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**APPLICATION OF ATTRIBUTION THEORY IN AGRICULTURAL EXTENSION AND EDUCATION A NEW APPLIED VIEWPOINT: CASE OF IRAN****Arman Bakhshi Jahromi**

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**Abstract**

*Do you wonder why some farmers try hard? Why some farmers work hopefully while others are hopeless? And etc.? In attribution theory, individual's explanations and excuses about success and failure are discussed. People want to ascribe the cause of their successes and failures to something or someone. Attribution theory explains that, individuals attribute the results of action, generally to four main causes: ability, effort, task difficulty, and luck. These causes can be grouped into three main dimensions: internality (or externality), stability, and controllability. This research, has aimed to examine and study the attribution theory for successful and unsuccessful wheat grower's and to specify that to what they attribute their successes or failures Survey research methodology was used in this study. The population included irrigated wheat growers in Shiraz, Iran. With using two stage stratified random sampling method, 217 farmers (wheat growers) were sampled and interviewed. The findings show that wheat yield performance has a positive significant relationship with attribution to effort and to ability. But it has a negative significant correlation with attribution to task difficulty and to luck. Also according to the findings, attribution to internal factors and attribution to controllable factors have strong and significant relationship with wheat yield performance of farmers. Paying more attention to developing motivational and psychological attitude of farmers, and increasing their technical information are some suggestions of the study. It should be considered that no research was found about farmer's attributional style in the review of literature.*

**Introduction**

Do you wonder why some farmers succeed while others fail? Why some farmers try hard? Why some farmers work hopefully while others are hopeless? Why some farmers expect to succeed whereas others anticipate failing? Why some believe that they are overpowered?

Motivation can influence all of man's behavioural aspects and also has an influence on individuals' perceptions, conceptions, learnings and reasonings. So, Motivation is foundation of mans' behaviour. Paying attention to motivation not only will decrease psychological difficulties but also makes possible human's growth (Zamani, 1992, P.233).

Motivation is supported by a complex system of thoughts and feelings. When we succeed or fail at a task, we naturally think about who or what was behind our success or failure. We look to assign responsibility, to understand the causes of our performance. That is, we make

attributions about who or what was responsible for how we performed. These attributions are systematically related to different kinds of subsequent behaviour. Attributions are also the source of our feeling good, bad, or indifferent after we succeed or fail, that is, attributions have affective (emotional) consequences. Because our attributions influence both our subsequent behaviour and our feelings, we need to study them more closely.

Attribution theory is important in understanding how people [including farmers] might interpret their level of performance (on academic task, [on producing farm product and so on]), and how use feedback on their performance (Slavin, 1986, P.353). We often don't make an effort to think that carefully about our attributions (Brehm, 1993, P.111).

### **Purpose**

This research, has aimed to examine and study attribution theory (that is an explanation of motivation that focus on how people explain the causes of their own successes or failures) for successful and unsuccessful wheat grower's and to specify that to what they attribute their successes or failures. In other words this research is seeking to specify the factors to which Wheat Growers (WG) attribute their successes and unsuccesses in producing wheat.

Considering that no research about farmer's attributional style was found in the review of literature and also considering that there are very various factors in agricultural production process (in comparison with the other fields in which attribution theory has been tested, e. g., academic achievement), this research, certainly, has some deficiencies and weak points. It is hoped that the present research be a basis for next comprehensive researches.

### **Theoretical Base**

During the decades between 1930-50 the field of motivation was central in psychology (Weiner, 1985, P. 569). The word "motivation" is used to describe a drive, need, or desire to do something specific or general (Slavin, 1986, P.354).

We must recognize that motivation is Hypothetical Construct. That is, we cannot directly observe a person's motivation - all we can observe is a person's behaviour and the environment in which a person is active. Motivation is something within the individual, interacting with the environment, that we suppose arouse, directs, and sustains behaviour (Fanelli, 1977, P. 2).

One of the applied subjects of motivation is explanations and excuses about success and failure. An explanation of motivation that focuses on how people explain the causes of their own successes and failure is called attribution theory (Slavin, 1986, P.351). It has been rather definitively documented that causal attributions influence expectancy of success (Weiner, 1985, P.559). One of the main assumptions in attribution theory is that searching for understanding and conception causes of event is the chief motivation for human. So this theory wishes to find the way in which individuals explain and describe the causes of events and causal factors. In other words, the term "attribution" refers to reasons or causes that individual declares for events or for his behaviour's result and of course, it is a personal inference.

In theory, beliefs about the causes of success and failure, known as causal attribution, mediate between the perceptions of an achievement task and the final performance. Such attributions determine the motivation to try harder in the future. Low expectancy of success and helplessness, associated with lack of ability ascriptions, are assumed to retard achievement strivings (Chandler, 1996, P.747).

Attribution's theorists examine causal conceptions or judging about why behaviour is done. In other words, causal conception is an observer's inference about cause of behaviours (his/her

behaviour or others') (Khayyer, 1990, P. 3). Attribution theory (that seeks to understand explanations and excuses, particularly when applied to success and failure (Slavin, 1986, P.351)), is a part of psychology and educational psychology and it has been applied for examining the causes of learner's failure and success, nevertheless, researchers have tested this theory in different occupational fields and with various subjects as: nurses, marketing managers, individuals with different nationalities, religions and sex, riches and poor; and have measured relation between this theory and individuals characteristics (Chebat, 1992, Hunter, 1992, McCollum, 1995, Nurmi, 1992, Weiner, 1985). In brief, we can classify attribution along three dimensions: Locus (or source) of control, stability, and controllability.

From these three dimensions, we can create eight different categories of attributions. Table 1 lists these categories (Gage, 1992, P.338). Even though, attribution theory deals primarily with four explanations for success and failure in achievement-situation: ability, effort, task difficulty and luck (Slavin, 1986, P.351, Weiner, 1985, P.551, Gage, 1992, 338, Khayyer, 1990, P.4, Zamani, 1992, P.244).

**Table 1. Eight different categories of attribution.**

Internal	Stable	Uncontrollable
		Controllable
	Unstable	Uncontrollable
		Controllable
External	Stable	Uncontrollable
		Controllable
	Unstable	Uncontrollable
		Controllable

In short, attribution theory explains that, individuals attribute the results of action, generally to four main causes: ability, effort, task difficulty, and luck. These causes can be grouped into three main dimensions: internality (or externality), stability, and controllability.

### Methods

Survey research methodology was used in this study. The study was conducted in 57 villages in 8 districts of Shiraz, Iran. Shiraz has a total of nearly 6000 hectares of irrigated wheat farming. The population included all irrigated wheat growers in Shiraz, except those who grew wheat with traditional methods. Two stage stratified random sampling was used as a sampling method. At the first stage, Shiraz was divided into eight districts, and then wheat growers were divided into two groups: High performance wheat growers (HPWG) (or successful wheat growers) and low performance wheat growers (LPWG) (or unsuccessful wheat growers). In each of eight districts, an equal number of two groups were randomly selected and interviewed. In total, 217 farmers (wheat growers) were interviewed. The response rate was one hundred percent. The questionnaire was used for collecting data with closed ended questions, except one open-ended question. The questionnaire consisted some questions about their farm size and farm parts, Average of wheat yield performance and Attributional style scale (five parts for successful wheat growers and five parts for unsuccessful wheat growers that each part has four items. These parts were exactly paralleled (equilibrated or equalised) two by two. In other words, each part for success wheat growers had a parallel form for unsuccessful wheat growers). Face validity of the

instrument was confirmed by three experts. To assess reliability, two pilot studies were conducted. In order to determine the reliability, Cronbach's Alpha was computed ( $r = 0.76$  to  $0.84$ ). The final questionnaire was developed to collect data. Collected data were coded and all analysis was done using SPSS/pc. Inferential statistics included Pearson correlation coefficient and stepwise regression were used to analyse the data.

## Results and Discussion

### General information

According to the research findings (Table 2), subjects ranged in age of 16 to 70 ( $M = 38.9$ ). Even though the mean age of High Performance Wheat Growers' (HPWG) ( $M=37.3$ ) is less than the mean age of Low Performance Wheat Growers' (LPWG) ( $M=40.5$ ), this difference is not significant. Table 2 shows that, although the mean of educational level for both groups (HPWGs and LPWGs) is low (1.8 and 1.15 on a six point likert scale 0-5), the difference is significant ( $P<0.001$ ). It means that HPWGs are more literate than LPWGs.

**Table2. Comparison of demographic characteristics between HPWGs and LPWGs.**

Variable	HPWGs(n=106)		LPWGs(n=111)		T	P
	Mean	Sd	Mean	Sd		
Age	37.3	13.8	40.5	15.2	-1.6	0.112
Educational level	1.8	1.34	1.15	1.24	3.68	0.000

Cross tabulation in Table 3 showed that 59% of LPWGs are mostly illiterate. In other words, only 41% of LPWGs are literate. On the other hand, 65% of HPWGs are literate. According to significance of  $Chi^2$  ( $P = 0.0084$ ), it can be concluded that there is a significant difference in educational level between LPWGs and HPWGs. In fact, more literate farmers are more capable to get information from various sources; so, they can be more efficient farmers.

**Table 3. Distribution of educational level of HPWGs and LPWGs (in number and percent).**

	Illiterate	Little literate	Primary school	Guidance school	Diploma	Higher education	Total
HPWGs	30 (28%)	7 (7%)	36 (34%)	23 (21%)	9 (9%)	1 (1%)	106 (100%)
LPWGs	49 (44.5%)	16 (14.5%)	29 (26.4%)	10 (9.1%)	6 (5.5%)	0 (0%)	110 (100%)
Total	79 (36.6%)	23 (10.6%)	65 (30.1%)	33 (15.3%)	15 (6.9%)	1 (0.5%)	216 (100%)

$$Chi^2 = 15.5 \quad P = 0.0084$$

Usually there are three types of wheat farmers: Owner operating farm, cash rental farm and share cropping farm. There were no significant difference between HPWGs and LPWGs based on the farm ownership. The means of total farm size are not significantly different between two groups (Table 4).

**Table 4. Comparison of HPWGs and LPWGs regarding types of farm (ha).**

	HPWGs		LPWGs		T	P
	Mean	Sd	Mean	Sd		
Owner operating farm	3.63	4.97	2.8	3.6	1.41	0.161
Cash rental farm	0.16	0.863	0.71	3.2	-1.73	0.86
Share cropping wheat farm	1.45	4.24	1.18	4.16	0.48	0.633
Total farm size	5.3	5.6	4.7	5.9	0.71	0.48

According to findings, there were no significant difference between HPWGs and LPWGs in regards of farm quality (M1=3.87, M2= 3.86) in the five pint likert scale (1=very weak, 2= weak, 3= moderate, 4= high, 5= very high quality). Land fragmentation was another objective of this study, and the findings show no difference between both groups.

**Table 5. Comparison of farm quality and number of farm fragments between HPWGs and LPWGs.**

	HPWGs(n=106)		LPWGs(n=111)		T	P
	Mean	Sd	Mean	Sd		
Farm quality	3.87	0.438	3.86	0.547	0.05	0.964
Number of farm	1.94	1.52	2.17	1.47	-1.12	0.265

#### *Findings of attributional measurements*

Applied purpose of this attribution study, is to know farmers better, and then, motivate them effectively and continually for success in future. Endeavour of motivation experts is, to persuade people to use internal and unstable factor (effort) for their success and failure.

Findings showed that there is a strong relationship between wheat performance and attribution to self-effort ( $r = 0.77$ ,  $P < 0.0001$ ) (Table 6). In other words, the higher performance, the more attribution to effort. Those, whose performances are low, don't attribute their low performance to their effort. This attribution influences and increases their self-esteem. When individuals succeed, they would like to believe that it was because of their ability and effort. These findings support Brehm's (1993), Zuckerman's (1979) and Fry's (1980) studies that conclude people naturally make favourable attribution for their own behaviour. People take more responsibility for success than for failure. Also according to Arkin (1980), individuals tend to attribute their successes to their own efforts. This finding is also confirmed by Gage (1992), Weiner (1985) and Brehm (1993). On the other hand, Fanelli (1977) stated that there is a strong relationship between beliefs in hard work and academic performance.

According to the findings (Table 6) wheat yield performance and attribution to ability have a firm correlation ( $r = 0.78$ ,  $P < 0.0001$ ). Those wheat growers, whose performances are high, attribute the cause of their high performance to their ability. Vice versa, LPWGs don't attribute their low performance to their low ability. These findings are corroborative of Slavin's (1986), Gage's (1992), Fry's (1980), Zuckerman's (1979) and Fanelli's (1977) findings. Also Weiner (1985) and Brehm (1993) state that success is ascribed to high ability. So the findings of the present study confirm them.

**Table 6. Correlation coefficient between wheat yield performance with attribution causes and locus of control.**

	r	P
Attribution to effort	0.77	0.000
Attribution to ability	0.78	0.000
Attribution to task difficulty	-0.51	0.000
Attribution to luck	-0.65	0.000
Attribution to internal causes	0.81	0.000
Attribution to stable causes	0.08	0.133
Attribution to controllable causes	0.71	0.000

As it was expected, performance and attribution to external factors have a negative significant relationship. Attribution to task difficulty has, also, negative relationship with performance ( $r = -0.51$ ,  $P < 0.0001$ ) (Table 6). It can be justified that people don't want to relate bad and undesirable outcomes to self. The results corroborate the findings of Arkin (1980), Brehm (1993) and Zuckerman (1979). Arkin said that individuals attribute their failure to bad luck, task difficulty or variety of other circumstance's factors.

Attribution to luck also has a negative significant relationship with wheat performance ( $r = -0.65$ ,  $P < 0.0001$ ) (Table 6). Always luck is the best cause to ascribe low performance to. In this condition, a person doesn't take the responsibility for unexpected results. Some time, this style is a defensive attribution and some time it is a personal characteristic. According to Slavin (1986, P.352), those who failed would like to believe that they had bad luck (an external, unstable attribution), which allows for the possibility of succeeding next time. Research findings were supported by Zuckerman (1979), Arkin (1980), Gage (1992), Brehm (1993), Fry (1980), and Wiener (1985), but Weiner (1985) said that success and failure of skill task most usually are ascribe to ability and effort.

It should be considered that the beliefs that failure was caused by luck will produce more certainly of future success than considering ability as the cause of failure.

A multiple regression (stepwise) procedure was used to specify that which of the causal attribution (ability, effort, task difficulty and luck) can interpret the variability of yield performance. Table 7 displays the nonstandardized regression coefficients (b), the standardized regression coefficients (Beta), R (multiple correlation),  $R^2$  (R square), adjusted  $R^2$  and  $R^2$  changed.

Two causal attributions (attribution to ability and attribution to effort) can interpret about 61.1 per cent and 4.6 per cent of variability in yield performance, respectively. Attribution to ability predicts performance better than the other causal attribution. In total, they can explain 65.7 percent of variability in yield performance.

**Table 7. Stepwise multiple regression on yield performance.**

Independent Variable	b	Std error b	beta	Significant t T
Attribution to ability	0.288	.0044	0.469	0.0000
Attribution to effort	0.190	0.036	0.380	0.0000
Constant = 4.13 , F= 204.28 , Significant = 0.0000				
Summary statistics				
Step	Multiple R	R <sup>2</sup>	R <sup>2</sup> Adjust	R <sup>2</sup> Changed
Attribution to ability	0.782	0.611	0.610	.0611
Attribution to effort	0.811	0.657	0.654	0.046

It is very important that individual to whom or to what ascribes the causes of event. The task is not to determine the true causes of these events, but the purpose is to discern people's perceptions of the causes (Brehm, 1993, P.107). According to Table 5 there is a firm relationship between ascription to internal factors and wheat yield performance ( $r = 0.81$ ). In other words, those whose product is higher, attribute the cause of their high performance more likely to internal factors and LPWGs state that external factors are the cause of their unsucces. According to Slavin (1986, P.352) when individuals succeed they would like to believe that it was because of their internal factors, not because of external factors. In contrasts, those who failed would like to believe that they had bad luck (an external) which allows for the possibility of succeeding next time. In other words: farmers may have a self-serving bias: Attributing their successes to their internals and failure to externals. It is a favourable attribution for people. Low performance is unexpected outcomes and unexpected outcomes are attributed more to externals. Even though, Zuckerman (1979) believes that unexpected outcomes are attributed more to luck (external) and less to ability (internal) than are expected outcomes. Self-serving, leads to ego-maintaining system.

Also, according to balance theory, success is attributed to self and failure is attributed to external factors, when there is a positive self-evaluation. But Weiner (1985) believes that success and failure at skill task usually are ascribed to internals.

Since self-ascription for failure to internal causes decrease self-esteem, external person rejects responsibility for failure, but they lose pride for success. According to Slavin (1986), the need to maintain a positive self-image is powerful motivator. Much of our behaviour is directed toward satisfying our own personal standards.

As Zuckerman (1979) stated, if success is attributed to personal causes, it has a self-enhancing effect, and if failure is attributed to situational causes, it has a self-protective effect.

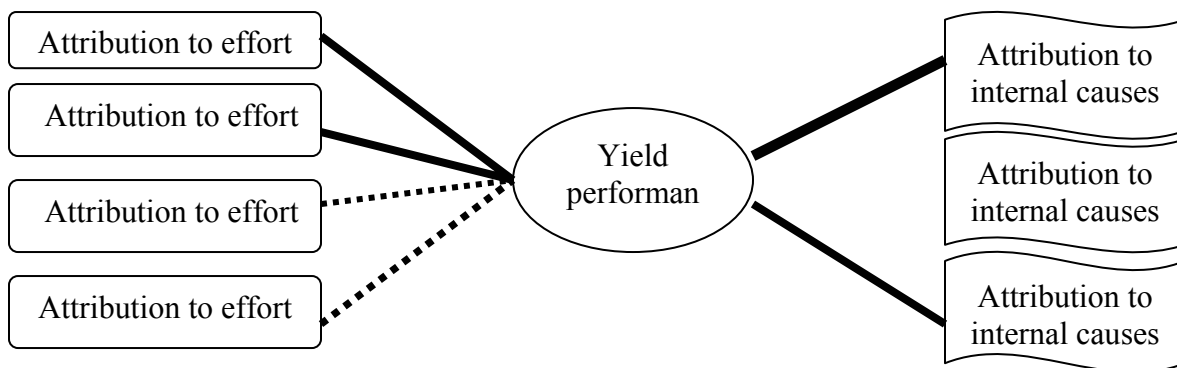
Many studies such as studies of Betancourt (1982), Weiner (1985), Gage (1992), Zuckerman (1989), Arkin (1980) and Nurmi (1992) confirm these findings. It was expected that HPWGs attribute more to stable factors and LPWGs ascribe more to unstable causes. But the findings in Table 5 show that there isn't any association between attribution to stable or unstable causes and performance.

In attribution theory it has been argued that the stability of a cause, rather than its locus of control, determines expectancy shifts. In other words, attribution of failure, to stable causes leads to higher expectancy of future failure than attributions to unstable causes. As experts have stated, attributing failure to an internal and stable factor leads to learned helplessness. The present findings are not supported by the naive action model, Wiener's (1985) study and the other researches. All tend to ascribe their success to controllable factors and vice versa. Findings (Table 6) identify that wheat growers want to obey this theory. The correlation between attribution to controllable causes and performance (as a successful situation) is significant ( $P < 0.0001$ ) and positive ( $r = 0.71$ ). So, LPWGs ascribe more to uncontrollable factors. This result is corroborated by dissonance theory: People will attempt to maintain a positive self-image. Therefore, when a good event happens, they are likely to attribute it to controllable causes but when a bad event happens, they will believe that it is due to factors over which they had no control. Why people try to ascribe failure to uncontrollable causes? Because controllability dimension relates to sentiments and evaluations of others. If failure is perceived as due to an uncontrollable cause, then the person is relatively liked, and positively evaluated.

**Conclusion and recommendation**

There are many determining factors that influence farm yield. Many people consider farm inputs as major factors in farm products. But it should be noticed that psychological factors like attribution style can have an important role in this process. Attribution style has motivational effects. Since motivation is the main force for energizing, directing and sustaining the behaviour, it should be in the centre of attention in agricultural planning.

There were comparisons between HPWGs and LPWGs on some factors; the results show no significant differences between these groups on age, their farm quality, number of farm fragments and kind of wheat farms. In other words, members of both groups to some extent have a similar condition.



**Fig1. attributional model of wheat growers**

Positive correlation    **—————**  
 Negative correlation    **.....**

The summary findings of relationship between four main causal attribution and three main attribution dimensions with yield performance are shown in figure 1. Wheat yield has a positive

significant relationship with attribution to effort and attribution to ability. But it has a negative significant correlation with attribution to task difficulty and attribution to luck.

According to the findings, attribution to internal factors and attribution to controllable factors have strong and significant relationship with wheat yield but attribution to stable factors is independent of any association. So, following recommendations are presented:

1- Literature review showed that there isn't any research and study related to attribution theory in field of agriculture and farming. So it is emphatically recommended that other researchers with different nationalities study related subjects and examine application of attribution theory in field of agricultural extension and education.

2- As it was mentioned before, the motivation-related personality characteristics e.g. attributional style can be altered. So, it is suggested that the extension agents pay more attention to develop motivational and psychological attitude of farmers.

3- Farmers may break out of long standing patterns of attribution to external factors if they find success in new situations. So attention must be payed to new situations (for example, planting with new methods, using scientific strategy for plant protection, using advanced variety), because if the farmers succeed in these new conditions, it may be possible to shift a person's attribution from external to internal.

4- Changes can be achieved, directly by special programs designed for this purpose, for example, during the extension classes, the farmers can be taught to take personal responsibility for their action, to choose realistic objectives and plan how to achieve those objectives. Again we note that the purpose of attributional training programs is change in attributions strategies if their explanations lead to undesirable behaviour or affects.

5- It seems that planning for increasing the farmer's knowledge and increasing their information is necessary. Therefore, it is suggested that more informational facilities and educational programs should be provided.

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