

Full Length Research Paper

Are educational background and gender moderator variables for leadership, satisfaction and organizational commitment?

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In this study the causal effects of transformational and transactional leadership and the mediating role of trust on follower outcomes are examined. Study data were collected from 150 employees who worked within 12 organizations in the IT Department of Research and Development in Shanghai, China. Data were analyzed based on path analysis and proposed research model. The results indicate that the level of education affects subordinate job satisfaction for both transformational leadership and transactional leadership. Undergraduate and graduate levels of education affect trust in relation to subordinate job satisfaction as well as organizational commitment. Gender also impacts subordinate's job satisfaction in cases of transactional leadership, as well as trust and job satisfaction in relation to the subordinate's organizational commitment.

Key words: Educational background and gender, transformational and transactional leadership behavior, trust, job satisfaction, organizational commitment, IT Department of Research and Development, Shanghai, China.

INTRODUCTION

Statement of the problem

In these unstable social and economic times, organizational environments are changing rapidly, particularly in the high tech industries. Only organizations that can adapt to this fast-changing environment can survive. Kotter (2001) states that while management copes with complexity, leadership copes with change. Management and leadership are both essential for the creation of a successful environment in an enterprise of today. Organizational leaders face many significant challenges in their jobs and how to manage leadership roles becomes increasingly complex (Zaccaro and Klimoski, 2001).

According to Bass (1985, Bass, 1998; Bass and Avolio, 1994, 1997) there are several types of leadership, such as transformational, transactional and laissez-faire lea-

dership. They have shown considerable interest in testing transformational and transactional leadership. Since 1990, there have been about 200 theses and doctoral dissertations devoted to such testing (Bass and Avolio, 1997). In this current study, we focus on such problems as subordinate trust, empowerment, self-esteem, employee job satisfaction, organizational commitment and employee decisions to stay or leave, in relation each to both transformational and transactional leadership styles. It is well-known that in Chinese culture there is particular insistence on building trust through improving personal relationships, an emphasis which it is often difficult for westerners to comprehend (Child and Mollering, 2003).

Purpose of the study

The purpose of this study is to examine the demography of a group of individuals to determine the effect of such things as gender and education level on the latent

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variables - transformational and transactional leadership styles, trust, job satisfaction, organizational commitment and turnover intention. The Structural Equation Modeling (SEM) tool of AMOS 5.01 (Arbuckle, 2003) is adopted to analyze the relations in the proposed model. The survey data are gathered from the IT Department of Research and Development professionals in Shanghai, China.

Limitations

Only two leadership styles, transformational leadership and transactional leadership are considered here. Laissez-faire leadership is excluded. The influence of the different leadership styles on the subordinate's job satisfaction, commitment and intention to leave the organization are explored. The factor of organizational culture is ignored. The survey data is limited as stated above and does not cover the entire Mainland China or other regions.

LITERATURE REVIEW

Leadership theory

A leader is defined as the person who influences a group to attain the group's goals (Yukl, 1989). According to Kirkpatrick and Locke (1991), effective leaders continually push themselves and others toward their goals and are not tolerant of those who reject the vision or repeatedly fail to attain reasonable goals. Burns (1978) distinguishes transformational leadership from transactional leadership by concentrating on morals and ethics. Transformational leadership is a process that motivates followers by appealing to their higher ideals and moral values, while transactional leaders rely on rewards and punishment to influence employee performance. The difference between these two types of leadership has been clarified in numerous studies. Bennis and Nanus (1985) expounded a "visionary" theory where they identified four fundamental strategies (attention through vision, meaning through communication, trust through positioning and deployment of self) employed by transforming leaders. Yukl (1989) suggested that the Leader-Member Exchange (LMX) was an example of transactional leadership because of the reliance on rewards. Antonakis and House (2002) adapted Bass and Avolio's (1994, 1997) full-range leadership theory (FRLT) to develop the Bass transformational/transactional theory. A full range of leadership styles that cover transformational, constructive transactional and corrective transactional leadership are included in this model. The leaders must get to know their followers' individual needs, capabilities and aspirations to develop into more effective leaders; the development of both leaders and followers is important. The four models are summarized in Table 1 (Cox, Pearce and Sims, 2003, p 165).

Job satisfaction

Job satisfaction is defined as the emotional state resulting from the evaluation of one's job and can be negative, positive, or neutral. Maslow (1954) discussed a hierarchy of needs in which one progresses including physiological, security, social, self-esteem and self-actualization needs.

According to Gibson, Ivancevich, Donnelly and Konopaske (2003) when the crucial mental states are good and work motivation and job satisfaction are high, then there is a strong correlation between job performance and job satisfaction. Gibson et al. (2003) discussed five crucial characteristics:

1. Pay: Amount received and the perceived equity.
2. Job: Extent to which job tasks are considered interesting and provide opportunities for learning and accepting responsibility.
3. Promotion opportunities: Availability of opportunities for advancement.
4. Supervisors: Supervisor's abilities to demonstrate an interest in and concern about employees.
5. Co-workers: Extent to which co-workers are friendly, competent and supportive.

Organizational commitment

According to Nijhof, De Jong and Beukhof (1998, p. 243), organizational commitment refers to "acceptance of organizational values and to the willingness to stay". Allen and Meyer (1990) proposed a three component model of organizational commitment with two other foci: supervisor and work-group. The dimensions are as follows:

1. Affective commitment refers to employees' emotional attachment to, identification with and involvement with the organization (or supervisor).
2. Continuance commitment is based on the costs that employees associate with leaving the organization (or supervisor).
3. Normative commitment refers to employees' feelings of obligation to remain with the organization (or supervisor) (p. 4).

Trust

Brown (1993) defines *trust* as "Faith or confidence in the loyalty, strength, veracity, etc., of a person or thing; reliance on the truth of a statement etc. without examination". This is consistent with a measurement tool used to assess interpersonal trust in a work culture. Rousseau, Sitkin, Burt and Camerer (1998) explain that trust is "a psychological state comprising the intention to accept weakness based upon positive expectations of the intentions or behavior of another". Trust is the foundation for building effective collaborative and organizational

Table 1. Theoretical and research bases for historically derived models of leadership types.

Leadership Type	Theoretical and Research Bases
Directive leadership	Theory X leadership (McGregor, 1960). Initiating structure from Ohio State studies (e.g., Fleishman, 1953). Task-oriented behavior from Michigan studies (e.g., Katz, Maccoby and Morse, 1950). Punishment research (e.g., Arvey and Ivancevitch, 1980).
Transactional Leadership	Expectancy theory (e.g., Vroom, 1964). Path-goal theory (e.g., House, 1971). Equity theory (e.g., Adams, 1963). Exchange theory. Reinforcement theory (e.g., Luthans and Kreitner, 1985; Sims 1977; Thorndike, 1911). Reward research (Podsakoff, Todor and Skov, 1982).
Transformational Leadership	Sociology of charisma (e.g., Weber, 1946). Charismatic leadership theory (e.g., House, 1977). Transformational leadership (e.g., Bass, 1985; Burn, 1978).
Empowering Leadership	Behavioral self-management (e.g., Thorenson and Mahoney, 1974). Social cognitive theory (e.g., Bandura, 1986). Cognitive behavior modification (e.g., Meichenbaum, 1977). Participative management and participative goal-setting research (e.g., Likert, 1961, 1967; Locke and Latham, 1990). Mentoring research (e.g., Ensher and Murphy, 1997; Zey, 1988).

relationships (Lewicki, McAllister and Bies, 1998). In parison with the western world, China is often described as an economically developing country. It is characterized as a low trust society, whereas trust is of the highest importance in organizations (Fukuyama, 1995; Redding, 1993).

Turnover

Price (1977) describes turnover is the movement of members across the boundary of an organization. Most research on turnover has been focused on members leaving rather than entering the organization, especially voluntarily leaving. The body of theory on which the turnover literature is based is primarily rooted in the disciplines of psychology, sociology and economics (Barak, Nissly and Levin, 2001). There are three major categories of turnover antecedents that emerge from empirical studies of human service workers (Barak et al., 2001): “(1) Demographic factors, both personal and work-related; (2) Professional perceptions, including organizational commitment and job satisfaction and (3) Organizational conditions, such as fairness with respect to compensation and organizational culture vis-a-vis diversity”.

METHODOLOGY

Population sample

Questionnaires were first distributed to leaders and subordinates in person. Participants included 150 full- time employees working in the IT department of the Department of Research and Development in an Industrial Park in Shanghai, China. Surveys were administered to participants on the job during working hours. The survey consisted of 87 items. It covered the variables of transformational leadership, transactional leadership, trust, job satisfaction, organizational commitment, turnover and demographics.

Measures

Operational definitions

a) Transformational leadership behaviors

The components of transformational leadership have been identified in a number of studies (Bass (1985), Howell and Avolio (1993), Bycio, Hackett and Allen (1995), Avolio, Bass and Jung (1999)). Leadership is defined as charismatic when a follower seeks to identify with the leader and imitate him or her. A leader inspires the follower with challenges and persuasion and by providing meaning and understanding. In addition, the leader is intellectually stimulating, strengthening the follower’s abilities. Finally, the leader individually tailors his/her behavior, providing the follower with support, mentoring and coaching. The measure used here was the

Table 2. The Cronbach Alpha (α) of Multifactor Leadership Questionnaires (MLQ 5x-short-form). IIA, Idealized Influence (Attributed); IIB, Idealized Influence (Behaviors); IM, Inspirational Motivation; IS, Intellectual Simulation; IC, Individualized Consideration; CR, Contingent Reward; MBE-A, Management-by Exception (Active); MBE-P, Management-by-Exception (Passive).

Research	Style	Transformational Leadership Behaviors					Transactional Leadership Behaviors		
		IIB	IIA	IM	IS	IC	CR	MBE-A	MBE-P
Bass and Avolio (1995)		.86	.87	.91	.90	.90	.87	.74	.82
Ehrhart (2004)		.61	.61	.53	.53	.56			
Sosik, Potosky, and Jung (2002)		.71	.71	.82	.70	.76	.77	.72	.64
Zohar (2002)							.69	.75	.72
Gellis (2001)		.78	.81	.80	.89	.77	.74	.70	.75
Felfe and Schyns (2004)		.70	.70	.83	.71	.67	.83	.80	.79

Multifactor Leadership Questionnaire (MLQ 5x-short-form) (Bass and Avolio, 1995). The MLQ has high factor validity and reliability (Howell & Avolio, 1993). We searched for 20 items from 45 questions about transformational leadership. The respondents were asked to indicate the frequency of behaviors exhibited by their leader on a scale ranging from 1 = not at all to 5 = frequently, if not always. The Cronbach's alpha is shown in Table 2.

b) Transactional leadership behaviors

In this type of leadership, the leader rewards or disciplines the follower depending on the adequacy of the follower's performance. The factors include the Contingent Reward, Management-by-Exception (Active) and Management-by-Exception (Passive). The survey questions pertaining to the measurement of Contingent Reward (CR) (4 items) are listed as 1, 9, 14, 31 from the revised MLQ-5x scale. For Management-by-Exception (Active) (MBE-A), they are 4, 20, 22, 25 and for Management-by-Exception (Passive) (MBE-P), they are 3, 10, 15, 18. The Cronbach's alpha is shown in Table 2.

c) Trust

Although a number of current conceptualizations of trust exist (e.g., Butler, 1991; Byham, 1992; Child and Mollering, 2003; Cook and Wall, 1980; Currall and Judge, 1995; Dansereau, Graen and Haga, 1975; Gabarro, 1978; Giffin, 1967; Gomez and Rosen, 2001; Hosmer, 1995; Marlowe and Nyhan, 1992; Mishra and Spreitzer, 1994; Rotter, 1967), there is no clear agreement as to which one of these is best. In this study, trust is conceptualized as faith in and loyalty to the leader. It is thus a necessary requirement for employee empowerment. The six items developed by Podsakoff, MacKenzie, Moorman and Fetter (1990) are used to define these dimensions. The variable was measured using a five-point Likert-type scale ranging from "strongly agree" to "strongly disagree," with "strongly agree" given a ranking of 5. Trust was measured with six items. The Cronbach's alpha was .90. The Cronbach's alpha is also shown in Table 3.

d) Job satisfaction

In the Minnesota Satisfaction Questionnaire (MSQ) (Ironson, Brannick, Smith, Gibson and Paul, 1989; Quinn and Staines, 1979; Weiss, et al., 1967) job satisfaction is assessed with 20 items or job facets where separate composites are computed for Intrinsic, Ex-

Table 3. The Cronbach Alpha (α) of Trust

Researcher	Trust Cronbach Alpha (α)
Pdesakoff et al. (1990)	.90
Lee (2003)	.90
Menguc (2000)	.85
Rich (1997)	.94

trinsic and General Job Satisfaction. The alpha reliability coefficient was 0.9. According to Weiss et al. (1967), the reliability coefficients obtained for Intrinsic Satisfaction are high. The coefficients ranged from 0.84 to 0.91. The coefficients for Extrinsic Satisfaction varied from 0.77 to 0.82. All constructs were measured with multiple-item scales drawn from previous research. In this approach, three constructs are typically derived: a measure of general satisfaction (20 items) on a five-point Likert-type scale, with response alternatives ranging from "Very Dissatisfied" (weighted 1) to "Very Satisfied" (weighted 5). The Cronbach's alpha is shown in Table 4.

e) Organizational commitment

Meyer and Allen (1991) developed a multi-dimensional model of organizational commitment, where affective commitment (a desire), continuance commitment (a need) and normative commitment (an obligation) are identified as unique and distinct types of commitment that exist organizationally. Allen and Meyer (1996) examined the construct validity of the three component organizational commitment scales (that consisted of 18 items). Their study summarized data from over 40 employee samples representing more than 160,000 employees from a wide variety of organizations and occupations. In their findings, using the coefficient alpha, they obtained a median of 0.85 for Affective Commitment, 0.79 for Continuance Commitment and 0.73 for Normative Commitment. Furthermore, confirmatory factor analysis was conducted for each of the organizational commitment scales. Results indicated that each factor loading was independent of the other and demonstrated satisfactory reliability (Cooke, 1997) and validity (Beck and Wilson, 2000). The alpha coefficient for this sample was 0.88. In this current study, all constructs were measured with multiple-item scales drawn from previous research. The Organizational Commitment Questionnaire (OCQ) is a five-point Likert-type scale, ranging from strongly disagree (1) to strongly agree (5). The Cronbach's alpha is shown in Table 5.

Table 4. The Cronbach Alpha (α) of Minnesota Satisfaction Questionnaire (MSQ). INS, Intrinsic Satisfaction; EXS, Extrinsic Satisfaction; GS, General Satisfaction

	Satisfaction		
Researcher	INS	EXS	GS
Weiss et al. (1967)	.86	.80	.90
Luna-Arocas and Tang (2004)	.84	.80	
Dirks and Ferrin (2002)			.87
Cook, Hepworth, Wall, and Warr (1981)	.84-.091	.77-.82	
Davy, Kinicki, and Scheck (1997)	.82	.70	

α

Table 5. The Cronbach Alpha (α) of Organizational Commitment Questionnaire (OCQ). AC, Affective Commitment; CC, Continuance Commitment; NC, Normative Commitment.

	Commitment		
Researcher	AC	CC	NC
Allen and Meyer (1996)	.85	.79	.73
Kickul, Lester, and Belgio (2004)	.86	.70	.86
Wasti (2003)	.79	.58	.75
Kent and Sullivan (2003)	.73	.78	.76
Kuehn and Al-Busaidi (2002)	.74	.75	.49

Table 6. The Cronbach Alpha (α) of Turnover

	Turnover
Researcher	Cronbach alpha (α)
Kim et al. (1996)	.87

f) Turnover

One facet of turnover is subordinate's turnover intention. This variable was measured with four items, two of which were reverse scored and developed by Kim, Price, Mueller and Watson (1996), who found a Cronbach's alpha of .87. The variable was measured using a five-point Likert-type scale ranging from "strongly agree" to "strongly disagree" with "strongly agree" being a 5. The scores for the items were averaged to obtain the final value. Price (2001) utilized the questionnaire format in their examination of the employee's Intent to Stay. The Cronbach's alpha is shown in Table 6.

A summary of the relationships between the observed and latent variables in the hypothetical model is shown in Figure 1.

Instrument translation

The five instruments for measuring transformational and transactional leadership, trust, job satisfaction, organizational commitment and turnover, were combined into one instrument for this study. All of them were originally written in English. Thus, it was necessary to translate into Chinese. One teacher and three graduate students were invited to make up a team for this work. Language translation software was first used to translate into simplified Chinese characters and this rough translation was then revised to ensure consistency of meaning. In order to ensure that the Chinese trans-

lation correctly reflected the meaning and distinction of the original instruments, back-translation was conducted to English. After completing the Chinese translation, bilingual reviewers who had not previously been involved in the project were asked to determine whether the semantics were clear.

Pilot test

The English language questionnaires were translated into simplified Chinese language. Pilot tests of the survey questionnaire were tested on ten randomly selected external employees of an electronics company in Shanghai. They were given the MLQ, TRUST, MSQ, OCQ, TURNOVER and DEMOGRAPHIC tests. The amount of time required to complete the entire questionnaire by the respondents was also measured. After finishing this step, the survey was then evaluated for reliability and validity according to the understanding of the questionnaire's directions. If there were critical or ambiguous questions, they were modified or replaced. The Cronbach's alpha is shown in Table 7.

Data collection

Five questionnaires were used in this study: the transformational leadership and transactional leadership (MLQ-5x short-form) developed by Bass and Avolio (1995); job satisfaction (MSQ) adapted from Weiss, Allen and Smith (1967); organizational commitment (OCQ) adapted from Meyer, Allen and Smith (1993); trust questionnaire (TRUST) adapted from Podsakoff et al. (1990) and turnover questionnaire (TURNOVER) adapted from Kim et al. (1996). The questionnaire was distributed by the investigators and the collected from the Department of Intelligent Technology, a special economic zone in Shanghai. For convenience, 12 companies throughout the special economic zone were contacted and almost 150 questionnaires were returned. The participants were asked to

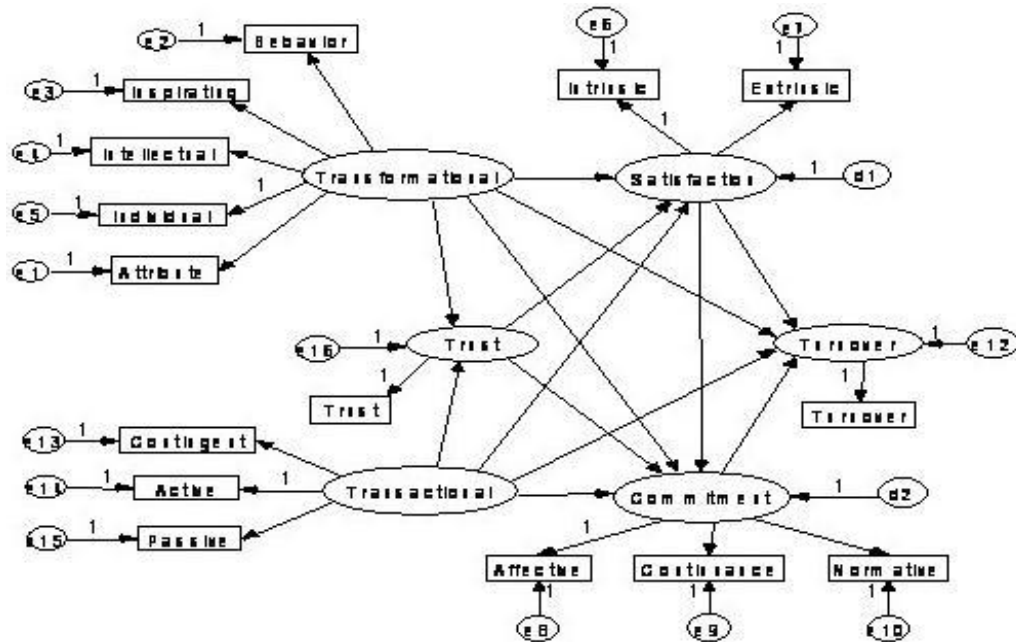


Figure 1. The relationship of the hypothesized model.

Table 7. The Cronbach Alpha (α) of Pilot Test

Observed Variables	Items	α
Idealized Influence (Attributed)	8,16,19,23	.54
Idealized Influence (Behaviors)	Delete 23	.83
Inspirational Motivation (IM)	5,12,21,30	.83
Intellectual Stimulation (IS)	7,11,24,32	.69
Individualized Consideration (IC)	2,6,27,29	.64
Contingent Reward (CR)	13,17,26,28	.13
Management-by-Exception (Active) (MBE-A)	Delete 17	.66
Management-by-Exception (Passive) (MBE-P)	1,9,14,31	.65
Trust	4,20,22,25	.46
Intrinsic Satisfaction	Delete 25	.66
Extrinsic Satisfaction	3,10,15,18	.50
General Satisfaction	Delete 15	.65
Affective Commitment	1,2,3,4,5,6	.85
Continuance Commitment	1,2,5,6,9,10,12,13,16,18,19,20	.32
Normative Commitment	Delete 9,12,13	.67
Turnover	3,4,11,14,15,17	.59
	Delete 4	.64
	All (1 to 20)	.75
	1,4,7,10,13,16	.77
	2,5,8,11,14,17	.39
	Delete 11,14	.67
	3,6,9,12,15,18	.82
	1,2,3,4	.77

complete the survey and return it to the assistant researcher. All of the questionnaires were returned. Three questionnaires had some blank answers giving a total of 147 valid questionnaires.

Reliability and validity analysis

Reliability of the measures used in the study was confirmed by

Table 8. The Statistic of Sample

Item	Category	Frequency	Percent
Genger	Male	105	71.4%
	Female	42	28.6%
Age	15-24	20	13.6%

acceptable inter-item correlation, where each scale exceeded the .30, as suggested by Robinson, Shaver and Wrightsman (1991). In addition, Cronbach alpha () values for each of the scales were computed. The values ranged between .76 and .93, indicating high internal consistency. If the value is less than .3, then the item needs to adjust or eliminated item(s) (Nunnally, 1978). The summary of Cronbach alpha () values are shown in Tables 7.

Hypotheses

The relationship between transformational leadership and transactional leadership behavior, trust, job satisfaction, organizational commitment and turnover is explored using data from the IT Department of Research and Development.

H₀1a: Level of education is not a moderator for job satisfaction.

H_a1a: Level of education is a moderator for job satisfaction.

H₀1b: Level of education is not a moderator for organizational commitment.

H_a1b: Level of education is a moderator for organizational commitment.

H₀2a: Gender is not a moderator for job satisfaction.

H_a2a: Gender is a moderator for job satisfaction.

H₀2b: Gender is not a moderator for organizational commitment.

H_a2b: Gender is a moderator for organizational commitment.

RESULTS OF FINDINGS

Sample structure

A total of 147 of 150 respondents completed all the information. Of the 147 participants, approximately 71% (105) were males and 29% (42) females. In addition 28% (41) completed leader questionnaire surveys and the remaining 72% (106) completed subordinate rater surveys. The average age of the participants in the sample was approximately 30 years old and the average tenure in the organization was 5 years. Of those, about 5% (8) of the participants had only completed high school, 71% (104) had a college bachelor's degree and the remaining 24% (35) had a graduate degree. The demographics are provided in Table 8.

Data analysis

Hypothetical model

The results of the AMOS 5.01 analysis of the hypothetical model with the Regression Weights for the variables investigated in this study are presented in Figure 2 and Table 9.

Correlations of the variables

The correlation matrix for the observed variables as computed by SPSS 11 software is presented in Table 10 by SPSS 11 software.

Is the level of education a moderator related to organizational commitment?

Based on Tables 9, 11 and 12, under different influence conditions on organizational;

1. The null hypothesis: The level of education is not a moderator between transformational leadership and organizational commitment. The findings indicate undergraduate ($r = -0.008$, $p > 0.052$, two-tailed test) and graduate ($r = 0.073$, $p > 0.056$, two-tailed test) have the same significance. There is support to accept the null hypothesis against the alternate hypothesis. Thus, the level of education is not a moderator between transformational leadership and organizational commitment. In other words, with the transformational leadership style, employees will have the same organizational commitment whatever their level of education.

2. The null hypothesis: The level of education is not a moderator between transactional leadership and organizational commitment. The findings indicate that undergraduate ($r = -0.034$, $p > 0.052$, two-tailed test) and graduate ($r = 0.117$, $p > 0.056$, two-tailed test) have the same significance. There is support to accept the null hypothesis against the alternate hypothesis. Thus, the level of education is not a moderator between transactional leadership and organizational commitment. In other words, with the transactional leadership style, employees will have the same organizational commitment regardless of to their level of education.

3. The null hypothesis: The level of education is not a moderator between trust and organizational commitment. The findings indicate that undergraduate ($r = 0.382$, $p < 0.052$, two-tailed test) and graduate ($r = 0.734$, $p < 0.056$, two-tailed test) have the same significance. There is support to accept the null hypothesis against the alternate hypothesis. Thus, the level of education is not a moderator between trust and organizational commitment. In other words, whether there is trust or not, employees will have the same organizational commitment regardless of their level of education.

4. The null hypothesis: The level of education is not a moderator between job satisfaction and organizational commitment. The findings indicate that undergraduate ($r = 0.304$, $p < 0.052$, two-tailed test) and graduate ($r = 0.001$, $p > 0.056$, two-tailed test) do not have the same significance. There is support to reject the null hypothesis in favor of the alternate hypothesis. Thus, the level of education is a moderator between job satisfaction and organizational commitment. After obtaining job satisfaction, the employees will have different levels of organizational commitment according to their level of education.

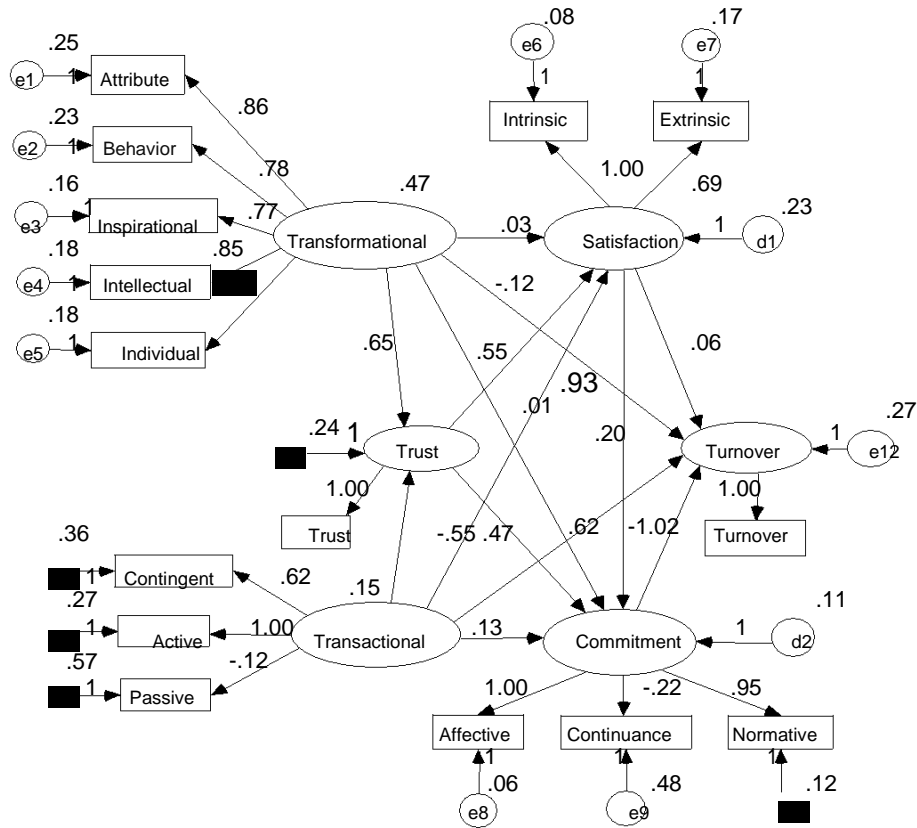


Figure 2. Hypothetical Model of Relations between Observed and Latent Variables

Table 9. Direct effect, indirect effect and total effect of latent variables.

Direct effects	Transactional	Transformational	Trust	Satisfaction	Commitment
Trust	- 0.545	0.652	0.000	0.000	0.000
Satisfaction	0.934	0.031	0.548	0.000	0.000
Commitment	0.134	0.008	0.473	0.204	0.000
Turnover	0.624	- 0.121	0.000	0.056	- 1.015
Indirect effects	Transactional	Transformational	Trust	Satisfaction	Commitment
Trust	0.000	0.000	0.000	0.000	0.000
Satisfaction	- 0.299	0.357	0.000	0.000	0.000
Commitment	- 0.128	0.388	0.112	0.000	0.000
Turnover	0.030	- 0.380	- 0.563	- 0.208	0.00
Total effects	Transactional	Transformational	Trust	Satisfaction	Commitment
Trust	- 0.545	0.652	0.000	0.000	0.000
Satisfaction	0.635	0.388	0.548	0.000	0.000
Commitment	0.006	0.396	0.585	0.204	0.000
Turnover	0.654	- 0.501	- 0.563	- 0.152	- 10.015

Table 10. Intercorrelations matrix of observed variables.

Variable	1	2	3	4	5	6	7	8	9
1. General mental ability	—								
2. Conscientiousness	-.04	—							
	56/15,429								
3. Agreeableness	.00	.27	—						
	38/11,190	344/162,975							
4. Extraversion	.02	.00	.17	—					
	61/21,602	632/683,001	243/135,529						
5. Openness	.22	-.06	.11	.17	—				
	46/13,182	338/356,680	236/144,205	418/252,004					
6. Emotional stability	.09	.26	.25	.19	.16	—			
	61/21,404	26/5,380	18/3,690	60/10,926	21/4,870				
7. Self-efficacy	.20	.22	.11	.33	.20	.35	—		
	26/4,578	14/3,483	6/1,099	7/755	3/755	32/6,730			
8. Experience	-.04	.01	-.04	-.07	-.06	.05	.24	—	
	24/55,086	11/4,366	7/2,827	8/2,918	7/2,811	7/2,827	21/5,783		
9. Work-related performance	.51	.28	.13	.12	.08	.16	.37	.27	—
	425/32,124	90/19,460	68/10,716	75/11,940	48/7,562	72/10,786	217/32,123	44/25,911	

Table 11. Level of Education - Undergraduate (N=112).

	Default Model	Estimate	S.E	C.R.	P
Satisfaction	<--- Transactional	0.753	0.869	0.867	0.386
Satisfaction	<--- Transformational	0.437	0.108	4.036	***
Satisfaction	<--- Trust	0.171	0.125	1.376	0.169
Commitment	<--- Trust	0.382	0.084	4.575	***
Commitment	<--- Transactional	-0.034	0.477	-0.072	0.943
Commitment	<--- Transformational	-0.008	0.082	-0.093	0.926
Commitment	<--- Satisfaction	0.304	0.095	3.211	0.001

Commitment, the level of education examined whether it was a moderator.

Is the gender a moderator related to job satisfaction?

Gender is separated into two groups: male (N = 105) and female (N = 42). AMOS 5 provides a simultaneous equations model for two sets of data at once (Appendix A) . The two group's data are compared on the same path to find the Regression Weights and determine whether they are significant or not.

Tables 9, 13 and 14 show the different influence condi-

tions examined to determine whether gender is a moderator for job satisfaction.

1. The null hypothesis: Gender is not a moderator between transformational leadership and job satisfaction. The findings indicate that male (r = 0.365, p < 0.052, two-tailed test) and female (r = - 0.751, p < 0.055, two-tailed test) have the same significance. There is support for accepting the null hypothesis against the alternate hypothesis. Thus, gender is not a moderator between

Table 12. Level of education - graduate (N = 35).

	Default model	Estimate	S.E.	C.R.	P
Satisfaction	<--- Transactional	0.787	0.295	2.669	0.008
Satisfaction	<--- Transformational	- 0.050	0.198	- 0.253	0.800
Satisfaction	<--- Trust	0.703	0.175	4.008	***
Commitment	<--- Trust	0.734	0.111	6.604	***
Commitment	<--- Transactional	0.117	0.142	0.822	0.411
Commitment	<--- Transformational	0.073	0.099	0.741	0.458
Commitment	<--- Satisfaction	0.001	0.080	0.010	0.992

Table 13. Gender- male (N = 105).

	Default model	Estimate	S.E.	C.R.	P
Satisfaction	<--- Transactional	- 0.330	0.707	- 0.466	0.641
Satisfaction	<--- Transformational	0.365	0.105	3.488	***
Satisfaction	<--- Trust	0.220	0.103	2.140	0.032
Commitment	<--- Transactional	- 0.394	0.503	- 0.782	0.434
Commitment	<--- Trust	0.452	0.069	6.566	***
Commitment	<--- Satisfaction	0.172	0.084	2.042	0.041
Commitment	<--- Transformational	0.102	0.072	1.421	0.155

Table 14. Gender- female (N = 42).

	Default model	Estimate	S.E.	C.R.	P
Satisfaction	<--- Transactional	1.228	0.318	3.863	***
Satisfaction	<--- Transformational	- 0.751	0.307	- 2.448	0.014
Satisfaction	<--- Trust	1.353	0.337	4.011	***
Commitment	<--- Transactional	0.172	0.353	0.487	0.626
Commitment	<--- Trust	0.416	0.397	1.048	0.295
Commitment	<--- Satisfaction	0.342	0.229	1.491	0.136
Commitment	<--- Transformational	- 0.255	0.271	- 0.944	0.345

transformational leadership and job satisfaction. With the transformational leadership style, employees have the same job satisfaction regardless of gender.

2. The null hypothesis: Gender is not a moderator between transactional leadership and job satisfaction. The findings indicate that male ($r = - 0.330$, $p > 0.052$, two-tailed test) and female ($r = 1.228$, $p < 0.055$, two-tailed test) do not have the same significance. There is support for rejecting the null hypothesis in favor of the alternate hypothesis. Thus, gender is a moderator between transactional leadership and job satisfaction. With the transactional leadership style, employees derive job satisfaction according to gender.

3. The null hypothesis: Gender is not a moderator between trust and job satisfaction. The findings indicate that male ($r = 0.220$, $p < 0.052$, two-tailed test) and

female ($r = 1.353$, $p < 0.055$, two-tailed test) have the same significant. There is support to accept the null hypothesis against the alternate hypothesis. Thus, gender is not a moderator between trust and job satisfaction. In other words, trust is sufficient; employees obtain the same job satisfaction regardless of gender.

Is the gender a moderator for organizational commitment?

Tables 9, 13 and 14 show the different conditions of influence on organizational commitment; gender is examined as to whether it is a moderator.

1. The null hypothesis: Gender is not a moderator between transformational leadership and organizational

commitment. The findings indicate that male ($r = 0.102$, $p > 0.052$, two-tailed test) and female ($r = -0.255$, $p > 0.055$, two-tailed test) have the same significance. There is support to accept the null hypothesis against the alternate hypothesis. Thus, gender is not a moderator between transformational leadership and organizational commitment. With the transformational leadership style, employees will have the same organizational commitment regardless of gender.

2. The null hypothesis: Gender is not a moderator between transactional leadership and organizational commitment. The findings indicate that male ($r = -0.394$, $p > 0.052$, two-tailed test) and female ($r = 0.172$, $p > 0.055$, two-tailed test) have the same significance. There is support to accept the null hypothesis against the alternate hypothesis. Thus, gender is not a moderator between transactional leadership and organizational commitment. With the transactional leadership style, employees have the same organizational commitment regardless of gender.

3. The null hypothesis: Gender is not a moderator between trust and organizational commitment. The findings indicate that male ($r = 0.452$, $p < 0.052$, two-tailed test) and female ($r = 0.416$, $p > 0.055$, two-tailed test) do not have the same significance. There is support to reject the null hypothesis in favor of the alternate hypothesis. Thus, gender is a moderator between trust and organizational commitment. In other words, trust is sufficient and employees will have different organizational commitment according to gender.

4. The null hypothesis: Gender is not a moderator between job satisfaction and organizational commitment. The findings indicate that male ($r = 0.172$, $p < 0.052$, two-tailed test) and female ($r = 0.342$, $p > 0.055$, two-tailed test) do not have the same significance. There is support to reject the null hypothesis in favor of the alternate hypothesis. Thus, gender is a moderator between job satisfaction and organizational commitment. After obtaining job satisfaction, employees have different organizational commitment according to gender.

Conclusion

The findings indicate that:

1. The level of education has an impact on subordinate job satisfaction for both transformational leadership and transactional leadership relations. In addition, undergraduate and graduate levels of education affect trust relations with subordinate job satisfaction. Therefore, the leadership style and trust lead to differences in job satisfaction needs. These different expectations vary with different levels of education.

2. Undergraduate and graduate levels of education do not influence trust relationships and organizational commitment with transformational and transactional leadership. The level of education does interfere with job

satisfaction in relation to the subordinate's organizational commitment. Therefore, the subordinate's job satisfaction leads to differences in perceptions of organizational commitment and these different perceptions vary with different levels of education.

3. Gender does not influence subordinate job satisfaction with transformational leadership and trust relationships. Gender does, however, have an impact on subordinate job satisfaction with transactional leadership relations. Transactional leadership leads to difference in needs for job satisfaction. These different expectations vary with gender.

4. Gender does not influence the subordinate's organizational commitment with transformational leadership and transactional leadership's relation. Gender does interfere with trust and job satisfaction in relation to the subordinate's organizational commitment. Therefore, sufficient trust and subordinate job satisfaction affect organizational commitment. These different perceptions vary with gender.

Recommendations for future research

The data were limited to employees from the Department of Research and Development. It is recommended that in the future, data be collected and examined from different sources, such as the departments of financial, manufacturing, marketing, education, military, public administration and so forth. Observations from different regions or countries should be compared to discover differences in culture and background and to explore the suitability of this model. It also needs to be determined whether trust influences subordinate turnover. Transformational leadership is related to trust, both directly and indirectly, according to this model. Finally, in the future, cultural differences should be examined as an influencing factor.

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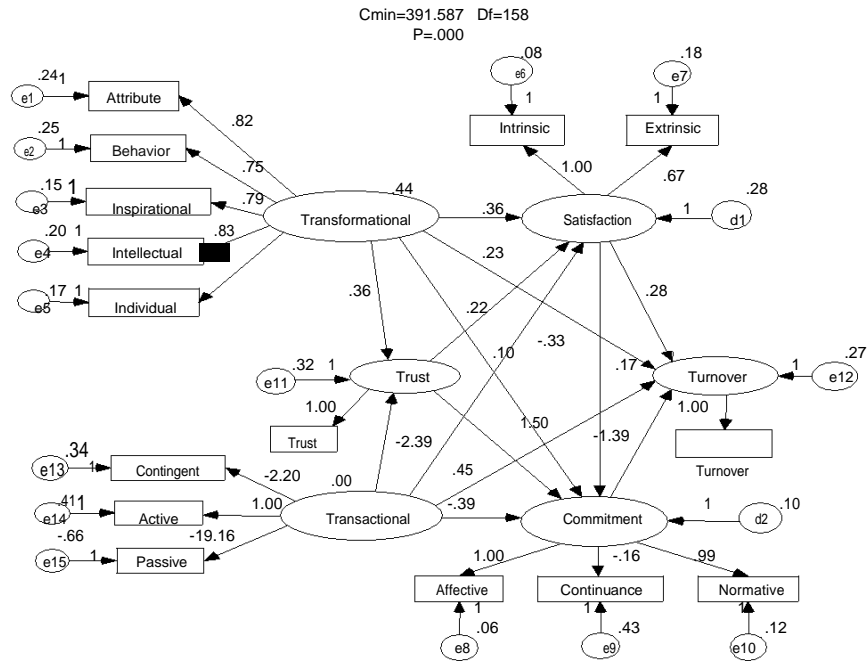
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Appendix A

Male



Female

