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A statistical model for self-evaluation of teacher's satisfaction: a study in an Italian secondary school

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Job Satisfaction is a set of favorable or unfavorable feelings and emotions linked to how employees view their work environment. If employees are not satisfied with their jobs, the overall progress of the entire system is affected. This paper reports on a study of teacher job satisfaction that examined a sample of 362 teachers. The study used a Common Assessment Framework & Education questionnaire to collect data, and a Structural Equation Model taking age, total years of service and gender into account was used to identify the factors that most influence Job Satisfaction. The results obtained from the Job Satisfaction model underline a significant difference between male and female teachers.

keywords: teacher job satisfaction, structural equation model, partial least squares, measurement model, gender, age

1 Introduction

Job Satisfaction (JS) is an indication of how people feel about their work. It measures the extent to which people like (satisfaction) or dislike (dissatisfaction) their jobs (Spector, 1997). JS influences the success or failure of any system or organization, as confirmed by many studies. JS can, therefore, be used as a job quality indicator. The level of JS

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within an education system has been a point of discussion for scholars for some time, and according to Bavendam (2000) only satisfied teachers are able to perform well in the classroom. JS is a multidimensional phenomenon, and measuring teacher JS has become a significant interdisciplinary focus of discussion for researchers. Teacher JS, and the drivers that affect it, could be considered as latent variables (Sarnacchiaro and Boccia, 2018), each measured by several observed indicators, or manifest variables. As a result, using Structural Equation Modelling (Jöreskog, 1970), we arranged latent and manifest variables and their relationships within a framework (Quazza et al., 2018; Sarnacchiaro and D'Ambra, 2012). Research questions of the study are:

RQ1) What are the Factors Impacting Teacher Job Satisfaction?

RQ2) What are the Factors Impacting Teacher Job Satisfaction in relation to gender, age, and teaching experience?

Through a Self-Administered survey Questionnaire, the study provides an answer to the research questions. In Section 2, starting from a brief review of the literature regarding factors that may affect teacher JS, a conceptual model to analyse teacher JS has introduced. Section 3 deals with collected data and statistical methodology used. In Section 4, the empirical findings, to examine the effects of these factors regarding public teacher performance, are discussed. Finally, a conclusion is reached based on a discussion of the research findings.

2 Theoretical framework and conceptual model for teacher job satisfaction

In this section, we define teacher job satisfaction from a theoretical point of view, and we develop a conceptual model in which the determining factors and the relationships between teacher job satisfaction and these factors are delineated.

Job satisfaction is defined as the affective orientation that an employee has towards his or her work (Bishay, 1996; Price, 2001; Skaalvik and Skaalvik, 2010, 2011). Others indicate job satisfaction as the feelings, attitudes or preferences of individuals regarding work (Chen and Silverthorne, 2008; Skaalvik and Skaalvik, 2010). In literature, there are many theories that try to understand the nature of job satisfaction.

Porter and Lawler (1968) fixated the influences on job satisfaction in two groups of internal and external satisfactory factors. According to them, internal satisfactory factors are linked to the work itself (such as feeling of independence, feeling of achievement and other similar feeling obtained from work), while external satisfactory factors are not straight related to the work itself and include factors such as good relationships with colleagues and leadership, good welfare, good school climate, good workplace conditions and strong involvement.

Dinham and Scott (1997, 2000) in their study recognized a *third factor* of variables that may have an impact on teacher satisfaction, this third group contained the so called school-based factors. The status of teachers and increased administrative workloads are school-based factors such as school leadership, climate, decision making, school reputation (external school image), and school infrastructure. These factors are where most

variation occurred from school to school, and thus where there is the greatest potential for change within schools.

School-based factors differ from the internal factors because they are not intrinsic to the teacher, and differ from external factors because they have the capacity to increase job satisfaction (Dinham and Scott, 1997).

These school-based factors are of great importance in this paper as the study focused on aspects of these less explored and more recently identified elements of teacher satisfaction. The education system has also been transformed into an organization, and analysing job satisfaction through self-evaluation has becomes important. Following Dinham and Scott (1997) theory, we focus on the less explored but newly identified as relevant factors that determine teacher job satisfaction (Skaalvik and Skaalvik, 2011).

Self-evaluation by school staff has become increasingly important for the quality assurance of educational systems. Over the last few years, a variety of self-evaluation practices have emerged, and several goals ascribed to school self-evaluation: on the one hand, accountability to central authorities or local stakeholders, and on the other, stressing the potential for school improvement. Recent Organization for Economic Cooperation and Development (OECD) recommendations, made effective by the Italian School reform law number 107/15, indicates the need to align external evaluation with school self-evaluation in order to improve school quality. With Law 107/15, self-evaluation became a procedure initiated and carried out by a school in order to describe and evaluate its operation (Blok et al., 2008). Self-evaluation, however, can only work if team members are positively disposed towards it (MacBeath, 2005).

JS is derived from both organizational and individual factors; in other words, to measure teacher JS it is necessary to study individual employees and the organizations and institutions in which they work, making JS a multidimensional phenomenon. In order to examine teacher job satisfaction within a school framework, the individual or demographic and organizational factors (Spector, 1997) must be considered. Starting from the Common Assessment Framework & Education (CAF) questionnaire, in the survey we analyzed the teacher JS considering six factors/dimensions that may affect teacher JS: Communication, External school image, Leadership, School Climate, Involvement and Infrastructure. The questionnaire (Table 1) was structured with 28 questions belonging to the following seven sections (teacher JS plus six factors):

(1) Communication include information access procedures, secretarial staff, school staff, website, and leadership communication;

(2) External School Image includes such aspects as school initiatives within its area, and community recognition;

(3) Involvement deals with how the management involves teachers in decision's process; and discuss with the personnel the Institution's issues;

(4) Leadership includes some aspects to promote teacher JS with their work;

(5) The School Climate measures the relationship between colleagues, leadership, school staff, parents and students;

(6) Infrastructure comprises technological equipment and work infrastructure;

(7) Teacher Satisfaction concerns the feelings linked to how teacher view his work environment.

In this perspective, considering the relationship among factors, we formulated these research hypotheses:
Hp1: Communication impacts positively on teacher JS;
Hp2: External School Image impacts positively on teacher JS;
Hp3: Involvement impacts positively on teacher JS;
Hp4: Leadership impacts positively on teacher JS;
Hp5: School Climate impacts positively on teacher JS;
Hp6: Infrastructure impacts positively on teacher JS.

3 Study design

3.1 Data Collection and Measures

This survey was conducted in four Italian state secondary schools located within the Campania Region, during the period from January 2017 to June 2017. In order to examine teacher JS we used a questionnaire (CAF and Education model) administered to a sample group of 362 public secondary school teachers. Teachers completed a questionnaire during a staff meeting, their consent to use the collected information was requested, and privacy was guaranteed. Prior to presenting the questionnaires, the manager introduced the project by way of a written communication explaining that the aims of the study were related to JS in public schools. An autonomously designed 4-Likert scale (1 = Disagree, 2 = Not all Agree, 3 = Agree, 4 = Strongly Agree) survey instrument was employed for the collection of quantitative data.

The questionnaire consisted of two main parts, the first part consisting of questions related to demographic or personal factors including such aspects as gender, age, and years of teaching experience. The second part consisted of 28 items relating to the factors: Communication, External school image, Leadership, School Climate, Involvement, Infrastructure and teacher JS.

Using the aforementioned scale the participants were required to indicate their satisfaction with each items. We collected and validated 362 questionnaires, and used SPSS (ver. 16; SPSS Inc., Chicago, IL) and Smart PLS (ver. 3) software to analyze the data.

Size requirements were determined by considering the sample size recommendation with a statistical power of 80% (Green, 1991). Our study sample of 362 teachers, fell between a small-effect size (sample size requirement = 481) and a medium-effect size (sample size requirement = 66). According to Cohen (1988), this solution appeared satisfactory for a study in social sciences that was conducted through direct interview (Ciavolino et al., 2017). The dependent variable in this research was Job Satisfaction (JS). JS and the drivers that affect it are unobservable variables called Latent Variables (LVs), each measured by several observed indicators usually defined as Manifest Variables (MVs), so we adopted Structural Equation Modelling as the most suitable statistical methodology for analyzing collected data.

3.2 Descriptive Statistical Results

The research sample consisted of 70.5% women and 29.5% men, and was found to be fairly well distributed age-wise: 17% were between 25 and 40 years old; 30% between 41 and 50; 43% between 51 and 60; 9% over 61. The average for *Total years of service* was 20 years, while the average for *Years of service in this school* was 10 years. The analyzed sample, therefore, had a fairly equal distribution.

The statistical analysis for the 28 items (Table 2) shows that most of them had acceptable kurtosis and skewness values [-1; 1].

3.3 Structural Equation Modeling

A SEM was elaborated to formalize a scheme for the interpretation of JS and detect the drivers (El Ghaziri et al., 2015). Starting from the consideration made in the previous sections, we hypothesized that Comm, Imag, Invo, Lead, Clim and Infr were exogenous LVs, while JS was an endogenous LV. Mainly following the criteria summarized in (Sarnacchiaro and Boccia, 2018), we supposed that all latent variables were reflective.

There are two approaches to estimating the relationships in a SEM: the covariance-based SEM (Jöreskog, 1970) and the variance-based method (Wold, 1975), known as Partial Least Squares Path Model (PLS-PM). In this paper, we have chosen the PLS-PM, performed by Smart-PLS (Version 3), because it has less stringent assumptions for the distribution of variables and error terms (Wold, 1975). PLS-PM statistical properties in particular provide robust estimations when the data presents normal and very extreme non-normal distributions (skewness and/or kurtosis). PLS-PM is formally defined by two sets of linear equations called inner (or structural) and outer (or measurement) models, respectively. The structural model specifies the relationships between LVs, whereas the measurement model specifies the relationships between an LV and its MVs. PLS-PM includes two different kinds of measurement models, defined as reflective and formative measurement models. A PLS-PM is analyzed and interpreted in two stages: (1) evaluating the measurement model; (2) assessing the structural model.

The PLS estimations showed that the relationships between JS and Comm and JS and Imag were not statistically significant, therefore we eliminated Comm and Imag from the model. The results of the PLS estimations on the new model are presented in Figure 1. Regarding the inner model, all the coefficients are statistically significant, as they are for coefficients in the measurement models. The SEM assessment then focused on the measurement models. This evaluation was performed according to the empirical consideration summarized in (Sarnacchiaro and Boccia, 2018). In a reflective model, the indicators are evoked by the underlying construct, and have positive, and desirably high intercorrelations. In our case, all the manifest variables are strongly correlated for each measurement model. Since reflective indicators have positive intercorrelations, we used Cronbach's alpha to empirically assess the individual and composite reliabilities of the indicators (greater than 0.70), Composite Reliability (greater than 0.70) and the average variance extracted (greater than 0.50). All these measures confirmed the suitability of the reflective measurement models (Table 3). In order to check the correct classification

of the MVs/LVs, the cross loadings have been calculated (Table 4). The tetrad test performed for the exogenous LVs also confirmed the adequacy of the reflective measurement models. We considered the correlation between MVs/LVs for the assessment of convergent validity and the Fornell-Larcker Criterion for the evaluation of discriminant validity (Table 5).

To complete the convergent validity analysis we considered magnitude estimation for each weight, linking the MV to the relative corresponding LV, and the bootstrapping results to assess the statistical significance. All the outer loadings for latent variables were statistically significant (Table 6).

Once the goodness of the measurement models was verified, we underlined how the inner model goodness of the fit of is weak in the second step of the evaluation model ($R^2 = 0.29$). As regards the path coefficients, we observed that the impact of the Involvement and Leadership on the teacher JS was considerable (0.342 and 0.283 respectively), and the impact of Involvement, Leadership, School Climate and Infrastructure on teacher JS were statistically significant (Table 7). The proposed SEM represents a practical and solid instrument to interpret the drivers of teacher JS.

3.4 Multi-group Analysis

In order to deepen our study, we proceeded to carry out a multi-group analysis (Ciavolino, 2012). The groups has been constructed, taking into account the variables teacher age, total years of service and gender. Only the last variable resulted as being statistically significant. The results obtained through the SEM underlined a significant difference between male/female (Table 8) in the teacher JS model. In fact, only two variables (Infrastructure and Involvement) were significant for males (Figure 2), while for females Leadership and School Climate were also significant (Figure 3).

In order to compare the teacher JS level for males and females obtained from the SEM-PM estimations, we proposed an overall teacher JS indicator. In our case, this indicator represents a weighted average of the arithmetical means of the corresponding three indicators (TS1, TS2 and TS3), however, these averages are weighted with weights h (h = 1, 2, 3) that take into account the contribution to the concept of interest evaluation resulting from the evaluation of the other interconnected concepts.

The method adopted is also used for the calculation of national Customer Satisfaction indices in Anderson and Fornell (2000). In the same manner the complex indicator has been applied for all latent variables and the estimated values were converted to a centesimal scale as in Bayol et al. (2000) (Table 9).

The overall JS indicator was acceptable, but not exceptional; the value was 56.85 as compared to the maximum possible of 100. Satisfaction was greater for males than for female (59.37 vs 56.50), males were particularly satisfied with Infrastructure, while females appreciated Leadership and School Climate. On the contrary, the females criticized Infrastructure, but both males and females criticized Involvement.

4 Discussion and conclusions

In order to suggest for the schools a suitable strategy to analyze teacher JS data, we used an *importance vs satisfaction matrix* (Martilla and James, 1977). It yields insights into which aspects the school should focus on to achieve greater levels of teacher satisfaction (Table 9). This analysis uses data collected in satisfaction surveys with a view to measuring both the importance of certain items, and teacher satisfaction regarding these items. The use of this matrix is aimed at supporting two of the most important criteria for decision-making: the targeting of resources toward goods/services that are of the highest importance for customers (teachers in this case), and to target resources towards those goods/services where customers are less satisfied. From this analysis, it can be seen that the attributes (Latent variables) were distributed in four quadrants (Quadrant I, II, III and IV).

In particular, the LV Involvement (for both males and females) situated in Quadrant I is the most important aspect for further strategies, in as much as the school has to focus its efforts on assuring higher teacher participation in decision making, and greater family participation regarding educational activities in the school. In Quadrant II (high importance and satisfaction), the Leadership (female) and School climate (female) appeared. Consequently, these LSs represent opportunities to gain or maintain competitiveness. These factors are extremely important to female teachers, and they indicate good performance, so a school should continue with the good work reflected in the attributes that make up these factors. Quadrant IV, characterized by low importance and satisfaction for female teachers, included Infrastructure, indicating that this is of low priority and there is no need to focus more effort in these areas.

In conclusion, we can say that the Factors Impacting positively teacher Job Satisfaction were Involvement (Hp3), Leadership (Hp4), School Climate (Hp5) and Infrastructure (Hp6). On the contrary, the relationships between teacher JS and Communication (Hp1) and teacher JS and External School Image (Hp2) were not statistically significant. However, the influence of Involvement and Leadership on the TS were greater (RQ1). If we considered the socio-demographic features, only gender resulted as being statistically significant. The results obtained through the SEM-PM underlines a significant difference between males and females in the teacher JS model. In fact, only two variables (Infrastructure and Involvement) were significant for males, while for females the Leadership and School Climate were also significant (RQ2).

Table 1: Questionnaire

DIMENSIONS and Items	Label
COMMUNICATION	
The procedures to access to the information are simple	Comm1
The website offers the possibility to access useful information and documentation	Comm2
The secretarial staff provides all the necessary information	Comm3
The school staff transmits the information effectively	Comm4
The Management communicates effectively the strategic objectives that the institution set	Comm5
EXTERNAL SCHOOL IMAGE	
The school is committed to spread its initiatives abroad	Imag1
The initiatives of the school are known on the territory	Imag2
INVOLVEMENT	
The personnel is involved in decisions and encouraged to make their contribution	Invo1
The families actively cooperate in the educational activities of the school	Invo2
The educational and organizational decisions are debated in advance	Invo3
The planning of the Institution is able to guide each teacher	Invo4
The Management is available to discuss with the personnel the Institution's issues	Invo5
The school personnel is satisfied of the PTOF	Invo6
LEADERSHIP	
The school Executive is assiduously committed to promote the continuous improvement	Lead1
The Executive staff members are able to organize work effectively	Lead2
DSGA is able to handle its role with efficiency and effectiveness	Lead3
The staff of the school receive appropriate tasks according to their specific skills	Lead4
SCHOOL CLIMATE	
The Management is available to embrace the concerns of the employees	Clim1
The relationship between colleagues are based on collaboration in making decisions together	Clim2
The Relationship between colleagues are based on mutual respect on human relations	Clim3
The school takes into account the training needs of each student	Clim4
The school staff and the students respect each other and collaborate	Clim5
The teachers and ATA collaborate together	Clim6
INFRASTRUCTURE	
The school rooms are comfortable and clean	Infr1
The technological equipment is appropriate to the educational needs	Infr2
TEACHER SATISFACTION	
The school personnel is supported and encouraged to propose initiatives	TS1
The school supports the training needs of the teachers	TS2
The distribution of the Institution Fund is satisfactory	TS3

Table 2: Descriptive Statistics for items (n=362)

Label	Average	Dev.St.	Kurtosis	Skewness
Comu1	2.82	0.82	-0.38	-0.32
Comu2	2.82	0.85	-0.39	-0.38
Comu3	2.97	0.85	0.03	-0.67
Comu4	2.82	0.81	-0.17	-0.42
Comu5	2.93	0.89	-0.2	-0.64
Imag1	2.96	0.85	0.07	-0.68
Imag2	2.82	0.82	-0.17	-0.45
Invo1	2.61	0.83	-0.42	-0.29
Invo2	2.16	0.84	-0.63	0.21
Invo3	2.52	0.82	-0.48	-0.21
Invo4	2.6	0.85	-0.51	-0.28
Invo5	2.88	0.91	-0.31	-0.61
Invo6	2.76	0.78	0.12	-0.54
Lead1	3.07	0.9	-0.29	-0.71
Lead2	2.99	0.82	-0.3	-0.47
Lead3	2.92	0.9	-0.41	-0.54
Lead4	2.72	0.88	-0.64	-0.23
Clim1	2.99	0.81	-0.02	-0.56
Clim2	2.94	0.77	-0.28	-0.34
Clim3	3.04	0.74	-0.14	-0.41
Clim4	3.06	0.7	0.32	-0.48
Clim5	2.81	0.73	-0.17	-0.21
Clim6	2.92	0.79	-0.36	-0.33
Infr1	2.75	0.72	-0.18	-0.14
Infr2	2.56	0.77	-0.39	0.04
TS1	2.79	0.8	0.03	-0.53
TS2	2.7	0.83	-0.29	-0.37
TS3	2.54	0.84	-0.53	-0.27

Table 3: Construct Reliability and Validity for latent variables

	Cronbach's α	ρ_α	Composite Reliability	Average Variance Extracted (AVE)
Infrastructure	0.694	0.723	0.865	0.763
Involvement	0.903	0.908	0.926	0.676
Leadership	0.899	0.900	0.929	0.767
School Climate	0.869	0.873	0.901	0.603
Teacher Satisfaction	0.887	0.888	0.930	0.816

Table 4: Cross Loadings manifest variables vs latent variables

	Infrastructure	Involvement	Leadership	School Climate	Teacher Satisfaction
Clim1	0,518	0,689	0,766	0,759	0,700
Clim2	0,360	0,542	0,569	0,801	0,571
Clim3	0,405	0,369	0,485	0,783	0,483
Clim4	0,423	0,495	0,58	0,751	0,549
Clim5	0,493	0,485	0,569	0,789	0,570
Clim6	0,384	0,546	0,624	0,775	0,614
Infr1	0,840	0,378	0,413	0,489	0,430
Infr2	0,906	0,478	0,449	0,492	0,552
Invo1	0,420	0,804	0,599	0,549	0,679
Invo2	0,396	0,727	0,480	0,425	0,539
Invo3	0,389	0,849	0,634	0,538	0,603
Invo4	0,436	0,89	0,694	0,599	0,690
Invo5	0,409	0,822	0,782	0,636	0,674
Invo6	0,391	0,83	0,685	0,607	0,680
Lead1	0,394	0,717	0,868	0,677	0,694
Lead2	0,401	0,682	0,862	0,685	0,673
Lead3	0,468	0,632	0,887	0,669	0,678
Lead4	0,467	0,738	0,887	0,715	0,747
TS1	0,508	0,698	0,699	0,696	0,901
TS2	0,479	0,731	0,770	0,705	0,930
TS3	0,556	0,705	0,691	0,654	0,878

Table 5: Fornell-Larcker Criterion for latent variables

	Infrastructure	Involvement	Leadership	School Climate	Teacher Satisfaction
Infrastructure	0.874				
Involvement	0.495	0.822			
Leadership	0.494	0.792	0.876		
School Climate	0.559	0.685	0.784	0.777	
Teacher Satisfaction	0.569	0.788	0.798	0.759	0.903

Table 6: Outer Loadings

	Original Sample (O)	Sample Mean (M)	STDEV	T Statistics	p Values
Clim1 - School Climate	0,759	0,759	0,035	21,725	0,000
Clim2 - School Climate	0,801	0,799	0,030	26,834	0,000
Clim3 - School Climate	0,783	0,777	0,045	17,593	0,000
Clim4 - School Climate	0,751	0,747	0,043	17,280	0,000
Clim5 - School Climate	0,789	0,786	0,035	22,755	0,000
Clim6 - School Climate	0,775	0,772	0,032	24,203	0,000
Infr1 - Infrastructure	0,840	0,838	0,034	24,685	0,000
Infr2 - Infrastructure	0,906	0,907	0,019	48,457	0,000
Invo1 - Involvement	0,804	0,803	0,028	28,815	0,000
Invo2 - Involvement	0,727	0,726	0,04	18,390	0,000
Invo3 - Involvement	0,849	0,847	0,025	33,878	0,000
Invo4 - Involvement	0,890	0,890	0,016	54,318	0,000
Invo5 - Involvement	0,822	0,820	0,029	28,444	0,000
Invo6 - Involvement	0,830	0,829	0,034	24,594	0,000
Lead1 - Leadership	0,868	0,867	0,025	35,304	0,000
Lead2 - Leadership	0,862	0,86	0,021	41,474	0,000
Lead3 - Leadership	0,887	0,886	0,018	50,589	0,000
Lead4 - Leadership	0,887	0,887	0,016	56,318	0,000
TS1 - Teacher Satisfaction	0,901	0,900	0,019	47,410	0,000
TS2 - Teacher Satisfaction	0,930	0,930	0,011	84,744	0,000
TS3 - Teacher Satisfaction	0,878	0,877	0,020	44,594	0,000

Table 7: Mean, STDEV, T-Values, P-Values

Teacher Satisfaction versus	Original Sample (O)	Sample Mean (M)	STDEV	T Statistics	p Values
Infrastructure	0.131	0.132	0.044	2,955	0.003
Involvement	0.342	0.346	0.076	4,490	0.000
Leadership	0.283	0.275	0.074	3,823	0.000
School Climate	0.229	0.234	0.075	3.057	0.002

Table 8: Bootstrapping Results for multi-group analysis

Path Coefficients	Original Female	Original Male	Mean Female/Male	STDEV Female/Male	t-Values Female/Male	p-Values Female/Male
Infrastructure	0.127	0.195	0.134/0.192	0.053/0.105	2.377/1.846	0.018/0.046
Involvement	0.289	0.480	0.292/0.462	0.095/0,168	3.047/2.857	0.002/0.004
Leadership	0.302	0.109	0.286/0.117	0.093/0,198	3.256/0.554	0.001/0.580
School Climate	0.283	0.184	0.291/0.202	0.100/0.144	2,831/1.272	0.005/0.204

Table 9: Overall indicators of latent variables in centesimal scale

	Infrastructure	Involvement	Leadership	School Climate	Teacher Satisfaction
Mean (male)	60.20	56.29	n.a.	n.a.	59.37
S.q.m (male)	23.13	24.32	n.a.	n.a.	25.35
Mean (female)	44.76	53.42	63.43	63.96	56.50
S.q.m(female)	24.95	21.80	24.37	19.10	23.92
Mean (total)	55.55	54.14	64.50	65.65	56.85
S.q.m. (total)	21.81	22.54	24.95	19.93	24.07

(n.a. = value not available)

Table 10: Importance - Performance Matrix

	LOW IMPORTANCE	HIGH IMPORTANCE
HIGH SATISFACTION		
	(Quadrant III)	**(Quadrant II)**
	Possible Overskill	**Keep up the good work**
	Infrastructure (Male)	Leadership (Female)
		School climate (Female)
LOW SATISFACTION		
	(Quadrant IV)	**(Quadrant I)**
	Low Priority	**Concentrate here**
	Infrastructure (Female)	Involvement (Male)
		Involvement (Female)

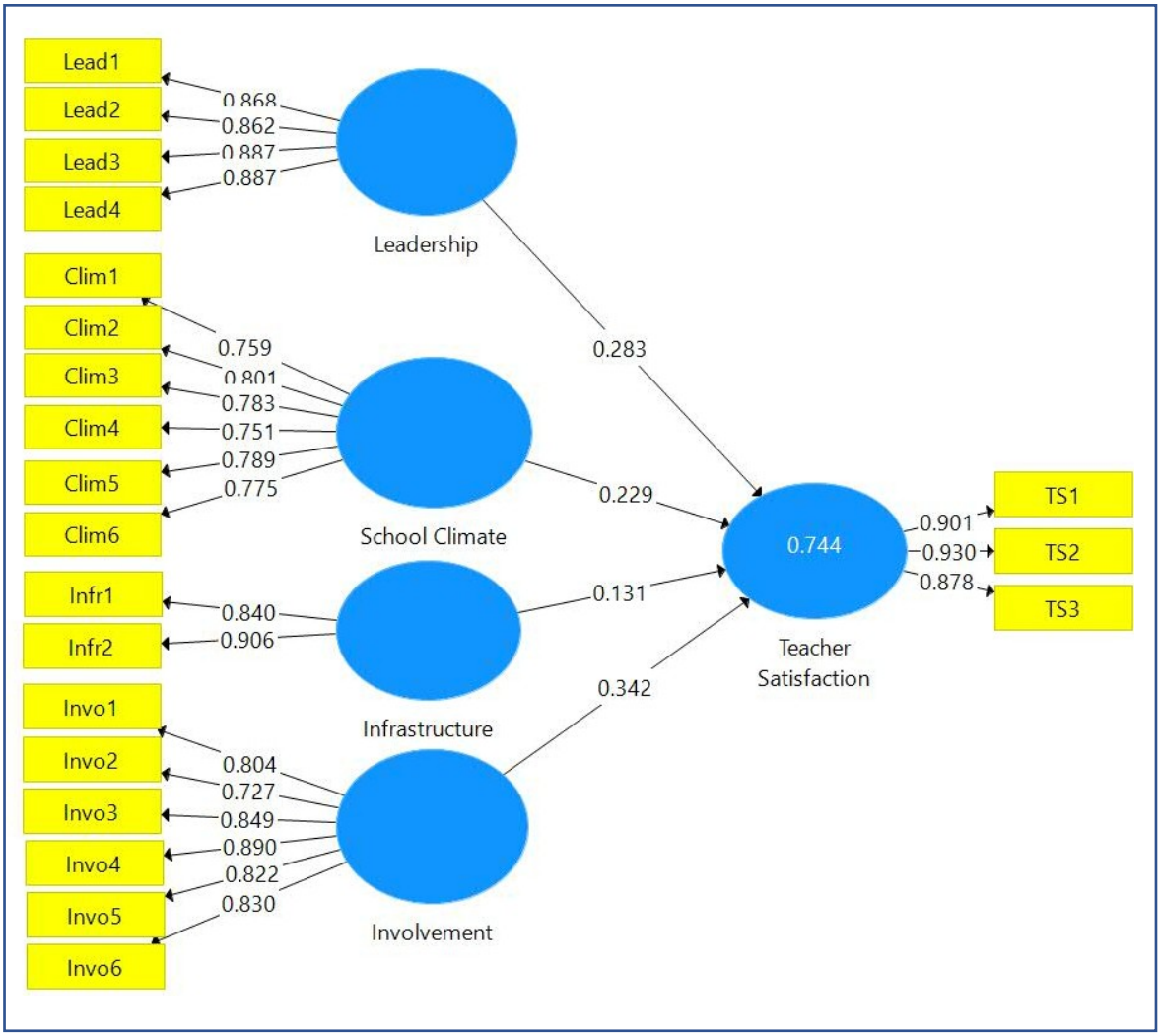

Figure 1: Structural Equation Model - Path analysis

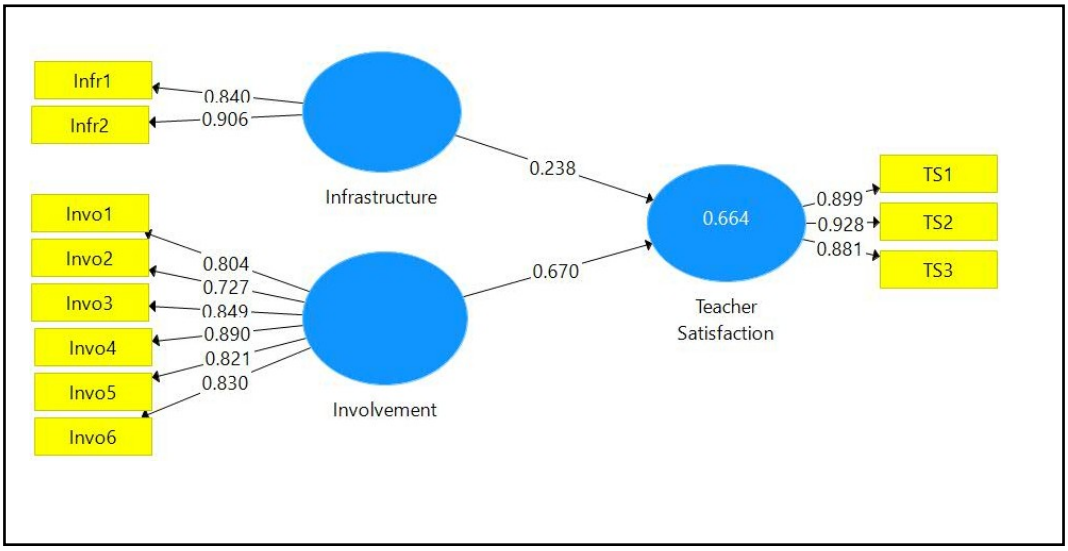

Figure 2: Structural Equation Model - Path analysis for male

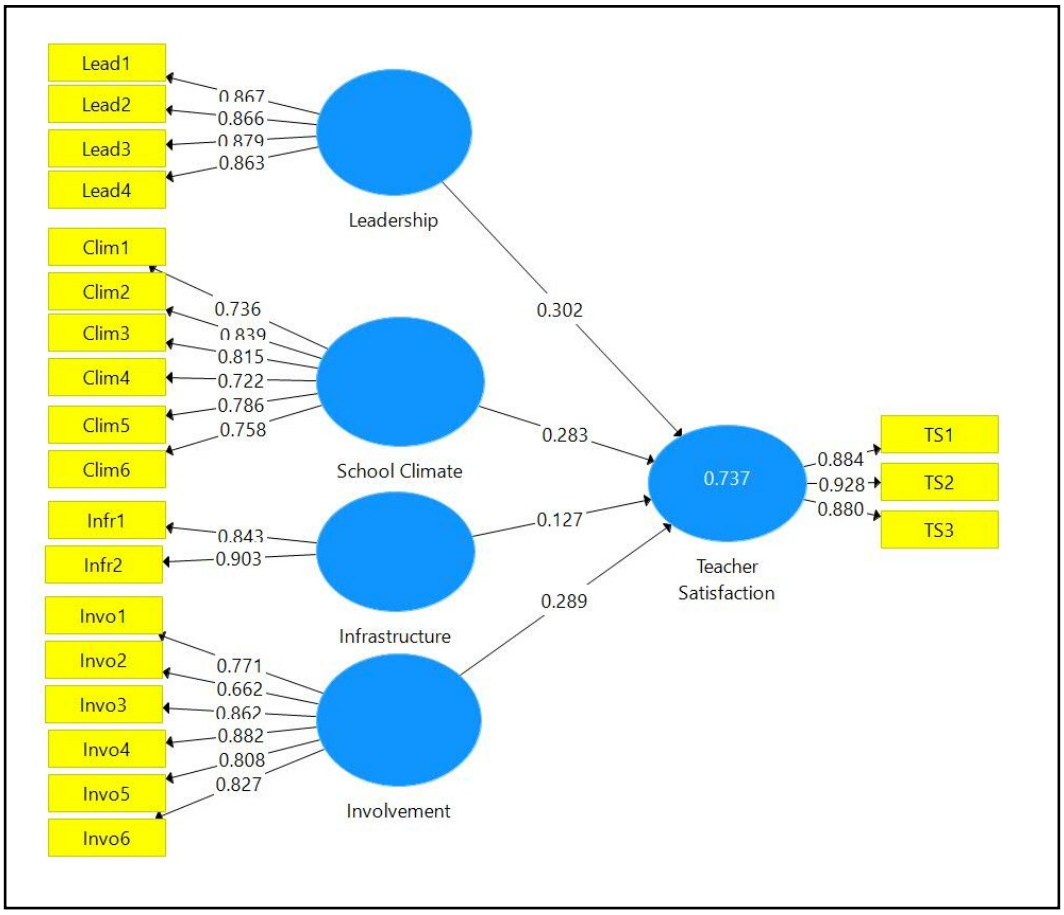

Figure 3: Structural Equation Model - Path analysis for female

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