the empirical evidence that SE and their AP are interrelated in the linear manner (sattar et al., 2019). This meta-construct comprises of multiple dimensions such as behavioral compliance, emotional integration, cognitive structuring and students contribution in academic instructional flow. In consistent with the present findings, previous empirical evidences reported that BE engaged the students' in classroom context and their compliance towards school rules (Green et al., 2007; 2012) while EE demonstrates bidirectional approach in which students' enthusiasm towards the process of learning is clearly executed (Yonezawa et al., 2009). Moreover, students' cognitive investment in learning and their contribution in the flow of instruction also affect their performance in exams (Skinner et al., 2009a). Therefore, engagement dimensions forms a spiral which affects students' performance in exams which is pre-directed by various demographic predictors (Wellborn, 1993).

Moreover, students non-compliant behavior, emotional disintegration and cognitive non-regulation results in students dropouts from learning process. The studies of Dustmann & Van Soeast (2008); Kalmijn & Kraaykamp (2003); Plank et al. (2005); Rumberger (1983), Sattar et al. (2019) endorsed the present findings about the role of family structure in students compliant behavior, emotional integration and cognitive regulation that process them from dropping out of school due to inadequate AP and low quality education. Moreover, in compliance with the present empirical results, the role of socio-economic status was demonstrated by studies conducted by Teese & Walstab (2002), Entwisle et al. (2005); Dalton et al. (2009). These studies clearly executed that students' demographic factors along with their family regimes becomes the major predictors for their academic outcomes i.e. SE and their AP in high schools.

5. Conclusion and Recommendations

In conclusion, sex segregation, family size and type, parental education, household head, geographical division as well as wealth index are the major demographic predictors determining SE and their AP at high school level. These predictors formed a complex interaction in learning environment and affected students' compliance acts, emotional integration, cognitive restructuring and contribution in the flow of instruction. These dimensional variations affected students' overall engagement and their performance in academics through their success, productivity and skill development in academics. Usage of multilingual instruction strategies, analytical thinking, learning outcomes, social constructionism techniques and contextualizing the multifaceted ideas are the major recommendations that can help to increase the students' academic outcomes in the study locale.

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