

## **Panorama of Studies with the Social Cognitive Model of Teacher's Job Satisfaction**

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### **Abstract**

*Teacher's job satisfaction refers to the affective reactions of teachers towards the function of teaching. This study has as objective to build a panorama of researches that have applied the Social Cognitive Model of Job Satisfaction in teachers' samples, in order to analyze the tools used, the variables involved and the relations between them. Articles published in the period of 2009 to 2014 were reviewed in the databases of CAPES – periódicos; ERIC and PsycINFO. The searches resulted in four articles to be analyzed. The Theory of Graphs was used to treat and represent the data, aiming to identify the connections between the articles. The results indicated that self-efficacy was not confirmed as predictor of job satisfaction in most of the studies. This finding, particularly, contradicts what the field literature has been pointing, because it is considered that personal beliefs of efficacy have significant effect over satisfaction. It was also noted that teacher collective efficacy was not included in the studies investigated, despite being an important construct of Social Cognitive Theory and having, admittedly, influence over the levels of satisfaction. The treatment of data through graphs was demonstrated as adequate and efficient to analyze and visualize the results from the articles.*

**Keywords:** social cognitive theory, job satisfaction, integrative model

### **1. Job Satisfaction**

To understand the effects of job satisfaction and to identify its possible predictors has been frequent interest of researchers of organizational psychology and, more recently, of social cognitive psychology. In the last years, studies about job satisfaction have grown, investigating groups more and more specific of workers, supposing that some contextual variables, isolated or in group, might have direct effect over satisfaction (Buyukgoze-Kavas, Duffy, Guneri, & Autin, 2013; Duffy & Lent, 2009).

Based in the Social Cognitive Theory by Albert Bandura (1986) and Social Cognitive Theory of Career (Lent, Brown, & Hackett, 1994), Lent and brown (2006) developed, recently, an integrative model of job satisfaction. Social Cognitive theory, main theoretical basis of this model, defends that people, in part, are products of their environments, having, however, capacity to select, create and transform several environmental circumstances, to which they are exposed. Such capacity allows them to influence courses of happenings, to motivate, to guide and refocus their actions. Bandura (1986) explains the human functioning from cognitive processes, which are self-regulated and self-reflexive, generating adaptations and changes.

These cognitive processes are emerging cerebral activities that exert a determining influence on the behaviour of people, for the human mind is generator, creative and reflexive, not only reactive.

Social Cognitive Theory of Career is an extension of Social Cognitive Theory and was originally created in order to explain the development of interest and choice for a given type of profession, as well as for determined domains of educational formation (Lent & Brown, 2006). From this theoretical basis, Lent and Brown (2006) developed a model to investigate the effects of a group of variables over job satisfaction. For such, they propose a format that combines some of the possible predictors of job satisfaction, which have been already empirically tested in separate way (Badri, Mohaidat, Ferrandino, & El Mourad, 2013).

The first version of this model, developed in 2006, was composed of five predictive variables: self-efficacy, positive affect, work condition, goal progress, goal support aiming to be applied in samples of students in academic formation.

This model is based on the hypothesis that people tend to feel satisfied in their functions when five conditions are experienced, namely: when they feel capable of perform successfully their functions, aiming to achieve the objectives proposed (self-efficacy); when they are exposed to favorable conditions of work (work condition); when they realize that they are making progress in the stipulated goals (goal progress); when they receive support from colleagues of work (goal support); when the environment of work is positive and affective enough to create a sense of well being (positive affect) (Badri et al., 2013).

The Social Cognitive Model of Job Satisfaction answers to a recent tendency found in the literature, which points to the necessity of evaluating satisfaction from integrative formats. The investigation of variables in-group presupposes the influence of several factors, not only one (Lent et al., 2011). These factors might be contextual, extrinsic, or intrinsic, such as, emotional and physiological states, institutional policies, income, institutional climate, among others.

These investigations with together variables applied with the Model have been performed focusing on the satisfaction in educational domain of college students in order to explore contexts related to the process of academic formation (Lent et al., 2011). Only in 2009 the model was adapted to sample of teachers, in the research of Duffy and Lent (2009). Studies (Caprara, Barbaranelli, Steca, & Malone, 2006; Göker, 2012; Klassen & Chiu, 2010; Klassen, Foster, Rajani, & Bowman, 2009; Stephanou, 2013) point that among the variables that might influence the levels of satisfaction of teachers, personal and collective beliefs have prominence. For this reason, the Model of Duffy and Lent, applied to samples of teachers from 2009, includes self-efficacy.

## **1.2 Beliefs of Teacher Efficacy**

Social Cognitive Theory researchers affirm that the beliefs of efficacy (self-efficacy and collective efficacy) are the bases of human agency and are considered as the main determinants of teacher's job satisfaction, exerting influence over the behavior of teachers in the school environment (Caprara, Barbaranelli, Borgogni, & Steca, 2003). Studies performed from this theory indicate that people tend to feel more satisfied in their jobs when they feel competent to fulfill their main activities or achieve their objectives, and this happens through cognitive processes (Badri et al., 2013). In such sense, beliefs of teacher efficacy gain importance, because they represent the sense of competence both in the individual and collective level, influencing the behavior of the teacher.

Beliefs of teacher efficacy are central components in Social Cognitive Theory. Teacher self-efficacy is defined as the judgments that teachers, as individuals, develop about their capacities of achieving results related to learning and behavior of students (Bandura, 1986; Tschannen-Moran, Hoy, & Hoy, 1998). Teachers' collective efficacy, by its turn, refers to the judgments of teachers of a school about the capacity of the group of educators to organize and execute courses of action demanded to achieve positive results with the students (Goddard, hoy, & Hoy, 2004).

Literature has indicated that beliefs of teacher efficacy (self-efficacy and collective efficacy) influence several domains of the human behavior, because unless people believe that they can achieve determined results, they will have little incentive to continue on their objectives and to persevere when facing difficulties, demonstrating resilient capacity (Caprara et al., 2003).

The belief that a person, or a group, is capable of performing specific actions, aiming to a determined objective, allows realizing difficulties as challenges, avoiding unnecessary preoccupations, helping on focusing in the overcoming of eventual issues and making better use of their capacities and resources. It is understood, consequently, that higher the beliefs of efficacy are, bigger will be the sense of work satisfaction, because external and internal rewards are associated (Caprara et al., 2003).

## **1.3 Study Proposition**

Considering the presented context, this study has as objectives: (a) to identify the variation of the constructs investigated and the tools used by the Model of Duffy and Lent (2009) in the last years; (b) to build a panorama of results from the researches about Social Cognitive Model of Teacher Job Satisfaction. Technics of analysis and visualization were used with graphs in order to analyze and to represent the relations between the Model's variables.

## 2. Method

This study consists of a systematic review of the literature about Social Cognitive Model of Teacher Job Satisfaction and has a descriptive and exploratory character. This is a fundamental method to whom searches evidences about determined subject, because it reunites the knowledge fractionated in different studies about the constructs of interest, making possible the construction of panoramas with academic rigor and reliability of information (Castro, 1992; Cordeiro, Oliveira, Rentería, & Guimarães, 2007).

Literature of the field indicates that an efficient review must be planned systematically, answering to a specific question, using explicit methods to identify, to select and to evaluate critically the studies involved in the research. According to the Cochrane Collaboration, globally recognized as one of the best sources of evidences for researches of systematic review, for following rigorous scientific methods, seven stages must be fulfilled: (1) formulation of question/problem; (2) location and selection of studies; (3) critical evaluation of studies; (4) collection of data from the articles – variables to be studied; (5) analysis and presentation of the data; (6) interpretation of the data; (7) improvement and update of the review (Castro, 1992; Cordeiro et al., 2007).

It was inspired by the precepts of Evidence-based Medicine (EBM), from the guidelines of Cochrane Collaboration to perform systematic reviews, because despite being directed to studies of clinical character, of intervention and accuracy, it is understood that such precepts might be adapted to answer to specificities of systematic reviews of other nature, as in the present case (Biruel& Pinto, 2011).

### 2.1 The Course

For the initial directing of this review the central question was defined (stage 1). It is understood that this phase is very important for the forwarding of the study, because an adequate question, well built, allows the researcher identifying correctly the information that are necessary to comprehend the phenomenon investigated.

Therefore, the formulation of the central question of this systematic review was lined by the technic PVO, where P refers to the problem situation, participants or context; V refers to variables of the study; O is applied to the closing or expected result. The technic PVO is an adaptation of the model PICO to answer to researches that treat of themes related to psychology or similar fields. The model PICO is destined to studies of clinical character, of intervention, where P refers to participants, I to intervention, C to control and O to results (Biruel& Pinto, 2011). Such technics allow organizing the elements of a research in order to structure the questions. Therefore, from the technic PVO it was possible to formulate the following question: What is the panorama of researches that used the Social Cognitive Model of Teacher Job Satisfaction (Duffy & Lent, 2009)? The following composition is considered: P (problem situation, participants or context) – teachers in school context; V (study variable) – Social Cognitive Model of Job Satisfaction; O (expected result) – to identify the panorama of studies about the thematic in prominence.

The location and selection of the studies (stage 2) involved the definition of some descriptors related to the thematic. The selection of descriptors considers terms referring to each one of the components of the strategy PVO. It was also performed the consultation to the Descriptors in Health Sciences (*Descritores em Ciências da Saúde* – DECS) and the exploration of keywords of the articles collected which led to the following descriptors: job satisfaction; teacher; work satisfaction; model social cognitive of job satisfaction; Model of Lent; model social cognitive; social cognitive model; teacher job satisfaction; social cognitive theory.

The construction of the strategy of search proceeded in order to be submitted to the databases. For efficacy, the strategy needs to be well elaborated, involving a controlled vocabulary, connected to correct Boolean operators (Sampaio, 2013). Therefore, the Boolean operators were applied to the components of the scale PVO, composing a structure, namely: (P) AND (V) AND (O). Thus, the following English and Portuguese strategies were generated:

- Strategy 1

*(job satisfaction OR teacher satisfaction OR work satisfaction OR teacher job satisfaction) AND (school OR educational institution) AND teacher AND (model of Lent OR model social cognitive OR social cognitive model) AND (theory social cognitive OR social cognitive theory).*

- Strategy 2

(*satisfação no trabalho* OR *satisfação do professor* OR *satisfação na docência* OR *satisfação no trabalho docente*) AND (*escola* OR *colégio* OR *instituição de ensino*) AND (*professor* OR *docente*) AND (*Modelo de Lent* OR *Modelo Social Cognitivo*) AND (*Teoria Social Cognitiva* OR *perspectiva social cognitiva*).

For the refining of searches (stage 2), some criteria of inclusion were predetermined, specifically: to contain in the title, in the abstract, or/and in keywords the terms social cognitive model, job satisfaction and teacher; to be complete and available free of charge; only articles from the last five years (2009 to 2014); to direct toward samples of teachers; articles in English or Portuguese; to have been revised by pairs; and to have used the Social Cognitive Model of Teacher Job Satisfaction, created by Duffy and Lent (2009). All articles that did not obey to the criteria of inclusion mentioned before were excluded.

The articles were selected (stage 2) in three databases, being: CAPES – *Periódicos* – which is one of the biggest virtual libraries of the world, resuming scientific content of high level, with national and international publications and containing articles and magazines of different fields of knowledge, among other productions, being funded by the Brazilian government; ERIC (Education Resources Information Center) – it is an on-line virtual library that provides information related to the educational field, making available the access to *circa* 1,5 million of bibliographic registers, with weekly renovation of publications; *PsycINFO* – it is an organization representing the scientific and professional psychology in the United States and it is the world's biggest association of psychologists, which makes available a miscellaneous great archive of publications in this field. It integrates APA (American Psychological Association).

The critical evaluation of the studies selected (Stage 3) was performed through two tests of relevance composed of lists of objective questions to refine the content of the articles and to identify the valid objects. Test of relevance I was applied to the abstracts and methods of the articles by only one evaluator and was composed of the following questions with possibility of negative and positive answers, namely: does the study agree with the theme investigated? Was it published in the idioms indicated in the research proposal? Does it offer free access to researches? Does it use constructs related to Social Cognitive Theory? Does it study the social cognitive model of job satisfaction? In this stage only the publications that did not answered positively to the questions were removed.

Only the articles approved by Test of Relevance I were submitted to Test of Relevance II. This test II was applied by three judges with knowledge in the field, composed of the following questions based on Azevedo (2010): Does the objective of the study have relation with that is being studied? Is the method described with clarity? Do the results deserve credibility? Are the results compatible with the method adopted? Is the method adequate to the reach of the objectives? Must the study be included in the systematic review?

The credibility of test of Relevance II was verified through the calculation of the index of reliability between the researchers from the following calculus:

$$IC = \frac{A \times 100}{A+D}$$

For this study, it must be considered the following legend: IC = index of concordance; A = concordance; D = discordance. This technic of triangulation of researchers has as objective to increase the probability of the results of a study to be reliable. It is acceptable IC > 80% (Pereira, 2006).

In stage 4, the data were collected from the articles selected for the characterization of the objects, through the delimitation of variables to be investigated.

In this review, it was aimed to analyze three categories of data, namely: constructs investigated by the Model in the last years; tools applied; variables investigated by the articles and results found. Sequentially it was performed the mining and analysis of data (stage 5) through the following computer programs: (1) EXCEL 2010 – for mining and construction of a statistic of central tendency that informs how the sample is in its totality, or in average (Cozby, 2003); (2) MENDELEY – to organize the references, with this software the confrontation of duplicities was performed, excluding repeated articles and managing database; (3) NodeXL – to build graphs representing the relations between the variables investigated by the articles.

The analysis of results of the articles, from the Theory of Graphs with NodeXL, was performed through the calculation of the following metrics: (1) degree (in-degree/out-degree) – to quantify the number of links associated to one element; (2) Betweenness Centrality – to verify the capacity that a vertex has of making links;

(3) PageRank – to measure the level of importance of the vertices in the graphs (Hansen, Shneiderman, & Smith, 2010).

After the organization and analysis of the data, it was performed the process of interpretation of information, from Social Cognitive Theory, and posterior construction and improvement of the systematic review (Stages 6 and 7).

### 3. Results

It was found, in three databases, in the period investigated, the totality of 363 articles, using the descriptors in isolated and/or crossing way. After the initial survey, it was performed a critical evaluation in the studies through two tests of relevance. Table 1 presents the distribution of articles by database and the result of the process of selection and refining of the objects.

**Table 1: Process of Selection and Refining of the Articles by Database**

| Database     | Initial total | Notrevisedbypairs | Repeated  | Test ofrelevance I (exclusions) | Test ofrelevance II (exclusions) | Validarticles |
|--------------|---------------|-------------------|-----------|---------------------------------|----------------------------------|---------------|
| CAPEs        | 212           | 27                | 54        | 126                             | 1                                | 4             |
| ERIC         | 106           | 0                 | 19        | 87                              | 0                                | 0             |
| PsycINFO     | 45            | 7                 | 3         | 35                              | 0                                | 0             |
| <b>Total</b> | <b>363</b>    | <b>34</b>         | <b>76</b> | <b>248</b>                      | <b>1</b>                         | <b>4</b>      |

In the process of selection and refining of the articles, 30% of the total of objects collected were excluded for not have been revised by pairs and for being repeated. Test of Relevance I excluded 68% of the articles resulting from the initial refining for not being directed to samples of teachers (37%) and for not have applied the Social Cognitive Model of teacher Job Satisfaction (31%). Only five articles remained, which were submitted to Test of Relevance II, which excluded one of these objects specifically for problems related to clarity of the objective and the method of study. Only 1,1% of the articles, from the total of publications, were considered valid, in a final frequency of four studies, for answering all the criteria of inclusion and for have been approved in both tests of relevance proposed in this review. It is highlighted that 98,8% of the total of objects were excluded as result of the entire process of selection and refining of the articles. The evaluation of the judges that applied Test of Relevance II resulted on 100% of concordance in the exclusions and inclusions of the articles.

It is considered that in systematic reviews it is common to exist a great contingent of exclusions (Pereira, 2006). In the present case the great number of exclusions is justified by the tendency of the researches in this field, which is concentrated in the studies with the Social Cognitive Model of Teacher Job Satisfaction applied to the academic formation of college students. It is understood that researches considering samples of teachers are recent and yet scarce (Badri et al., 2013; Duffy & Lent, 2009).

#### 3.1 Changes of Model – Variables Involved

The chronology of researches that use the Social Cognitive Model of Teacher Job Satisfaction has had as initial mark the study of Duffy and Lent (2009) and, sequentially, only other three researches were identified with the same profile. For being an integrative model, the proposal groups variables, which are, recognizably, predictors of job satisfaction. The inaugural format of the model predicts five variables already empirically tested, and yet the variable job satisfaction, considering that in the literature of filed all of them present a direct effect over satisfaction.

These variables are: self-efficacy, positive affect, work conditions, goal progress, goal support. However, some changes happen to the extent that new studies are made (Badri et al., 2013; Duffy & Lent, 2009). Therefore, in this topic, is described the variation of the Model expressed in the last five years.

In the first study, Duffy and Lent (2009) aimed to test the factorial structure of the scales in a sample of teachers from United States. It has arrived to the conclusion that the structural model proposed has a good global adjustment. The group of variables of prevision inside the Social Cognitive Model explained 75% of the variance of teacher's job satisfaction.

The second study identified using the Model was performed by Lent et al. (2011) from a sample of Secondary School teachers, in Italy. The format suffered alteration and started to integrate the following variables: job satisfaction, self-efficacy, positive affect, satisfaction with life, relevant efficacy support, work condition (referring to the organizational support perceived) and goal progress. In this format, the Model started to have seven variables, being six predictors and job satisfaction. Therefore, the proposal added the variable satisfaction with life and modified the variable goal support to relevant efficacy support. It is considered that satisfaction with life has direct effect over teacher's job satisfaction, for such reason the variable was integrated to Model. In this study the Model proposed explained 41% of the variance of teacher's job satisfaction.

The third study that used the Model was developed by Badri et al. (2013) in a sample of teachers from United Arab Emirates, in Asia. The format applied in this study explained 82% of the variance of teacher's job satisfaction and integrated five variables potentially predictors and the variable satisfaction, namely: self-efficacy, positive affect, goal progress, work condition (referring to the organizational support perceived), goal support and job satisfaction. This version of the Model replied the first format and excluded the variable satisfaction with life.

The fourth study was performed by Buyukgoze-Kavas et al. (2013) in order to analyze how variables of the Social Cognitive Model might predict the Turkish teacher's job satisfaction. In this study only five variables were integrated to the Model, namely: self-efficacy, job satisfaction, positive affect, goal progress and organizational support perceived (work condition). The variable goal support, integrated to the original model, was maintained in the other studies, not being investigated in this research. Together, the variables investigated explained 33% of the variance of teacher's job satisfaction.

Briefly, it was noticed that the structure of the Model did not suffer great variation in the last years. In the study of Lent et al. (2011) one variable was included (satisfaction with life) and the term goal support was adjusted to relevant efficacy support. However, in the research of Buyukgoze-Kavas et al. (2013) the variable goal support was suppressed.

### **3.2 Instruments Used in the Application of the Integrative Social Cognitive Model of Job Satisfaction**

The four studies investigated in this systematic review used a group of collection instruments. The scales chosen were directed in order to answer the specificities of each variable involved in the studies.

All the instruments used were characterized as scales of psychometric answers, of the likert kind, where the participants of the studies can indicate the level of concordance or discordance with determined statement. In the instruments referring to the variables goal progress and satisfaction with life open questions are available for the participants to present additional observations, as they wish.

Table 2 presents the instruments used in the researches that applied the Social Cognitive Model of Teacher's Job Satisfaction, and the respective statistics estimates of intern consistence, from the alpha of Cronbach ( $\alpha$ ).

**Table 2: Instruments used in the Application of the Model**

| Variables                                     | Instruments  | ( $\alpha$ )<br>(Duffy & Lent, 2009b) | ( $\alpha$ )<br>(Lent et al., 2011a) | ( $\alpha$ )<br>(Badri et al., 2013) | ( $\alpha$ )<br>(Buyukgoze-Kavas et al., 2013) |
|---|--|---------------------------------------|--------------------------------------|--------------------------------------|--|
| <b>Job satisfaction (I)</b>                   | Index of Job Satisfaction                                | .81                                   | .80                                  | .93                                  | .83  |
| <b>Job satisfaction (II)</b>                  | Teacher Satisfaction Scale (TSS)                         | .86                                   | *                                    | .93                                  | *  |
| <b>Positive affect</b>                        | Positive and Negative Affect Scales                      | .92                                   | .76                                  | .96                                  | .90  |
| <b>Goal progress</b>                          | Scale of Duffy and Lent (2009)                           | .86                                   | **                                   | .92                                  | .78  |
| <b>Goal support/efficacy-relevant support</b> | Scale of Duffy and Lent (2009)                           | .82                                   | .70                                  | ***                                  | *  |
| <b>Self-efficacy (I)</b>                      | Scale of Duffy and Lent (2009)                           | .91                                   | *                                    | .87                                  | *  |
| <b>Self-efficacy (II)</b>                     | Teacher Self-efficacy Scale-Short Form                   | .87                                   | .91                                  | .92                                  | .91  |
| <b>Self-efficacy (III)</b>                    | Personal Efficacy Beliefs Scale (PEBS)                   | .82                                   | *                                    | .88                                  | *  |
| <b>Work conditions (I)</b>                    | Person/ organization (PO)                                | .96                                   | *                                    | .92                                  | *  |
| <b>Work conditions (II)</b>                   | Needs/supplies (NS)                                      | .92                                   | *                                    | .91                                  | *  |
| <b>Work conditions (III)</b>                  | Perceived Organizational Support Scale-Short Form (SPOS) | .95                                   | .91                                  | .98                                  | .93  |
| <b>Life satisfaction</b>                      | Satisfaction With Life Scale (SWLS)                      | *                                     | .88                                  | *                                    | *  |

Notes:(\*) did not applied the instrument / (\*\*) it was not possible to estimate / (\*\*\*) not informed

It is noticed that 12 scales were used in the application of the Model in the last five years. The constructs positive affect, goal progress, goal support and satisfaction with life were evaluated by only one instrument each, being: positive affect – Positive and Negative Affect Scales, created by Panas, Watson et al. (1998); goal progress – scale adapted by Duffy and Lent (2009), the original version (Lent & Brown 2006) is directed to samples of students in context of academic formation; goal support – scale developed by Duffy and Lent (2009) specifically to compose the Social Cognitive Model of Teacher Job Satisfaction; satisfaction with life – Satisfaction With Life Scale (SWLS), created by Diener, Emmons, Larsen and Griffin, (1985), to evaluate the global satisfaction with life.

In what concerns the variable job satisfaction, two scales were applied: (1) scale Index of Job Satisfaction, adapted by Judge, Locke, Durham and Kluger (1998), its original version was developed by Brayfield and Rothe (1951), being this a construction very used in the studies of organizational behavior; (2) Satisfaction Scale (TSS), created by Lim-Ho and Tung-Au (2006).

The variable teacher self-efficacy was tested with the application of three scales: (1) instrument modified by Duffy and Lent (2009) in order to evaluate the degree in what the participants feel capable to achieve the most important objectives of the career, the original scale was developed by Karoly and Reuhlman (1995); (2) Teacher Self-Efficacy scale – Short Form – created by Tschannen-Moran and Woolfolk-Hoy (2001) to evaluate self-efficacy directly related to specific behaviors of teaching; (3) Personal Efficacy Beliefs Scale (PEBS), developed by Riggs, Warks, Babasa, Betancourt and Hooker (1994) to explore the confidence towards the fulfillment of job tasks.

To measure the work condition from the organizational support perceived, other three scales were used: (1) scale Person/organization (PO), created by Cable and DeRue (2002); (2) – scale Needs/supplies (NS), also developed by Cable and DeRue (2002); (3) Perceived Organizational Support Scale – Short Form (SPOS), made by Eisenberger, Huntington, Hutchison and Sowa (1986).

It is highlighted that none of the studies uses all the scales (12). Duffy and Lent (2009) employed 11 instruments, with exception of Satisfaction With Life Scale (SWLS), which evaluates the construct satisfaction with life. Lent et al. (2011) applied only seven scales, namely: Index of Job Satisfaction (job satisfaction); Positive and Negative Affect Scales (positive affect); both scales adapted by Duffy and Lent (2009) in order to evaluate the goal progress and relevant efficacy support; Teacher Self-Efficacy scale – Short Form (self-efficacy); Perceived Organizational Support Scale-Short Form (work conditions); Satisfaction With Life Scale (satisfaction with life).

In the study of Badri et al. (2013) 11 scales were applied, with the exception of Satisfaction With Life Scale (satisfaction with life). Buyukgoze-Kavas et al. (2013) used only five scales to analyze the variables considered by the Model, being: Index of Job Satisfaction (job satisfaction); Positive and Negative Affect Scales (positive affect); the scale adapted by Duffy and Lent (2009) to evaluate goal progress; Teacher Self-Efficacy scale – Short Form (self-efficacy); Perceived Organizational Support Scale – Short Form (work conditions).

In what concerns the classification of reliability, it is understood that the instruments are satisfactory when presenting value  $\alpha > 0,70$ . However, in some areas of investigation of social sciences one  $\alpha > 0,60$  might be considered acceptable (Maroco & Garcia-Marques, 2006). The reliability might be defined as the correlation between two parallel or convergent forms of the same test or instrument of measurement. It must be considered that higher are the correlations between items, bigger will be the homogeneity and higher will be the consistence with which the same constructs or dimensions are measured.

Thus, with the classification of reliability from the coefficient of Cronbach ( $\alpha$ ), in a specific way, it is possible to indicate that the results of the study by Duffy and Lent (2009) present values that correspond to the high ( $0,75 < \alpha \leq 0,90$ ) and very high reliability ( $\alpha > 0,90$ ), because the internal consistence of the scales varies between 0,81 to 0,96 (Table 2).

In the study by Lent et al. (2011), it is possible to affirm that the scale referring to the relevant efficacy support of Duffy and Lent (2009) reaches moderated internal consistence ( $0,60 < \alpha \leq 0,75$ ), presenting the value of 0,70. The other scales vary between high and very high reliability, with values between 0,76 and 0,81. The instruments used in the researches of Badri et al. (2013) and Buyukgoze-Kavas et al. (2013) indicate values between high and very high reliability, with internal consistencies varying within 0,78 and 0,98 (Table 2). In general manner, the scales presented good internal consistence ( $\alpha$ ) in all the studies. This information indicates that the measures of reliability might be considered stable.

### 3.3 Relations between the Variables of the Model

To investigate the existent relations between the variables found in the studies that used the Social Cognitive Model of Teacher Job Satisfaction, the Theory of Graphs was employed, which is guided by the study of relations between objects of any nature, being applied in several areas, such as economy, sociology, medicine, among others.

The tool NodeXL, which is a template of Excel, was used. This tool takes profit of computer and mathematics resources for presentation and visualization of connections between different objects through graphs, which are constituted of vertices (objects) and edges (connections), which might represent topologically different types of relations. The vertices are dots in the graph and the edges are associated with arbitrary lines that join the dots (Szwarcfiter, 1984).

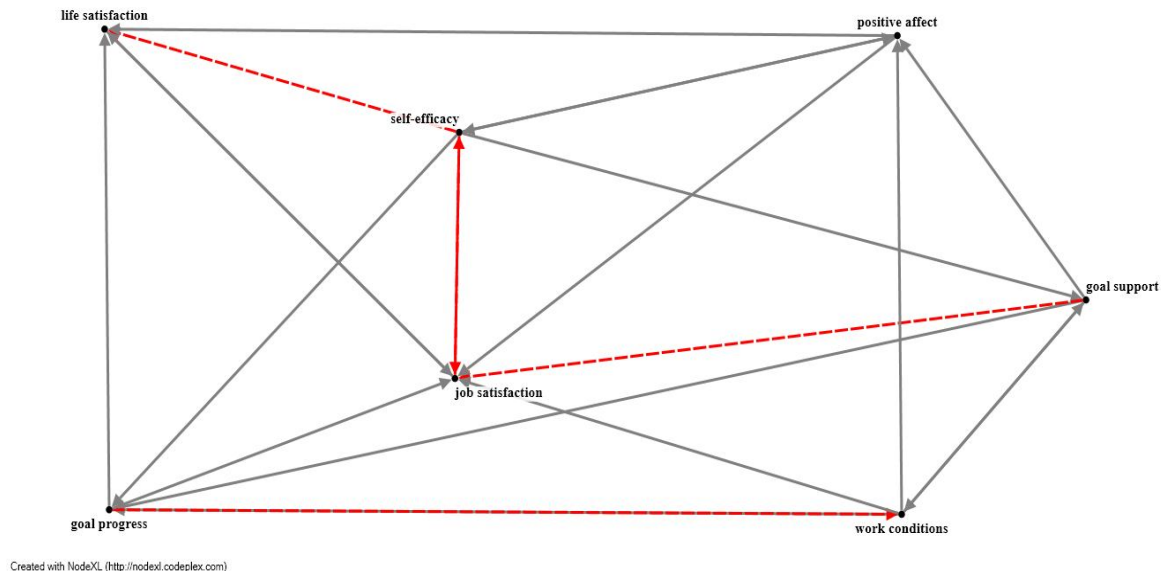
The causal relations (causation) were analyzed between the variables of the Model in order to identify the capacity of explanation from the measures of effect. The focus of this systematic review's stage was to point the power of prevision, evaluating the effect of a variable (x) over another (y) (Dancey & Reidy, 2006). This type of relation was chosen for analysis because it is the most investigated in the results of the articles collected. Therefore, a graph was used to represent these connections, synthesizing the findings of the researches. It is highlighted, however, that the metrics applied through the program NodeXL do not refer to causality between variables, but only to measures of centrality, intermediation and importance, taking into account the frequency of occurrences of causal relations in the articles' results.

For the understanding of the edges on the multigraph (Figure 1) it must be observed that if the effect is positive, this means that when X increases or decreases, Y increases or decreases in the same direction. Even there is no effect, it must be understood that the change in a variable does not influence the other. There were no negative effects identified between the variables investigated.



It is considered that in the multigraph (Figure 1) the dotted arrows, in red, indicate that the vertex of exit (out-degree/variable) did not have effect over the vertex of arrival (in-degree/variable). The gray arrows, by their turn, indicate positive effect. It happens, however, that in the cases of double or multiple edges between the same pair of vertices, they are overlapped.

It is of prominence that the variables of this model might be of criterion – when its cause is explained, predicted by another; or might be explanatory – when they have the capacity of predicting or explaining another variable. In this study there is no variable of criterion. Figure 1 represents the relations between the explanatory and criterion variables (Dancey&Reidy, 2006).



**Figure 1: Multigraph of the Relations between the Criterion and Explanatory Variables**

Figure 1 is a directed multigraph (its edges are directed) that represents the relations between the variables of the studies investigated in this systematic review. It consists of a multigraph, because there is the incidence of more than one edge between some pairs of vertices (Szwarcfiter, 1984).

The vertex job satisfaction reached prominence in the multigraph, assuming greater centrality of Betweenness centrality (2) and greater relevance (PageRank: 1,2). From the metrics Degree (in-degree/out-degree), it was possible to notice that this vertex assumed, for 19 times, the role of criterion variable (in-degree). Specifically, job satisfaction was explained by: goal progress – in two of the three articles that investigated this relation (3 out-degree); positive affect – in the four articles (4 out-degree); work condition – in all the studies (4 out-degree); self-efficacy – in only one of the four articles that performed this analysis (4 out-degree); goal support – in only one study, from the three that researched this relation (2 out-degree); satisfaction with life (1 out-degree/sole article).

The vertices with stronger connections with teacher job satisfaction were: positive affect and work condition. In these cases, it has been identified that such variables had positive effect over satisfaction in all the articles in this systematic review. This suggests that when teachers act in a work environment with a positive affectively climate and with favorable conditions, they tend to feel more satisfied. It was noted that the vertex job satisfactions formed bidirectional connection () with satisfaction with life indicating mutual influence between the variables.

Some relations between peripheral variables of the Model (without job satisfaction) were not confirmed. It is highlighted that in the multigraph (Figure 2), these connections are in prominence in red. It was noted that self-efficacy did not have effect over satisfaction with life in the sole study that studied this relation.

There was bidirectional connection, indicating studies that investigated the causal and reciprocal relations between goal progress and work condition. However, only one study confirmed the influence of the first variable over the second and the inverse way was not found. Table 3 synthetizes causality between the variables investigated indicating their references and the nature of relations.

**Table 3: Causal Relations References between the Variables of the Social Cognitive Model of Teacher's Job Satisfaction (2009 To 2014)**

| From              | To                | References  | Relationships  |
|-------------------|-------------------|---|----------------|
| Positive affect   | Job satisfaction  | Badri et al. (2013); Duffy and Lent, (2009); Lent et al., (2011); Buyukgoze-Kavas et al. (2013) | Positiveeffect |
| Goal progress     | Job satisfaction  | Badri et al. (2013); Buyukgoze-Kavas et al. (2013)  | Positiveeffect |
| Goal progress     | Job satisfaction  | Duffy and Lent, (2009)  | Noeffect       |
| Work conditions   | Job satisfaction  | Duffy and Lent, (2009); Lent et al. (2011); Buyukgoze-Kavas et al. (2013); Badri et al.(2013)   | Positiveeffect |
| Self-efficacy     | Job satisfaction  | Duffy and Lent, (2009)  | Positiveeffect |
| Self-efficacy     | Job satisfaction  | Badri et al. (2013); Lent et al. (2011); Buyukgoze-Kavas et al. (2013)                          | Noeffect       |
| Job satisfaction  | Self-efficacy     | Badri et al. (2013)   | Noeffect       |
| Goal support      | Job satisfaction  | Badri et al. (2013); Duffy and Lent, (2009)   | Noeffect       |
| Goal support      | Job satisfaction  | Lent et al. (2011)  | Positiveeffect |
| Life satisfaction | Job satisfaction  | Lent et al. (2011)  | Positiveeffect |
| Job satisfaction  | Life satisfaction | Lent et al. (2011)  | Positiveeffect |
| Self-efficacy     | Goal support      | Badri et al. (2013)   | Positiveeffect |
| Work conditions   | Goal support      | Badri et al. (2013)   | Positiveeffect |
| Goal progress     | Work conditions   | Badri et al. (2013)   | Noeffect       |
| Work conditions   | Positive affect   | Badri et al. (2013)   | Positiveeffect |
| Self-efficacy     | Goal progress     | Duffy and Lent, (2009); Lent et al. (2011)  | Positiveeffect |
| Goal support      | Work conditions   | Duffy and Lent, (2009)  | Positiveeffect |
| Positive affect   | Self-efficacy     | Duffy and Lent, (2009)  | Positiveeffect |
| Self-efficacy     | Positive affect   | Badri et al. (2013)   | Positiveeffect |
| Positive affect   | Life satisfaction | Lent et al. (2011)  | Positiveeffect |
| Goal progress     | Life satisfaction | Lent et al. (2011)  | Positiveeffect |
| Work conditions   | Goal progress     | Lent et al. (2011)  | Positiveeffect |
| Goal support      | Goal progress     | Lent et al. (2011)  | Positiveeffect |
| Self-efficacy     | Life satisfaction | Lent et al. (2011)  | Noeffect       |

All the variables tested in the integrative Model were confirmed as predictors of teacher's job satisfaction, in at least one article. It is highlighted, however, that in contrary to information available in the field literature, some studies indicated results that questioned the explaining capacity of self-efficacy.

#### 4. Discussion

The articles' results indicated that from the four studies, which investigated the causality between self-efficacy and teacher's job satisfaction, three concluded that self-efficacy is not capable of explaining or predicting job satisfaction. Against the expectations, Lent et al. (2011); Badri et al. (2013) and Buyukgoze-Kavas et al. (2013) did not find significant ways between the variables. The absence of effect of self-efficacy over job satisfaction is not in consonance with the conclusions of previous researches that used the Model, applied to other domains such as academic formation, social aspects and work in general (Badri et al., 2013). This suggests that teachers that believe in their capacities to perform with success their functions, fulfilling their tasks and achieving their objectives, might, however, be dissatisfied with their work.

Duffy and Lent (2009) was the only research using the Model, which found causal relation between the variables. It was noticed in this case that self-efficacy explains teacher's job satisfaction (.17,  $p < .05$ ). Therefore, it is suggested that teachers with more confidence in the performance of their tasks related to teaching might be satisfied with work.

It is noticed that in no study teacher collective efficacy was included in the Model, even considering that the group of variables investigated suffered alteration in the last years. It is understood that the variable collective efficacy might be included in the Model, because it has been pointed in literature as a strong predictor of teacher's job satisfaction, having recognized importance to the elevation of levels of satisfaction and also being a key construct of Social Cognitive Theory (Bandura, 1986; Caprara et al., 2003; Klassen et al., 2009; Klassen, Usher, & Bong, 2010).

The most strongly variables connected to teacher's job satisfaction were work condition and positive affect. It is believed that one of the ways to elevate the levels of satisfaction of teachers is to create an environment where the importance of emotional questions is recognized, more specifically, where mechanisms to develop the positive affect in the environment are built establishing possibilities for the effective favorable climate of support and collaboration. Teachers who act in an environment emotionally unfavorable tend to feel dissatisfied.

Another important aspect to elevate job satisfaction is to create conditions so the teacher might develop their functions best as they can. This means to invest in a good structure, both physical and socio-emotional. For such, it is necessary that schools, through their administrators, evaluate this aspect, instituting strategies for the best conditions of work might be guaranteed, benefiting the process of teaching-learning and everyone involved. It is considered, however, that in order this to happen it is necessary to rethink the internal and external educational policies, aiming to create better mechanisms of support and recognition of the teacher's work.

The variable satisfaction with life was the one investigated by the smallest number of articles (only one) in this systematic review. This weaker connection with job satisfaction, because of a smaller group occurrence between variables, indicates, however, the communication of this Model with other constructs in an attempt of better explaining job satisfaction. It is believed that other variables might also be tested in the Model, such as collective efficacy.

### 5. Conclusions

Far as is known, this article is constituted as a pioneer systematic review about the studies that used the Social Cognitive Model of Job Satisfaction (Duffy & Lent, 2009) applied to teachers. It offers to researchers from the field important contribution about the constitution of the Model, the instruments used, the variables involved and the causal relation between them. It is highlighted that until this moment only four studies with this Model are known.

It is found that the Model here investigated involved seven variables, namely: job satisfaction, self-efficacy, goal progress, goal support, positive affect, satisfaction with life and work condition. The causal relation between the most of them was confirmed, however, it was noted that it is not possible to identify, in the four studies, significant ways between the following variables: satisfaction with life (explanatory variable) and self-efficacy (criterion variable); work condition (explanatory variable) and goal progress (criterion variable).

Some suggestions are indicated for future researches, namely: the necessity of testing the inclusion of the variable teacher collective efficacy to the Model, because it configures as a strong explanatory variable of satisfaction, being an important construct of Social Cognitive Theory. Most part of the studies already developed with the Model were applied to students, so, it is indispensable the fulfillment of more researches with samples of teachers. It is also suggested to researchers in future systematic reviews to expand their searches using other sources, besides articles, such as dissertations and theses.

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