

Attributions and Academic Achievement of Education, Medicine and Polytechnic Freshman Students in Bahir Dar

Tamirie Andualem*

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I. Introduction

In 1996/97, when the new degree programmes started, more than twenty percent freshman students (more than forty percent of females) in Bahir Dar Teachers College (BDTC) and Polytechnic Institute discontinued their education due to academic dismissal in the first semester. This was an unexpected incident that urged the Academic Commission of BDTC to discuss the causes of such high attrition rate (Academic Commission minute number 25/89; 22/9/89 E.C.).

The real causes could be various; they may be grouped under environmental (e.g. physical adjustment, scarcity of materials, and teachers' teaching and evaluation methods) and personal factors (e.g., ability, anxiety/stress and lack of self confidence).

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This study looks into the causes from the perspective of the students' belief. The prime purpose of this study is not to find out what the causes and how important these causes are to failures and successes in college academic achievement. It rather focuses on whether their beliefs/ perception of what caused their success and failures are related to academic achievement.

It is customary to hear from college students saying "I made it!" during successes and "the teacher gave me !" during failures. They attribute their successes to personal/internal factors and failures to environmental/external factors. This phenomenon is extensively studied and believed by psychologists as natural and self-serving bias. For instance, Klein (1987: 275) viewed that "we will work harder when we attribute success to an internal rather than external factor."

According to Bernard Weiner (1985), attribution theory is concerned with phenomenal causality, or the perceived reasons why a behavior, event, or outcome has occurred. Recently researchers have targeted at attributions (one's belief or thinking of the causes of one's action) and life in general. Pertaining to the importance of attribution in life, Wade and Tavis (1990,693) summarized research studies and noted that "attributions may not always be realistic or sensible but they continually influence our actions and choices". In connection with, this Wilson (1985: 9) states. "It is generally assumed that people have direct, accurate access to their own mental states, such as their attitudes, evaluations, and affects. ... We recognize that people sometimes lie about or try to hide their feelings, but we assume that people usually know their own internal states."

The situation, according to Weiner (1985), that elicits attribution includes achievement results, such as success or failure. Attribution is believed to be applied in different areas such as counseling (Layden, 1982) and education (Bar-Tal, 1982 & Weiner, 1979). How attribution is applied in educational problems is seen in the following explanation. Many of the studies of the relationship of attributions and academic related variables such as achievement, motivation, expectation, and affect have been restricted to few causes - ability, effort, task difficulty, and luck.

Many different research results (e.g., Weiner, 1985; Yan & Gaier, 1991; Ryckman & Peckham, 1986; Ryckman & Mizokawa, 1988) on these individual causal attributions (specially on ability and effort) are available. A summary of the implications and conclusions of these studies (from a review made by Bar-Tal (1978) and Gage and Berliner (1988)) is presented as follows.

In addition to these major attributions, others like teachers' and parents' roles in academic outcome and their consequences have been studied on college students' achievement (Frieze, 1976; Elig and Frieze, 1979; Bar-Tal, *et al.*, 1984; Tamir, 1995; Overwalle, 1989). Bernard Weiner, pointed out that attributions like "others' effort and others' motivation and personality" results in gratitude and aggression during success and failure respectively (1986:366).

Table I: Causal Attributions & Their Consequences During Success and Failure

Condition	Attribution	Consequence
S U C C E S S	Ability	Pride (self-esteem), expectation of similar performance in future, and willingness to engage in achievement tasks.
	Effort	Increased pride (self-esteem), relaxation and activation, expectation of possible change in future performance
	Task easiness	Decreased pride (self-esteem) and expectation of similar performance in future
	Luck	Decreased pride (self-esteem), expectation of possible change in future performance, indifference, surprise and lack of willingness to engage in achievement tasks.
F A I L U R E	Ability	Shame (feeling of incompetence), depression, expectation of similar performance (failure) in future, and avoidance or lack of persistence at achievement tasks.
	Effort	Shame (guilt), expectation of change in future performance, and persistence and willingness to engage in achievement tasks.
	Task difficulty	Decreased shame and expectation of similar performance in future.
	Luck	Decreased shame, surprise, and possible change in future performance.

As can be seen in Table I, several points indicate the relationship between students' attributions and thought (e.g. expectation), motivation and affect (e.g. self-esteem). However, only few studies have investigated the direct relationship between attributions and academic achievement (Arkin and

Maruyama, 1979; DeBoer, 1984). Darge's (1988) study on attributional responsibility of high school students, though a bit different from this study (that is, this study focuses on achievement as a function of cognitive process while Darge's focuses on achievement as a function of personality construct--locus of control), has come up with a positive relationship between internality and achievement. Generally, students with the construct of internality (internal locus of control) have attributions of internal factors like ability, effort and self-confidence related to academic outcome. In short, studying the relationship of attribution and academic achievement may help to explain and improve students' performance.

Several studies on males' and females' attributions particularly in college, revealed sex differences (e.g. Deaux and Faris, 1977; Griffin, et al., 1983; Simon and Feather, 1973; Tamirie, 1995) while few studies came up with results of no difference (e.g. Bar-Tal and Frieze, 1976; Bierhoff-Iferman & Bierhoff, 1982). The results of studies conducted in some Addis Ababa Secondary Schools are also inconsistent. Yalew's (1995) study revealed differences while Darge's (1988) didn't. Difference-revealing studies have shown that males more than females, have self-serving attributional characteristics. For instance, males, more than females, attributed successes to internal factor (ability) and failure to external factors (task difficulty and teacher's weakness). In a study of non-freshman students of AAU, males, more than females, attributed their success to ability whereas females more than males, ascribed lack of effort to failure (Tamirie, 1995).

The question of differences in academic related characteristics between students of different professions is another interesting point to raise. In Ethiopia, some fields like Medicine, Technology and Law attract many students and are attended by the best scoring students in Ethiopian Secondary School Leaving Examination (ESLCE), while others like teaching professions fail to attract students with high ESLCE grade. Based on this, the study focuses on freshman students of Education, Technology and Medicine in Bahir Dar.

On the basis of this background, this study tries to answer the following questions:

1. Is there a relationship between attributions and academic achievement of freshman students?
2. What are the major attributions of success and failure?
3. Is there a difference between males' and females' attributions to success and failure?
4. Are students of Education, Medicine, and Technology different in their attributions?

II. Methodology

Subjects: The subjects of this study are freshman students of Bahir Dar Teachers College and Bahir Dar Polytechnic Institute including Medical Science students (who attended their first year course together with students of Bahir Dar Teachers College). Because of the small size of population of females and the students of Medicine, the subjects were taken as a whole (without sampling) although those who refused to take part were not considered. Regarding Education and Technology students, a sort of cluster sampling (taking certain lecture classes randomly) was used. There were 235 males (116 Education, 40 Medicine and 79 Technology) and 16 females (12 Education, 3 Medicine and 1 Technology - 84% of the total females, the rest were not willing to participate). The above sample size, 251, was used to investigate the major attributions, and a comparison of faculties' and sexes' attributions. On the other hand, 198 respondents (out of 251) who were willing to give their identity number, served as samples for investigating the relationship of attributions and academic achievement.

Instrument and Data Collection Procedure: The instrument used in this study is a questionnaire. It has two parts - 20 items for success and 23 for failure. Many of the items in this instrument (19 out of the 20 perceived causes, and 21 out of the 23 perceived causes of failure) were validated through factor analysis (Tamir, 1995) and reliability was tested (Cronbach $\alpha = 0.81$) (Yalew, 1996). Three items of causes - one for success (good background in secondary schools) and the others for failure (inability to take lecture notes and assignment to college without interest) - are included here after looking at the responses of an open ended questionnaire. Responses of an open ended questionnaire were collected and summarized from 42 randomly taken respondents (12 of which were females) a week before the second

questionnaire was distributed. Some items (e.g., sharp mindedness and fastness in understanding and memorizing) were included in the instrument in order to check how carefully and consistently students would give their responses. These items are those which students seem to interchangeably use in daily conversation to explain their successes and failures in an academic life. The writer assumes that for two or more relatively similar causes of success/failure, one cannot rate one factor as *very highly important* (5) and another *unimportant* (1). Such rating, therefore, may be due to misunderstanding or carelessness in filling in the questionnaire. On the basis of this assumption respondents who rated *very highly important*, for example, for sharp mindedness and *unimportant* for fastness in understanding and memorizing were discarded from the study. Before discarding the responses of nineteen students (all males) the total sample size was 260.

In the instrument students were asked to evaluate their recent examination results as successes and failure. The words "success" and "failure" were used subjectively depending on how students felt about their performance. They rated the importance of the causes on a five- point- scale (5 = very highly important, 4 = highly important, 3 = important, 2 = less important, and 1= unimportant).

The instrument was administered immediately before and after classes in cooperation with the instructors. In addition to what was stated in the instrument, some concepts were orally clarified during the administration of the questionnaire. Students were told to include their identity numbers; however, a few students were reluctant to do so. 198 students (out of 251) wrote their identity numbers. Students' identity numbers were needed to identify their academic achievement. The academic achievements of these students (their first semester grade point average, GPA) was collected from the offices of the registrars of the respective colleges.

Data Analysis. Pearson-product-moment correlation coefficient was used to measure the relationship of attributions and GPA. The difference between males' and females' attributions was tested using t-test, after degree of freedom was adjusted, for the big difference between sample sizes of males and females, using the formula of Glass & Hopkins (1996). The difference between the attributions of the three faculties was tested using F-test. After significant

F- values were observed, Sheffe test (Hinkle, et al, 1982) was used to make pair-wise comparisons. Although none of these paired comparisons was significantly different, a cautious discussion is made in this paper regarding the characteristics of the means, the overall F , and the nature of Sheffe test. All the tests were checked against $p < .05$.

Assumption and Limitation of the study

Currently, the number of females in Ethiopian higher institutes of learning is significantly less than the number of males. Research carried out to compare males' and females' academic matters in colleges take female subjects equal or nearly equal to the available female population size but take a sample of male subjects from a larger population. Taking almost an equal number of subjects from an unequal population size seems difficult to serve as a basis for drawing a valid conclusion. This research doesn't escape this limitation. In spite of this, assuming a disparity of the sample size and the population characteristics of the subjects, an adjustment of a degree of freedom was made according to Glass and Hopkins (1996).

Furthermore, the data collected in this study, particularly the GPA score, was procured from those who were willing to give their identity numbers. This again may affect the randomness of the sample used.

III. Results

This study revealed different but important results of the relationship between attribution and achievement, sex, and faculty. The results were based on the

reports of causal attributions related to GPA, sex, and faculty with relatively higher correlation coefficients.

Table II: Relationships Between Attributions & Grade Point Average (GPA).

S	Attributions	r	ω^2
U	God's help	0.1745	3.05%
C	General ability (intelligence)	0.1535	2.06%
C			
E	Friend's help	-0.1444	2.09%
S	Teacher's generosity	-0.1303	1.70%
S			
F	Lack of effort	0.1983	3.93%
A	Placement to the college	-0.1858	1.858%
I			
L	Falling in love with the opposite sex	0.1611	2.60%
U			
R	Difficulty of the exam.	-0.1336	1.78%
E			

As Table II shows, God's help ($r = 0.17$, $p < 0.05$) for success, lack of effort ($r = 0.20$, $p < 0.05$) and placement in the college ($r = -0.19$, $p < 0.05$) for failure are related directly to students GPA with statistical significance. Although they are not statistically significant at the given $p < .05$, falling in love with the opposite sex ($r = 0.16$, $p > .05$) and general ability or intelligence (its score is a composite of sharp-mindedness, and ability and how fast the subjects are in understanding and memorization, see App A) ($r = 0.15$, $p > .05$) are important causes next to lack of effort, assignment to college and God's help.

Apart from its relationship with achievement, the perceived causes of success and failure in terms of their importance is shown in this study (see the detail in App. B). The first three causes for success are God's help ($x = 4.5$, $s = 0.92$), self-confidence ($x = 4.49$, $s = 0.84$) and interest in the subject ($x = 4.49$, $s = 0.80$), and the first three causes for failure are health problems ($x = 3.55$, $s = 1.55$), unplanned study ($x = 3.5$, $s = 1.34$) and scarcity of appropriate materials ($x = 3.46$, $s = 1.25$). The other area of interest of the study was to investigate whether there

exists a difference between males and females, and among faculties.

Table III. T-values and F-values of Attribution Differences Between sexes, and Faculties.

		SEX						Faculty						F
		M (235)		F (16)		v	t	Ed. (128)		Med. (43)		Tech. (98)		
		x	s	x	s			x	s	x	s	x	s	
S	Luck	2.54	1.49	1.94	0.93	20	2.12*							
U	Easiness of the Exam.	2.62	1.36	3.18	1.40	17	-1.88							
C	Good Lang. Command	3.87	1.10	4.35	0.46	29	-2.60*							
E	Hard work	4.20	0.83	4.59	0.38	26	-2.39*							
S	Good back -ground	3.99	1.28	4.53	0.51	30	-2.86*							
	Friend's help							3.23	1.43	2.98	1.42	3.68	0.93	6.30*
F	Unluckiness	2.17	1.67	1.65	0.87	23	2.14*	1.82	1.34	2.27	1.5	2.41	1.84	4.24*
A	Luck of effort	3.28	1.85	3.96	1.90	17	-1.95							
I	Language problem	3.14	1.83	4.12	1.11	21	-3.59*							
L	Slowness in under	2.95	1.94	3.71	2.10	17	-2.07*							
U	Diff. of the Exam.	2.84	2.12	4.12	1.49	19	4.14*							
R	Diff. of the subject	3.27	2.13	4.24	1.07	24	-3.56*							
E	Teachers bias							2.55	2.16	2.95	1.72	3.46	2.60	8.35*
	Lack of interest							3.23	2.35	3.74	1.58	2.93	2.10	4.50*
	Placement in the college							3.41	2.80	2.62	2.57	2.51	2.52	6.13*

* $p < 0.05$ v stands for adjusted degree of freedom

As shown in Table III, females, more than males, explain good language command, easiness of the exam, hard work, and good background to success; and, language problem, slowness in understanding and difficulty of the exam to failure. Moreover, females, less than males, associate luck to success and unluckiness to failure.

When faculties are compared, it is only on a few attributions that statistically significant differences are observed. These groups of students vary in the belief of the role of a friend's help to success. Polytechnic students, followed by Education students, emphasized the role of friends' help to success. Attributions for which students had different responses related to failure included unluckiness, teacher's bias, lack of interest and placement to college. Polytechnic students were the first group to attribute unluckiness and teacher's bias to failure. Medical science students and Education students, respectively,

differed from others in their view of failure as related to lack of interest in subjects and assignment to college. In spite of this, all the paired-wise comparisons are the same with a statistical significance according to Scheff-test.

IV. Discussion

As the major purpose of this study was to investigate the relationship between causal attribution and academic achievement, it was revealed that the relationship between attributions and academic achievement was significant. This is consistent with DeBoer (1983) and Arkin & Maruyama (1979). The index of relationship between lack of effort in failure and GPA (the highest of the indices) can be interpreted as: whenever high scorers fail, they attribute their failure to lack of effort more often than average or low scorers do or the vice-versa. This implies that if one attributes his failure to lack of effort, one is very likely to improve his future achievement. This is strengthened by what Borich and Tombari (1995) recommend to teachers: for improvement in academic performance students have to be persuaded to explain their success and failures to effort - a cause that is internal and controllable. This helps students exert more effort in their academic tasks (Frankel, 1985; Bar-Tal, 1978). Although it's relationship with GPA is not statistically significant in this study, different findings (Weiner, 1985; Bar-Tal, 1978) reported the crucial role that ability-attribution (a cause that is internal and stable) affects students self-esteem and expectation in the case of success. This may be because of culture or upbringing. For instance, individuals who win a competition are not usually heard saying 'I am able'; rather, they say 'I am lucky', 'I tried my best,' and so on.

Placement in college without interest is rated as *an important* cause for failure and is significantly related to achievement.

The role of God's help for success was rated first (very important) (consistent with Tamiré, 1995) and is found significantly related with GPA. This seems to suggest that "Belief" is related to achieving. Students in colleges may believe that God's help is stable, universal (that touches every part of one's life) and positive. However difficult it may be to explain thoroughly how

"Belief" is related to achievement, it could be safe to suggest that students need to maintain and to be firm in their belief in God's help.

Falling in love with the opposite sex is not rated as *an important* cause for failure by the majority of the students (see App B). Nevertheless, this cause is the fourth in the index of relationship with GPA during failure. This is a result worthy of explanation. That it is not rated as *an important* cause for failure may be explained as follows. The types of upbringing of the majority of the students in Ethiopia may not encourage them to openly report about issues related to their love affairs. That love positively correlates with GPA means that students with high academic performance are affected by love more than those with low academic performance.

The other point in this study is to see the perceived causes of and the degrees of importance attached to success and failure. God's help, self-confidence, and interest in the subject are the first three perceived causes for success. In an earlier study of non-freshman AAU students, God's help, interest and self confidence were the first three causes for successes (Tamir, 1995). But in the case of failure the two studies are not similar. While, in AAU, teacher's incompetence in teaching, scarcity of learning materials and bad grading system in the university are the first three causes; those in Bahir Dar are health problems, unplanned study and scarcity of learning materials. Actually, health problems in Bahir Dar Teacher's College have almost become factors that deter students to join the college. The other two major perceived causes for failure were unplanned study and scarcity of learning materials. Perceived unplanned study could be changed with the help of teachers and the guidance of counselors. Scarcity of appropriate materials for learning, truly, is a hindrance for learning in the college. Although there are many different books, lack of space in the library and its poor services do not encourage its use.

The discussion of the relationship between sex and attribution is similar, in general, to the issues mentioned by Deaux and Faris (1977), Griffin, *et. al.*, (1983). Females' emphasis of lack of effort to their failure is consistent with Tamir (1995). But what makes this result different from some studies like Yalew's (1996) and Tamir's (1995) in many dimensions, is some of the attributions are rather in favor of females. Although they attribute both their successes and failures to external and internal factors, more than males do, they also attribute successes and failures to effort and luck. In other words, females

relate their achievement to their effort more often than males do; however, females attribute their achievement to luck less often than males. This indicates that females, more than males, will most likely improve their performances. This result may be due to: one, "assertiveness training" and "guidance for college adjustment" were given, respectively, by experts from the Ministry of Education and Bahir Dar Teachers' College mainly to female students; two, these are students who coped with the challenges of the beginning of higher education. It should be noted that more than half of female freshman failed and left the college at the end of first semester; and the subjects of this study were those who passed first semester examination.

In terms of faculties, Education students more than others attributed that assignment to college without interest resulted in their failure. This may imply that the students either didn't choose the college, or disliked it after they came to college probably because they stayed together with students assigned to supposedly cherished field of specialization -Medicine and Technology. On the other side, Polytechnic students, more than others, seemed to have perceived a friend's help for success, and unluckiness, and teachers' bias for failure. An open and close relationship between teachers and students (for instance, if teachers showed students their exam results and the grading formula or scale they used) changed this situation. Lack of interest in subject(s) as a cause of failure was emphasized by Medical Science students. This attribution may change in the future as the lessons they would attend would be different (more practical) and most likely interesting. Education students' ratings of lack of interest in the subject for failure was more than *important*, though not as important as that of Medical Science students.

V. Summary and Conclusion

Attributions are explanations or inferences that people make about their performance or behaviors. Attributions, thoughts/ expectations, motivation and emotion, and behaviors were discussed as interdependent factors. Another focal point was whether or not females' and males' attributions were different. Besides, the study looked at faculty as a factor.

A total of 251 subjects were involved in the study. A five-point rating scale instrument was developed based on responses on an open-ended questionnaire.

The attribution scale had basically two parts – 20 items for perceived causes for success and 23 items for perceived causes for failure. This instrument was distributed to the students at the beginning of the second semester immediately after classroom lectures were over. The results revealed that some causal attributions - God's help, to success; lack of effort and placement to college attributed to failure - were significantly related to GPA. God's help, self confidence and interest in the subject were the first three major attributions of success; and health problem, unplanned study, scarcity of appropriate materials were the first three perceived causes for failure. Males and females differed in their responses, among other things, regarding luck to success and failure, language command to success and failure and hard work to success. Differences were also seen among faculties in friends' help to success, unluckiness, teachers' bias, lack of interest and placement to college to failure.

To conclude, freshman students' attrition was mainly due to inability to exert the necessary effort. Apart from its relationship with self-esteem, expectation and study behavior (Weiner, 1979; Bar-Tal, 1978), an attribution to performance was revealed in this study to be correlated with performance itself. This made clear that teachers and counselors should persuade students to attribute their performance to internal and controllable causes, such as effort.

This study also indicated that females attribute their performance to internal and controllable factors. For instance, females, more than males, attributed their successes and failures to effort. Intervention techniques like assertiveness training given to females in all colleges in the country and a global concern to females' education in general, may help students to attribute such factors as effort (against luck) as major causes of academic achievement.

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