Objective To Conduct A Pilot Study In Research

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Abstract

Pilot study means to conduct a research on small scale to know about the future of the study. This study tells us that either to conduct the research or not. It's actually the feasibility study or portion of the study on a small scale wheatear if it's give the positive results will tell that the study will be better. This study gives the surety of the further study to be conducted. In this research a pilot study was conducted to know the effect and to find out about the reliability of the instrument which will be used in future research for a large scale. Pilot study can be conducted on any scale and people conducted the study on many number of the portion of the actual population. The design of the study is experimental in nature so the minimum number of participant required to participate in the study was selected. Pilot testing was carried out to know about the feasibility of the instrument and the improvement if required to made in case of issues with the instrument. Objective of the study was to know about the effect and correctness of the instrument. Data Analysis was performed with the help of SPSS 22. Results generated were analyzed and interpreted. Recommendations and suggestions were drawn and made.

Keywords: Pilot Testing, Feasibility study, Data Analysis, Instrument

Introduction

Oxford Thesaurus give definition of the pilot study and says that it is the initial experimental or exploratory study, attempt or provisional test (Porta,2014). This is test of the procedure on small scale either the method in a large research will work (Arnold, Burns, Adhikari, Kho, Meade, & Cook,2009). A pilot study can be conducted on both type of research either qualitative or quantitative. The first step to conduct a research is the pilot testing. At this stage it's possible to analyze the feasibility and scope of the study. This is the initial step of the overall research protocol conducted on the small portion of the actual sample help to asses in the main study (In, 2017)

Mostly in experimental study it is conducted to know about the validity. Before going to make the study researcher must be aware about the objective, purpose and goal of the main study. Researcher must know about the process and planned to be used. This study helps to explain the process and planned involved in the main study. This also help in method selection for the main study which best suitable for answering the questions of the main and full study (In, 2017). This study is made in such a way which reflect all the process and procedure of the actual study. This tell and explain how to include or exclude the participants in research. This is also to test the design instrument and also to validate the instrument on the successful execution of the

study. Also this train the research team on the conduction of their research. Research team has to know about the clear purpose of the test and study. Selection sample of sample size is also necessary for the conduction of the study Sekaran (2003) say Roscoe (1975) give a rule of thumb for pilot study sample size greater than 30 is enough for the pilot study.

When samples are broken like male and female or to any other subgroups a minimum of 30 sample size is enough. In experimental research with tight control a sample size of 10 20 is enough. Pilot study can be performed externally mean independent of the rest the research or may be part of the whole research which is called internal pilot study, in which the data of the pilot study become part of the actual study. This study allows the researchers to know about his commitment to the research. This is used for the enhancement and improvement of the credibility of research. This also help to find out if there is any ethical issue in the research process to remove it. Its tell that either it's possible to conduct the research or used the instrument for data collection purpose. It's give detail and full information about the full research and also about the instrument which will be used for the research. This tell that either the tool is expensive or accurate; or it can be use or not possible to use it. Pilot study is not to give and provide the conclusive outcomes. Its provide information and give warning or allow the researcher to conduct. While reporting results of the pilot study researcher must have to write in a preliminary style. All measure to be taken in the right way. In short these be reported in form which covers all these aspects of the study (Doody, O. Doody, M. C. (2015))

Objectives of the study

Objectives of the study were

1. To review the Constraints of a Pilot Study in Quantitative Research in the Field of Education

2. To explore types of pilot studies in educational research

3. Ethical contemplations of pilot testing in empirical studies in the field of educational Research

Research Questions

1. How constraint of pilot study can be observed in Quantitative research in the field of education?
2. How types of pilot study can be explored in educational research?
3. Why ethical inspection of pilot testing is considered during empirical studies in the field of education?

Problem Statement

Being a researcher it is noticed that the term pilot studies occasionally ambiguous and a hard task

for the researchers. According to (Malamqvist, 2019) proper analysis of the procedures and results from the pilot study facilitates the identification of weaknesses that may be addressed. A carefully organized and managed pilot study has the potential to increase the quality of the research as results from such studies can inform subsequent parts of the research process. Therefore, the current study was conducted to review the Constraints of a Pilot Study in the Field of Education.

Methodology

Population

Students of Higher Secondary School studying computer science enrolled in GHSS Khairabad in second year.

Sample

A sample of 32 students was selected to conduct the pilot study of the achievement test.

Data Collection

Data was collected by conducting achievement test on the students. !00 minutes' time were given to attempt 85 items.

Data Analysis

Data Collected with the help of achievement test from the students was taken. After marking the paper data was tabulated into SPSS 22. Results Generated were analyzed and reported.

Results and Discussions

Table 1. Case Processing Summery

		N	%
Cases	Valid	32	100.0
	Excluded[a] `	0	.0
	Total	32	100.0

Table 1 shows total number of respondent in the study. Here in this study 32 participant take part which is enough to conduct experimental study (Dangal, 2022).

Table 2:Scale Statistics

Mean	Variance	Std. Deviation	N of Items
48.44	416.512	20.409	85

Table 2 shows mean, variance and standard deviation of all items.

Table 3.Item Statistic

	Mean	Std. Deviation	N
I1	.84	.369	32
I2	.81	.397	32
I3	.84	.369	32
I4	.78	.420	32
I5	.75	.440	32
I6	.81	.397	32

I7	.41	.499	32
I8	.75	.440	32
I9	.22	.420	32
I10	.59	.499	32
I11	.72	.457	32
I12	.53	.507	32
I13	.53	.507	32
I14	.56	.504	32
I15	.44	.504	32
I16	.69	.471	32
I17	.59	.499	32
I18	.75	.440	32
I19	.66	.483	32
I20	.19	.397	32
I21	.31	.471	32
I22	.59	.499	32
I23	.34	.483	32
I24	.69	.471	32
I25	.63	.492	32
I26	.69	.471	32
I27	.66	.483	32
I28	.63	.492	32
I29	.50	.508	32
I30	.72	.457	32
I31	.63	.492	32
I32	.63	.492	32
I33	.50	.508	32
I34	.63	.492	32
I35	.50	.508	32

I36	.66	.483	32
I37	.16	.369	32
I38	.59	.499	32
I39	.78	.420	32
I40	.66	.483	32
I41	.53	.507	32
I42	.63	.492	32
I43	.56	.504	32
I44	.44	.504	32
I45	.81	.397	32
I46	.44	.504	32
I47	.59	.499	32
I48	.50	.508	32
I49	.53	.507	32
I50	.72	.457	32
I51	.63	.492	32
I52	.53	.507	32
I53	.59	.499	32
I54	.72	.457	32
I55	.56	.504	32
I56	.53	.507	32
I57	.72	.457	32
I58	.50	.508	32
I59	.47	.507	32
I60	.56	.504	32
I61	.63	.492	32
I62	.41	.499	32
I63	.50	.508	32
I64	.63	.492	32

I65	.53	.507	32
I66	.22	.420	32
I67	.34	.483	32
I68	.38	.492	32
I69	.47	.507	32
I70	.63	.492	32
I71	.75	.440	32
I72	.72	.457	32
I73	.59	.499	32
I74	.50	.508	32
I75	.25	.440	32
I76	.72	.457	32
I77	.78	.420	32
I78	.66	.483	32
I79	.25	.440	32
I80	.38	.492	32
I81	.63	.492	32
I82	.44	.504	32
I83	.47	.507	32
I84	.53	.507	32
I185	.56	.504	32

_____

Table 3 shows mean and standard deviation of all 32 items.

Table 4: Item-Total Statistics

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	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item Total Correlation	Cronbach's Alpha if Item Deleted
I1	47.59	410.572.388	.	.965

I2	47.63	412.371.247	.	.965
I3	47.59	409.991.427	.	.965
I4	47.66	407.975.493	.	.964
I5	47.69	404.673.658	.	.964
I6	47.63	408.113.514	.	.964
I7	48.03	408.289.395	.	.965
I8	47.69	410.093.349	.	.965
I9	48.22	409.854.381	.	.965
I10	47.84	402.846.670	.	.964
I11	47.72	408.273.435	.	.965
I12	47.91	408.410.383	.	.965
I13	47.91	410.088.300	.	.965
I14	47.88	413.855.117	.	.965
I15	48.00	402.968.657	.	.964
I16	47.75	403.742.663	.	.964
I17	47.84	401.555.735	.	.964
I18	47.69	403.319.736	.	.964
I19	47.78	410.693.286	.	.965
I20	48.25	412.258.254	.	.965
I21	48.13	413.790.130	.	.965
I22	47.84	401.814.722	.	.964
I23	48.09	407.830.434	.	.965
I24	47.75	408.516.408	.	.965
I25	47.81	405.190.560	.	.964
I26	47.75	402.516.729	.	.964
I27	47.78	404.241.620	.	.964
I28	47.81	400.415.805	.	.964
I29	47.94	408.125.396	.	.965
I30	47.72	402.273.766	.	.964
I31	47.81	399.254.866	.	.964
I32	47.81	402.157.715	.	.964
I33	47.94	412.577.178	.	.965
I34	47.81	405.899.523	.	.964
I35	47.94	410.125.298	.	.965
I36	47.78	408.951.375	.	.965
I37	48.28	412.725.244	.	.965
I38	47.84	406.781.471	.	.964
I39	47.66	407.330.531	.	.964
I40	47.78	399.983.844	.	.964
I41	47.91	405.572.523	.	.964
I42	47.81	405.254.556	.	.964
I43	47.88	408.694.371	.	.965
I44	48.00	405.742.518	.	.964
I45	47.63	409.919.401	.	.965

I46	48.00	415.419.041	.	.965
I47	47.84	407.620.429	.	.965
I48	47.94	400.641.768	.	.964
I49	47.91	402.281.687	.	.964
I50	47.72	408.144.442	.	.965
I51	47.81	410.996.264	.	.965
I52	47.91	405.443.530	.	.964
I53	47.84	409.491.335	.	.965
I54	47.72	411.693.249	.	.965
I55	47.88	407.726.419	.	.965
I56	47.91	404.668.568	.	.964
I57	47.72	404.402.648	.	.964
I58	47.94	402.512.674	.	.964
I59	47.97	401.128.745	.	.964
I60	47.88	413.984.111	.	.965
I61	47.81	401.125.769	.	.964
I62	48.03	407.838.418	.	.965
I63	47.94	404.577.571	.	.964
I64	47.81	401.706.739	.	.964
I65	47.91	402.217.690	.	.964
I66	48.22	411.144.305	.	.965
I67	48.09	415.443.043	.	.965
I68	48.06	403.157.664	.	.964
I69	47.97	407.515.427	.	.965
I70	47.81	403.899.626	.	.964
I71	47.69	405.319.621	.	.964
I72	47.72	411.564.256	.	.965
I73	47.84	402.910.667	.	.964
I74	47.94	408.448.380	.	.965
I75	48.19	414.286.113	.	.965
I76	47.72	410.209.329	.	.965
I77	47.66	405.136.662	.	.964
I78	47.78	409.467.349	.	.965
I79	48.19	415.125.067	.	.965
I80	48.06	413.415.143	.	.965
I81	47.81	403.577.642	.	.964
I82	48.00	399.742.819	.	.964
I83	47.97	400.289.787	.	.964
I84	47.91	406.410.482	.	.964
I185	47.88	403.597.625	.	.964

Table 4 when analyzed shows that all of the item are in positive correlation. No item is negatively correlated. Show that all the items are perfect and correct to place in the tested achievement test. Some of them prefer that correlation greater than 0 or positive is better and item with negative

correlation cannot be put in the instrument. Approximately all items now contributed toward the total reliability .965 coefficient of the instrument. No effect on variance in large on

deletion of item. Hence all the items have to remain in the tool (Correlation Matrix, 2022) (Data Science and Analytics, 2022).

Table 5.List wise deletion based on all variables in the procedure.

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.965	.965	85

Value of Cronbach's Alpha is ranged between 0 and 1. The closer the value to 1 excellent will be the results. On the basis of formula $= rk / [1 + (k - 1)r$ while K is the number of item and r is the mean of inter item correlation. Regarding size of the alpha it can be taken from number of item in the scale or the inter item correlation. George and Mallery (2003) as cited by (Gliem and Gliem,2003)   give this rule of thumb "_ > .9 – Excellent, _ > .8 – Good, _ > .7 – Acceptable, _ > .6 – Questionable, _ > .5 – Poor, and

_ < .5 – Unacceptable" (p. 231). From this it is clear that greater the value of alpha more will be internal consistency of items. It is also clear that alpha of .8 is reasonable. While .9 and above is excellent. The value generated in table 5 is .966 which is excellent and shows that achievement test is valid and can be used for the overall research.

Conclusion

Pilot study was carried out to know about the reliability of the designed tool. After conducting the experiment results generated shows that tool is reliable. It is also concluded that conducting pilot study insure reliability of the tool. Further it is concluded that reliability of the tool is .96 which is excellent. Further it is clear that process of reliability makes the real research authentic.

Recommendations

1. Reliability of any tool for all kinds of research may require checking of reliability prior to data collection.
2. Results obtained from the data collected for checking the reliability may be considered and analyzed properly by using statistical tool.
3. Ethical consideration i.e. Data confidentiality (Name, Gender, School Name etc. etc.), Usage of Data only for research purpose and respondent volunteer participation etc. etc.

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