

Psychosocial Factors, Approaches to Learning and Academic Achievement in Polytechnic Colleges of West Hararge, Ethiopia

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Abstract: This study sought to determine the associations among psychosocial factors, approaches to learning and the academic achievement. The study employed the descriptive correlational research design. The target population was 5340 students from five Polytechnic Colleges in West Hararge Zone. The study used Yamane's (1967) formula to come up with the sample sizes of 372 students who filled the questionnaire. Pearson Correlation Coefficient, multiple regression analysis and stepwise multiple regression were employed to analyze the data. The study established that approaches to learning and psychosocial factors are important ingredients for intended academic achievement to be realized. It is recommended that education stakeholders in learning institutions under investigation should pay due attentions to psychosocial factors as an imperative ingredient for intended academic achievements to be realized.

Keywords: Psychosocial Factors; Approaches to Learning; Academic Achievement; Polytechnic College

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Introduction

Countries have been giving top priority in producing skilled manpower at different levels of education to improve their overall productivity. The same trend exists in Ethiopia where Polytechnic Colleges (PTCs)

are among widely established institutions of higher learning which are aimed at producing low and medium level manpower with practical oriented skills (Ministry of Education, 1994; African Union, 2007 and Ministry of Education, 2010).

Education scholars such as Biggs (1987) and Allan (2003) argued that responsibility for academic success or failures should be directed to trainees themselves. Bandura (1997) concluded that “student academic achievement is more likely to take place when students believe that their individual effort matters. On the contrary, the probability of student academic success is reduced when students feel hopeless” (p.149). Moreover, Gulzar, Ali, Aijaz and Hussain (2010) argued that among many other factors, student related factors are associated with their orientation to learn in many ways and contributes to learners’ academic success or failures. Therefore, it is worth focusing on student related factors, mainly psychosocial factors and approaches to learning as determining reasons for effective learning and academic success.

Some earlier studies attempted to explore the extent to which psychosocial factors (such as academic motivation, perceived social support and academic self-regulation) and approaches to learning (deep approach, surface approach and strategic approach) influence students’ academic (Marton and Saljo, 1984; Le, Casillas, Robbins and Langley, 2005; Clouder, et al., 2008; Lee and Shute, 2010). However, the separate and combined influences of the aforementioned variables on trainees’ academic achievement among polytechnic colleges in Ethiopia were not sufficiently studied.

Learning is defined as a relatively permanent behavioral change as a result of experiences, practices and tutoring (Barron, et al., 2015). The quantity and quality of learning are determined by the approaches to learning trainees adopt. Therefore, the way trainees approach learning plays an important role in determining the learning outcomes (Everson, Weinstein and Laitusis, 2000). Scholars like Trigwell and Prosser (1991); Kyllonen (2005); Maina (2013); Fan (2012) and Tenaw (2013) confirmed that students’ learning outcomes are directly influenced by their approach to learning in different ways. Based on their empirical research, Marto and Saljo (1976) and Biggs (1987) identified three basic learning approaches adopted by learners; namely deep approach, surface approach and strategic approach. According to Biggs (1987), the deep approach to learning is more likely to be adopted by learners with the necessary level of intention and high cognitive level to engage meaningfully and appropriately with the subject matter. This may arise from a learner’s intrinsic motivation. According to Ryan and Deci (2000),

intrinsic motivation depicts an activity done only for own satisfaction without any external anticipation. Challenge, curiosity, control and fantasy are key factors that may trigger intrinsic motivation. Moreover, Ryan and Deci (2000) claimed that intrinsic motivation and academic achievement share significant and positive relationships. Intrinsic motivation directs an individual to participate in academic activities without any external pressure.

A surface approach to learning, on the other hand, is defined by Biggs (1987) as one whereby a student learns only to pass assessments and fulfill minimum requirements of learning. It is characterized by low level of cognitive activity. The author suggests that students using the surface approach to learning end up using the memorization of facts. Furthermore, he contends that there are many factors that encourage students to use a surface approach to learning. These include an intention to achieve minimal pass marks due to a high workload, misunderstood requirements of a course, a pessimistic view on education, high anxiety about passing and inability.

Strategic approach refers to the learner’s motive to maximize performance and gain the highest achievable grades by using organized study skills and managing time wisely. Study behaviors are heavily moderated by the requirements of the assessment task but are generally highly structured and efficient. This may arise from student’s achieving motivation. Achieving motivation typically refers to the level of one’s motivation to engage in achievement, based on the interaction of such parameters as need for achievement, expectancy of success and the incentive value of success (Entwistle, 2001).

Improving trainees’ academic achievement is the main concern in any learning institution (Heckman and Rubinstein, 2001; Le *et al.*, 2005). When analyzing the overall trainees’ academic achievement as a determinant of learning outcomes, educators can distinguish two dimensions of academic achievement namely Heteronomous Evaluation of Academic Achievement (HEAA) and Autonomous Evaluation of Academic Achievement (Zins *et al.*, 2004; Schmitt, et al., 2009 and Lukasova, 2010). Heteronomous Evaluation of Academic Achievement (HEAA) involves the evaluation of a trainee usually made by the trainers. Autonomous Evaluation of Academic Achievement (AEAA), on the other hand, is when a

trainee/learner compares actual achievements with the intended objectives. Liudmila and Petra (2011) and Mala (2013) consider academic achievement as the combination of both Heteronomous Evaluation of Academic Achievement (HEAA) and Autonomous Evaluation of Academic Achievement. Self-evaluation of academic achievement is valued because of its importance as a source of self-regulated learning process (Aria, 2011; Marcela and Lucia, 2016).

Although psychosocial factors, approaches to learning and academic achievement have been well documented, the combined influence of psychosocial factors and approaches to learning on academic achievement in polytechnic colleges, using the mixed research approach and particularly explanatory sequential design, lacks research coverage (Allan, 2003; Subasinghe and Wanniachchi, 2003; Angus, Elizabeth, Karen and John, 2004; Tomas and Adrian, 2007; Yiu, 2011; Liudmila and Petra, 2011; Hanin, Zaiton and Norshidah, 2013; Marc, 2013; Krumrei, Newton, Kim & Wilcox, 2013; Ladan, et al., 2014; Patrick and Zhenxing, 2016 and Ali & Nobaya, 2017).

Studies on the psychosocial factors and approaches to learning came up with inconsistent findings. Earlier studies indicated that approaches to learning were good predictors of academic achievement. For instance; Biggs (1987); Marton and Saljo (1984); Trigwell and Prosser (1991); Everson, Weinstein, and Laitusis (2000); Allan (2003); Phan (2006); Liudmila and Petra (2011) and Baris (2016) concluded that approaches to learning are important predictors of positive academic achievement. However, studies by Angus *et al.* (2004), Valadas, Almeida, and Araújo (2016) and Kim, Velda and Anna (2017) reported that some approaches to learning (deep, surface and strategic approach) were found to be poor predictors of academic achievement. Furthermore, Hanin *et al.* (2013) concluded that there is no relationship between approaches to learning and academic achievement at all. These contradicting findings may emanate either from methodological gaps, unproportional sample size (in terms of gender, department, sector, faculty), limited data (most studies consider single course achievement as academic achievement), limited sample size (taking few sample size), or complexity of human behavior (like motivation and learning orientation).

Psychosocial Factors and Academic Achievement

Concerning psychosocial factors and academic achievement, different studies came up with inconsistent findings. For instance, Perry, Hladkyj, Pekrun and Pelletier (2001), Afzal, Ali, Khan and Hamid (2010), Aria (2011), Joann *et al.* (2015), Ali *et al.* (2017) and Guay and Bureau (2018) confirmed that psychosocial factors are strong predictors of students' academic achievement. However, other studies showed that psychosocial factors are not significant predictors of students' academic achievement. For example, Cecil, Kimberly and Jacob (2003), Cecil, Kimberly and Jakob (2010), Casillas, et al. (2012) and Atieh, et al. (2016) established that psychosocial factors are not significant predictors of students' academic achievement.

According to Kpolovie, Joe Al and Okoto (2014) academic achievement is an outcome of the performance that indicates what level of educational goals a student has earned. Educational institutions are primarily focused on cognitive domain although academic achievement is a construct with other different domains of learning (Ramaprapou & Dash, 2018). To get full picture of academic achievement, educational and training institutions should pay proper due attention to those other domains of learning namely affective and psychomotor domain of learning. Academic achievement is the outcome that indicates the extent to which the student has attained predetermined educational goals (Kpolovie *et al.*, 2014). Furthermore, Zins *et al.* (2004) considered academic achievement as a process of recognizing students' level of attaining appropriate knowledge, skills and attitude.

The purpose of this study was to examine the relationships among psychosocial factors, approaches to learning and trainees' academic achievement in polytechnic colleges of West Hararge Zone, Ethiopia. This study was guided by the following research questions:

1. What are the relationships among psychosocial factors, approaches to learning and trainees' academic achievement among Polytechnic Colleges of West Hararge Zone?
2. To what extent do psychosocial factors and approaches to learning predict trainees' academic achievement in Polytechnic Colleges of West Hararge Zone?

3. What are the influences of psychosocial factors and approaches to learning on trainees' academic achievement in Polytechnic Colleges of West Hararge Zone?

Methodology

Research Design

The study employed the descriptive correlational research design. Since the data was quantitative in nature and research questions sought to describe prevailing situations and determining existing

relationships among variables under investigation, both descriptive statistics and correlational analyses were run to come up with intended results.

Population and Sampling Procedures

The target population of this study was 5340 students from five Polytechnic Colleges in West Hararge Zone. The study used Yamane's (1967) formula to come up with the sample sizes of 372 students as participants as reflected in table 1.

Table1: Summary of study settings, population and sample size.

SN	College	Population	Sample
1	Chiro PTC	1447	102
2	Hirna PTC	997	69
3	Badesa PTC	980	68
4	Gelemso PTC	938	65
5	Mechera PTC	978	68
Total		5340	372

Table 2: Summary of reliability test results of scales and sub-scales (N = 50).

Scales and sub scales		Reliability
Overall	Approaches to learning scale	.966
Specific	Deep approach	.720
	Seek meaning	.742
	Relating ideas	.780
	Use of evidence	.726
	Interest in idea	.865
Overall	Strategic approach	.960
Specific	Organized studying	.853
	Time management	.873
	Alertness to assessment demand	.758
	Achieving	.863
	Monitoring effectiveness	.868
Overall	Surface approach	.925
Specific	Lack of purpose	.740
	Unrelated memorizing	.848
	Syllabus-boundness	.872
	Fear of failure	.752
Psychosocial factors scale		.940
Overall	Academic motivation	.925
Specific	Intrinsic motivation	.868
	Extrinsic motivation	.863
	Amotivation	.889
Overall	Academic self-regulation	.914
Specific	External regulation	.828
	Identified regulation	.861
	Intrinsic regulation	.859
	Introjected regulation	.839
	Perceived social support	.893
Overall	Autonomous evaluation of academic achievement (AAA)	.878
Specific	Cognitive domain	.815
	Affective domain	.768
	Psychomotor domain	.819

The main instrument for data collection was questionnaire. A scales with 51 items (academic motivation = 12 items, perceived social support = 12 items and academic self-regulation = 27 items) for psychosocial factors was adapted from the works of Vallerand and Bissonnette (1992), Zimet, Dahlem & Farley (1988). A scales with 52 items (Deep approach = 16 items, strategic approach = 20 items and surface approach = 16 items) for approaches to learning was adapted from Approaches and Study Skills Inventory for Students (ASSIST) by Trait, Entwistle and MacCune (1998). The reliability (Cronbach alpha) and validity (face validity) of the instruments were successfully checked. Reliability test results appear in Table 2.

Statistical Treatment of Data

Both descriptive and inferential statistics were employed in data analysis. Descriptive statistics was

used to present demographic characteristics of participants. Pearson product moment correlation coefficient was used to determine degrees of relationships among psychosocial factors, approaches to learning and academic achievement. Multiple regression analysis was employed to determine the predictive power of psychosocial factors and approaches to learning on trainees' academic achievement. Stepwise multiple regression analysis was used to scrutinize the combined influences of psychosocial factors and approaches to learning on trainees' academic achievement.

Findings and Discussion

Descriptive Findings

Descriptive statistics in terms of frequencies and percentage were used to present socio-demographic factors of participants as appears in table 3.

Table 3: Trainee participants by sex, age and sectors in Polytechnic Colleges (N = 315).

Sex of trainees			Sectors enrolled		
Gender	F	%	Sectors	F	%
Male	155	49.2	Agricultural sector	123	39
			Economic sector	80	25.4
			Industrial sector	112	35.6
Femal	160	50.8	Total	315	100
Total	315	100	Total	315	100

Table 4: Pearson correlation (N = 315)

	1	2	3	4	5	6	7	8	9
Academic achievement (1)	1								
Psychosocial factors (2)	.81**	1							
Academic motivation (3)	.44**	.42**	1						
Academic self-regulation (4)	.70**	.91**	.12*	1					
Perceived social support (5)	.64**	.79**	.23**	.59**	1				
Approaches to learning (6)	.59**	.43**	.65**	.25**	.26**	1			
Deep approach (7)	.79**	.72**	.47**	.60**	.54**	.66**	1		
Strategic approach (8)	.78**	.71**	.46**	.61**	.51**	.66**	.81**	1	
Surface approach (9)	-.13*	-.27**	.34**	-.39**	-.27**	.58**	-.17**	-.18**	1

** . Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

NB: ** $P < .01$, * $P < .05$.

A total of 315 filled and returned the questionnaire. Of these, 155 (49.2%) were males while 160 (50.8%) were females. The table further shows that 123 (39%) came from Agricultural sector, 80 (25.4%) from economic sector and 112 (35.6%) from the industrial sector.

Research Question 1: What are the relationships among psychosocial factors approaches to learning and trainees' academic achievement among Polytechnic Colleges of West Hararge Zone?

As seen in Table 4, Pearson Correlation Coefficient was employed to determine the associations among psychosocial factors, approaches to learning and trainees' academic achievement in the Polytechnic Colleges under investigation.

The Pearson correlation coefficient result indicates statistically significant positive associations between academic achievement and psychosocial factors ($r = .81, p < .001$) and approaches to learning ($r = .59, p < .001$).

The results further show statistically significant positive association between trainees' academic achievement and perceived social support ($r = .64, p < .001$), academic self-regulation ($r = .70, p < 0.001$), academic motivation ($r = .44, p < .001$), surface approach ($r = -.13, p < .001$), strategic approach ($r = .78, p < .001$) and deep approach ($r = .79, p < .001$).

Except for surface approach to learning, both main variables and sub-variables in this study are positive and significantly associated with trainees' academic achievement. However, surface approach to learning is negatively correlated with trainees' academic achievement, which means that surface approach may not be recommended for effective learning to take place.

The study findings imply that psychosocial factors (academic motivation, perceived social support and academic self-regulation) play a great deal in student's academic achievement in the polytechnic colleges under investigation and therefore, are essential for the delivery of quality teaching and learning.

Research Question 2: To what extent do psychosocial factors and approaches to learning predict trainees' academic achievement in Polytechnic Colleges of West Hararge Zone?

Multiple regression analysis was conducted to determine the predictive power/ability of main variables (psychosocial factors and approaches to learning) as well as demographic variables (age, sex, SES and sectors enrolled) on trainees' academic achievement.

Table 5: Multiple regression analysis of predictor variables on dependent variable (N = 315)

Predictors	Regression Coefficients	Std. Error	Beta Coefficients	T	Sig	R	R ²	F-ratio
Constant	-15.01	.84		-17.88	.00			
Psychosocial factors	.05	.01	.69	19.93	.00			
Approaches to learning	.02	.01	.30	8.99	.00	.85	.72	137.42
Age	.01	.03	.01	.44	.66			
Sectors enrolled	.06	.06	.03	.93	.35			
Socio economic status	-.02	.03	-.03	-.90	.37			
Sex	-.01	.11	.00	-.01	.99			

NB: * $P < .05$.

Regression equations; $Y = .69X_1 + .30X_2 - 15.01$

As can be noticed from Table 5) the finding from the regression analysis indicate that there was statistically significant positive relationship among psychosocial factors, approaches to learning and trainees' academic achievement ($R = .85$). Most

importantly, the proportion of polytechnic college trainees' academic achievement accounted for by psychosocial factors and approaches to learning is 72% ($R^2 = 0.72, F(6, 309) = 137.42, p < 0.05$). From this finding, the rest 28% ($1 - R^2$) were unpredicted

variables that contributed to trainees' academic achievement.

In the model, psychosocial factors and approaches to learning were found to be significant predictors of academic achievement ($Beta = .69$ for psychosocial factors) and ($Beta = .30$ for trainees' approaches to learning). However, age, sex, socio economic status and sectors enrolled were found to be non - significant predictor of trainees' academic achievement in polytechnic college.

Therefore, both psychosocial factors and approaches to learning are significant predictor of trainees' academic achievement. The results are in line with previous study finding (Perry *et al.* (2001), Diseth & Martinsen (2003) Allan & Bernardo (2003), Phan (2006), Afzal *et al.* (2010), Aria (2011),

Liudmila & Petra (2011), Casillas *et al.* (2012), Joann *et al.* (2015), Baris (2016), Ali *et al.* (2017) and Guay and Bureau (2018) which separately coined out that both psychosocial factors and approaches to learning were significant predictor of trainees' overall academic achievement.

Research Question 3: What are the influences of psychosocial factors and approaches to learning on trainees' academic achievement in Polytechnic Colleges of West Hararge Zone?

Stepwise multiple regression analysis was conducted to determine the relative contribution and combined influence of psychosocial factors and approaches to learning on trainees' academic achievement.

Table 6: Stepwise multiple regression analysis of main predictor variables (N = 315).

Model	Variables	Multiple correlation		Adj.R ²	F-ratio	Sig
		R	R ²			
1	Psychosocial factors	.807	.651	.650	384.75*	.00
2	Psychosocial factors Approaches to learning	.852	.726	.725	414.37*	.00

NB: *P < .05

Results revealed the relative contribution and combined influence of psychosocial factors and approaches to learning on trainees' academic achievement. Stepwise multiple regression analysis result depicted in Table 6 shows that the variance (proportion) in trainees' academic achievement accounted for by psychosocial factors was found to be 65% (AdjR² = .650, F (1, 313) = 384.75, P < .05). This means about 65% of variance in trainees' academic achievement is explained by psychosocial factors. On the other hand, about 7.5% (AdjR² = .075) of variance/proportion in trainees' academic achievement is accounted for by approaches to learning. This means that about 7.5% of variance in trainees' academic achievement in polytechnic college is explained by approaches to learning.

When both psychosocial factors and approaches to learning are combined on model two, the variance in trainees' academic achievement accounted for by these two main variables was found to be 72.5 % (AdjR² = .725, F (2, 312) = 414.37, P < .05). This means about 72.5% of variance in trainees' academic achievement is explained by psychosocial

factors and approaches to learning combined together. In fact, psychosocial factor brought a significant contribution to the variance in trainees' academic achievement (65%). These findings were found to be consistent with previous studies. For example; Phan (2006), Liudmila & Petra (2011), Casillas *et al.* (2012), Krumrei *et al.* (2013), Joann *et al.* (2015) and Ali *et al.* (2017) concluded that psychosocial factors and approaches to learning explained for positive academic achievement

Conclusions and Recommendations

It is concluded that polytechnic college trainees' academic achievement was positively and significantly correlated with approaches to learning and psychosocial factors. Therefore, approaches to learning and psychosocial factors are important ingredients for intended academic achievement to be realized. Both psychosocial factors with the sub-dimension namely perceived social support, academic motivation and academic self-regulation, and approaches to learning with the sub-dimensions namely deep approach, surface approach and

strategic approach are significant predictors of trainees' academic achievement.

It is therefore recommended that polytechnic college trainees, trainers and the managements should pay due attentions to psychosocial factors as an imperative ingredient for intended academic achievement. Having consciousness of the links among psychosocial factors, approaches to learning and trainees' academic achievement will help the trainees and trainers to achieve their ultimate goals.

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