

Affectivity, Achievement Motivation, and Academic Performance in College Students

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The purpose of this study is to find how emotions and motivation influence academic performance of college students. Undergraduate students (328 girls and 210 boys) were engaged for the research. Negative affectivity was assessed through the neuroticism scale of the NEO Five Factor Inventory (Costa & McCrae, 1992); similarly positive affectivity was characterized through the extraversion scale of the same measure. High (30%), middle (40 %), and low (30%) scorers on neuroticism and extraversion scales were compared on emotional intelligence (Emotional Quotient Inventory; Bar-On, 1977), achievement motivation (Achievement Motivation Scale; Gjesme, 1971) and the First-year Grade Point Average (GPA). Results indicated that neuroticism had significant reverse relationship with emotional intelligence; that is, lower the neuroticism, higher the emotional intelligence. Second, neuroticism was strongly related with avoidance motivation; higher neuroticism was associated with higher avoidance motivation. Extraversion was relatively less related to approach motivation. Moreover, the high and medium neuroticism scorers achieved significantly lower GPA than low neuroticism students. Intermediate examination or grade-12 marks remained the largest predictor of college GPA. Among the psychological factors, lower neuroticism and higher Emotional intelligence contributed significantly in determining GPA. Implications of results have been discussed.

Keywords: Neuroticism, extraversion, emotional intelligence, avoidance-motivation, achievement-motivation

Emotions are mental and physiological states associated with a variety of feelings, thoughts, and behavior. As subjective responses to situations, they are vital to individual differences in their performance

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in several walks of life (Kohn & Schooler, 1982). Emotions adaptively trigger ideas and thoughts directing our attention about major pursuits of life. Izard (1993) believed that emotions represent a system separate from the intellect and it supported distinctive competencies in human functioning. Depending upon their nature, emotions can produce either negative affect; a state of general emotional distress where a person is often upset and has a negative view of self overtime or a positive affect, a tendency to be cheerful, energetic, and experience positive mood across a variety of situations. Negative affectivity (NA) is characterized with negative reactivity to daily events. High level of NA is neuroticism i.e. an experience of subjective distress and inability to cope with stress (Mroczek & Almeida, 2004). Positive affectivity (PA), on the other hand, reflects an individual's pleasurable engagement and being enthusiastically active (Larsen & Ketellar, 1991). Both the affectivities are enduring and stable across time; they are, hence, of tremendous interest to psychological researchers. According to Tellegen (1985) PA and NA dimensions account for roughly three quarters of the research literature on emotion related terms. Costa and McCrae (1989) have regarded PA and NA as conceptually similar to extraversion and neuroticism, respectively, among the Big Five Factors of personality and there is a considerable support for this relationship across diverse samples (Watson & Clark, 1992; Willson & Gullone, 1999). Factor analysis evidence documented by Willson and Gullone (1999) indicated that items measuring PA and extraversion loaded on one dimension and those measuring NA or neuroticism loaded on the other. On the average, relationship between PA and NA was moderate (Burger & Caldwell, 2000; Egloff, 1998). Neuroticism and extraversion can therefore, be used as measures of NA and PA, respectively.

PA and NA dispositions have been associated with distinct motivational styles; approach motivation and avoidance motivation, respectively (Fredrickson & Waugh, 2006). 'Approach motivation' indicates hope for success whereas 'avoidance motivation' indicates fear of failure. It is postulated that positivity, by promoting approach and exploration outlook, brings about experiential learning that confirms success expectation. Negativity, conversely, promotes inhibition and avoidance thus learning opportunities for higher achievement are missed or lost. Such a conceptualization of motivation suggests that individuals do not only differ in their tendencies to pursue success but can also be separated by their tendency to avoid possible failure. The approach and avoidance motives are regarded as correlates of affectivity (Heckhausen, 1991).

The approach–avoidance conceptualization of motivation as reflective of the two dispositions has accounted for achievement among school and college students in a number of studies. For example, high neuroticism students repeated their exams more times before successfully completing their studies (Chamorro-Premuzic, Furnham, & Petrides, 2006). Wentzel et al. (1990) found that concurrent effects of affective and self-regulatory processes on academic achievement played an important role in developing academic competence of junior school students.

Academic performance as a cognitive enterprise is subject to influences from emotions and motivation in particular. According to Mayer, Slovey, and Caruso (2000), cognition and emotions interact and influence human behavior. Their work on emotional intelligence (EI) underscores salience of emotions in influencing performance. For example a person who is in good mood is generally productive and vice versa. Anxiety as an emotion bears on educational performance in affecting students' attention and memory processes hampering the cognitive functioning and consequently academic output. This suggests that understanding and regulating emotions can help in promoting efficient intellectual functioning (Abdullah, Elias, Mahyuddin, & Uli, 2004). Gumora (1999) investigating academic achievement and emotional regulation, found that students who were not good in managing NA had lower GPA, low perception on academic competence, less perseverance on tasks, and a more negative mood in general. Understanding and regulation of emotions have been currently buzzed as a part of the school programs aiming at training students to reason with emotions and use them positively (Corwell & Bundy, 2009).

The problem of predicting academic outcome at college level is important for individual students as well as for the institutions. Speaking from theoretical stance, one would speculate that PA and approach motivation would differentiate between high and low GPA achievers. We build on the previous research by including EI in the study since it connects emotions with cognition. The two go together to influence academic performance of young and ambitious undergraduate students. Earlier, a study on undergraduates in Pakistan (Aslam, 2009) indicated that both interpersonal and intrapersonal scales on EI predicted academic performance. Academic emotions such as test anxiety, stress and ambition, however, have not been given their due emphasis in educational psychology research in Pakistan. Our students' ways of knowing the world is influenced by their perception of learning environment characterized with poor pass percentage, high drop out rate at primary and secondary school levels

and their not-so-desirable, if not negative, learning experiences. Together, these can result in an on-going bad episodic mood that might influence students' choice of learning approaches as well as learning outcomes.

The purpose of the present study is to find how emotions and motivation influence academic performance of college students. The influence can be positive or negative depending upon the nature of affectivity and motivation pattern the students are engaged in. It is assumed that negativity promotes passivity and inhibition, thus opportunities to correct failure and make up deficiencies are missed (Fredrickson & Waugh, 2006) and in contrast, positivity by promoting approach and exploration creates experiential learning that confirms success expectations.

The second purpose was to explore the role of EI as a predictor in a group of psychological variables predicting academic achievement. The emotional management is believed to be crucial in youthful college period. The third objective is to find the nature and extent of affectivity among college students in Pakistan and their motivational pattern as a population of interest. Based on the previously discussed results, the following hypotheses emerge exploring academic performance affectivity linkages:

Hypothesis 1: College students would tend to endorse extraversion more than neuroticism factor in their self-report description.

Hypothesis 2: Avoidance motive would be strongly correlated with neuroticism whereas approach motivation would be strongly related with extraversion, as a matter of theory.

Hypothesis 3: Students with high extraversion as well as those with low neuroticism would each gain higher GPA than their counterparts; low extraversion, high neuroticism.

Hypothesis 4: College GPA would be best predicted by high school marks as relevant ability factor followed by non-ability factors such as affectivity conditions (positive affectivity and negative affectivity), type of motivation (avoidance-approach), and emotional intelligence.

Method

Sample

A sample of 529 (girls = 328; boys = 201) was selected from a public sector university in Lahore. Sample was drawn by selecting a few sections / batches of students systematically e.g., selecting section

number 1, 3, and 5 in chemistry and so on. 285 students were enrolled in the undergraduate courses of Bachelor of Arts (BA; studying psychology, economics, political science, and statistics) and 239 students were enrolled in students of Bachelor of Science (BSc; studying physics, chemistry, botany, and mathematics). They represented 27% and 30% of the BSc ($N = 888$) and BA ($N = 950$) student population, respectively. Their age ranged from 18 to 21.5 years ($M = 18.70$, $SD = 1.16$ for BSc and $M = 19.17$, $SD = 1.52$ for BA students).

Instruments

Emotional Intelligence Inventory. Bar-On (1997) developed Emotional Quotient Inventory (EQ-i) as a self-report measure of 125 items that encompassed 15 sub-scales relating to emotions. Response can be marked on 5-point rating scale ranging from 5 = *very true of me* to 1 = *very untrue of me*. High score indicate more positive prediction for meeting daily demands and challenges of life whereas; low scores suggest inability to be effective and possibly existence of emotional, social, and behavioral problems. Alpha coefficients for the scales ranged between .35 - .73 on the current data. On Pakistani sample Aslam (2009) reported an overall alpha index of .76 on 531 undergraduate students in a local university. The convergent validity of EQ-i with neuroticism was -.28 and its discriminant validity with extraversion was .22 (see Table 1).

NEO Five Factor Inventory. Costa and McCrae (1992) developed NEO Five Factor Inventory (NEO-FFI) after the Five Factor Model (FFM) which is globally acclaimed as the consensus measure of personality, comprising neuroticism, extraversion, openness, agreeableness, and conscientiousness. Neuroticism and Extraversion scales of NEO-FFI were used in this study. There were 12 items in each scale which assessed the extent to which participants rate themselves on 5-point scale scored as 5 = *strongly agree* to 1 = *strongly disagree*. Possible score range would be 12-60 where higher score for extraversion or positivity and lower for neuroticism or negativity were usually held desirable. Neuroticism and extraversion were independent of each other ($r = .026$) and have an alpha value of .76 and .65, respectively on the current data.

Achievement Motivation Scale. Achievement Motivation Scale (AMS; Gjesme, 1971) consisted of 20 items with two factor conceptualization of achievement motivation namely, approach

motivation and avoidance motivation. There were 10 items each for the two factors. Responses about various achievement activities listed in the scales were expressed on a 4-point scale (4 = *strongly agree*, to 1 = *strongly disagree*). Scores on approach motivation indicated how well a person tends to explore and grab opportunities for learning, whereas; score on avoidance motivation, conversely indicates how inhibitive or afraid one tends to be at learning and achieving. Lang and Fries (2006) reported Cronbach alpha higher than .70 on both scales. These values on approach and avoidance motivation scales were .81 and .68, respectively in the present data. Further, the two motives were independent of each other ($r = .05$). The validity of AMS was supported on a wide range of criteria: AMS predicted adolescents' school grades (Gjesme, 1971), and achievement in verbal as well as numerical tasks (Rand, 1978).

Grade Point Average. The current Grade Point Average (GPA) indicated performance on 12 courses of 3 credit hours each. Marks in a course were obtained on a midterm and final examinations as well as a semester-work component comprising a term paper, quizzes, and assignments. The obtained marks were then curved for relative grading for each course. Relative grades across courses combined to form GPA of a student. The first-year GPA had a mean of 2.80 ($SD = .44$) while there can be a maximum of 4.0 GPA.

Inter Marks. Intermediate Examination is a grade-12 comprehensive public examination held by Secondary School Board of Education in each province and the federal capital. Marks obtained in this examination serve as high school GPA and serve the purpose of determining eligibility for admission in undergrad courses of BA and BSc. These were recorded as cognitive abilities of the students; traditionally, the marks obtained by students in Grade-12 marks are used as predictor of first-year college GPA.

Procedure

The students who consented were recruited in the present study. Data were collected in regular class periods and they were assured that information gathered about them on these tests would be used for research purposes and it would not bear on their grades and academics. The scales were administered in the same order, under standard instructions to all the classes. Record of GPA of the participants was obtained from the college office. Approximately top 30% ($n = 157$), middle 40% ($n = 214$), and bottom 30% ($n = 153$)

scorers on the neuroticism scale (or NA) comprised high, middle, and low groups for statistical analysis. The corresponding figures were 161, 220, and 143 for different level of GPA or Extraversion.

Results

Psychometric analyses indicated that data from most of the measures used in this study are nearly normally distributed except GPA that followed a markedly negative skew (see Table 1). Students scored higher on extraversion than on neuroticism. They were motivationally more approach oriented than avoidance minded, as expected. Correlation indices among these measures are theoretically meaningful as evidence of concurrent validity. Neuroticism and extraversion are found to be independent and unrelated personality factors. The approach and avoidance motives are also independent concepts; the two motivational styles bear modest correlation with extraversion and neuroticism, respectively. GPA as a cognitive variable is least associated with any of the psychological variables.

Table 1

Psychometric properties of Affectivity, Achievement Motivation, and Academic Performance (N = 524)

Variables	<i>M</i>	<i>SD</i>	Skew	1	2	3	4	5	6
1.Neuroticism	36.4	6.80	.07	-	.02	.11	.53	-.27	-.10
2.Extraversion	39.2	5.38	.06		-	.28	-.08	.22	.06
3.Approach	20.2	3.35	.11			-	.05	.07	.05
4.Avoidance	16.7	3.72	.10				-	.19	.04
5.EI	364.5	49.74	-.17					-	.08
6.GPA	2.8	.44	-1.47						-

The high, medium, and low scorers on neuroticism or NA were compared on EI as well as on avoidance and approach motivation. Similar comparisons were made on the three extraversion groups (see Table 2). Results indicated that high extraversion or GPA groups scored significantly higher than the middle and the low group on emotional self-acceptance, assertiveness, independence, and happiness sub scales as well as on overall EI score [$F(2, 521) = 3.30 - 10.83, p < .05 - .01$]. However, high neuroticism students compared to the middle and low neuroticism groups scored significantly in the other direction

on emotional self-acceptance, assertiveness, independence, stress tolerance, impulse control, reality testing, flexibility, problem solving, and happiness sub scales as well as on overall EI score [$F(2,251) = 5.09 - 39.62, p < .05 - .001$].

Table 2
Emotional Intelligence of High, Medium, and Low Neuroticism, and Extraversion Scorers (N = 524)

Variables	Negative Affectivity ^a		Positive Affectivity ^b	
	<i>F</i>	Post-hoc Difference	<i>F</i>	Post-hoc Difference
Emotional self-acceptance	6.76	H < M, L	3.30	H > L
Assertiveness	24.27	H < M, L	10.83	H, M > L
Independence	39.62	H < M, L	9.50	H, M < L
Stress Tolerance	6.68	H < M, L	<i>ns</i>	
Impulse Control	14.16	H < M, L	<i>ns</i>	
Reality testing	7.35	H < M, L	<i>ns</i>	
Flexibility	13.30	H < M < L	<i>ns</i>	
Problem Solving	6.25	H < M, L	<i>ns</i>	
Happiness	5.09	H < M < L	12.70	H > M, L
Overall EQ-i Score	12.03	H < M, L	3.26	H > L
Approach Motivation	<i>ns</i>		24.56	H > M > L
Avoidance Motivation	80.58	H > M > L	9.01	H < M < L
GPA Year-1	4.37	H < L	3.42	H > L

Note. H, L, M means High, Medium, and Low groups; *ns* = nonsignificant.
^a For neuroticism: High = 157, Medium = 214, and Low = 153; ^b For extraversion: High = 161, Medium = 220, and Low = 143.
df = 2,521

EI scales were more sensitive to neuroticism than to extraversion. As expected, low neuroticism students displayed more EI and higher academic achievement than middle and high neuroticism groups (see Table 2). High extraversion group showed significantly more EI as well as GPA scores than the low group, as expected. EI correlated moderately with neuroticism ($r = -.28$) as well as with extraversion ($r = .22$) in opposite directions. For motivation pattern, high neuroticism group displayed significantly more avoidance motive in

studies followed by the middle and the low neuroticism groups. Conversely, high extraversion displayed more approach motivation than the medium and low groups. These findings are theoretically meaningful and supportive of the second hypothesis of the study. Avoidance motivation goes with neuroticism, approach motivation with extraversion.

Table 3

Predicting First Year GPA from Psychological Variables (N=524)

Variables	<i>B</i>	<i>SE</i>	β	<i>t</i>	<i>p</i>
Constant	18.76	5.03			
1-Intermediate Marks	.49	.21	.46	11.68	.00
2-Neuroticism (NA)	-.12	.13	-.10	2.24	.02
3-Extraversion (PA)	.08	.02	.06	1.43	
4-Emotional Intelligence	.09	.06	.08	2.08	.15
5- Approach Motivation	.05	.11	.05	1.20	.23
6-Avoidance Motivation	.06	.08	.04	1.09	.22

Neuroticism was inversely related with GPA. However, extraversion, contrary to expectation did not significantly relate with GPA. Neuroticism and avoidance motivation are convergent concepts ($r = .54$). On a lesser intensity, approach motivation and extraversion are also convergent concepts ($r = .28$). Low neuroticism or emotional maturity so to say has emerged as a stronger predictor of GPA than high extraversion.

Academic performance or GPA of first year students is the major variable of this study. All the psychological variables as well as cognitive variable of Inter Mark (Previous Higher Secondary School Certificate) were regressed on first year GPA. The regression equation explained 28% of the variance in GPA. The largest predictor was inter marks or previous high school score ($\beta = .47$), followed by neuroticism and EI among the psychological variables ($p < .05$). Approach and avoidance motives did not significant impact GPA, contrary to the expectation. Overall, psychological variables explained significant additional variance in GPA ($R^2 = .29$), after the cognitive variable of previous high school marks had explained bulk of the variance.

Discussion

Unlike psychological variables, distribution of GPA was skewed. Actually, GPA rarely moves below 2.00 and in such a rare case the student is dropped from the college roles. Most of the students cluster around 3.00 GPA since admission in a college is highly competitive and only a homogeneous group of students closely brushing each others' shoulder in entrance test gets selected. The skewed GPA distribution, as a criterion variable, might have restricted the coefficient of correlation and provided conservative prediction estimates. Recent studies with high school students have shown more significant results because the student body in schools is representative of general student population than the selective collegiate students. Thus school GPA provides a more standardized measure of student's performance on core subject areas common to all students (Di Fabio & Busani, 2007).

The psychological constructs and their measures meaningfully related to each other on the current local / Pakistani data attesting to the cross cultural validity of these constructs. Low correlation between neuroticism and extraversion provided support for the validity of these independent personality factors / constructs in keeping with previous research (Costa & McCrae, 1989). These factors are considered as marker of negative and positive affectivities in the literature reviewed earlier. The strong association of neuroticism with avoidance motivation is meaningful just as extraversion and approach motivation go together in this study.

The students scored higher on extraversion than on neuroticism since the college students are young, confident, achieving, and upbeat section of the society. Their average score on approach motivation was therefore also higher than on avoidance motivation for the same reason. However, it is neuroticism or NA which differentiated among students on EI as well as on GPA more than extraversion or PA. For example degree of neuroticism in terms of high, medium, and low scores served to differentiate students on a larger number of EI scales than extraversion could; lesser the neuroticism, higher the EI. This is an interesting finding and it runs counter to our expectation that extraversion score would be more associated with EI than neuroticism. What clarified the point was the direction of neuroticism score rather than neuroticism - a construct which generally connotes NA. In other words, low neuroticism is emotional maturity and high neuroticism is otherwise. In that context, low neuroticism is closer to EI. And since low neuroticism goes with low avoidance motivation or less 'fear of

failure' such a situation would be conducive to attaining high GPA. Low neuroticism might also have enable students manage their emotions intelligently thereby facilitating their cognitive functioning and academic performance. Chamorro-Premuzic and Furnham (2005) held that anxiety as a component of neuroticism can more prominently predict academic performance than motivation. High neuroticism can potentially jeopardize thinking functions and cognition such as academic achievement (Ackerman & Heggested, 1977). De Read and Schounwenberg (1996) found that neuroticism significantly related with lower scholastic success among university students.

Finally, undergrad GPA was predicted the most by Inter marks followed by neuroticism and EI. In other words low neuroticism and high EI scores align with higher GPA. The motivation styles; approach or avoidance did not significantly contribute to GPA. In predicting GPA, through psychological or non-ability as well as ability factors, it was found that Inter marks or previous high school grade-12 marks was a potent predictor, followed by (low) neuroticism or emotional maturity and EI as the psychological variables. It means coaching and grooming students towards emotional maturity and emotional well-being would help them improve in academics. A reduction in negative emotions and associated avoidance motive can potentially facilitate cognitive functioning including academic performance (Valiente, Swanson, & Eisenberg, 2011). Well being even otherwise provides for good interpersonal relations and sound achievement orientation (Sami, Jari-Erik, & Hakan, 2007).

Conclusion

In the backdrop of the findings of this study, assertions that EQ and IQ matter together in human performance, sounds relevant in general and more so in academics. Secondly, role of motivation as mediating variable and specific settings also interact with emotions in producing specific educational outcomes.

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