Available online at www.worldscientificnews.com

World Scientific News

WSN 80 (2017) 297-316 EISSN 2392-2192

# Job Satisfaction with a Career in Structural Engineering

**Tomas U. Ganiron Jr.**

IPENZ, Auckland City, NZ

College of Architecture, Qassim University, Buraidah City, KSA

E-mail address: tomasuganironjr@gmail.com

**ABSTRACT**

The phenomenon of job satisfaction is related not only to the aspects of work efficiency and production but also to psychic satisfaction, which is an end in itself, for the structural engineers. This descriptive study aimed to determine and analyze the factors influencing the success of structural engineers Career success was assumed compromise extrinsic (compensation) and intrinsic (job satisfaction) elements. The individual respondents were selected from the list Association of Structural Engineers of the Philippines (ASEP) using purposive sampling. Some interesting insights of the study are (a) The demographic variables of structural engineers, to a large extent contribute to the success of structural engineers. b) The level of career success of structural engineers is dependent on the profile of structural engineers that determine its extrinsic and intrinsic success.

***Keywords*:** Career success, extrinsic success, intrinsic success, job satisfaction, structural engineers

## 1. INTRODUCTION

Like all engineers whose work may affect life, health or property, new structural engineers go through a rigorous training process during their first few years of work. This training involves several years of work experience under the supervision of experienced engineers. Along with technical know-how, a structural engineer needs a host of other skills to be able to interact with professional and nonprofessional co-workers and clients. Sales

ability, public speaking and time management are very important to make contact with clients and problem resolution is a skill that isn't typically taught in engineering schools. But when there's an enormous amount of work that costs a lot of money, that is going on very rapidly, and there are problems, then the problems have to be resolved as quickly as possible.

The success of any construction firm largely determined by the degree of job satisfaction it gives to the degree to the structural engineers. This implies that job satisfaction is attainable to some degree but it is a difficult thing to provide because making structural engineers happy is not easy and it depends on many factors such as work environment, nature of work, compensation package and fringe benefits, training and development opportunities, and so on. But management should try; otherwise, productivity and efficiency will be a difficult situation to attain.

This research is objectively and purposively designed to determine the factors influencing the success of structural engineers in selected category AAA Constructors of Philippine Contractor Accreditation Board (PCAB). When it comes to constructing engineering the success of a company, largely depends on the performance of the structural engineers which means that the company should provide an environment within the technical personnel which will attain job satisfaction to an optimum level at least. If this is the case, with the companies in the construction industry, then, it would continuously maintain a very high-performance standard and contribute significantly to the economic development.

The Construction Manpower Development Foundation (CMDF) which plans and implement the country's manpower development program for the construction industry commented that the report of Group A Constructors of Philippine Contractor Accreditation Board (PCAB) are reluctant to participate in the program offered by CMDF and are under utilizing its resources is true. According to CMDF that Contractors hire manpower and fire them as fast as they could bid and finish projects. There is a built-in problem which contractors can cope up by devising and maintaining a hiring and staffing pattern at the job sites and being able to square off their personnel, permitting them to attend training.

The naked truth on how important the manpower is particularly the structural engineers of the technical personnel as a whole was exhibited by DM Consunji Inc., maintaining the necessity to keep its engineering staffs in top shape continually to be efficient and productive in detailing the designs and plans of the concepts and specifications of projects.

This being the situation in the Philippines, the researcher, who is teaching construction management in Qassim University, took it as an obliging and very appropriate endeavor to design job satisfaction model for structural engineers in private agencies which will give some insight into the focus of success of failures of the company in the whole industry. Hence, this proposal is being presented.

Foremost of the problem is the low demand for new infrastructure projects and the limited government spending for the public works. Problems like the lack of long-term financing and difficulty of raising construction costs also beset the industry. Shortage of raw materials is likewise a paramount concern. The demand for cash upon delivery of materials and the standard of supplies because of the cash crunch and this made construction companies finances slump further. Even the issue of discrimination is one of the complaints according to Ganiron (2013), the construction firms rebel against the increasing number of foreign construction companies in the Philippines which always corner the contracts on foreign-funded projects were off-schedule. Irregularities still prevail in the awarding of contracts.

The industry is saddled with countless problems and any solution to any problems is very relevant to its forward projections. Thus a study such as this which will provide some solutions to manpower problems could be a welcome idea to the industry

## 2. GENERAL

How to induce structural engineers to perform work that is boring and unsatisfying is a matter of concern for contractors in the construction firm. Subject concerned with improving the quality of the work life, humanizing work or improving work satisfaction thus have become very popular topics for research and discussion by behavioral scientists. Unfortunately, the subject of work satisfaction is an extremely complicated one that defies any simplistic explanation or solution. There are many variables that help to determine whether or not work in a particular job will prove satisfying to structural engineer performing it.

The present study is based on the concept that a structural engineer should maintain his integrity and objectivity in all his dealings with his working relations and contractor focus. These two important character traits of Structural Engineer may be maintained if they are satisfied with their jobs.

This study is to analyze the relationship between the demographic variables and extrinsic and intrinsic success that will contribute to the career of structural engineers. As visualized in Figure 1, this model contains twenty job variables that are considered to have an effect upon the satisfaction to be derived from a job. These variables believed to be relevant to job satisfaction model are ability, achievement, activity, advancement, authority, company policies and practices, compensation, co-workers, creativity, independence, moral values, recognition, responsibility, security, social service, supervision-human relations, supervision-technical, variety, and working conditions It is hypothesized that age has a positive relationship to job satisfaction, a negative relationship to structural project worked, and a positive relationship to promotions. In turn, each of these variables has a positive relationship to each type of job satisfaction: general, intrinsic and extrinsic (Ucol-Ganiron Jr & Malvecino-Ganiron, 2013). It is hypothesized that contractor relations have a positive relationship with job satisfaction, and a variety of responsibilities. In turn, each of these has a positive relationship to each type of job satisfaction: general, intrinsic and extrinsic.

A Structural Engineer usually works as part of a team that may include architects, mechanical and electrical engineers, construction contractors and project developers. In general, they design load, bearing structures such as bridges, towers, offshore structures, and buildings, keeping in mind that these structures must withstand. They carry out inspections at each stage of the building process to ensure adequate strength and rigidity and analyze the structure's ability to withstand the effects of the wind, vibration and other forces. Moreover, they check load and weight distribution requirements.

Herzberg developed a dichotomy of factors inherent in the work itself which he labeled “hygiene factors” and “motivators”. Simply stated, Herzberg’s theory of job satisfaction is a two-dimensional theory. There are certain hygiene factors which dissatisfy if taken away but these factors no substantial influence upon behavior when they are added on to such as achievement, growth, recognition, and responsibility. The latter is at the heart of the job itself, and they have the power to sustain high levels of appropriate employee work behavior (Ucol-

Ganiron Jr & Malvecino-Ganiron, 2012). Presently it seems that contractors are well along the road toward the development of a general theory of job satisfaction. There is now somewhat universal agreement among scholars about the inclusion of certain factors as the basic elements of job satisfaction.

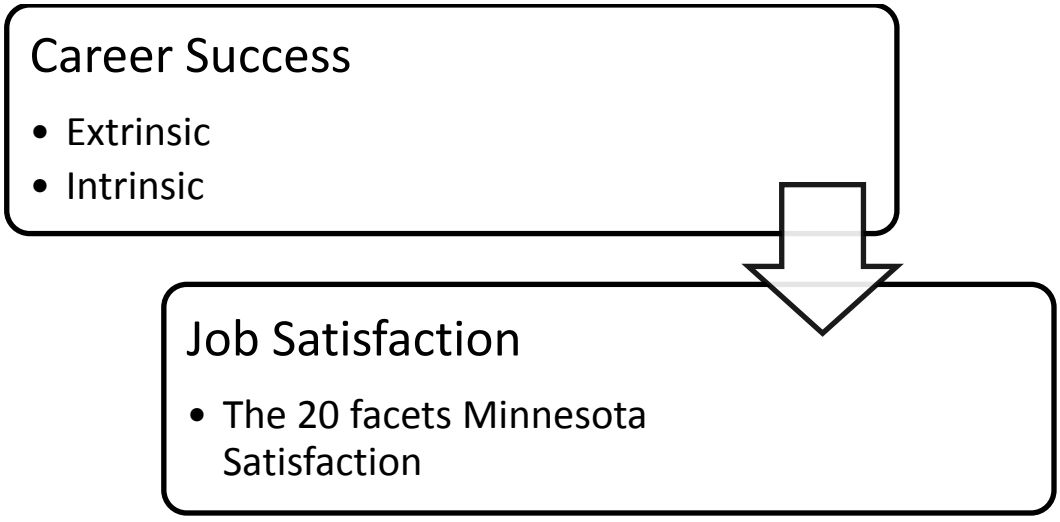


**Figure 1.** Conceptual framework.

Many factor analytic studies have shown the following to be somewhat universal, separate and distinct factors of job satisfaction: satisfaction with the work itself; satisfaction with pay; satisfaction with promotion opportunities; satisfaction with co-workers and satisfaction with the supervisor.

It is logical to think that satisfaction with pay is influenced by factors different from those that influence satisfaction with, say provision. It is also logical that the behavioral implications of dissatisfaction with pay would be different from behavioral patterns following from dissatisfaction with supervision. A Structural Engineer may stay with an organization even though the pay is unsatisfactory if he has a good contractor who can and will do something about this matter in the future. Pay may even relatively be unimportant, compared with the importance of promotion, and promotion opportunities are sometimes good even though the present pay is low. These examples merely re-emphasize the fact that it may be meaningful to simply add up the score on these job satisfaction. Since the determinants of each factor are probably different, and since the behavioral consequences of each factor vary from one individual to another and are influenced by situational as well as personal variables.

A major difficulty in determining how to increase job satisfaction stems from the individual differences among structural engineers. Differences in abilities, background and social conditioning affect the specific psychological need patterns of structural engineers and the specific returns that each may seek from work. As a result of these differences, work that is boring, repetitious, and unchallenging to one individual may be satisfying to another. Models used to increase satisfaction, therefore, must make into account not only the structure and working conditions of jobs but also the needs of specific individuals.

Structural Engineers would be encouraged to maintain integrity and objectivity in their work if they are satisfied with their jobs. The result of this study, therefore, will help government and private agencies understand better Structural Engineers in their organizations.
To the government, this study will gauge whether Structural Engineers are satisfied with what the government can offer; to the private sector, this study will guide them in setting up their human resource management program.

## 3. RELATED LITERATURE AND STUDIES

Job satisfaction has to come to the attention of some Filipino management experts. Ucol-Ganiron Jr (2012) mentioned in his article that some of the factors that affect job satisfaction in most industrial and engineering enterprises. These are working conditions, lack of opportunity, conflict of interest, ineffective personnel policies and practices, and management concern of their people. He stressed that it is the responsibility of the personnel management staff to look into these factors to maneuver a favorable situation for job satisfaction. According to Louis Lee in a Structural Engineering Magazine 2004 that job satisfaction level is attained if the finished project is according to his expectation and if the end product/building is not what he envisioned it to be, then there's no satisfaction at all.

Furthermore, Lee found out that Structural Engineering attracts a broad range of people because it offers so much profession and draws on a whole range of artistic and scientific talents. As a structural engineer, he could be involved in seeing through a project from design stage to construction and completion. These projects might include the development and construction of bridges, tunnels, roads, railways, dams, pipelines and major buildings. One reason that young engineer give for choosing structural engineering is 'variety of responsibilities. A structural engineer might be in the office, working on designs at a computer or ensuring the client is kept up to date. He could be on site, leading teams, solving problems and literally being 'hands-on'.

In the 2004 ICE salary survey, structural engineers reported a high degree of job satisfaction with 71% being satisfied with their employer and 75% being satisfied with their present role. In general, the role structural engineer have on a project depends on the type of organization he employed by and what job assignment of structural engineering he works in. There are also international and managerial opportunities, which make structural engineering a very appealing profession. Many jobs, particularly with site-based work, will have extra benefits which will push up the value of his package. This includes bonus, a company car, life insurance, overtime pay and medical care.

Mark C. Reuss of Stanford University in March 2004 found out that what Structural Engineer would like most is the satisfaction of building something that improved the quality of life that is tangible and represents a reach achievement. Anyone looking for a job has to be comfortable with the idea of selling one's strength whether it is a deep specialization or a broad background, the need to demonstrate how to help an employer. Marketing includes both a profound knowledge of the product (yourself) and the buyer (employer). When he found a match between interest and their needs, the chances of success are high.

According to the Engineering Salary Survey (2004) that the salaries of structural engineering are up while the bad news is structural engineers feel they don't get the respect they are concerned about losing their jobs to offshore outsourcing. The Machine Design

annual salary survey polled over 900 readers about their salaries, bonuses, work week and level of job satisfaction. Compared to 2003 average base salary for structural engineers increased $2,600 to $ 68,000. The reported median salary is $ 66,400, up more than $4,400 from the depths of the economic recession in 2002. For 56% of structural engineers responding to the survey annual salaries increased between 1 and 5%. An additional 27% say their salaries remained the same and this seems to be enough to keep them satisfied with their current position. A majority of participants, 57%, say they are not considering a job search, 33% are considering a change in scenery. Another 9% are actively looking, and 1% is unemployed and actively looking for a job. Forty-four percent claims to be "somewhat satisfied" with their jobs, and 23% are "very satisfied". The gender gap rears its head among those pooled but the disparity is smaller than rational numbers in other professions. The survey found that women earned 90% of what their male peers made. The average salary for women is $61,700 and $ 63,200 for men.

Furthermore, the factors that give the most job satisfaction as a structural engineer are challenging work assignments, work environment and colleagues, constantly changing technology, good compensation, and good job security.


**Figure 2.** The linear relationship between age and job satisfaction

Sundstrom (1980) studied about job satisfaction of architecture and structural engineer in perspective, the survey asked respondents what they liked best about their jobs. According to the results, money was not the prime motivator to stay with a current employer. When most respondents said they like best is personal satisfaction and achievement, followed by gaining experience, finding the work challenging, and liking coworkers. Moreover, 80% of the respondents find their work satisfying and challenging. Disorganization, lack of resources and fairness of compensation are the least about their job.

Hulin (1965) found that job satisfaction and age are positively correlated shown in Figure 2. Recent studies support the positive, linear relationship between age and satisfaction. In an older study of secondary school principals in Detroit, Miller (1973), who used the MSQ

(Long Form), found no relationship between age and job satisfaction. One reason for finding might be that the study was conducted in a limited geographic area as compared to studies with samples from much larger areas than one city. The fact that principals were studied might also account for the different findings

Age was the independent variable in the study. It was hypothesized that age has a positive, linear relationship to job satisfaction: as the age of increases the job satisfaction of structural engineer increases (see Figure 3).

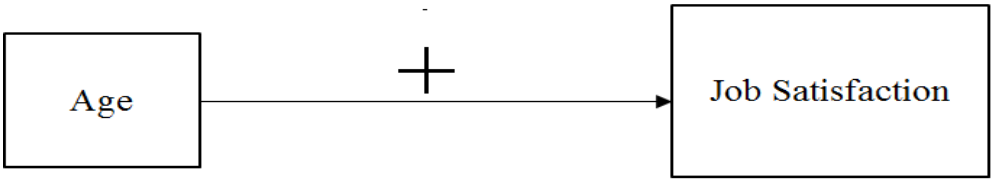


**Figure 3.** The relationship between age and job satisfaction.

Sutter (1994) found that a model consisting of career aspirations, feelings of achievement on the job, an opportunity for advancement, and ability utilization explained 51% of the variance in the job satisfaction of Ohio secondary school principals. One reason Sutter offered for the importance of career aspirations to job satisfaction is that assistant principals who have high career aspirations view their jobs as preparation for higher jobs. He also stated that because many assistant principals believe they would someday be promoted, they view their current jobs as preparation for higher-ranking jobs and are satisfied in their current positions. Sutter (1994) did not study the relationship of career aspirations to job satisfaction through other variables. The relationship of age to job satisfaction through its relationship to career aspirations was examined in this study. Also examined was the relationship of perceived opportunity for advancement to job satisfaction through its relationship with career aspirations.

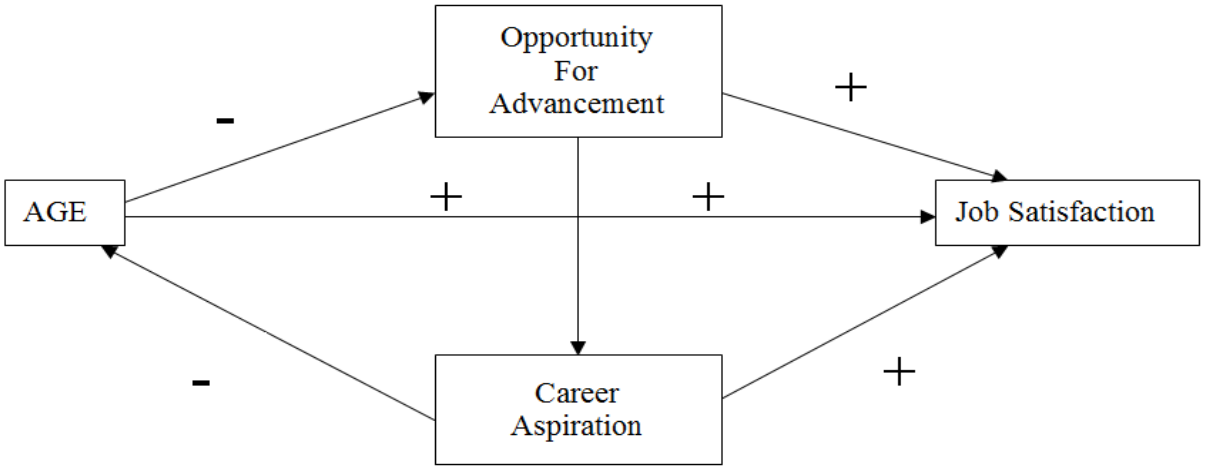


**Figure 4.** The relationships among age, an opportunity for advancement, career aspirations.

The relationship among opportunity for advancement, career aspirations and job satisfaction will be complicated, however, by the effect of age on job satisfaction through its effects on the opportunity for advancement and career aspirations. As age increased, the perception of advancement and career aspirations is expected to continue to decrease as the assistant principal nears retirement age. Because it was expected that there is a positive relationship between opportunity for advancement and career aspirations but a negative relationship age and opportunity advancement, the effect of age on career aspirations through the opportunity for advancement was expected to be negative. Thus, the total effect of age on job satisfaction through the opportunity for advancement and career aspirations was expected negative. It was hypothesized that as age increases, the perceived opportunity for advancement decreases; thus, career aspirations decrease, producing negative effect of age on job satisfaction through opportunity for advancement and career aspirations (see Figure 4)

Bruce and Blackburn (1992) ranked good managerial relations second among variables affecting job satisfaction. They asserted that both job satisfaction and job performance are dependent on supervisors in the organizations. Through this study of six employees in various occupations, they found several aspects of managerial relations with workers to be significantly related to job satisfaction, as indicated by chi-square tests of association. "Treats employee as an important person" was one managerial behavior that was found to be related to job satisfaction. Other managerial variables found to be related to job satisfaction were communication, frankness, consistency, helps solve related problems, encouragement to seek educational opportunities, aware of employee difficulties, encouragement to make suggestions and ability to foster good relations with the workforce. Sutter (1994) theorized that job satisfaction of assistant principal is more directly associated with the personal and working relationship with their principals that with any other variable.

In this study, the relationship between contractor relations and job satisfaction was expected to be positive and linear. As structural engineers" perceptions of positive relations with their contractor increase, their job satisfaction also increases (see Figure 5)

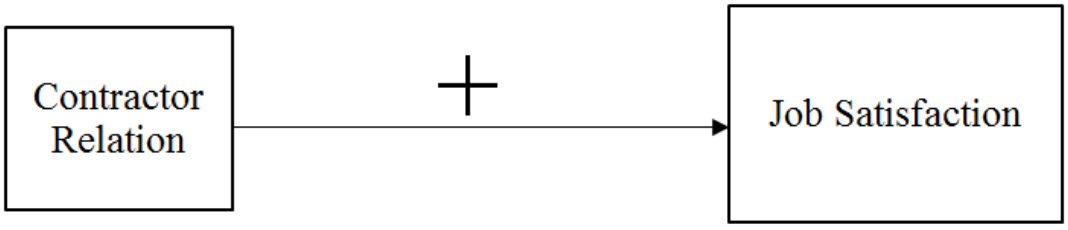


**Figure 5.** The relationship among contractor relations and job satisfaction

The participant's perception of the fairness of compensation was also included in the theory. It was expected that the structural engineers" perceptions of the fairness of their compensation have a positive, linear relationship to job satisfaction. It was also expected that there is a positive, linear relationship between age and perceived fairness of compensation because those who receive higher salaries are senior structural engineers. A high salary is expected to result in a greater feeling than compensation is fair.

The possibility must be considered, however, the relationship between age and the feeling of fairness of compensation is negative. Senior structural engineers may feel that their

compensations not fair given the many years spent performing the job, or they may feel their salaries are not sufficiently higher than those of younger, less-experienced structural engineers. However, it was hypothesized that there is a positive relationship between compensation and feelings of fairness of compensation: As compensation increases, feelings of fairness with compensation also increase. Thus, age was hypothesized to have a positive relationship to feelings of fairness of compensation when acting through compensation. The relationship among job satisfaction, compensation, and feelings of compensation fairness are illustrated in Figure 6.

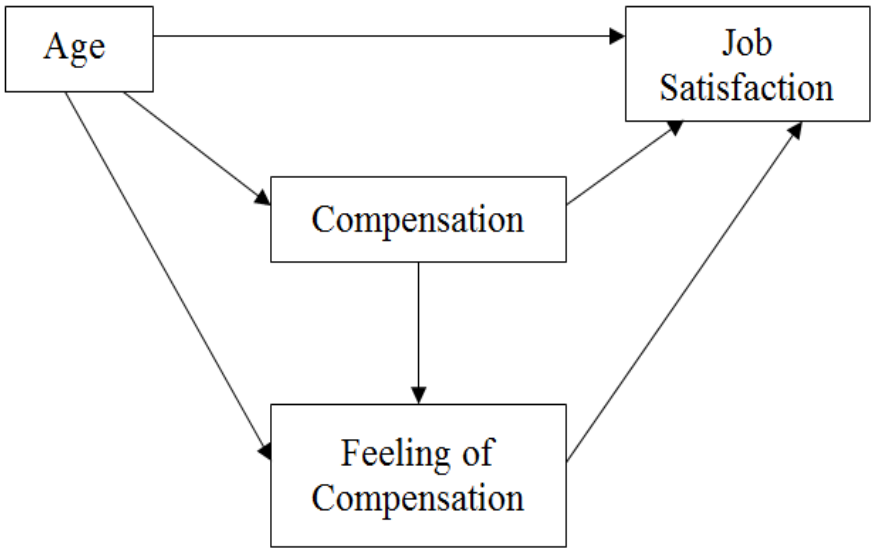


**Figure 6.** The relationships among age, compensation, feelings of compensation fairness, and job satisfaction.

Vroom (1982) interpreted promotional opportunity as a desired, positive, personal goal. He stated that promotional opportunity is a goal most workers desire and that an individual's performance is related to the degree to which the individual believes that being promoted is related to performance on the job and how strongly the individual desire the promotion. This study suggests that opportunity for advancement is important to a structural engineer. Thus, it is reasonable to assume that how a structural engineer views the opportunity for advancement affects that person's job satisfaction. Therefore, a positive, linear relationship between opportunity for advancement and job satisfaction was expected. The job satisfaction of structural engineer was expected to increase as their perceived opportunities for advancement increased.

A negative relationship between the age of the structural engineer and the perception the structural engineer has the opportunity for advancement was expected. Junior structural engineers are apt to see the opportunity for advancement as greater than those who are senior because they have many more years of opportunity for advancement decreases. Senior structural engineers will likely perceive their opportunity for advancement to be much lower, especially if they feel that they have been passed over for prior promotions. Their thoughts may shift to future retirement possibilities rather than advancement opportunity for

advancement was expected to be negative. Because the direct effect of opportunity for advancement on job satisfaction was expected to be positive and the effect of age on opportunity for advancement was expected to be negative, the indirect effect of age on job satisfaction through the opportunity for advancement was expected to be negative (see Figure 7).

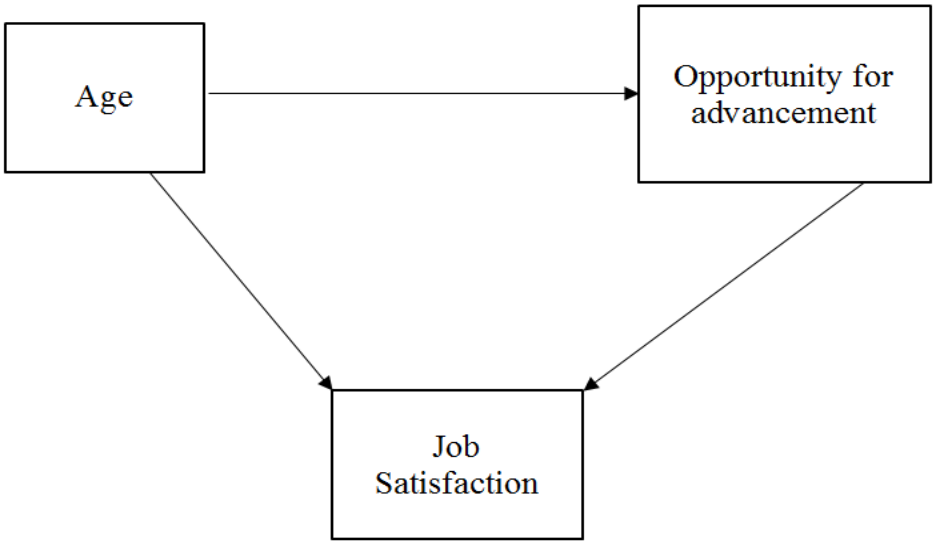


**Figure 7.** The relationship between age and opportunity for advancement and job satisfaction

Fidler (1983) stated that enlarging a person's job is important to promoting growth in an individual and increasing the worker's psychological energy devoted to the job, thus increasing job effectiveness. Specialization in one or two aspects of job results in a feeling of not being responsible for the total product. Applied to the job of engineers, those given only a few duties in Construction Company will not be very satisfied with their jobs. In this study, it was hypothesized that there is a positive relationship variety of job responsibilities and job satisfaction: As the variety of job responsibilities performed by the structural engineers' increases, job satisfaction is expected to increase.

The relationship of job satisfaction to contractor relations and the variety of responsibilities was also studied. Because the jobs of engineers are primarily determined by contractors, it is important to consider the effect of contractor relations on the variety of responsibilities structural engineers are asked to perform. It is expected that a contractor relations become more positive, the variety of responsibilities will increase, thus demonstrating a positive, linear relationship. If the relationship between a structural engineer and contractor is good, it is logical to assume that the contractor will trust the structural engineer with more important and varied tasks. Because the relationship between contractor relations and the variety of responsibilities, and the variety of responsibilities and job satisfaction are positive, it is expected that the indirect effect of contractor relations on job satisfaction through the variety of responsibilities will also be positive. As contractor relations become more positive, the variety of responsibilities increases; thus, job satisfaction increases (see Figure 8)

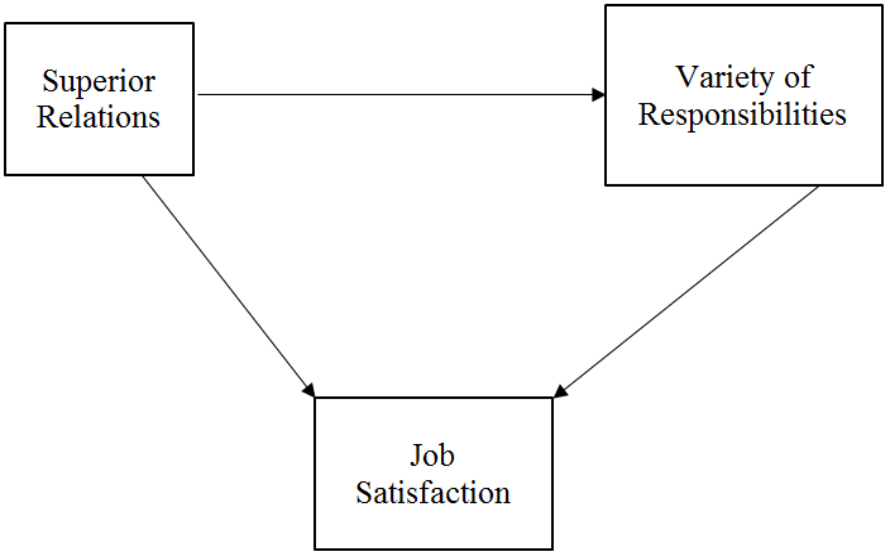


**Figure 8.** The relationship among supervisor relations and variety of responsibilities and job satisfaction

## 3. RESEARCH DESIGN AND INSTRUMENTATION

### 3. 1. Research Design

The researcher made use of the descriptive research method. The descriptive research methodology, according to Calderon et al (1993) and Ganiron et al (2012), is a purposive process of gathering, analyzing, classifying and tabulating data about prevailing conditions, practices, processes, trends and relationships and then making the adequate and accurate interpretation of such data through statistical methods.

Specifically, the use of the descriptive research method in the study involved the presentation, analysis, and interpretation of the assessed (both the preferred and the actual) factors influencing the success of structural engineering as perceived by the selected category AAA constructor of PCAB. After describing the factors, these were correlated with the extrinsic and intrinsic career success

The subjects of this study were the selected category AAA constructor of PCAB that are presently engaged in General Engineering. These will be the companies that are located in the Philippines where horizontal and vertical structures, irrigation, dam, reservoir, tunneling, water supply, port and harbor projects are in progress. All Professional Structural Engineer will be targeted as respondents.

Purposive sampling was adopted using the following criteria as guide in the selection of respondents: (1) Registered Civil Engineer regularly and extensively engaged in the practice of structural engineering for at least five years nor a degree of Master of Science in engineering major in structures shall be equivalent to two years of active practice and a doctorate degree in Civil Engineering with structures as the specialization shall be equivalent three years of active practice, (2) Completed at least 5-7 years of service with the company, and (3) Active Member of Association Structural Engineer of the Phil's.

### 3. 2. Instrumentation

The major tool for data gathering was the questionnaire. The questionnaire was divided into 2 parts. The first part dwelt on the sample characteristics of structural engineers The second part focused on the level of career success of structural engineer in terms of extrinsic (compensation) and intrinsic success (job satisfaction)

The unstructured interviews were administered to the respondents to further clarify the opinions reflected in the questionnaire. This was undertaken simultaneously upon the retrieval of the questionnaires. The researcher with various respondents has conducted the unstructured personal interview. This undertakes the retrieval process to support or enhance the responses that were reflected in the questionnaires.

Pertinent documents, such as the 201 file of the respondents were analyzed to enhance the understanding of the issues under investigation. Manual of Structural Engineers of the Philippines was the basis of structural projects including the type of building worked, project construction cost, the role of structural engineers in a project, scope of work and construction techniques applied in buildings. The following techniques of data gathering were World Wide Web and library technique.

Questionnaires were distributed to all structural engineers of the Association of Structural Engineers of the Philippines, Home Development Mutual Fund (PAG-IBIG Fund) with seven (7) branches in Metro Manila, seventeen(17) branches in Luzon, fourteen (14) branches in the Visayas; and ten (10) branches in Mindanao. Others were distributed in Corner Steel Corporation in Makati City, Fil-Garcia Construction in Quezon City, and DMCI Construction in Manila.

Demographic variables were measured through three distinct variables: (1) age (up to 25 years old, 26-30 years old, 31-35 years old, 36-40 years old, 41-45 years old and 51-55 years old); (2) gender (male, female); (3) civil status ( single, married, widowed and separated) and, Extrinsic career success was measured through compensation(less than P 30,000, P 51,000 to P 60,000, P 30,000 to P 40,000, P 41,000 to P 50,000 and more than P 60,000) while intrinsic career success was measured through job satisfaction.

Job Satisfaction was measured by the Minnesota Satisfaction Questionnaire (MSQ) generates satisfaction scores for 20 facets. The facets are ability, achievement, activity, advancement, authority, company policies and practices, compensation, co-workers, creativity, independence, moral values, recognition, responsibility, security, social service, supervision-human relations, supervision-technical, variety, and working conditions. Weiss et al (1967) reported an acceptable level of internal consistency for this scale of engineers group, = 0.91

### 3. 3. Statistical Treatment of Data

The percentage score was computed by the number of responses divided by the total number of the subjects and the quotient multiplied by one hundred. This method was helpful in interpreting subjects and subgroups having unequal sizes as in the cases of the demographic variables of the respondents and the level of career success of structural engineers.

The formula is.

$$\% = (f/N) \times 100$$

where :
f = frequency of responses
N = number of cases/responses

The mean of the answers was determined to provide the average option. It was computed using the following formula:

where:
$\sum$ = the symbol for summation
X = mean
W = weighted of each item
X = item value

This formula was used to measure the level of intrinsic career success of structural engineers. The criteria that served as basis for interpretation of the result was adapted from the concept of boundary made as follow

**Table 1.** The level of intrinsic career success.

| Mean | Weight | Interpretation | Abbreviation |
|---|---|---|---|
| 3.51-4.00 | 4 | Strongly agree | SA |
| 2.51-3.50 | 3 | Agree | A |
| 1.51-2.50 | 2 | Disagree | D |
| 1.00-1.50 | 1 | Strongly disagree | SD |

Correlation analysis gives a precise measure of the strength and direction of correlation in the sample being studied. It was used to test the relationship between the factors of career success and level of extrinsic and intrinsic success. This gives a precise measure of the strength and direction of correlation analysis in the sample being studied

$$r = \frac{n\sum_{i=1}^{n} xiyi - \sum_{i=1}^{n} xi * \sum_{i=1}^{n} yi}{\sqrt{\left[n\sum_{i=1}^{n} x_i 2 - \left[\sum_{i=1}^{n} xi\right]\right]\left[n\sum_{i=1}^{n} y_i 2 - \left[\sum_{i=1}^{n} y_i\right]^2\right]}}$$

where:
r = correlation values
n = number of pairs of x and y
$\sum y$ = sum of dependent variables
$\sum x$ = sum of independent variable
$\sum xy$ = sum of the column xy which is derived by multiplying paired values of x & y
$\sum x^2$ = sum of the column $x^2$ which is derived by squaring the value of x
$\sum y^2$ = sum of column $y^2$ which is derived by squaring the value of y

## 4. PRESENTATION, ANALYSIS, AND INTERPRETATION OF DATA

### 4. 1. Demographic Variables of Structural Engineers

Of the 110 respondents in this study, 26.4% fell within the category up to 36 to 40 years old, 22.7% were up to 25 years old, 21.8% were 31 to 35 years old, 20% were 51 to 55 years old, 5.5% were 41 to 45 years old and 3.6% were 26 to 30 years old shown in Table 2. Most of the respondents are in the middle age.

**Table 2.** Frequency and percentage distribution of the structural engineers by demographic variables

| Human Capital | Frequency | Percentage |
|---|---|---|
| 1. By Age | | 22.7 |
| Up to 25 years | 25 | 3.6 |
| 26-30 years | 4 | 21.8 |
| 31-35 years | 24 | 26.4 |
| 36-40 years | 29 | 5.5 |
| 41-45 years | 6 | 0 |
| 46-50 years | 0 | 20 |
| 51-55 years | 22 | 100 |
| Total | 110 | |
| 2. By Gender | | 67.3 |
| Male | 74 | 32.7 |
| Female | 36 | 100 |
| Total | 110 | |
| 3. By Civil Status | | 47.3 |
| Single | 52 | 10.9 |
| Separated | 12 | 29.1 |
| Married | 32 | 12.7 |
| Widowed | 14 | 100 |
| Total | 110 | |

74 or 67.3% are male and 36 or 32.7% are female shown in Table 2. This shows that structural engineers are dominated by male.

47.3 % are single and 29.1% are married shown in Table 2. Very few structural engineers, 12.7 % are widowed and 10.9 % separated. This shows that structural engineers are dominated by single and married status.

**4. 2. Level of Career Success**

As shown in Table 3, more than one-third of the respondents, 36.4% earned an average monthly compensation P41,000 to P50, 000. There are also 23.6% earned an average monthly compensation more than P60,000, 22.7% earned an average monthly compensation P30,000 to P40,000, 9.1% earned an average monthly compensation P51,000 to P60,000 and 8.2% earned an average monthly compensation less than P30,000. Generally, structural engineers received high average monthly compensation.

**Table 3.** Frequency and percentage distribution of the structural engineers by extrinsic success (Compensation)

| Average Monthly Compensation | Frequency | Percentage |
|---|---|---|
| less than P 30,000 | 9 | 8.2 |
| P 30,000-P40,000 | 25 | 22.7 |
| P 41,000-P50,000 | 40 | 36.4 |
| P 51,000-P60,000 | 10 | 9.1 |
| More than P60,000 | 26 | 23.6 |
| Total | 110 | 100 |

Respondents claimed that the structural engineers “strongly agree” that they are satisfied to do something that makes use of their abilities. Such claimed was manifested on the 3.93, mean responses from the structural engineer. However, a closer look on the table further exhibited the mean respondents' perception as regard that the structural engineers “strongly agree” that they are satisfied with the pay and amount of the work they do. The same claimed reiterated in the company policies were put into practice where the structural engineers register a mean response of 3.89 and 3.86. The table further exhibited the mean responses on the respondents' perception as to whether they are satisfied on the advancement on their job, with how their boss handles his/her workers, on their job, on the freedom to use his own judgment and the way his co-workers get along with teaching other. The structural engineers register a mean response of 3.85. Moreover, the same table presented that they are satisfied to work alone on their job, try own methods of doing the job and the feeling of accomplishment in the job, the mean responses were 3.84 from structural engineers. It can be gleaned from Table 4 that structural engineers “ strongly agree” that they are satisfied with the competence of their supervisor, the way their job provides for steady employment, working condition and the praise they get from doing a good job based on the mean response of 3.81 from structural engineers. They are also satisfied to tell people what to do, satisfy to do different things from time to time, satisfied to do things that don't go against their conscience and satisfied to do things for other people with mean responses of 3.77 from structural engineers. In general, the level of career success for structural engineers in terms of job satisfaction was very satisfied. This was “strongly agree’’ by the structural engineers with a composite mean response of 3.83.

**Table 4.** Mean responses of the structural engineers by intrinsic success (Job Satisfaction)

| Job Satisfaction | Mean | Interpretation |
|---|---|---|
| 1. I am satisfied being able to keep busy all the time | 3.85 | SA |
| 2. I am satisfied to work alone on the job | 3.84 | SA |
| 3. I am satisfied to do different things from time to time | 3.77 | SA |
| 4. I am satisfied to be somebody in the community | 3.85 | SA |
| 5. I am satisfied the way my boss handles his/her workers | 3.85 | SA |
| 6. I am satisfied with the competence of my supervisor | 3.81 | SA |
| 7. I am satisfied to do things that don't go against my conscience | 3.77 | SA |
| 8. I am satisfied the way my job provides for steady employment | 3.79 | SA |
| 9. I am satisfied to do things for other people | 3.93 | SA |
| 10. I am satisfied to tell people what to do | 3.86 | SA |
| 11. I am satisfied to do something that makes use of my abilities | 3.89 | SA |
| 12. I am satisfied the way company policies are put practice | 3.86 | SA |
| 13. I am satisfied with my pay and the amount of work I do | 3.89 | SA |
| 14. I am satisfied with the advancement on this job | 3.85 | SA |
| 15. I am satisfied with the freedom to use my own judgment | 3.85 | SA |
| 16. I am satisfied to try my own methods of doing the job | 3.84 | SA |
| 17. I Am satisfied with the working conditions | 3.81 | SA |
| 18. I am satisfied with the way my coworkers get along each other | 3.85 | SA |
| 19. I am satisfied with the praise I get for doing a good job | 3.81 | SA |
| 20. I am satisfied with the feeling of accomplishment in my job | 3.84 | SA |
| Composite mean | 3.83 | SA |

Legend: SA-Strongly agree

### 4. 3. Correlation between the demographic variables and level of extrinsic success

For age, the null hypothesis is rejected, it has a correlation with the r value of 0.314 in compensation shown in Table 5. The finding implies that age has the relationship to compensation, fringe benefits, and promotion.

Gender variable was found to have no relationship to compensation, the relationship is not significant. The result means that whether a structural engineer is a man or woman makes no difference in receiving compensation, less fringe benefits and having no promotion in the company.

In civil status, it was found to have the r value of 0.014 in compensation. Hence, it is not significant to compensation. Regardless of civil status, structural engineers should work hard to receive high compensation

In general, the above-cited variable such as age influence the level of compensation. However, gender and civil status do not influence in the salary of structural engineers, hence no relation to monthly average compensation.

**Table 5.** Correlation between the demographic variables and level of extrinsic success (Compensation)

| Sample Characteristics | Correlation Value (r) | Sig | Decision of Ho | Interpretation |
|---|---|---|---|---|
| Age | 0.314 | 0.000 | Rejected | Significant |
| Gender | -0.081 | 0.200 | Accepted | Not Significant |
| Civil Status | 0.014 | 0.118 | Accepted | Not Significant |

### 4. 4. Correlation between the demographic variables and level of intrinsic success

**Table 6**. Correlation between the demographic variables and level of intrinsic success (Job Satisfaction)

| Sample Characteristics | Correlation Value (r) | Sig | Decision of Ho | Interpretation |
|---|---|---|---|---|
| Age | 0.095 | 0.161 | Accepted | Not Significant |
| Gender | -0.224 | 0.009 | Rejected | Significant |
| Civil Status | -0.179 | 0.031 | Rejected | Significant |

In Age, it was found to have with the r value of 0.095 in job satisfaction shown in Table 6. The finding implies that age is not significant to job satisfaction. Gender variable was

found to have a low relationship to job satisfaction with a correlation value of -0.224. The finding implies that gender is significant to job satisfaction.

The result means that gender of structural engineers has an effect on their job to be dissatisfied. In civil status, it was found to have the r value of -0.179 which is significant to job satisfaction. The finding implies that civil status of structural engineers plays a vital role to be dissatisfied in their job.

## 5. CONCLUSIONS

This research examines the factors associated with job satisfaction among structural engineers in the Philippines. Overall, the researcher finds that structural engineers are satisfied with their achievement, activity, advancement, authority, company policies and practices, compensation, co-workers, creativity, independence, moral values, recognition, responsibility, security, social service, supervision-human relations, supervision-technical, variety, and working conditions.

The results reveal that gender and civil status have significant effects on overall job satisfaction. An interesting finding is that having children is found to be significantly associated with job satisfaction, together with gender. It may be that structural engineers with children are less satisfied than those without children because they may attribute undesirable work schedules or low pay to their supervisors, making it difficult to raise their children. Not surprisingly, age is positively related to compensation, yet, it is not a predictor of overall satisfaction or its other dimensions. This finding suggests a need to raise senior structural engineer compensation to improve their pay satisfaction.

However, the results show that senior structural engineer with low compensation does not necessarily have lower levels of overall, work, promotion, supervision, and co-worker satisfaction. This may be due to a lack of other employment opportunities, or it may indicate the greater value workers place on intrinsic factors related to their job satisfaction such as autonomy, workload, and the nature of the care work itself.

Therefore senior structural engineers are more satisfied with the work itself but less satisfied with compensation than their younger counterparts. As expected, structural engineers with higher pay are more satisfied with pay than those with lower pay.

Future research is needed to address all these issues in order to deepen the understanding of how to improve job satisfaction of structural engineers in the Philippines

**Biography**

Dr. Tomas U. Ganiron Jr is an Associate Professor in the Civil Engineering Department and College of Architecture at Qassim University. Previously, Dr. Ganiron Jr was an Associate Professor in the College of Engineering at Auckland University of Technology. Dr. Ganiron Jr is a member of Institute of Professional Engineers New Zealand (IPENZ) and Australian Institute of Geoscientist (AIG). Dr. Ganiron Jr's current fields of research include construction materials, construction technologies, Nano structure materials, project management and recycled waste materials. Dr. Ganiron Jr published 60 journal papers and 18 conference proceedings papers and conducted 4 short courses and workshops. Dr. Ganiron Jr is a reviewer of a number of international journals.

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( Received 02 July 2017; accepted 19 July 2017 )