

A Simplified Sample Size Method: Absolute Value Approach (AVA)

Ajayi Victor Oladipupo¹

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Abstract: In research works, sampling and getting a sample size are always important to ease the analysis and make a good representation for the entire population, especially when the population is heterogeneous or large to be covered. Hence, a simplified and precise sample size method is required, despite several attempts by researchers. Therefore, to eliminate ambiguous use of formula and analytical difficulty with non-decimal human element, this work proposes the Absolute Value Approach (AVA), using modified Sloven's formula to generate a precise sample size table through a 6-step approach. Also, opinionnaire is proposed as a new method of data collection, when immediate response is required from the available respondents, using verbal, written or electronic (internet) media involving only one or two questions of interest to ease decision making at its fastest level.

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I. INTRODUCTION

➤ Background

Sampling and sample size are crucial in research studies. There are many cases where the population can be too large or widely dispersed, making a small sample more necessary or suitable. Nowadays, determining an appropriate sample size is often challenging, especially in education, social or business sectors, quasi-experimental and non-experimental research, mainly for students and novice researchers, or in some instances, for those who do not have a solid research background. This paper tries to simplify the modality of getting a convenient sample size at ease, called Absolute Value Approach for Sample Size, as well as introducing a simple approach to data collection, using the proposed Opinionnaire method.

Many statisticians have explored several approaches, ranging from the works of Sloven in 1960 to that of Ary & Jacobs (2009), still navigating the premises of not getting absolute way of precise sample size.

➤ Statement of Problem

In a large or infinite population, where sampling and getting the sample size may be relatively difficult, it is necessary to adequately find a simple approach to this, to ease the menace of sampling size. Several researchers have made moves of arriving at sample sizes using different methods, Cochran, (1977) could use only infinite population, Krejcie and Morgan (1970) got values using a given table, Sloven (1960) and Yamane (1967) used formula which might not be very easy for students.

Meanwhile, the sophistication difficulty in using the formula might be problematic. Also, the cumbersomeness involved in the analysis using a sample size that might lead

to a float (decimal number) could make it difficult to represent humans. Apart from these problems, it is always not very easy to analyze denominators that are not absolute (not in 10s and 100s), thereby posing problems during analysis. Therefore, there is pertinent need to propose this Absolute Value Approach, which will help researchers and students to easily look and select the sample size by mere looking at the AVA table. This will help to remove the rigorous engagement in use of formula, computational involvement and non-decimal human representation.

Also, there are many methods of data collection as indicated by Gupta (2016) and Ogula (2005). These methods can only take care situations where many questions are required. But when there is a prompt need for urgent decision making, readily available respondents and just one or maximum of only two questions are required, a new method of data collection would be needed. Thus, there is need for this proposal of the Opinionnaire method of data collection.

➤ Aim and Objectives

The main aim of this paper is to present a simplified sampling approach to getting the sample size at ease, while the specific objectives include:

- To propose the Absolute Value Approach for a sample size.
- To propose Opinionnaire as a simple method of data collection.

II. LITERATURE REVIEW

Sampling and getting a reasonable sample size has been an issue to many scholars, especially new ones. In this case, many researchers have delved into this in many ways.

➤ Cochran's Formula

In 1963, Williams G. Cochran brought about a formula in his book "Sampling Techniques" which was republished in 1977. The use of Cochran's formula is very appropriate when the population size is unknown, infinite or very larger, and good precision is expected to get a reasonable sample size. The formula is applicable in social sciences, education, survey research, business and education.

The calculation helps to minimize the sample size from a large or indefinite population to a more precise simple sample size.

$$n_o = \frac{Z^2 PQ}{e^2} \dots\dots\dots(1)$$

Where

n_o = Sample size

Z = Z-score for confidence interval of 95% or simply 1.96

P = Estimated occurring attribute proportion, usually 0.5

Q = (1-P) = Estimated Non-occurring attribute proportion, usually 0.5

e = Acceptable marginal error, usually 0.05 (5%).

➤ Sloven's Formula

Guilford (1973) referred to Slovin or Sloven as Robert Sloven, though without a clear identity. Sloven, in 1960 posited a sample size generating formula, which became popular in social, education, medical, business and virtually every sector of research field, where sample size is calculated.

It is used when the population size (N) is known and clearly stated, but no prior information about the entire population distribution, structure or behaviour.

In the formula,

$$n = \frac{N}{[1+N (e^2)]} \dots\dots\dots(2a)$$

Where

n = Sample size

N = Total Population (Known population)

e = Acceptable marginal error, usually 0.05 (5%). e^2

➤ Taro Ya-Mane's Formula

Taro Ya-mane is the statistician that popularized Sloven's formula in 1967. He developed it to care of known population size without prior population behaviour, unlike that of Sloven. Unfortunately, it can be used only when the population variance is unknown.

The formula is generally popular and used in many research fields nowadays.

The formula is exactly the same:

$$n = \frac{N}{[1+N (e^2)]} \dots\dots\dots(2b)$$

Where

n = Sample size

N = Total Population (Known population)

e = Acceptable marginal error, usually 0.05 (5%).

➤ Krejcie & Morgan Table

In 1970, Krejcie & Morgan created a table, to solve the problem of excessive calculations, and from the table, the sample sizes can easily be known from the attached population indicated, mere looking at the table. This is also used, when the total population is clearly known. Usually, the table uses 384 as the maximum sample size regardless of the total population. Therefore, this Absolute Value Approach takes care of the unrealistic situation.

$$S = \frac{\chi^2 NPQ}{e^2(N-1) + \chi^2 PQ} \dots\dots\dots(3)$$

Where

S = sample size

χ^2 = Chi-square value

N = Total Population (Known population)

P = Estimated occurring attribute proportion, usually 0.5

Q = (1-P) = Estimated Non-occurring attribute proportion, usually 0.5

e = Acceptable marginal error, usually 0.05 (5%).

Using the above formula, and that of modified Chi-square, Krejcie and Morgan arrived at the sample size values S below, from the corresponding total population N.

Table 1 The Table Shows Krejcie & Morgan Sample Sizes .

N	S	N	S	N	S	N	S
10	10	100	80	460	210	4,500	354
15	14	110	86	480	214	5,000	357
20	19	120	92	500	217	6,000	361
25	24	130	97	550	226	7,000	364

30	28		140	103		600	234		8,000	367
35	32		150	108		650	242		9,000	368
40	36		160	113		700	248		10,000	370
45	40		170	118		750	254		15,000	375
50	44		180	123		800	260		20,000	377
55	48		190	127		850	265		30,000	379
60	52		200	132		900	269		40,000	380
65	56		220	140		950	274		50,000	381
70	59		240	148		1,000	278		75,000	382
75	63		260	155		1,200	291		100,000	384
80	66		280	162		1,500	306		250,000	384
85	70		300	169		2,000	322		500,000	384
90	73		340	181		3,000	341		1,000,000+	384
95	76		400	196		4,000	351		<i>Note: N = Pop. Size; S=Sample Size</i>	

Source: Krejcie & Morgan(1970)

➤ Power Analysis

Jacob Cohen introduced Power Analysis in 1962, but popularized it in his book in 1988. In this approach, it is for sample size when there is need to specifically focus on the True Effect of a particular treatment, mostly in clinical trials and behavioural sciences, where experimentation is required, including education and psychology. The analysis involves the use of statistical power of $1 - \beta$, (*which stands as Rejection Power*) for Null hypothesis at 90% Confidence Interval.

Also, at significant level (α), which is usually the probability of committing Type I Error normally assumed to be 5% or 0.05. The sample size represents the participants and the Effect size represents the Correction value, to show the level, degree, direction or type of the relationship.

III. SOME TERMINOLOGIES IN SAMPLING

➤ Population

Population has been defined in many ways. According Creswell, population is a complete set of individual cases or objects with some characteristics (Creswell, 2023). This definition may be deficient of its entirety. Population can be defined as the total or complete observations, elements, individuals or objects with similar and defined characteristics based on the subject under study or area of interest of the scope of the researcher, at a particular time and place. The population of Grade 10 students in a school may be 407, if the research scope or interest covers only the Grade 10 class. Meanwhile, if the interest or scope covers the entire students in the school, then the population changes to that of the entire students in the school, comprising Grades 1, 2, 3, 4, 5 to 10, which might be 2,120. So, population is basically seen as the entire number of observations, objects, people or elements of interest to the researcher or the scope under study.

Population can be classified based on the statistical interest of the researcher.

- **Total Population:** This is the entire coverage of the whole or complete entity of interest to the researcher within the scope and at that particular time. This can be likened to the population of The Catholic University of Eastern

Africa (CUEA), if the researcher is interested in a research that involves the students generally.

- **Target Population:** This is the specific population, usually from the total population, that is directly of scope and interest to the researcher. It is narrowed down to a smaller group from which the sample will be chosen. Target population, is often more homogeneous in nature, with a particular characteristic. If the entire students of CUEA form the Total population, then, students from the Faculty of Education will be the Target population, if our specific interest is in an Education research.
- **Accessible Population:** Accessible population is usually chosen from the target population. This can also be called Study Population. (Egunjobi, 2024). When the target population is relatively large, a part or fraction of it will be chosen, and that will be those actually accessible to give information (data) that are required for the research studies. It represents the sample which are called the participants or the respondents.

Population is usually denoted by N. Its major advantage is that it represents the opinion of every member of the study, but time, cost, members distribution and analysis with large figures may be disadvantageous.

➤ Sample

Usually in inferential statistics, where the results from the sample is used to generalize and infer to the general population which they represent, a sample should be chosen, especially when the population is relatively large and dispersed as well as time and cost of coverage are to be considered. A sample is a representative fraction, subset or part of the entire population carefully chosen for easy accessibility and analysis. Though, it does not involve the entire population, but analysis is usually easier with fewer data. Sample is usually denoted by n.

- **Sampling:** This is simply the act or process of choosing the sample from the entire population.

➤ Sampling Techniques

Sampling technique is the approach, method or way of choosing the sample from the population. It is very necessary to carefully choose a sample that will be a representative of the population of interest. There are two main categories of sampling techniques- Probability and Non-probability sampling techniques (Ogula, 2005)

- **Probability Sampling Technique:** In probability sampling technique, every member of the population has equal chance to be chosen Creswell (2023) listed some methods using this probability sampling technique to include the following:
- **Simple Random Sampling Technique:** This is the situation where there is no restriction in choosing any member from the population. Every member has equal probability. If a researcher needs any 20 students from Faculty of Education in CUEA, he may choose any first 20 students he sees in the class, regardless of their year, status, religion or gender.

This method can also be adopted using a rapped paper, of 20 Yes and others No, only if 20 is to be selected from a class of 87 students. In this case, when well shaken, in the box, the box will be presented to the 87 students, and obviously, only the 20 that pick Yes, will be chosen as the sample, while others that pick No will be left.

Apart from that, Statistical tables (With or Without replacement) and Computer software are also useful in choosing through this simple random sampling.

This method is useful when the population is completely homogeneous, and at times, as the second method of sampling method. It is simple, but may not be a true representation of the population due to bias.

- **Stratified Sampling Technique:** In this method, a restriction, like a classification is introduced. This can be on basis of faculty, level, gender, religion, race or any classification to group the population into strata. The entire population N is usually the sum of the individual stratum $N_1, N_2, N_3, \dots, N_n$ ($N = N_1 + N_2 + N_3 + \dots + N_n$). From these strata (groups), simple random method can be used to select the required sample size.

It is very adequate when good representation is required in sampling, but stratification may be a problem, and the strata (groups) may not be proportionate in number.

- **Systematic Sampling Technique:** This is a method that involves the use of alphabets or ordered numbers to choose the sample. In a class of about 87 students, if a researcher wants to choose a single sample, he may simply ask that those whose name starts with letter A should stand up, and automatically belong to the chosen sample.

Also, using ordered numbers, especially when the entire population is to be grouped into many samples, the class can be asked to serially get the numbers 1, 2, 3, 4, and 5, if 5

sample groups are to be chosen. Then, after the first 5, the next person gets 1, and the others 2, 3, 4 and 5, then the next 1, 2, 3, 4 and 5, until the five numbers are given to all the members of the class, making them to belong to group 1, for those that have 1, group 2 for those that have 2, group 3 for those with 3 and so on. In some cases, the researcher may be interested in only two of the five groups. Just as the case may be.

Here, $N = nk$ (where N is population size, n , sample size and k is the sampling interval)

- **Cluster Sampling Technique:** The method involves the observation of natural setting or location of the various groups in the same population. This leads to clustering or grouping of the population based on differences in the location or natural settings of the members of the population Powell & Connaway (2004). Example is the situation where students living at different places are clustered, different market areas and many more. With this, a second stage of sampling, simple random may be adopted to get the required sample size.

This method is useful when residential or natural settings of the participants are considered in the research work, especially Qualitative research, where observation of the participants and interviews are necessary. Notwithstanding, the cluster may be too cumbersome to form, thereby giving wrong grouping.

- **Multistage Sampling Technique:** This is when several sampling techniques are used involving many stages. This could be from stage one, to two, to three and more, depending on the situation Donald & Chris, (2010). It involves the use of many restrictions or classifications, like getting a sample of about 200 from the entire state. The first method can be cluster technique, to group the state into Regions or States. Then, Profession may be considered, followed by Age, and many other measures, depending on the purpose and scope of the research. After the cluster technique, stratified may follow, then, simple random, depending on what is needed.

This method considers several interests in the representation, but usually cumbersome to use.

➤ Non-probability Sampling Technique

Statistically, probability sampling is usually preferred because it represents the interests of the entire population. Meanwhile, there are some cases where the members of the population are preempted or envisaged to be part of the participants. Non-probability sampling is used for such cases. It shows some level of inclusion and certainty in the chosen participants. Therefore, they can not be used for generalization of the entire population (Donald & Chris, 2010).

- **They Include:**

- ✓ **Purposive:** This method is requires the involvement of specific people that are informative of the needed

information. They are usually chosen based on the purpose of the study and because they possess the characteristics needed to be involved in the participants Creswell, (2023). They are usually subjective and typical to the research information to be supplied. This is normally used when the population is small and there can be inclusion of the members.

It is generally easy, but sometimes may not be representative of the entire interest.

- ✓ Convenience: Convenience method is a very easy method, because it does not involve any restrictions. The researcher can walk into a place and involve the available people as the participants. It may be a lazy sampling method, as the researcher uses only those he can conveniently access. Though it is easy, being bias is very high, and can not adequately represent the interest of the entire population.
- ✓ Judgemental: This is similar to purposive sampling, but slightly different in the sense that the researcher has already made up his mind on the participants to be involved during the data collection. It is also easy, but there is high rate of being biased. This is used when there is no need for strict or comprehensive generalization and representation of the population.
- ✓ Quota: Quota system is mostly adopted when there is high certainty of inclusion. A situation where every State (as the strata), is expected to have 50 candidates for admission, Some states may have even more than 200 applicants, but only the needed 50 will be admitted, the remaining 150 will be rejected, while the States with less than 50 candidates will have all their candidates admitted. This method may be easy, but the groups may not have equal informative strength.
- ✓ Snowball: This is a situation where reference is made. Usually, the first known respondents are contacted, and they assist the researcher to invite, inform or engage the others, whom they will recommend as demanded by the researcher, to be part of the sample. It is used mostly in interview method of data collection. An example is when 20 old people (70 years and above) in the community are needed for interview. The researcher may know only 5 of them. These 5 will assist the researcher to mention others for the research purpose. This method useful when a particular group of people is needed for information and they are not readily available. Meanwhile, it may be tedious if not professionally handled.

➤ Census

This is a special case in which the entire members of the population or the study group is included in the study. It is in most cases, automatic inclusion, especially when the study population is less than 100.

➤ Sample Size

Sample Size is the number of elements chosen from the total or target population to represent the entire population. It

is the representation of the population in terms of descriptive and even inferential characteristics and attributes. The values from the sampled analysis as estimates, can be used to generalize the entire population structure. Sample sizes make the analysis easier, especially when the population size is large, infinite, or even unknown. The main disadvantage is that it does not take absolute account of the entire population opinions or interests.

IV. METHODOLOGY

➤ Introducing the Proposed Absolute Value Approach (AVA)

Absolute Value Approach is an approach that requires easy steps to adequately arrive at a good sample size. Ordinarily, there is no particular sample size from the entire population, but this proposal will assist, among many other methods to choose a sample size for adequate data collection from the entire population, using the steps below:

- Know the entire target population for the study. This will assist to know how large the population is.
- Select the sample size from this Absolute Value Approach (AVA) table from Table 2 Recall that the essence is to get absolute values of 10, 100...as the case may be for easy selection and analysis. These values emanated from the modified Sloven's formula.
- Determine the sampling technique to be adopted based on the type of the study, design and the population structure to be engaged. Here, it could be simple random, stratified, by proportionate or non-proportionate strata, systematic, cluster, multistage, purposive, snowball, judgemental or convenience techniques.
- Allocate the sample size distribution based on the selected size and sampling technique.
- On each subgroups sample sizes (allocations), use

$$n_i = x_i + (5-10\%)x_i \text{ values, where } x = 100, 101, 102...i \quad (3)$$

Where n = Desired sample size

x_i = Selected sample size from the Absolute Values Approach (AVA) Table

This is to add from 5% to 10%, as desired, to the chosen sample size (X), so as to give room for the non-response situations.

- When the copies of the questionnaire are ready, code them in numbers 1,2,3...according to the total number of copies produced.

For example

A sample size 400, the envisaged addition can be 20 to 40 copies of questionnaire.

This excess number of copies will take care of the non-response cases. When the required number has been achieved, the rest copies can be discarded.

If X = 400,

5% of 400 = 20

Therefore, 420 copies of the questionnaire will be produced.

After the administration of the questionnaire, the counting will take place, and only the required number of 400 will be recorded and used for the analysis.

The following modified Sloven's formula

$$n = \frac{N}{[1+N(e)^2]} + v$$

Where v = ...-2, -1, 0, 1, 2...

Illustration:

Let the target population, N = 49515

e = 0.05

Substituting the values,

$$n = \frac{49515}{[1+49515(0.05)^2]} + v$$

$$= (49515/124.785) + v$$

$$= 396 + v$$

Recall that v is the value to make the sample size, n absolute (nearest 100 if N = 501 and above).

Therefore, we make v = 4, to give the absolute value 400 (396 + 4 = 400) as the sample size.

In this case where the target population is 49,515, the study will use 400 respondents as the sample size.

Note: In the table below, n = Sample size, and N = Total or Target Population.

Table 2 The Proposed Absolute Value Approach (AVA) Table

N	n	N	n	N	n
5	5	55	55	101	100
10	10	60	60	300	100
15	15	65	65	301	150
20	20	70	70	500	150
25	25	75	75	501	200
30	30	80	80	1000	200
35	35	85	85	1001	300
40	40	90	90	2000	300
45	45	95	95	2001	400
50	50	100	100	2001 - 1000,000+	400

Source: Researcher 2026.

V. METHODS OF DATA COLLECTION

Methods of data collection, which involves the instrument or tools for collecting data is very important in research. Either Quantitatively, when the required data is in numerical form, or Qualitatively, when the data is in words or sentences, several tools are used. Data can be Primary or Secondary. Usually, the method or instrument for data collection is masterminded by the type of title and research to be carried out. This will dovetail to the research objectives of questions. These are the indicators that will determine the best instrument for that data collection.

➤ *These Include:*

- *Questionnaire*

This is a set of carefully arranged questions, logically put together based on the type of information required from the respondents, which must have been guided by the research objectives or questions. It should comprise simple, clear, direct, short and unambiguous questions, which the respondents can easily and willingly answer. When constructing questionnaire, calculations, personal confidential and "deep-thought" questions should be avoided.

It is most the effective instrument for Quantitative data collection, especially when it is structured, and data is needed from a large sample size of almost 400 at the shortest time for the data collection. Also, it is easily administered to respondents physically and any unclear questions can be explained by the data collector, research assistant or the researcher when necessary. Notwithstanding, it requires some expertise in its construction.

✓ *Questionnaire Can be in Many Types.*

- **Structured Questionnaire:** This is when the questions are supplied with tantamount answers, from which the respondents will be expected choose. This is adequate for Quantitative data collection, as it will give a specific and limited range of answers or options for the respondents and easily recorded in numerical form.

✓ *This Structured Questionnaire May be in Different Forms.*

- **Alternative:** When it goes with only two answers to be chosen from, like Yes and No, True or False. This gives the respondents only Two alternatives to choose from.

- **Optional:** This involves the use of many options, normally less than Five, that the respondents will be expected to choose from. Example can be options (a), Rice, (b) Beans, (c) Tea (d) None of the above.
- **Likert Scale:** Likert scale is mostly used to express the gravity of agreement or disagreement on a particular issue or questions, based on the perception, opinion or view of the respondent. It is usually graded as Strongly Agree (5), Agree (4), Neutral (3), Disagree (2) and Strongly Disagree (1). It can as well be used in other ways, based on the situation to be considered by the researcher. Like Very suitable (5), Suitable (4), Normal (3), Not very suitable (2), Not suitable at all (1).
- **Semi-structured:** This is a type of questionnaire that combines closed and open-ended questions. It involves the situations where options are provided and the opinions of the respondents could be required.
- **Unstructured:** Unstructured questionnaire is the open-ended questionnaire where the opinions of the respondents are required. There is usually no options given. This is most useful in qualitative data collection that requires opinion-seeking for deeper and more information gathering.

• Interview

Mostly, when direct contact is needed, and information is required directly from the respondents, interview is necessary. It gives clear information about the respondents, and physical expression as the case may be. Though, it may be time consuming if the respondents are many, but it is relatively reliable as the researcher can personally have a view of the information being provided. It is usually used for qualitative data collection.

- ✓ **Guided Interview:** Guided interview is when the questions are structured and tailored toward a particular information or data collection.
- ✓ **Unguided or Informal Interview:** This involves the open questions that are not structured. Here, the researcher asks questions based on what is observed and comes to mind for the required information gathering.
- ✓ **Chain:** Chain interview is normally used when one question leads to another, without any specified structure. It is used mainly for information gathering about a particular incidence that can dove-tail to further information.

• Observation

Observation method of data collection usually entails keen and noticeable issues. It could be scientific if the use of the sense organs like the sights, smell, feelings and others are involved. Also, it could be natural or social when the researcher is interested in getting deeper knowledge or information through interactive participation in qualitative data collection.

- ✓ **Active Observation:** This is when the researcher actively gets involved in the natural settings. Takes records as observed and takes active part in the information gathering.

- ✓ **Passive Observation:** This involves the researcher not being actively involved in the direct activities involvement in the information gathering. In this case, a second party can be engaged to assist in the information or data collection.

• Experimental

This is usually used when the research is basically experimental in nature. Here, the researcher carries out an experiment, introducing a treatment or factor that will alter or change the normalcy of the system. It requires expatriate to adequately use this method for data collection.

• Records

Data collection through records is usually easy. It gives a secondary data from secondary sources. Though it is usually like a summary of the entire needed information, it is prone to alteration and thereby not having absolute reliability.

✓ These Could be Collected Through:

- Physical and online records offices or sites through files or any other available record.
- Official Records from Ministries, Local and International Organizations on the desired areas of interests to the researcher.
- Unofficial data from Hospitals, churches, markets, political organizations and other places.
- Published data can involve the data from published books, articles, journals and any other officially acceptable publication.
- Unpublished data from elites in the society, lesson notes, webinars, workshops and seminars.

• Internet

Internet also supplies series of data, usually secondary, or through any internet means of data collection like the Google form and others. It is often fast, but its reliability depends on the source of the information.

• Telephone

The use of telephone is another tool or method of data collection that requires the use of telephone. Here, the researcher or the data collector makes a call to the expected respondent or participant for information dissemination as data. This method is useful when the participant is not physically reachable because of distance and time, but can be called on phone to give the required information. This method actually may waste time, depending on the volume of data needed, notwithstanding, it could be used for instant and distant information or data collection.

• Mail or Postal

Mostly, when the respondents or the participants are not readily available, but can be reached through postal means, the questions or the required information can be posted through mail, and eventually filled and responded to, by the respondents. This method has low or even no response, apart from the fact that the respondents may not get the clear pictures of the information demanded, it could give relatively

confidential information that might not be given if the respondents were to be physically present.

➤ *Introducing the Proposed Opinionnaire*

Opinionnaire is from the word “opinion”. It is a proposed method of data collection when the researcher wants to know or collect information or data based on the immediate opinions of the respondents. This method is easily used when the respondents are readily available to provide the needed information for immediate or required action to be taken. Usually, it requires only one or maximum of two questions which can be analyzed as supplied.

• *This Can Take the Following Three (3) Forms:*

- ✓ Verbal Opinionnaire: This type involves the verbal questioning or interrogation of the respondent, seeking their consent on a particular issue. It is always in one or two verbal questions like: “Can we have a lecture tomorrow?” Here, the answer is expected to be “Yes or No” Also, this verbal opinionnaire can equally be expressed leading to optional answers. For instance, “When can we have a lecture tomorrow?” The response could be 8am, 10am, 2pm, or any time of choice. In this case, there will be a consensus and the majority response will be accepted for necessary action.
- ✓ Written Opinionnaire: This is the question is written, typed or pasted for the respondent to give immediate response after the distribution. It is also expected to be only one or two questions, with few options as illustrated above.
- ✓ Online Opinionnaire: It is widely used online, when a wider range of respondents from different areas is required to respond. It equally carries the above characteristics of one or two questions, with the expected response options for immediate action.

• *The Advantages of Opinionnaire Method of Data Collection Include:*

- ✓ It is very easy to construct.
- ✓ The responses are usually fast.
- ✓ The analysis is very simple, usually in frequencies and percentages, occasionally in charts, if required.
- ✓ The respondents are readily available.
- ✓ Its interpretation and conclusion are generally easy, with good decision making based on the reasons or problem to be solved.

• *Meanwhile, These are the Disadvantages:*

- ✓ It can not be used to generalize the entire opinions of the population unlike questionnaire.
- ✓ It does not cover many areas of interest in the data collection, as it focuses on only one or two questions.
- ✓ There could be a form of biasness on the part of data collector, because data will be collected from only the available respondents.

VI. CONCLUSION

This research article has successfully assisted to conveniently obtain sample sizes from numerous total or target population sizes ranging from 1 to infinity (∞). From 5 to 100 total population, the same values are used as sample sizes of 5 to 100. The sample size increases based on the modified Sloven’s formula adopted to construct the AVA table and finally to infinity (∞), giving the maximum sample size of 400. It gives the absolute values that can be used easily for analysis, removing the rigorous use of formula and non-decimal human element. Though, the approach gave room for about 5-10% added value of the sample size, which could be removed if there is need, to take care of the non-response cases following the 6-step approach, as proposed.

Also, opinionnaire has been proposed to take care of situations where immediate responses are required and action is to be taken promptly for decision making, using verbal (oral), written or electronics (internet) approaches, especially when it involves only one or two questions, with alternative answers.

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