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STATISTICAL PITFALLS AND FALLACIES IN APPLIED RESEARCH (PART 1)

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There are a variety of tools to analyze data collected to assist in decision-making. A very popular tool is the use of statistical methodologies, especially when dealing with a large volume of data. Statistical tools by themselves are valueless. They become meaningful only when applied to process data.

In the hands of an artist, a hammer and chisel can transform a mass of material into a work of art, but the same hammer and chisel are capable of destruction. Let us learn from this. Statistics remains a potent tool for one who knows how to use it properly, but it can also be a tool, unknowingly or knowingly, for misleading and even deceitful conclusions. It is the role and responsibility of the researcher, not the statistical consultant, to convert data into truthful and meaningful information.

In many situations, a researcher will have to face his own challenges in data gathering. Without proper guidance, there are many pitfalls and fallacies which he/she can fall victim to, since, once the data have been collected, a statistical consultant may not have any choice but deal with whatever data are there.

OBJECTIVES OF THE PAPER

This article aims to point out common errors in the application of statistical tools, especially those used in a thesis/dissertation. Very often the researcher simply uses those found in the library as reference. Unfortunately, a number of these are wanting, in terms of statistical accuracy, for many reasons, which will be cited during the discussion. The author's objectives are therefore:

1. To clarify the intent and rationale behind the specific tool being used;
2. To point out common errors to avoid committing them;
3. To provide a mechanism to help the researcher remember the method – using catch phrases, slogans, and clichés familiar to the reader.

Garbage In, Garbage out (GIGO)

This computer principle also works for statistical processes. If the input, i.e., the data

which are used in the application of the statistical techniques, are deficient (or garbage), no statistical method, no matter how advanced, can yield a legitimate output. This warns us, therefore, to exercise extreme caution with regards to obtaining our data. The ***validity and quality of the data*** is influenced by the means to source them, which, if conducted like in a business survey, are the sampling methodology and the questionnaire.

Sampling

Type of sampling: #May4ever

Sampling methodologies is a major topic in applied statistics. A sample is a part or subset of the population which represents the totality of items under consideration, referred to as the population. The target ***population*** must be defined in specific terms, with ***time and geographical boundaries,*** so that there is no ambiguity in selecting the required sample.

Examples:

- All graduate school students enrolled at San Beda University, Mendiola, Manila during the 1st Term, AY 2017-2018
- All participants belonging to BDO's Technical Staff Development Program Batch 8 during the period April 2017
- All food franchisees of "PG" Supermarket, North and South Caloocan Branches, as of March 2016

By doing this, it is clear that the chosen respondents can only come from this group. Or, as seen in opinion surveys conducted by SWS, AC Nielsen, etc., the research agency will always qualify the specific place (Metro Manila or Davao or any other place) and the time period -- the survey was conducted during the last two weeks of September. Time is very important since the answers to certain questions may be affected by significant events that occur during the period of data gathering. As seen recently, the popularity of President Duterte was adversely affected by the killings by the police of youth allegedly involved in crimes or drugs.

Sampling designs are commonly classified as probability and non probability. Probability sampling process uses the concept of chance and, hence, sampling error can be estimated. It is for this reason that ***probability sampling is required when inferences about the population are required, as in thesis, dissertation, or other academic researches.*** It allows the use of both descriptive and inferential statistical tools for analysis. There are four *probability designs:* simple random, systematic, stratified, and cluster. Table 1 presents a summary of these sampling methods.

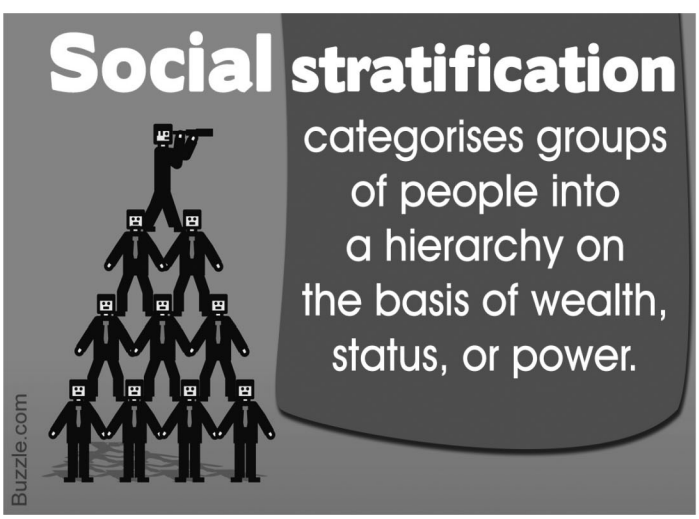
Non probability sampling is non-random and often uncontrolled and, therefore, errors in sampling are unknown. This methodology is used when immediate information or feedback is needed, and can be valid under certain conditions, like in marketing studies, such as product testing, program evaluation, and the like. The most common non probability methods are convenience, purposive or judgment, quota, and snowball. Many thesis students fall into this pitfall of selecting this type of sampling because of the ease and speed of getting the data. *Unfortunately, there is no way to estimate errors, and, thus, conclusions will not be reliable.* **If the researcher has no choice but to use a non probability sample, only descriptive statistical tools are valid for analysis, and conclusions will apply only to the sample but not to the population.**

Table 1
Types of Probability Sampling Design

Type of Sampling Probability Design	**Brief Description**
A. Simple Random Sampling	1. Assign to each population item a unique number. 2. Select sample items using a random number generator in excel or any statware.
B. Systematic	1. Solve the sampling interval k = N/n and round up. 2. Select a random start between 1 to k. 3. Select every kth item in the list after the random start.
C. Stratified	1. Divide the population into homogeneous groups, called strata, accordingto factor(s) relevant to the study. 2. Select units at random (or systematically) in each stratum.
D. Cluster	1. Divide the population into heterogeneous groups, called clusters. Most common basis is by geographical areas. 2. Select clusters at random and use all the sample units, or select at random or systematically sample units within each chosen cluster. Selection may be done in 2 or multiple stages.

Simple random and systematic sampling are used when the population is homogeneous. Systematic sampling is common in auditing and manufacturing assembly line. Actually, most populations are heterogeneous; hence there is a need to create subgroups of the population, called strata or clusters.

The purpose of stratification is to divide the population into homogeneous groups to compare variations in the responses according to this grouping. For example, in a survey to investigate reactions of students to restroom facilities, it is expected that females and males may differ in their opinion on this issue, so gender may be considered for stratification. On the other hand, if the issue is tuition fee increase, there may be no differences in reaction due to gender, but year levels (freshman, sophomore, junior, senior) may be a more appropriate grouping if the allocation of the increase in the tuition fee is not uniform across these groups.

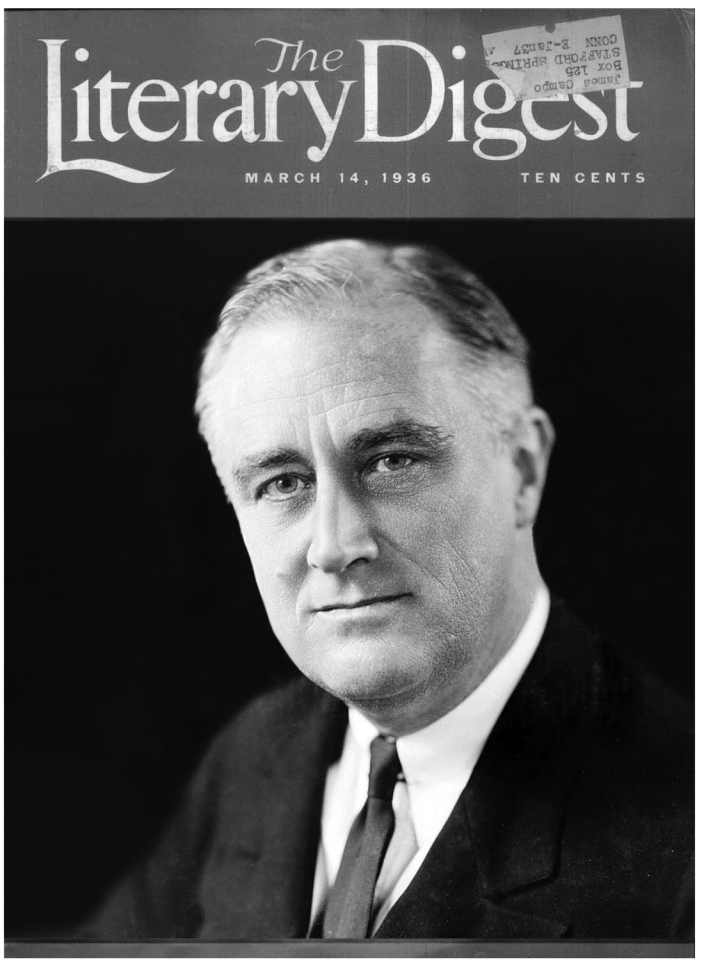


Clusters are usually applied to sectors of the bigger geographical area being surveyed. The purpose of clustering is to save on cost and time. Regions, provinces, districts, and barangays are examples of clusters. On the national level, clustering may be multi-stage, like selecting regions (or provinces), then districts, and barangays to get finally to the household unit.

The methodology that is finally applied is then a combination of the above, which can be: stratified random, stratified systematic, cluster random or cluster sampling. Since the objective of the thesis or dissertation is to make conclusions regarding the population, ***the basic rationale is to obtain a sample that will best reflect the characteristics of the population.***

Table 2
Comparison of Advantages and Disadvantages of Probability and Nonprobability Samples

Probability	Nonprobability
Advantages	**Disadvantages**
1. Probability sampling is well-grounded in statistical theory.	1. Nonprobability sampling was adopted primarily for simplicity and ease, cost, and time considerations.
2. Information is obtained from a representative cross-section of the population.	2. There is no assurance that the sample can represent the population.
3. Sampling error can be computed.	3. Sampling error cannot be computed.
4. Survey results can be generalized to the total population.	4. The results obtained by nonprobability sampling cannot be validly applied to the population.
Disadvantages	**Advantages**
1. Probability sampling is more difficult and costly to implement.	1. Nonprobability sampling is easier and relatively cheaper.
2. It takes more time to develop an appropriate sampling plan and execute the procedure.	2. Data gathering can be done more quickly.



BFF - Bias From DeFicient Sample

Deficient samples can introduce bias in the survey data by excluding significant sectors of the population. The following situation demonstrates the effect of a deficient sample, despite the fact that it was the largest and most expensive survey conducted with a budget of $2.4 million. The Literary Digest, an influential magazine in the United States, conducted a poll survey to predict the outcome of the 1936 presidential election. The sampling methodology involved contacting voters, using lists of registered automobile owners and telephone users. The forecast to win based on this sampling was the Republican candidate Landon, but the actual winner by landslide was the Democrat F. D. Roosevelt. Why was the prediction way off the mark? The reference list for selecting the voter-respondents was restricted only to those who had automobiles and telephones, both of which were also wealthier than the average American at the time, thus *omitting the other significant and more populous sectors of the voting public.* It is well known that (even until now), upper income Americans are supporters of the Republican party, thus explaining the erroneous forecast based on a *sample biased in favour of the higher income voters.*

If in the local election scenario, Filipinos say "bawal ang dagdag-bawas," in sampling, we say, "bawal ang bias."

Further Comments on Non probability Samples

Sampling has traditionally posed a problem for individual/student researchers. While necessity for probability samples has been taught and emphasized that only these are valid for statistical testing, it is easier said than done. This is because their application

in a particular situation must be well-thought of and can even be complicated. This naturally results in non-compliance for many. Personally, I have read countless research papers, even articles in reputable journals/research websites that indicate use of various nonprobability samples, and worst of all, convenience samples. While I understand the urgency in getting data, this should not be done at all costs, including the risk of obtaining biased data that can lead to erroneous conclusions.

An iconic illustration is the 1988 pronouncement of the Shroud of Turin as a medieval forgery by eminent scientists. The infamous Shroud is considered the most important relic of the Catholic Church because it is alleged to be the burial cloth of Jesus Christ. It depicts a shadowy figure of a person, and when photographed, clearly showed a man who had been crucified. It is therefore important to be able to establish its authenticity. A scientific team, after approval of Church authorities, subjected a sample of the cloth taken from the Shroud to carbon dating to trace its origin in time. Since carbon dating involved destroying the sample, the cloth selected for analysis was a *"convenience sample",* cut from a corner which had been worn out due to early handling. Naturally the announcement that the Shroud was dated to be 1260-1390 and possibly created by an artist **generated** an uproar in the Christian world. Further investigations followed, and eventually, it was proven that the sample cloth had actually been repaired and interwoven with another cloth during the Middle Ages. While the carbon dating was accurate on the contaminated sample, it did not reflect the true status of the rest of the Shroud. And this is exactly the ***statistical pitfall of convenience samples – they rarely reflect the characteristics of the population because there is no attempt to do so.***

What about online surveys? Online surveys are becoming popular due to the ease of getting data and usually at hardly any cost. The problem with online surveys, however, is that we do not know exactly who will respond to the survey, and, therefore, we do not have a clear picture of the population where generalizations can apply. Nonetheless, if the online survey makes use of a list of respondents, or a sampling frame, and a request to participate is sent to a sample selected by probability methods, we may safely assume that this will be valid.

Another popular convenience sample is the intercept method, commonly used where the researcher interviews people he/she meets to provide the data for the study. This methodology can easily convert to a probability method by situating the researcher in a place where it is hoped that population items frequent, and selecting every 10th person, or 15th, or any arbitrary number that serves as a pattern for objective selection, thus, eliminating the personal bias or prejudice of the researcher in choosing respondents.

Sample size: The power of numbers -- "The more the merrier"

Sample size, or the number of respondents in a survey, is a primary concern in data gathering since it affects time, effort, and budget. There are many formulas or procedures to determine the appropriate sample size, usually depending on the objectives of the research and the statistical tests to be performed on the data.

Slovin's Formula

One popular formula, which many researchers and thesis writers, adopt is **Slovin's Formula** as follows:

$$n = \frac{N}{(1+N\,e^2)}$$ where n = sample size, N = population size, e = margin of error

Round up sample size when solved using the formula.

Example: For a population of N = 500, and error margin e = .05,
the sample size is solved applying Slovin's formula,

$$n = 500 / [\,(1 + 500\,(.05)^2\,] = 222.2 \text{ or } 223$$

Validity of this formula is universal, meaning it can apply to diverse situations. However, it has its drawbacks. First, one has to have a fair estimate of the size of the population N. Also, sample size n turns out to be rather large, and when N is small (just like in the example above), the sample becomes half or even more than half the size of the population. Sample size is close to 400 for N as small 10,000 as or as high as 20,000,000.

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There are alternative formulas that may be considered, these being specific to the statistical tests to be performed.

Formula When Proportion is Involved

The sample size may be computed using the following formula for a finite population N

$$n = \frac{N\ Z^2_{\alpha/2}\ p\ (1-p)}{N\ E^2 + Z^2_{\alpha/2}\ p\ (1-p)}$$ where $z_{\alpha/2} = \pm 1.96$ at 95% confidence level

E = margin of error

p is a preliminary estimate of the proportion as in a previous study, but when none is available, then p (1 – p) may be substituted by its maximum value= .25

Example: N = 10,000, 95% confidence, no p and E = .05

$$n = \frac{10{,}000\ x\ 1.96^2 x\ .25}{10{,}000\ x\ .05^2 + 1.96^2\ x\ .25} = 370$$

When the population is considered infinite (large enough so its computational effect is practically nil), the formula simplifies to (*without N, which is advantageous to researchers in field surveys):*

$$n = \frac{Z^2_{\alpha/2}\ p\ (1-p)}{E^2}$$

Example -- For a study investigating consumer purchase intention (or the probability to buy), the operational variable is a proportion. Hence, sample size at 95% confidence and error margin of .05 may be solved as:

$$n = (1.96^2\ x\ .25))/.05^2 = 385$$

For private as well as student researchers, where there is limited time (or/and budget) it may be quite challenging to have this large sample size. If the error margin is increased to about .07, and sample size reduces considerably.

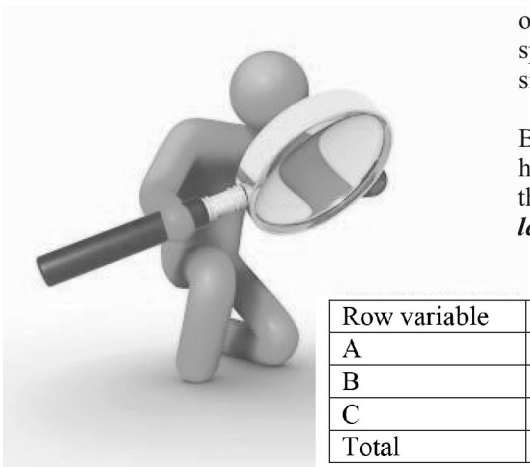
$$n = (1.96^2\ x\ .25))/.07^2 = 196$$

Basically, this implies that we can reduce sample size if we increase the margin of error, keeping the confidence level at a fixed 95% level. Thus, it becomes a trade-off between desired sample size and allowable margin of error. For surveys conducted by research agencies, error margin is about .03. For academic research, error margin may be relaxed but should not exceed .07.

Other sample size estimation becomes highly linked to the statistical procedure involved in the testing process.

Empirical Rule for Chi-square Tests

Another requirement on sample size to remember is the application of the **chi-square tests** to a contingency table, more popularly known as a cross-classification or a two-way table of frequencies. The minimum sample size is 50 for a 2x2 table (2 rows and 2 columns), and even then, needs a correction factor.



Ideally sample size, n, or total frequencies will be between 100-300, again depending on the number of rows and columns of the table. The reason for a large sample size is n is split over the rows as well as the columns. The following table shows how the sample size of 60 may be split over three rows and four columns (assuming equal allocation):

But using survey data, equal frequencies are rarely the case so that the tendency is to have very small frequencies in many cells. This results, very often, in the violation of the testing procedure, which requires ***no 0 frequencies and no expected frequencies less than five for more than 20% of the number of cells in the table.***

Row variable	C	D	E	F	Total
A	5	5	5	5	20
B	5	5	5	5	20
C	5	5	5	5	20
Total	15	15	15	15	60

Simply put, for the above example of a 3x4 table, total number of cells, or entries, is 12 and 20% of 12 is 2.4. Therefore, the table is permitted to have a ***maximum of 2*** zero frequencies and expected frequencies less than five. To remedy this situation, the cells with 0 frequencies or expected frequencies less than five may be combined to remedy the violation.

The rationale for this practice is 0 and small frequencies indicate that none or only a few respondents are selecting this choice, so the added category is useless, thus combining it with the next will be more practical for testing and analysis. Therefore, minimum sample size will be dictated by the number of rows and columns of the cross-tabulation following the empirical rule for chi-square tests.

Rule of Thumb for Multivariate Regression and/or Correlation

For thesis/dissertation, the scenario commonly involves multivariate analysis, or the investigation of several factors and their influence on a response variable. For those that will apply ***multiple regression/correlation, the rule of thumb for sample size is about 20 observations per independent variable.***

Example: If there are 5 independent variables (employee age, gender, job tenure, civil status, and perceived organizational support), which will be tested against the dependent variable: employee organizational commitment, a minimum of 100 respondents (= 5 x 20) are needed.

This also applies to multiple ANOVA (Analysis of Variance), a test for comparing several means across different groups. The recommendation is a *sample size of 100 or even higher.* The rationale behind this is, it is difficult for a statistical process to analyze a multivariate situation if there are not enough data that will provide the basis for relationships or distinctions between/among variables.

Table 3
Summary of Common Sample Size Formulas

Formula	At e=.05	At e=.07	Application
Slovin's Formula $n = \frac{N}{(1 + N\,e^2)}$	For N=500 n = 223	For N=500 n = 145	Slovin's Formula has universal application but requires an estimate for N
Proportion $n = \frac{N\ Z^2_{\alpha/2}\ p\,(1-p)}{NE^2 + Z^2_{\alpha/2}\ p\,(1-p)}$	N=10,000 $z_{\alpha/2} = 1.96$ p=.5 n = 370	N=10,000 $z_{\alpha/2} = 1.96$ p=.5 n = 193	When the proportion or probability is involved, given N
Proportion $n = \frac{Z^2_{\alpha/2}\ p\,(1-p)}{E^2}$	$z_{\alpha/2} = 1.96$ p=.5 n = 385	$z_{\alpha/2} = 1.96$ p=.5 n=196	where there is no N
Chi-square Test No formula	Ideally, sample size, n, or total frequencies, for contingency tables or cross-tabulations, should be between 100-300, with *no 0 frequencies* and *no expected frequencies less than five* for more than 20% of the number of cells in the table		for count data put in contingency tables or cross-tabulations
Multivariate Analysis No formula	Rule of thumb for sample size is about 20 observations per independent variable Desired sample size is a minimum of 100		for multiple linear regression and correlation for multiple ANOVA

Sample Size for Medical Tests

Lastly, **medical research does not follow the rules for sample size in statistics.** The reason for this is the risk in terms of human life. A 5% margin of error when dealing with 1M people, is 50,000 who will be adversely affected. This is why samples in this case run into thousands and repeated tests are conducted to account for differences in human reaction due to nationality, age, gender, lifestyle, location,

occupation, and many other factors. For example, in recent tests to determine the effectivity of a blood screening test to detect early signs of the most common cancers, samples of 1000, then 800, then 10,000 were subjected under different conditions to examine and measure the success of the blood test at early detection (lifestyle.inquirer.net). Extra precaution is taken with regards to the application of statistical processes since human life is much more valuable.

The Order of the Day – DQ (Data Quality)

Data Quality from Questionnaire

Adequate measurement of a variable is important in the statistical process. Expected relationships may not turn out to be significant, not because of the absence of any connection, but it may be due to the inadequate operational measurement of the variable. For many variables, it is the researcher who decides how to measure a variable. This becomes evident in the survey questionnaire. For instance, on the importance of factors (like quality of food) affecting the choice of restaurant, this may be expressed in two different ways:

- Is the quality of food important to you in choosing a restaurant?
  _____ yes ____ no

- Rate the importance of the quality of food in your choice of restaurant.

1	2	3	4	5
Agree	Slightly Agree	Neither agree or disagree	Slightly disagree	Disagree

In both cases, data can be provided with regards to the quality of food as being important or not important to the respondent, but the second question, where answers are expressed in Likert scale, will enable the researcher to ascertain the level of importance (or non-importance) of this factor. Hence, it becomes a better measure. Statistically, the measurement scale is stronger (from nominal to interval). This means we are able to do more in terms of data summary and computation. Nominal data can only be summarized as frequencies (counting how many) and percentages, and very limited inferential techniques for simultaneous treatment of variables. Whereas *interval data are numerical, and, therefore, being a stronger scale, they can be computed for mean, standard deviation, etc., which allows parametric tests of hypothesis.*

Comments on the Four-Point Likert Scale

A new scale is now appearing and being used by a number of researchers. This is the four-point Likert scale that offers choices of answers as Strongly Agree, Agree, Disagree, and Strongly Disagree. Objections are being posed to this scale since it forces respondents only to either agree or disagree, without a neutral position. Research on this scale claims *outcomes can be biased,* i.e., there is a tendency for respondents to agree for socially acceptable issues and a tendency to disagree for negatively perceived issues.

The four-point Likert scale is generally not recommended, but may be used when the position of respondents is already known, and it is desired simply to determine the levels of agreement or disagreement – what percentage of the population strongly agree, agree, disagree, or strongly disagree with the given issue.

Admittedly, there may be valid reasons for wanting to adopt the 4-point Likert scale. It has been noted that student respondents tend to dislike answering long questionnaires and simply select the "path of least resistance," which means selecting a neutral position (neither, agree or disagree) to avoid thinking and spending longer time than necessary.

In such cases, as long as issues are not considered controversial, like those dealing with moral, political, economic, or social concerns, it may be considered safe to adopt the four-point Likert scale. Or, we may propose using a semantic scale since this scale does not have a neutral position. Technically the semantic scale will show polar opposites expressed as adjectives positioned at extreme ends of the scale (ex. boring – interesting, unnecessary – necessary, etc.).

If we design a scale of even length (1 to 6, 1 to 8, etc.), this scale will rate the intensity or level of agreement (or disagreement) from 1 to 6. Agreement is on one end of the scale (ex. number 1), while disagreement is at the other end (number 6), and the closer is the chosen number to 1, then the stronger is the agreement. Whereas, if the choice is closer to 6, then the response tends towards disagreement.

Borrowed Questionnaires

Regarding the ethics of borrowed questionnaires, the data-gathering instrument that will be used in the survey may be original or adopted by the researcher. For borrowed questionnaires, copyrighted materials, published works, studies, documents, there is a need to secure written permission to use the questionnaire or the specific items that will be used. Where a written permission is not possible, the source of the questionnaire must be fully cited. For unpublished materials, thesis, dissertations, researches, the same practice applies.

While adopting a "borrowed" questionnaire assures its reliability and validity, using it "in toto," (or in its entirety) may not be wise. It is advisable for the researcher to review and revise, even delete questions, as needed. Some questions may not apply to the respondents, while other questions may have to be reworded for simplicity. Whichever it is, questionnaires must always be pre-tested. This is evaluated by *Cronbach alpha with a minimum acceptable level as 0.70.*

Cronbach alpha is a measure of internal consistency of a set of statements. Technically speaking, it measures the average inter-correlation among the items, and, therefore, it really indicates how consistently a set of statements measures a particular trait. This situation is especially true when dealing with constructs, as it often happens with behavioral variables and attitudes. This means that for a respondent to possess a particular trait, for example, people-oriented management style, the respondent must display several behaviours (expressed as three or more statements in the questionnaire) consistent with the given trait. Likewise, a low Cronbach value indicates poor understanding of questions by respondents, thus, requiring the researcher to revise such questions.

CONCLUSION

To recap, obtaining data is critical in the research process since many research objectives translate into hypotheses, which are tested by statistical inferential methods. This implies that empirical evidence is essential in proving a conceptual/operational framework that has been proposed. To be accurate and reliable, it is important to safeguard the means to obtain these data. These are, first, the questionnaire, or the instrument for measuring the variables in the framework, and, second, the sampling procedure to obtain the respondents who will provide the data.

Similarly, be aware that statistical treatments operate employing the GIGO principle of "garbage in, garbage out." As the aforementioned examples illustrate, technology and other sophisticated procedures cannot improve a tainted sample. Critics have commented that the *lack of statistical rigor may possibly account for conflicting and misleading results in research.*

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PRINCIPLES OF SOCIAL JUSTICE IN LABOR LAWS

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LABOR AND SOCIAL JUSTICE

Labor plays an eminent role in the economic and social milieu of every nation. It is, as a class, protected by Philippine laws because it is one of the drivers of economic growth in the country. However, the Philippine Constitution looks beyond these financial implications, and defines labor in the context of poverty, and ultimately, social justice.

To this extent, the Supreme Court said that there is a "deep and earnest concern to solve an age-old problem that has afflicted Philippine society, with its roots going back to the nineteenth century. The framers of the Constitution, mindful of the then growing feeling of dissatisfaction with the ability of the government to cope with the poverty and misery of the vast majority of our people, inserted the protection to labor and social justice provisions of the Constitution. x x x More specifically as far as the social justice principle is concerned, there is the translation into reality of its significance as popularized by the late President Magsaysay: He who has less in life should have more in law."[1]

In the course of the evolution of the Philippine Constitution, labor and social justice have been consistently appearing side by side. Article II, Section 18 of the 1987 Constitution articulates this position, thus:

> SECTION 18. The State affirms labor as a primary social economic force. It shall protect the rights of workers and promote their welfare.[2]

Such policy was again reiterated in the Constitution, affording therein certain protectionist policies to labor, both local and overseas, in terms of full employment, equality of opportunities, right to self-organization, promotion of industrial peace, and an equal right of enterprises to reasonable returns, under Article XIII, Section 3.[3]

Similarly, when Presidential Decree No. 442, also known as the Labor Code of the Philippines, was enacted, social justice and labor were made the overarching policies of the law, as follows:

> ARTICLE. 3. Declaration of basic policy. The State shall afford protection to labor, promote full employment, ensure equal work opportunities regardless of sex, race or creed and regulate the relations between workers and employers. The State shall assure the rights of workers to self-organization, collective bargaining, security of tenure, and just and humane conditions of work.[4]

OPERATIONALIZING SOCIAL JUSTICE IN LABOR

A. Security of tenure

Although an oft-repeated term, social justice remains to be a general principle requiring tangible manifestation in basic industrial operations. Security of tenure prominently plays a role in this aspect, factoring in the economic implications of the loss of livelihood in an ordinary Filipino citizen.

In *Rance v. NLRC*,[5] petitioners Rance et. al. were members of the respondent union, who were expelled for disloyalty in allegedly joining another labor federation. As a result, the employer-company also terminated their employment. Petitioners dispute the allegations against them, insisting that they did not affiliate themselves with another union. On the contrary, they claim that there is connivance between the respondent union and the employer-company to avoid payment of appropriate benefits.

In the course of the investigation, only two of the expelled petitioners appeared before the panel, while the rest boycotted the proceedings. Those who were not able to attend the investigation proceedings alleged that they did not receive any notice, while those who were able to do so assert that they were made to write the answers to the questions, as dictated to them by the union and employer-company. These incidents prompted the petitioners to request for a general investigation, but the same was ignored by the panel.

The Supreme Court thus ruled that absent any full blown investigation of the expelled members by an impartial body, there is no basis for their dismissal. The Court also said that "x x x while the power to dismiss is a normal prerogative of the employer, the same is not without limitations. The employer is bound to exercise caution in terminating the services of his employees x x x. Dismissals must not be arbitrary and capricious x x x because it affects not only his position but also his means of livelihood. Employers should, therefore, respect and protect the rights of their employees, which include the right to labor." [6]

To this end, the Court explained that "[i]t is the policy of the state to assure the right of workers to 'security of tenure' x x x. The guarantee is an act of social justice. When a person has no property, his job may possibly be his only possession or means of livelihood. Therefore, he should be protected against any arbitrary deprivation of his job. Article 280 of the Labor Code has construed security of tenure as meaning that 'the employer shall not terminate the services of an employee except for a just cause or when authorized by the Code.'"[7]

B. Due process

Since "the fundamental guarantee of security of tenure and due process dictates that no worker shall be dismissed except for a just and authorized cause provided by law and after due process is observed,"[8] Philippine labor laws require that due process must be strictly observed before employment may be terminated by either employer or employee.

In general, due process is defined as that "which comports with the deepest notions of what is fair and right and just."[9] For labor, however, it requires a two-pronged approach: substantive and procedural due process:

> In concrete terms, these qualifications embody the due process requirement in labor cases - substantive and procedural due process. Substantive due process means that the termination must be based on just and/or authorized causes of dismissal. On the other hand, procedural due process requires the employer to effect the dismissal in a manner specified in the Labor Code and its IRR.[10]

In *Agabon v. NLRC,*[11] petitioners were employed by respondent Riviera Home Improvements, Inc., as gypsum board and cornice installers, but were later dismissed from employment. Petitioners insisted that they were dismissed because they refused to work on a *pakyaw* basis, as this would mean losing benefits as Social Security System members. However, respondent-employer insists that the employees were remiss with their responsibilities, and abandoned work.

Ultimately, the Court upheld petitioner-employees' dismissal for abandonment of work. In so doing, the Court ruled on two issues: (1) whether or not they abandoned their work (substantive due process); and (2) whether or not they were given sufficient opportunity or notice to defend themselves (procedural due process).

On the issue of abandonment, petitioners were found to have actually abandoned their work. Abandonment is defined as the "the deliberate and unjustified refusal of an employee to resume his employment."[12] For a valid finding of abandonment, these two factors should be present: (1) the failure to report for work or absence without valid or justifiable reason; and (2) a clear intention to sever employer-employee relationship, with the second as the more determinative factor which is manifested by overt acts from which it may be deduced that the employees has no more intention to work. The intent to discontinue the employment must be shown by clear proof that it was deliberate and unjustified.[13] Here, petitioners were found to have been frequently absent to subcontract an installation work for another company, having done this at least twice during the course of their employment. Although they have been warned by their employer, petitioners disregarded the warning and exhibited a clear intention to sever their employer-employee relationship.

However, the Court ruled that while the dismissal should be upheld for abandonment of work, respondent employer must be admonished for failure to give petitioners any notice that they are being tried for abandonment and eventually dismissed from work. Under the Labor Code, termination of employment requires the following: (a) written notice to be served on the employee specifying the ground or grounds for termination, and giving to said employee reasonable opportunity within which to explain his side; (b) hearing or conference during which the employee concerned, with the assistance of counsel if the employee so desires, is given opportunity to respond to the charge, present his evidence or rebut the evidence presented against him; and (c) written notice of termination served on the employee indicating that upon due consideration of all the circumstances, grounds have been established to justify his termination.[14] Considering the lack of notice to petitioner employees which could have enabled them to explain their side, the Court held respondent-employer liable for non-compliance with the procedural requirements of due process.

As in this case, when the dismissal is for a just cause, the lack of procedural due process should not nullify the dismissal, or render it illegal, or ineffectual.[15] However, the employer should indemnify the employee for the violation of his right to be notified and given an opportunity to be heard. The indemnity to be imposed should be stiff enough to discourage the abhorrent practice of dismiss now, pay later.[16]

The employees were thus found to have abandoned their work, but respondent company was ordered to pay nominal damages in the amount of P30,000 for non-compliance with procedural due process.

CONCLUSION

Despite the evolution of labor laws in the Philippines, the examples above only affirm the conclusion that social justice enables labor to be protected by principles of security of tenure and due process. The Court has aptly described this situation in *Alhambra Industries, Inc., v. NLRC*,[17] when it said that:

> Today employment is no longer just an ordinary human activity. For most families the main source of their livelihood, employment has now levelled off with property rights which no one may be deprived of without due process of law.
>
> Termination of employment is not anymore a mere cessation or severance of contractual relationship but an economic phenomenon affecting members of the family. This explains why under the broad principles of social justice the dismissal of employees is adequately protected by the laws of the state.

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Thus, security of tenure and due process play a critical role in ensuring that the working class is adequately protected from the employer's arbitrary and unreasonable exercise of its right to dismiss,[18] for our Constitution itself dictates that "*[h]e who has less in life should have more in law.*"[19]

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[4] PRESIDENTIAL DECREE NO. 442, as amended, The Labor Code of the Philippines, Art. 3.
[5] 246 Phil. 287, 292-293 (1988).
[6] Id., citing *Liberty Cotton Mills Workers Union v. Liberty Cotton Mills, Inc.,* 90 SCRA 393 (1979).
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[10] *Deoferio v. Intel Technology Philippines,* G.R. No. 202996, June 18, 2014, citing *Agabon v. NLRC,* 485 Phil. 248, 284 (2004).
[11] Supra note 9.
[12] Id., citing *Columbus Philippine Bus Corporation v. NLRC,* 417 Phil. 81, 100 (2001).
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[14] Book VI, Rule I, Section 2(d) of the *Omnibus Rules Implementing the Labor Code:*
[15] Supra note 9, citing *Reta v. National Labor Relations Commission* G.R. No. 112100, 27 May 1994, 232 SCRA 613, 618.
[16] Supra note 9.
[17] G.R. No. 106771, November 18, 1994
[18] Supra note 10.
[19] Supra note 1.

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