

# A Study on Pygmalion Effect: A Case of Academic Training in a Military Unit

Yasir Mushtaq | Dr. Manzoor Khalidi  
yasir.mush@gmail.com | makhalidi@gmail.com

## Abstract

*The purpose of this study is to investigate the impact of leaders' expectations and behavior on subordinates' performance in order to validate the theory of Pygmalion effect in a training unit of Pakistan Air Force. For this research, questionnaires have been adopted from the study of (Hsu, et al., 2009). These questionnaires include three variables namely: Perceived Behavior of Leader (independent variable), Performance of Subordinate (dependent variable) and Self-Efficacy (mediating variable). The trainers of a PAF training unit are the leaders and the Junior Commissioned Officers (JCOs) trainees are the subordinates. The questionnaires of Perceived Behavior of Leader and Self-Efficacy have been filled by 150 subordinates while the questionnaire on their Performance has been filled by the leaders. The questionnaire has shown high internal consistency. The findings also provide support for the basic relationship proposed in the traditional Pygmalion model. Results have suggested that when the trainers have been supportive, collaborative, resourceful and encouraging then the trainees have shown high self-belief resulting in high performance. The results support the notion that leaders trigger the sense making of the subordinates which is required for better performance. The study has been conducted in a military environment; therefore, the results of this study may vary in an open environment like universities and colleges. The results are limited to JCOs only, however the same study can provide different perspective for PAF Officer or military personnel of sister services. The results can be helpful to the authorities in acting more precisely to increasing the performance of the trainees through Pygmalion effect. The study can provide a basis for future research in the field of military training.*

**Keywords:** Pygmalion Effect, Self Efficacy, Perceived Behavior of Leader, Junior Commissioned Officers, Pakistan Air Force.

## Introduction

Leadership impacts upon the productivity of organizations (Bass, 2008) and the relationships within each organization (Raza, 2013). The

relationship between productivity of the organization, relationships within organization and performance of the employees has been studied by various researchers under different

The main author is a student of MS Management Sciences at SZABIST, Karachi.  
The co-author is a Professor at College of Management Sciences PAF-KIET

contexts (Hite, et al., 2014), (Bass, 2008), (Kotter, 1996), (Kouzes & Posner, 1995) have studied the characteristics of a leader and their role in the productivity of an organization. (Ramthun, 2013), (Whiteley, et al., 2012), (Reynolds, 2007), (Shamir, et al., 1993) are some of the researchers who have studied the role of the followers in an effective leadership style. The relationship has been studied in educational, military, business, media, societal and many other contexts.

(Livingston, 1969) was the first theorist who gave Pygmalion theory an official entry in his published article "Pygmalion in Management". (Hite, et al., 2014), (Ramthun, 2013), (Whiteley, et al., 2012), (Babad, 1995), (Rosenthal & Rubin, 1978), (Rosenthal & Jacobson, 1968) have studied the concept of Pygmalion in educational sector. (Winter, et al., 2013) studied the concept in social context. (Raza, 2013), (Shamir, et al., 1993), (McNatt, 2000), (Reynolds, 2007), (Avolio, et al., 2009) studied the concept in business context while (Oz & Eden, 1994) and (Hsu, et al., 2009) have studied the concept of Pygmalion in a military context. The concept of Pygmalion has been scarcely studied in a Pakistani environment. The main objective of the study is to explore the leader-follower expectations in a military training environment. The study will help the leaders of Pakistani military (generally) and Pakistan Air Force (specifically) to create an environment whereby the soldiers would meet the expectations of their commanders.

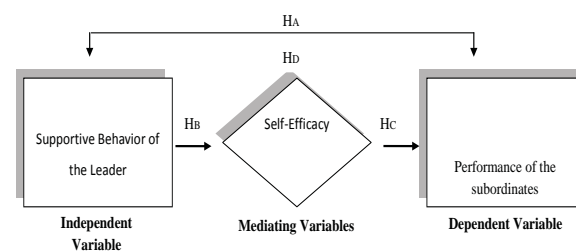
## Research Objectives

The research objective of this study is to explore the leader-follower expectations in military environment, specifically in order

to validate the theory of Pygmalion in the context of a Pakistan Air Force training unit. The research will specifically explore following research objectives:

- To establish a link between leadership behavior and performance of the subordinates.
- To determine the relationship between leadership behavior and self-efficacy of the subordinates.
- To establish the relationship between self-efficacy of subordinates and their performance.
- To determine the impact of self-efficacy on leadership behavior and the performance of subordinates.

Figure 4.1



## Conceptual Framework

In this research, the Leaders' supportive behavior is taken as an independent variable. The independent variable is the input variable, whereas, the dependent variable is the output variable, which in this research is the performance of the subordinate. Self-Efficacy is the mediating variable which may explain the relationship between the dependent and independent variables. (Hsu, et al., 2009), have suggested that self-efficacy is closely associated with the perception of the leaders' supportive behavior and

performance of subordinates. There is also a variable which shows the characteristic of research participants. This variable is the trade of the subordinate. Such variables are called organismic variables. In PAF, the trades of airmen and the JCOs are broadly classified as technical and non-technical trades. The technical trades include all airmen and JCOs who are involved in the working of aircrafts directly trades like Radar Operator, and Engine Fitter.  $H_A$ ,  $H_B$ ,  $H_C$  and  $H_D$  show the hypothesis to be tested in this research.

### Literature Review

Dove Eden, who is a highly acclaimed organizational psychologist and organizational developer, claims that leaders' expectations of subordinates can have a powerful effect on productivity of the organization. Raising the expectation of a leader from his followers boosts productivity. This is the Pygmalion effect in management (Eden, 1992). Similarly, the subordinate who has a powerful self-belief has a high and positive impact on the output that he generates. (Eden, 1992) says that Pygmalion is the only approach that adapts an activist stance towards expectancy while unleashing dormant energies at workplace.

There are managers who always treat their subordinates with the expectation that they will generate high results. (Livingston, 1969) in his article "Pygmalion in Management" has mentioned that most managers treat their subordinates in a way that leads to lower performance than their capabilities. He highlighted one of the most comprehensive experiments on managerial

expectations and the productivity of the employees which was conducted by Alfred Oberland in 1961 at the Metropolitan Life Insurance Company. Oberland observed that new insurance agents performed better in outstanding agencies compared to average or below average agencies. He grouped his agents into units. He assigned six outstanding agents with his outstanding assistant manager. Likewise, he grouped six average performers with average assistant manager and his below average performers with below average assistant manager. The results showed that the superior group was self-labeled as the premium performers, so their performance increase to higher than expected. The average group also performed higher than expected because the assistant manager refused to consider her group as lesser than the superior. However, the performance of the below average group fell as expected. This indicated that self-image of the leader has a positive relationship with the productivity. The positive expectations yielded positive results and negative expectations yielded negative results.

According to this article, productivity is likely to be high if the expectation of manager from his/her employee is high. Similarly the productivity is likely to be low if the expectation of the manager from his/her employee is low. (Livingston, 1969) has mentioned that creating such positive expectations is a very difficult task. He has marked following points to influence managers' expectations on followers' behavior:

- It is the expectation of the manager which determines the performance and career

progression of the subordinates.

- Creating high performance expectation is the unique ability of superior managers.
- The productivity of the subordinates is poor when the manager fails to develop high expectations.
- Subordinates do only what is expected of them to do.

Figure 4.2



### Dimensions of variables of Pygmalion Effect

The model mentioned by the researcher in figure 4.2 highlights the dimensions of Pygmalion effect in an organization. In this model, the leaders' belief and leaders actions are the dimensions of Leaders' support variable. Self-belief of subordinates is a dimension of self-efficacy variable, whereas, the dimensions of performance variable are the performance of subordinates and the organizational productivity.

### Research Methodology

The study has a deductive research approach based on the general idea to reach at the specific situation and it is linked with the positivism paradigm. The population will include Officers who are generally the leaders

and Junior Commissioned Officers in the PAF, who are generally the immediate subordinates of Officers.

Officers and Junior Commissioned Officers (JCOs) of Pakistan Air Force are the sample for this research. Sample size for this research is 150 JCOs of different trades and specialty representing various bases and lodger units of PAF. In PAF, all the serving JCOs are male. Similarly, the sample size for the officer is 10 officers who are on instructional duties.

The sample is taken by non-probability sampling technique. Participants were selected through the criteria-based sampling technique. The questionnaire is distributed to those JCOs who have come to a training unit for their career course. This course has a span of two months. There is a specific criterion for the selection of JCOs for their career course. The participants for this study have an average age of 40 years and an average service length of 21 years. Furthermore, they have to meet some other academic, disciplinary and medical pre-requisites. Similarly, the officers are those who are working as instructors in the training unit. In most of the training institutes of PAF, there is a concept of tutor-trainee. Under this concept, a group of trainees are monitored, facilitated and mentored by an individual instructor. During the whole training, the trainees share their work and their requirements with their assigned tutor. In this research, each instructor will have 15 trainees to evaluate based on their performance during the course. The JCOs are marked with codes starting from 001 to 150. The questionnaire will be distributed to JCOs about "supportive behavior of leader" and "self-efficacy", while

10 officers will be given 15 questionnaire each as per the coding of their trainees. The responses are kept confidential as the trainee participants are given numeric codes while the instructors are assigned with alphabetical codes.

For this research a questionnaire has been adopted from the research study of (Hsu, et al., 2009). This questionnaire has three variables namely: self-efficacy, perceived behavior of leader and performance of subordinate. JCOs will be given the questionnaire of "self-efficacy" developed by (Carmeli & Schaubroeck, 2007), and "perceived supportive behavior of leader" which is developed by (Tierney & Farmer, 2004). The questionnaire of "performance of the subordinates" will be given to the officers. This questionnaire was originally developed by (Scott & Bruce, 1994) and Zhou & George, 2001). These entire questionnaires are based on 5-point Likert scale. T-tests, correlation and linear regression were applied on the data for analysis. Additionally, Andrew. F Hayes Process was installed as an add-on in SPSS to analyze the mediating relationship mentioned in Hypothesis H<sub>D</sub>.

## Data Analysis and Findings

The value of Cronbach's Alpha for both the scales reflects a strong internal consistency among items with in both the scales. Table 4.1 highlights the values of internal consistency of scales.

Table 4.1

### Internal Consistency of Scales

SCALE	VALUE
PERCEIVED SUPPORTIVE BEHAVIOR	0.954
SELF-EFFICACY	0.892
PERFORMANCE OF THE SUBORDINATE	0.942

In this research, 90 participant trainees are from the Technical Trades while rests 60 are from Non-Technical Trades.

Table 4.2 shows high mean values supporting the statement that the participants are positively agreeing to all the variables. The mean values are high with thick concentration as indicated by low values of standard deviation. The mean values for participants representing technical trade show slightly higher agreement on all the three scales with better concentration of feedback compared to

Table 4.2

### Description of Variables

TRADES	VALUES	PERCEIVED SUPPORTIVE BEHAVIOR	SELF-EFFICACY	PERFORMANCE OF SUBORDINATES
TECHNICAL	Mean	3.92	4.04	3.91
	N	90.00	90.00	90.00
	Std. Deviation	0.50	0.46	0.52
NON-TECHNICAL	Mean	3.45	3.70	3.35
	N	60.00	60.00	60.00
	Std. Deviation	0.57	0.65	0.56
TOTAL	Mean	3.73	3.90	3.68
	N	150.00	150.00	150.00
	Std. Deviation	0.58	0.57	0.60

the non-technical trade participants. The mean values are slightly higher with lower standard deviation of technical trade participants.

### Analysis of Correlation

Table 4.3 shows the correlations of among the three variables. The relationships are all positive. The table shows that the relationship between independent variable which is perceived supportive behavior and the dependent variable which is performance of subordinates is strongly positive.

Table 4.4 shows the R and R square values. The correlation is represented by R which is 0.84. This is strong correlation between dependent and independent variables. The R square value here indicates 70% of the total variation in the dependent variable can be explained by the independent variable. This means that 70% of variation in the performance of subordinates can be explained through perceived supportive behavior of the manager.

### Hypotheses Testing and their Analysis

The research has been able to answer the research questions. The research has also been able to provide results on the research hypothesis.

#### **H<sub>A</sub>: Leadership Behavior and Performance of Subordinates**

The findings reflect that the individuals' perception of leader's supportive behavior is positively related to their performance producing a correlation of 0.84. The Beta Coefficient is showing a value of 0.874 and is statistically significant. This means that the for each unit increase in predictor variable,

the outcome variable is increasing by 0.871 units. The value of 3.73 derived from the T-test indicates that the participants are inclined towards agreeing in favor of supportive role of their leaders/managers for better performance. This is an indication that the trainers in the PAF training unit have been able to provide the support needed to the good performance of the trainees. The actions of trainers and their supportive behavior have been acknowledged by their subordinates. Higher the perceived behavior of the trainers, higher is the performance of the JCO trainees.

#### **H<sub>B</sub>: Leadership Behavior and Self Efficacy**

The findings reflect that the individuals' perception of leader's supportive behavior is positively related to their self-efficacy producing a correlation value of 0.65. The Beta Coefficient is showing a value of 0.637 and is statistically significant. This means that the for each unit increase in predictor variable, the outcome variable is increasing by 0.637 units. The value of 3.90 derived from the T-test indicates that the participants are inclined towards agreeing in favor of having self-efficacy. It clearly reflects that the trainees going through the course have high self-esteem.

#### **H<sub>C</sub>: Self Efficacy and Performance**

The findings reflect that the individuals' self-efficacy is positively related to their performance producing a correlation value of 0.70. The Beta Coefficient is showing a value of 0.741 and is statistically significant. The value of 3.63 derived from the t-test indicates that the participants who were trainers (leaders) agree that the trainees (subordinates) going



through the course have performed in an acceptable manner. The figures achieved from t-test are reflecting that the participants of the course have high perceived supportive role of leaders as well as they have high self-esteem. This has resulted in good performance which has been judged by their leaders.

#### **H<sub>0</sub>: Self Efficacy Mediating the Relationship between Leadership Behavior and Performance of Subordinate**

The hypothesis that an individuals' self-efficacy will mediate the relationship between perception of supervisor's supportive behavior and their performance is tested by the widely used procedure suggested by (Baron & Kenny, 1986). This method consists of testing the independent variable with (a) mediating variable (b) with independent variable and (c) with both mediating variable and dependent variable.

If the dependent variable is taken as Y (performance of the subordinates), the independent variable is taken as X (Perceived Supportive Behavior of Leader) and the mediating variable is taken as M (Self-efficacy), then the following steps will be taken to test the mediating variable mentioned in figure 4.3:

When the analysis was conducted, the results supported hypothesis H<sub>0</sub> as the regression coefficient for self-efficacy was found significant in contributing to performance of subordinates and perceived supportive behavior of the leaders. The regression coefficient was also found significant between perceived behavior of leader and the performance of subordinates. The Andrew. F Hayes Process was installed as an add-on to

analyze the last condition mentioned in figure 4.3. The result supported H<sub>0</sub> as the regression coefficient for dependent variable and independent variable was found significant. Addition to this, the significance for dependent variable and independent variable decreased when the researcher entered the mediating variable in the analysis. The presence of the mediator variable; confirms the mediation effect. A measure for the indirect effect of independent variable on dependent variable is 7.58. The insignificant value of 0.208 of coefficient of significance indicates that self-efficacy is fully mediating the relationship between perceived supportive behavior of leaders and the performance of subordinates.

The results found during the findings of this study are consistent with that of (Tierney & Farmer, 2004) and (Hsu, et al., 2009). The JCO trainees have found their trainers as role model leaders. The JCOs have shown high expectations from one's own abilities. This is the reason that self-efficacy has served as the mediating relationship between expectations and performance. The people serving in the armed forces are generally mentally strong and self-motivated (Oz & Eden, 1994). This may be the reason that the result of self-efficacy has shown high grades.

#### **Conclusion**

This study explores how the supportive behavior of the trainers can influence self-efficacy among the trainees and that in result can improve the performance of the trainees during their academic training at PAF training unit. The study reveals that there is a positive and a strong relationship between perceived supportive behavior of trainer and

the performance of trainees. The results found during the conduct of this study are similar to that of (Tierney & Farmer, 2004) and (Hsu, et al., 2009). The former have investigated the results in an academic context which also includes military academic college by obtaining data from 241 students.

The study has revealed few significant results. Firstly, the Chronbach's Alpha for all the three scales used in this study have high values. The scale developed (Tierney & Farmer, 2004) on perceived supportive behavior of the leader valued 0.954, the scale developed by (Carmeli & Schauboeck, 2007) on Self-efficacy valued 0.892 while the scale developed by (Scott & Bruce, 1994) and (Zhou & George, 2001) of performance of subordinates valued 0.942. (Mallery & George, 2003) argue that the value of Chronbach's Alpha for any scale is acceptable if it is greater 0.70 but less than 0.80. However, if the value is greater than 0.8 but less than 0.9 then the scale has a good internal consistency. Similarly, the internal consistency is excellent if the value of Cronbach's Alpha exceeds 0.90. The value of Cronbach's Alpha for all the three scales, in case of this study reflects an excellent internal consistency. Secondly, the JCO trainees have mentioned high supportive behavior shown by their trainers as they have served as good role model for them. They work to help their trainees secure resources during the training. The trainers have specially being able to make the trainees set their goals during the course of the training period. On other hand, the trainers have given high weightage to the hardworking nature of the trainees and paid high grades to their confidence. However, they have also reflected comparatively low shades in providing solution to problems and giving

new ideas. Moreover, the self-efficacy has served as the mediating relationship between expectations and performance. This means that the hypothesis has been successfully proved through this research.

The results provide support for the basic relationship proposed in the traditional Pygmalion model. The performance expectations of the leader will ultimately influence the performance of the subordinates through the supportive behavior of the leader. Results have suggested that when the trainers have been supportive, collaborative, resourceful and encouraging then the trainees have shown high self-belief in showing high performance. The results support the notion that leaders trigger the sense making of the subordinates which is required for better performance. The results show that the trainee believes that he has the capability when he works with leader who supports his confidence and serve as a role model.

As in the case of any study, there are some limitations that bear noting. The data collected was from a military academic context. Therefore they cannot be generalized to other fields. The results may also vary when the study is applied to an open environment like universities and colleges where the students are asked to be more creative and problem solving initiators. Future researches can be useful in the field of military as it is an untapped area. Further research is needed to substantiate the conditions in which interpersonal expectancies for creative work are most influential. The current study was focused on the role of supportive behavior of leader in increasing the performance



of the subordinates; however for future research, work group peers may also serve asan alternate source of expectations for employees (Zhou & George, 2001).

Figure 4.3

### Analyzing Mediating Variable

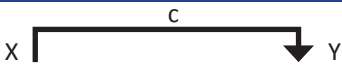
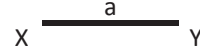
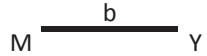
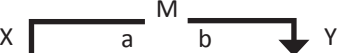
STEP ANALYSIS	VISUAL ANALYSIS
1 Conduct simple regression analysis with X predicting Y to test for path c alone	
2 Conduct simple regression analysis with X predicting M to test for path a	
3 Conduct simple regression analysis with M predicting Y to test for path b	
4 Conduct multiple regression analysis with X and M predicting Y	

Table 4.3

### Correlation among Variables

		PERCIEVED SUPPORTIVE BEHAVIOR	SELF-EFFICACY	PERFORMANCE OF SUBORDINATES
PERCIEVED	Pearson Co	1.00	0.65	0.84
SUPPORTIVE	Sig. (2-tailed)		0.00	0.00
BEHAVIOR	N	150	150	150
	Pearson Co	0.65	1.00	0.70
SELF-EFFICACY	Sig. (2-tailed)	0.00		0.00
	N	150	150	150
PERFORMANCE OF	Pearson Co	0.84	0.70	1.00
SUBORDINATES	Sig. (2-tailed)	0.00	0.00	
	N	150	150	150

Table 4.4

### R Square Analysis

R	0.841
R SQUARE	0.707
ADJUSTED R SQUARE	0.705
STANDARD ERROR OF THE ESTIMATE	0.326

Table 4.5

### Regression Analysis

HYPOTHESIS	R SQUARE	SIGNIFICANCE	BETA COEFFICIENT
HA	0.841	0.00	0.874
HB	0.425	0.00	0.637
HC	0.486	0.00	0.741

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## Appendix: Questionnaire

CODE: \_\_\_\_\_

TRADE: TECH / NON-TECH

Perceived Supportive Behavior (Tierney and Farmer, 2004)

During the course, I felt that my instructor has:

S.NO	STATEMENTS	STRONGLY DISAGREE	DISAGREE	NEUTRAL	AGREE	STRONGLY AGREE
1	Attempted to get information / material I needed to do my course.					
2	Stood up for my efforts.					
3	Publicly recognized my efforts.					
4	Support my confidence.					
5	Served as a good role model.					
6	Encouraged me to collaborate with others					
7	Not Praise my work (R)					
8	Worked persistently to secure resources I needed					
9	Praised my efforts even if they weren't successful					
10	Encouraged me to set goals					
11	Stressed the importance of idea sharing among classmates.					
12	Actively sought relations/communication with outside members.					
13	Provided valued rewards for my work.					
14	Tried to help me obtain necessary knowledge for my studies.					
15	Praised my work					
16	Encouraged me to communicate openly with classmates					

Self-Efficacy (Carmeli and Schaubroeck, 2007)

During the course:

S.NO	STATEMENTS	STRONGLY DISAGREE	DISAGREE	NEUTRAL	AGREE	STRONGLY AGREE
1	I will be able to achieve most of the goals that I have set for myself.					
2	When facing difficult tasks, I am certain that I will accomplish them.					
3	In general, I think that I can obtain outcomes that are important to me in a befitting way.					
4	I believe I can succeed at most of the things to which I set my mind					
5	I will be able to overcome many challenges.					
6	I am confident that I can perform on many different tasks.					
7	Compared to other people, I can do most tasks very creatively.					
8	Even when things are tough, I can perform quite good					

INSTRUCTOR: \_\_\_\_\_  
Performance (Scott & Bruce, 1994; Zhou & George, 2001)

During the course, this trainee:

S.NO	STATEMENTS	STRONGLY DISAGREE	DISAGREE	NEUTRAL	AGREE	STRONGLY AGREE
1	Was involved in methods that might improve learning environment.					
2	Generates healthy discussions.					
3	Promotes and champions ideas to others.					
4	Exhibits creativity on the jobs when given the opportunity to.					
5	Is confident					
6	Provides solutions to the problems					
7	Served as a good role model.					
8	Often comes up with solutions to problems at work.					
9	Is a good source of creative ideas					
10	Is hardworking					