

Functional Training and Its Impact on Development
The Statistical Awareness: Prospective from Egypt
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ABSTRACT

Lacking of statistical awareness can lead to ' misunderstandings, misperceptions, mistrust and misgivings about the value of statistics for guidance in public and private choices, So the national statistics offices in all the world put raising statistical awareness as first priority in their national statistical strategy, Moreover most of them have training center for capacity building and raising statistical awareness for their employee, field researches and trainees who take courses. From this prospective we adopted the functional training at national statistical office at Egypt (CAPMAS) as a method for training because it is based on basic premise: that education is life, not preparation for life. Therefore trainees feel that they accept to study statistics because it faces the problems of life and gives them the real indicators and this led to raising the statistical awareness. This paper discusses the Importance of the functional training and Examples for how can be develop the statistical awareness depended on some functional training strategies, besides that discusses training the field researchers on how to deal with types of respondents (Silent, Jabber, Sceptic, nervous, special needs) with function way to help them get right data, Further more the paper Measures the trainee degree of satisfaction for the training program (SPSS program) using Likert scale.

Keywords: Statistical Capacity Building; Satisfaction of the Trainee; Field Researches; Trend; Method of Training

INTRODUCTION

The accurate and modern statistical information has become an important part of the basic knowledge and the suitable decisions.

Consequently; all the countries are interested in developing the capacity building with high quality and friendly to provide the necessary data to achieve the suitable and honest indicators to help policy makers to give the right decisions, But to achieve this aim we must interested in education and training because it plays an important role in developing the capacity building and raising the statistical awareness we mean the functional training but the traditional form of education and training (instructor -trainer negative - memorize facts and statistical equations) does not fit in order to create citizen effectively positively contribute at development his society, we do not expect from an individual receive information without any positive role, could be able to express an opinion in any issues that concern the community and solving it, so the researcher finds that functional knowledge is the way to create a statistical person is able to keep pace with developments occurring in the community.

1- Definition of functional Training:

1.1- Definition of training

training is the processing which aim to develop the human resources by providing them with knowledge, skillful, increase their capacity building to raise their capabilities and improve their performance and production and achieve the employment goals.

1.2- Definition of Functional Training

Functional Training is One of educational approaches that emphasize the link between what trainees learn(statistics, knowledge , facts and information) with their daily life to help them applying what they have studied theoretically on their life , to achieve maximum benefit and to make the material meaningful in real life.

1.3-Importance of the functional training:

- Acquisition trainee's statistical information and skills through application of theoretical knowledge.
- Give trainees the nuances of statistical concepts because the trainee in traditional methods may take it without understanding its meaning.
- Developing the capacity for critical thinking and innovation.
- Changing the role of trainer and trainee to more positive interaction in the classroom.
- Help trainees to do his tasks by higher quality.
- Functional training is the best way to minimize the wrong ideas and renew and develop the occupation system and achieve the goals of the employment path.

2-How to develop statistical awareness through Functional Training

There are many methods can used it as a functional tools in teaching statistics such as :

- Interactive Demonstrations *- Presentations
- Practical exercises, individually and in groups
- Discussion *-Use Statistics within a Story *-Playing roles & Brain storm.
- Solving problems *-Cooperative Learning

2.1-Do Not Drop Stats Off; Drive Them Home

Many times you will see a speaker go into a list of statistics in order to prove his or her point. Statistics are certainly desirable in speaking, but only if you use them in an effective way. Simply listing statistics is not enough. You must interpret them so your audience knows exactly what they mean to them. For example, I have often used the following statistic when driving home a point about life-long learning: "Each year you will spend between 500 and 1000 hours in an automobile." This statistic might be interesting, but it certainly is not compelling. That is because it has not been driven home. Here is how you might drive it home:

"Each year you will spend between 500 and 1000 hours in an automobile. If you live to be 75 years old, you will spend approximately 7-10 years of your life in an automobile. Seven years! Here is my question to you. What are you doing with that time? [pause]. Are you simply passing time or using it? Do you know 10 years is enough time for two PhDs? Again, what are you doing with that time? [pause]. I suggest turning your car into a rolling university. You can listen to audio books and quickly become an expert compared to the rest of the country. Oh, but there is one caveat. Please do not use any meditation tapes in the car!"

This is how you can drive a point home by showing your trainees exactly how that statistic affects them and what they can do about it. Do not just drop off the statistic, but drive it home and this core of functional training and we will note that in the following teaching methods.

2.2- Examples for how can be develop the statistical awareness depended on some strategies of teaching

2.2.1- Statistic vs. Story

The problem with simply listing statistics is that they are relatively impersonal and unemotional. Of course we think, "Oh that is terrible" when we hear about millions of people with AIDS or thousands upon thousands of people living in poverty. However, those statistics will not bring us to

tears like the story of one person will. A personal story will outdo statistics every time. Please remember that your audience makes decisions based on emotion backed up by logic.

So we can use story to develop statistical awareness about many topic such as Unemployment - Tourism - Immigration – Income and use that at statistical training with a functional way.

2.2.2- Cooperative Learning

Activities involving a small group of learners who work together as a team to solve a problem, complete a task, or accomplish a common goal. (Artzt and Newman 1990).

How to Use Cooperative Groups in a Statistical training

It is recommended that the instructor carefully read one of the excellent resources on cooperative or collaborative learning in higher education before incorporating cooperative groups in a statistics class. These resources provide complete information on structuring and monitoring groups, and developing and evaluating group activities. Based on the models of cooperative learning in these references, cooperative group activities for a particular statistics class can be developed. These activities include:

- 1- Having groups individually solve a problem and then compare their solutions (e.g., homework problems or problems from the textbook requiring particular skills).
- 2- Having groups discuss a concept or procedure, or compare different concepts or procedures (e.g., discuss the steps involved in testing an hypothesis, or compare the advantages and disadvantages of using the mean, median, and mode to summarize a data set).
- 3- Having each group collaborate on a large project involving collecting, analyzing, and interpreting data. Groups may meet in and/or outside of class to work on these projects, and may present the results in a written report and/or an oral in-class presentation

If Trainees work together but turn in separate reports, these may be rated individually and then a group score based on the average assigned as well. If only a group score is assigned to a group product, students may be asked to volunteer the percentage of their contribution, and that may be used to determine their share of the group points. Or, a group score may be assigned and everyone receives that score. Methods will vary based on the types of projects and students

Example: Measures. of. Central. Tendency

1. Each group of Trainees is given some different data sets (e.g., prices of running shoes, fat content of fast foods, Olympic medals, temperatures for a month).
2. In your group, discuss each of the three measures of center and Make sure that everyone understands what each measure is and how it is calculated.
3. Discuss the advantages and disadvantages of using each of the three measures to summarize a data set.
4. For each of the distributed data sets, determine which measure of center would be most appropriate as a single number summary and why.
5. Turn in one written summary of your discussion. Be sure to include a description of each measure and how it is calculated, advantages and disadvantages of each measure, and a discussion of which measure of center is most appropriate to use in representing each data set and why.

3-Functional training for field researchers

a field researcher Must know that there are differences and diversity of personalities and behaviors of respondents in a way to answer questions posed in the search form, and therefore must deal with all this variation to reduce the errors of response and that arise from giving the respondent data is inaccurate or did not express the data to be obtained.

Here comes the role of functional training in order to give researchers this awareness to get the statistical data of high quality.

Types of respondents and how to deal with them.

Ser	Type of responder	How to deal
1	<u>Respondent Silent:</u> Is a person who refuses to speak or respond to the researcher, not Showing any impressions of either acceptance or rejection, and thus difficult to know what is going on in his mind.	Need this kind to attempt to break the silence has questions include yes or no at the beginning to talk to him, so the researcher can gain confidence and encourage them to break the silence and cooperation. - a field researcher must have patience and to gain the confidence of the skin under examination, and asked his opinion frankly as asking him questions
2	<u>Respondent Jabber:</u> this Category talk all the time without the sense or meaning and nature of debate and discussion and enthusiasm and is not logical in how to respond to the question	Need this Category to the special package so that the researcher can ask his wish to speak to the benefit of research, conducted by. - The investigator must give him the attention and tries to attract the main theme in a friendly way. *- Warning Do not try to silence effectors Jabber force.
3	<u>Respondent Sceptic:</u> Is a person who does not easily believe what he says always have researcher and critic may be tactless	- This Category always needs to provide evidence on the proposal of the researcher. - You must show him and prove his friendship researcher safety purpose. - is necessary to emphasize that the data has to be delivered will be kept confidential and will not be used for purposes other than research
4	<u>Respondent nervous:</u> Nervous reaction, a fast of the most difficult types of respondents to the inability of the researcher pursuing his ideas and rapid transition from topic to another.	- must be removed from the details as much as possible - you should try to return to his cool through simply talking to him and help him arrange his ideas to serve the objectives of the research. - Trying to answer his questions honestly and deal with objections on the basis of logical
5	<u>Respondent with special needs:</u> May be dealing with Quested has a disability be certain if the loss of one of their senses, or has difficulty speaking, this is a Category difficulty in dealing with the researcher.	- must not be exaggerated to express the idea while trying to transfer him to not try to quit and left undisturbed for an interview and not the multiplication of detailed questions that may be embarrassed, should also be wary of dealing with him on the basis of compassion, because that will make him feel weakness.

4- Measure the satisfaction of trainees

In this study the sample consists of (40) trainee from trainees enrolled in the training program (SPSS) at (Statistical Training Center).

4.1 - Tool of the study :(Questionnaire for Measuring satisfaction of trainees)

The questionnaire has been divided into three Sections as follows:

- **First Sections** (the objectives of the training program):
 - Discusses the extent to which the training program with work and raise the capabilities of the trainees on the statistical analysis and dealing with SPSS.
- **Second Section: (Training on the program spss)**
 - Discusses the training program of the SPSS (the timetable - the approach adopted in training - the view from the instructor.
- **Section third: (advantage of the program of the SPSS)**
 - Discusses the extent to which trainees apply what they have learned in their work and how they gain skills of statistical analysis on a program of the SPSS.

4.2-Results

- sample, consists of 40 people (20 male / 20 female) were distributed according to the state functional is (50% overall contract - 22.5% held temporary -27.5% specific) and for the sectors is 10% the presidency of CAPMAS - 17.5 % sector of economic statistics and tactical - 17.5% population statistics and censuses - 12.5% Sector Regional Branches - 25% of the information technology sector - 17.5% from outside CAPMAS .
- Calculated direction of the trainees and the extent of satisfaction with the training program, using Likert scale have been reached following results:
- the **direction of the trainees about the training program in terms of the goal** of it was positive(95% from trainees are satisfied), although it was noted that there are (5%) neutral for the goal of "upgrading the skills of statistical analysis of the trainees, using SPSS program and reason of that from researcher opinion return to the skills of statistical analysis is not understandable for workers in other sectors that is not use statistics "that for the first section (the objective of training) .
- Results Showed that trend of trainees is positive(85% from trainee are satisfied) about this section II with the exception of a degree neutral(15% from trainee) with respect to the timetable, although it was sufficient or not, because from the perspective of researcher that the trainees when applied to them the questionnaire was not training program is over, which made neutral respond .
- the trainees showed a positive trend is also about the third section But noted that there is neutrality (25% from trainee) on the part of some trainees to express their opinion on the point "I can apply what you were trained in the business which I do" because from the viewpoint of the researcher that there are some trainees scope of their work is not related with statistics and SPSS.

5- Conclusion

Based on the above, we can said that Statistics plays an important role in our modern life, where became familiar to us, and represents an important aspect of the information which we read every day, such as tables of points achieved by the football clubs which we read it in newspapers, magazines, and estimates of the forecast weather and stock indexes and the government's achievements in the field of housing and reconstruction and changes in the exchange rates and commodity prices.

Therefore we must development of statistical awareness through functional training and his ways such as cooperative learning, brainstorming, current events, the results of statistical surveys, use computer to made statistics a functional role in our life and in solving our problems in a scientific way.

REFERENCES

- 1- Wallman, K. (1993), 'Enhancing Statistical Literacy: Enriching Our Society', as cited in the Journal of the American Statistical Association, Vol88, No 421.
- 2- Artzt, A. and Newman, C. (1990), How to Use Cooperative Learning in the Mathematics Class, Reston, VA: National Council of Teachers of Mathematics
- 3- Chan, C. C., Tsui, M. S., Chan, M. Y. C., and Hong, J. H. (2002). Applying the structure of the observed learning outcomes (solo) taxonomy on student's learning outcomes: An empirical study. Assessment and Evaluation in Higher Education, 27(6), 511-527.
- 4- Garfield J. (2002). The challenge of developing statistical reasoning. Journal of Statistics Education, 10(3).
- 5- Huijuan Sui : " The Functional Approach: Material and Methods " Nov. 2005, Volume 2, No.11 (Serial No.23)
- 6- Joan Garfield(1993) Teaching Statistics Using Small-Group Cooperative Learning, Journal of Statistics Education v.1, n.1 (1993)
- 7- Joan Garfield: How Students Learn Statistics, InternufionnlSkUisfical Review (1995), 63,1,25-34, hinted in M~NcO
- 8- Jones, L. (1991), "Using Cooperative Learning to Teach Statistics," Research Report Number 91-2, The L.L. Thurstone Psychometric Laboratory, University of North Carolina.
- 9- Trewin, D. (2005), Making Maths Vital, Key note speech, AAMT conference.