PEOPLE: International Journal of Social Sciences
ISSN 2454-5899

Annallee Q. Aron, 2020

Volume 6 Issue 1, pp. 349-366

Date of Publication: April 2020

DOI- https://doi.org/10.20319/pijss.2020.61.349366

This paper can be cited as: Aron, A. Q., (2020). Student's Perception towards the Appropriateness of Phrase-Picture-Match-Analysis as Instructional Material in Teaching Sampling Techniques. PEOPLE: International Journal of Social Sciences, 6(1), 349-365.

STUDENT'S PERCEPTION TOWARDS THE APPROPRIATENESS OF PHRASE-PICTURE-MATCH-ANALYSIS AS INSTRUCTIONAL MATERIAL IN TEACHING SAMPLING TECHNIQUES

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Abstract

The senior high teachers on its third year of implementation in the Philippines become more confident on designing an appropriate material to be used as instructional material that aided on the transfer of learning, especially in the line of teaching Practical Research I (Qualitative Research). With the challenges at hand, and the passion to teach, the researchers created an instructional material to easily understand the meaning behind the different sampling techniques. Being aware that most learners are classified as visuals with regards to their preference on learning, the researchers made and designed the Phrase-Picture-Match-Activity (PPMA) to understand the concept involve on the Different Sampling Techniques. To test the appropriateness of each Phrase and Illustrations chosen, the teachers communicated to the learners and coded their responses and come up with better suggestions, to better fit the design suited to the way how they wanted to learn.

Keywords

Practical Research, Sampling Techniques, Phrase Picture Match Analysis, Visual Learning, Qualitative Research, Practical Research

1. Introduction

Teaching practical research 1 with a course description: Qualitative Research is on the third year of implementation in the Senior High Department of Iligan City National High School since the approval of the new known K 12 curriculum. The teachers with lacking adequate materials though degree holders of the graduate studies in education find the difficulties of finding an appropriate and ready-to-use instructional materials to teach practical research I. The challenge is at hand to design their own instructional material that abides with the learning competencies and likewise ensures transfer of learning.

The assurance of the transfer of learning lies on how the teacher design the lesson that facilitates greater engagement among learners. The greater the engagement, the longer the retention of the intended learning competencies. The transfer of learning can be based upon the known quote "the head remembers what it does" (Halpern & Hakel, 2004).

Teachers in the senior high starts to design a teaching material. The design builds from the theory of visual learning. This theory especially conducive to acquire learning (Murphy, 2009) and is statistically proven that most learners are visual learners (Uberman, 2017).

To effectively impart learning and to ensure the students' appropriateness of the teacher made material in teaching the different types of Sampling Techniques, the researchers gathered the opinions of the students as qualitative data. The data will serve as the basis for the modification of the Picture-Picture-Match-activity.

Appropriate images were selected to convey the real meaning and application of the different nonprobability sampling techniques: snowball, judgment/ purposive, quota, and convenience sampling as well as probability sampling techniques: Simple Random, Stratified, Cluster, and Systematic Sampling. The images are expected to be relatively appropriate so that learners will be able to comprehend concepts involve in the different sampling techniques in research. The ease and adoptability of the instructional design by the learners are also considered in this study. The success of the image selected will be communicated on the responses of the learners and will be coded

accordingly as the basis to revise the instructional material to assure success of instruction in the succeeding senior high schools in the next school years to come.

The purpose of this study is to determine the student's perceived efficacy on the teacher-made instructional material in teaching sampling techniques in practical research I. The following research questions are opted to be answered at end of this research process:

1. How do students find the Phrase-Picture Match Activity?
2. How helpful is the Phrase-Picture Match Activity in understanding better the lesson on Sampling Techniques?
3. How student at their own perception came up correctly in answering the phrase-picture match analysis on each of the 4 types of nonprobability and 4 probability sampling techniques?
4. How student at their own perception came up with the wrong answers in the phrase-picture match analysis on each of the 4 nonprobability and 4 probability sampling techniques?
5. How students' would recommend this material to the next batches of grade 11 practical research 1?

The data of the study will be gathered from the Grade 11 Senior High School students of Iligan City National High School-Main Campus located at Mahayahay, Iligan City. Two hundred students (200) enrolled in Practical Research I are purposively chosen as respondents in this study by their teachers Ms. Annallee Q. Aron and Ms. Jackylyn M. Maneja, who happens to be the researchers of this study. This study will be limited only on coding the perceptions of students on what lead them to answer correctly and wrongly on the phrase-picture match analysis on each of the 4 types of nonprobability and 4 types of probability sampling techniques. The coded responses will be classified together deductively into a specific theme as point of reference to improve the instructional material and shall be utilized effectively to the upcoming senior high students in the next school years to come.

2. Methodology

This action research is intended to come with effective learning material in Practical Research I in the line of teaching different sampling techniques in either nonprobability and probability sampling. This research will observe standard procedure in conducting research set by the Iligan City Division, DepEd. The researcher will take the first step which is to follow proper entry protocol by asking permission from the Department Head: Mr. Vicente B. Llusima Jr., Asst. Principal: Dr. Jose

E. Salvador and the School Principal: Mr. Rex L. Razo. The researcher then will submit a proposal to the ASDS and ask for the approval by the OIC-SDS: Dr. Nimfa R. Lago.

The research intends to conduct a qualitative research that acquires descriptive kind of data to assess the effectiveness of the instructional material designed by the teachers in Iligan City National High School Senior High Department. The student-respondent being different in the way they interpret when presented an image will be the one to give their perceptions on what are the elements that made them answered correctly or wrongly. These elements suggested by the student-respondents will be coded and will be translated into a theme as basis on revising the teacher-made instructional material: Phrase-Picture Analysis on Nonprobability and Probability Sampling Techniques in Practical Research I with a course description of Qualitative Research. These responses primarily solicited from the student-respondents for the purpose of ensuring the transfer of knowledge among them who are the main clienteles in the K-12 curriculum.

2.1 Sampling

In the conduct of this study, the research will utilized purposive sampling. The researchers will choose the Grade 11 enrolled in their class in Practical Research I with the course description: Qualitative Research. The total respondents participated will be around two hundred (200) depending on the number of students-respondent in the Senior High School Department of Iligan City National High School that will be present during the implementation.

2.2 Data Collection

The data was collected after implementing the teacher designed instructional material: phrase-picture match analysis (see attach appendix) in the lesson about nonprobability and probability sampling in Practical Research I. The main assessment to the success of the teacher designed material is mainly based on the responses of the student-respondent on the question the following questions:

1. What led you to come up with correct answer in each of the items?
2. What led you to come up with the wrong answer in each of the items?

Each responses per item will be coded to generate a theme that will give the teachers-researchers in the Senior High Department an idea to improve the material and at the same time taking a preliminary step to address the challenges on the implementation of the K-12 curriculum.

2.3 Ethical Issues

The researcher will follow proper entry protocol by asking permission from the Department Head, Assistant School Principal for the Senior High School and the School Principal. After consent

will be given, the researcher submitted copy to the school's research team and schedule of research proposal presentation. Then the researchers will conduct the research and present the final paper once more in front of the Research Team identified by the school. After the thorough evaluation of the paper through mentoring by the research team, the final copy of the paper will be submitted to the ASDS for additional inputs.

The research is noninvasive and privacy will be observed. Responses and test scores will be anonymous. No student rights will be violated in this research.

2.4 Data Analysis

Open Coding will be used this study which will exclusively incorporate a qualitative data based on description. The responses of the student-respondents on the teacher-made instructional material will be coded and will be translated into a theme to be used in revising the instructional material suited to level of understanding for the senior high school students.

3. Results and Discussions

3.1 Overall Students' Perception on the PPMA as tool to understand Sampling Techniques

After initiating the implementation and gathering of data, the results and discussions are presented in the succeeding pages.

Table 1: *Students' Attitude towards Phrase-Picture Match Activity*

Descriptions Coded (Usage of Hard Difficult):	***Freq.***	***+/ +,-/ or -***	***Treatment***
Hard/Difficult	2	-	-2
Hard/Difficult time consuming	1	-	-1
Hard/Difficult some pictures are not clear	5	-	-5
Quite hard no idea	1	-	-1
Hard but enjoyable	4	-,+	0
Descriptions Coded (Usage of Confusing):			
Confusing due to pictures look the same	3	-	-3
Not hard but confusing	1	+,-	0
Descriptions Coded (Usage of challenging):			
Challenging to analyze due to pic looks similar	4	+,-	0
Challenging due to new terminology	1	+,-	0
Challenging due to no prior knowledge	1	+,-	0
Challenging but tolerable	1	+,-	0
Challenging but interesting	1	+,-	0
Descriptions Coded (Usage of Easy):			

Easy	7	+	7
Easy at 1st glance	1	+	0
Easy due to the picture	2	+	2
Easy due to clue	1	+	1
Descriptions Coded (Usage of Fun):			
Fun	1	+	1
Fun with Excitement like in the Elementary	2	+	2
Fun and kinda new	1	+	1
Descriptions Coded (others):			
Interesting	1	+	1
very helpful	1	+	1
helpful	2	+	2
Total			+6

Legend: + = in favor with the activity; +, - neutral; -= not in favor with the activity

The table 1 shows that the overall results when the responses are classified into either positive, neutral or negative is positive six (+ 6). This only shows that the room for improvement in the phrase-picture match activity (PPMA) is still needed but this PPMA can suffice the immediate need for a material for the instruction of Sampling Techniques.

Table 2: *Perception on whether and how the activity helps them to understand the Sampling Techniques*

Code	***Descriptive Responses***	***Freq. (F)***	***Percentage***
1	Yes, by analyzing difficult pictures	3	6.67
2	Yes, by analyzing though pictures are not clear	3	6.67
3	Yes, by analyzing the picture	5	11.11
4	Yes, gives us an idea for our own survey	3	6.67
5	Yes, visual helps	25	55.56
6	Yes, uncertainties	1	2.22
7	Yes, through listening and practicing	1	2.22
8	No; terms are confusing	1	2.22
9	No; most pictures are difficult to analyze	3	6.67
		45	

Table 2 shows that Most of the respondents perceived that the activity help them to understand Sampling techniques except for a few who thinks that the Phrase Picture analysis does not help the understanding of Sampling Techniques. Given the figure above the value 55.56 percent a notable figure that supports the argument that the visuals seen in the activity helps the understanding of sampling techniques.

Table 3: *Student's Recommendation of the Use of PPMA on Teaching Sampling Techniques*

Code	***Descriptive Responses***	**Freq.**	**%**
1	Yes; enhance critical thinking	2	4.44
2	Yes; easy	9	20.00
3	Yes; helpful	19	42.22
4	Yes; difficult it will challenge them	3	6.67
5	Yes; though pictures look similar	1	2.22
6	Yes; but print pictures clearly	1	2.22
7	Yes; fun	2	4.44
8	Yes; to know	5	11.11
9	Yes; as starter for this lesson	1	2.22
10	Yes; no reasons given	1	2.22
11	Maybe; but judgment and convenience sampling looks similar	1	2.22
		45	

Table 3 shows that almost all recommend the use of Picture-Phrase Match Activity (PPMA) except for one (1) respondent who answered maybe. A significant number of forty two percent (42%) strongly answered that the PPMA is helpful.

3.2 Students' Perception on the Simple Random Sampling Technique PPMA used in this Study

The chosen simple random sampling technique image (Bhat, n.d.-c) shown below and the corresponding responses and interpretation of the data are presented in table 4:

Figure 1: *Image Use to Describe Simple Random Sampling* (Bhat, n.d.-c).

Table 4: *Clues to Arrive at a Correct Answer in Simple Random Sampling PPMA*

Coding	***Descriptive Responses***	***Freq.***	***%***
1	Image depicts the random selection of respondents	18	50.00
2	The meaning itself as clue	10	27.78
3	Image shows that individual has equal chance	3	8.33
4	Clue is the word to be drawn	1	2.78
5	The most simplest picture with no arrow	2	5.56

6	The image depicts the selection was not based on age sex or gender	1	2.78
7	No answer	1	2.78
	Total	36	

Table shows 4 Shows the clues that aided the respondents to answer correctly. It is evident that fifty percent (50%) of the students said that the Image assigned to illustrate Random Sampling depicts what it intends. Some mentioned clues by the student are not that noticeable except on the two percent (2%) percent who said that the no presence of arrow in the illustration guides them to answer the item 1 correctly.

Table 5: *Difficulties that Made the Answer Wrong in Simple Random Sampling PPMA*

Code	***Descriptive Responses***	***Frequency***	***Percentage***
1	Similar Image	3	33.33
2	Difficult to Analyze	4	33.33
3	Illustration not vivid	2	22.22
4	No basis of Choosing	1	11.11
	Total	9	11.11

Table 5 shows the difficulties encountered by the respondents that made their answer wrong in item 1: Simple Random Sampling (image used as instructional material found in Fig. 1) Among those who got the wrong answer, many justified that it was due to the presence of similar images thirty three (33 %) percent and the given illustrations was difficult to analyze thirty three (33%). In addition, twenty two percent (22%) of the respondent said that the reasons that lead them to have the wrong answer is due to the Illustration not vivid and eleven percent (11%) is due to no basis of choosing.

3.3 Students' Perception on the Snowball Sampling Technique PPMA used in this Study

The chosen snowball random sampling technique image (Guest, 2017) shown in Fig. 2 below and the corresponding responses and interpretation of the data are presented in table 6:

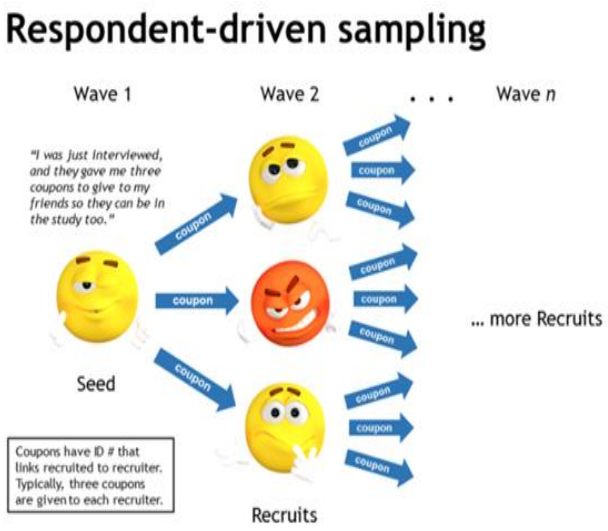

Figure 2: *Image to Show Snowball Sampling Technique* (Guest, 2017)

Table 6: *Clues to Arrive at a Correct Answer in Item 2: Snowball Sampling*

Coding	***Descriptive Responses***	***Freq.***	***%***
1	The meaning itself as clue	5	11.11
2	The shape of the ball	30	66.67
3	The Emoji shape	5	11.11
4	Not only the ball but the rippling effect	1	2.22
5	The word Recruitments	1	2.22
6	The Illustration where pieces breaks into smaller pieces	1	2.22
7	Finding one or two participants as clue words	1	2.22
8	As it goes it enlarges	1	2.22
	Total	45	

Table 6 shows the responses of the students on the PPMA Snowball Sampling (Fig. 2) used in this study. There are sixty six percent (30%) of the respondents said that the shape of the ball made them answer correctly this is quite a good number but it may cover some essential points needed in understanding the Snowball Sampling Technique. The use of Emoji is also noticeable for the respondents that accounts eleven (11%) of the responses. Also, eleven (11 percent) considers the meaning itself as a clue. Although there were only two percent (2%) in each of the remaining descriptive responses have different clues used but they are the respondents who understood the real meaning of the Snowball Sampling.

3.4 Students' Perception on the Cluster Sampling Technique PPMA used in this Study

The chosen cluster sampling technique image (Kappal, 2018) shown in Fig. 3 and the corresponding responses and interpretation of the data are presented in table 7 and 8.

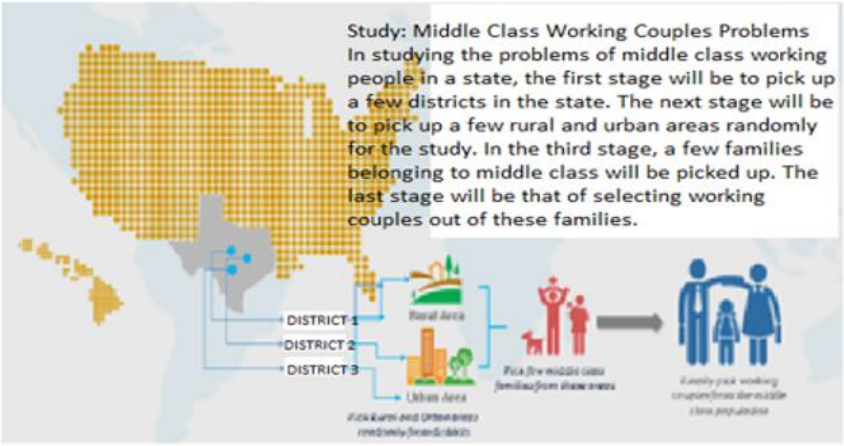

Figure 3: *Image to Show Cluster Sampling Technique* (Kappal, 2018)

Table 7: *Clues to Arrive at a Correct Answer in Cluster Sampling PPMA*

Coding	***Descriptive Responses***	***Frequency***	***Percentage***
1	The Illustration describes clearly	6	16
2	The "district/middle class as caption"	15	41
3	The meaning itself	10	27
4	Use of the word "close together" as clue	1	2.70
5	Guess	5	13.51
	Total	37	

Table 7 shows that "district/middle class" as caption to describe the Cluster Sampling Technique found fig. 3 made the forty one percent (41 %) students to answer correctly. This is quite a significant clue that leads the students to answer correctly in the PPMA.

Table 8: *Difficulties Encountered that Made the Answer Wrong in Cluster Sampling PPMA*

Code	***Descriptive Responses***	***Frequency***	***Percentage***
1	No Prior Knowledge	1	12.50
2	Images look the same	2	25.00
3	Not familiar with the term "cluster"	1	12.50
4	Mistaken as simple random sampling	3	37.50
5	Thought that it is choosing a group	1	12.50
6	Given no reasons	1	12.50

	Total	8	

Table 8 shows that there were only 8 who got the wrong answer this is a negligible number to consider revising the illustration (shown fig. 3) allocated for the cluster sampling.

3.5 Students' Perception on the Quota Sampling Technique PPMA used in this Study

The chosen quota sampling technique image (Bhat, n.d.-a) shown in Fig. 4 below and the corresponding responses and interpretation of the data are presented in table 9 and 10.

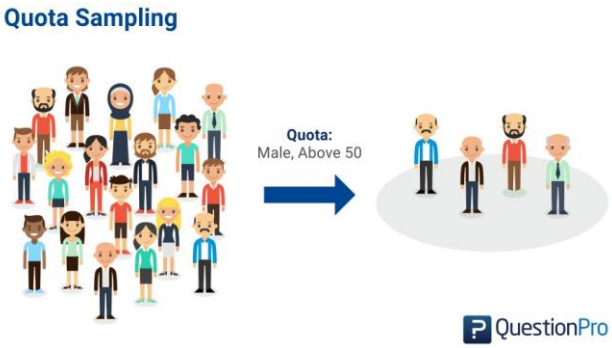

Figure 4: *Image to Show Cluster Sampling Technique* (Bhat, n.d.-a)

Table 9: *Clues to arrive at a Correct Answer Quota Sampling PPMA*

Code	***Descriptive Responses***	***Frequency***	***Percentage***
1	"quota" as caption	35	87.50
2	Illustration itself as clue	1	2.50
3	The meaning itself as clue	3	7.50
4	An official limit on the number of people	1	2.50
	Total	40	

Table 9 shows that the quota as a caption in the illustration found in fig. 4 made most of them answer correctly (87%) but this is not commendable, because it hinders the respondents to understand the deeper meaning of the Quota Sampling. The caption "quota" must be deleted.

Table 10: *Difficulties Encountered that Made the Answer Wrong in Quota Sampling PPMA*

Code	***Descriptive Responses***	***Freq.***	***Percentage***
1	Thought to be similar with the stratified sampling	3	60
2	no given explanation	1	20
3	void answer	1	20
	Total	5	

Table 10. Five students got a wrong answer in this section. A small number to consider rejecting the PPMA used in this study. The illustration might serve on understanding the cluster Sampling Technique. The Illustration is worth keeping but the removal of the caption quota must be tested in the future because the word is too leading.

3.6 Students' Perception on the Stratified Sampling Technique PPMA used in this Study

The chosen simple stratified sampling image (Drakos, 2018) shown in Fig. 5 below and the corresponding responses and interpretation of the data are presented in table 11 and 12.

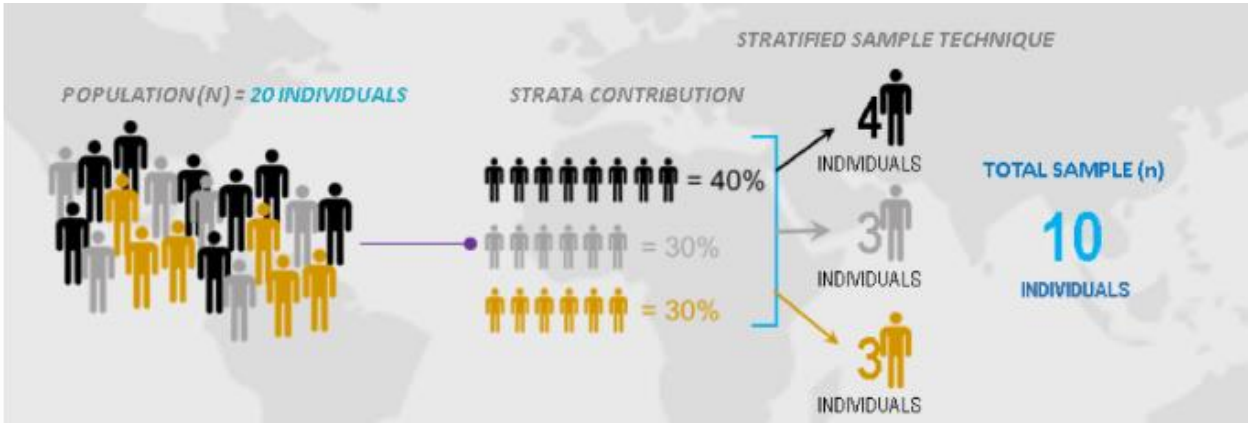

Figure 5: *Image to Show Stratified Sampling Technique* (Drakos, 2018)

Table 11: *Clues to Arrive at a Correct Answer in Item 5: Stratified Sampling*

Code	***Descriptive Responses***	***Freq.***	***%***
1	Illustration itself as clue	1	3.70
2	Strata as caption serves as clue	9	33.33
3	The meaning itself as clue	2	7.41
4	Illustration shows that people are arranged with similarities	3	11.11
5	Illustration shows that each group has a representative	5	18.52
6	Because of the percentage distribution shown in the illustration	2	7.41
7	First figure shows the whole group then the second figure shows the chosen one	1	3.70
8	Classification of gender	2	7.41
9	They are organized	1	3.70
10	The illustration shows statistic method	1	3.70
		27	

Table 11 shows a varied suggested clue that guides learners to arrive in a correct answer but the most significant number in all is the consideration of the caption "strata" found in fig. 5 (the same figure use in the study to understand stratified random sampling) but the rest were unable to associate this word with stratified sampling.

Table 12: *Difficulties Encountered that Made the Answer Wrong in Stratified Sampling PPMA*

Coding	***Descriptive Responses***	***Frequency***	*Percentage*
1	Illustration looks confusing	1	6
2	Illustrations look similar	2	11
	No given explanation	15	83
	Total	18	

Table 12 shows a significant figure to improve the PPMA (fig. 5) used in this study to illustrate the concept involve in understanding the stratified random sampling.

3.6 Students' Perception on the Stratified Sampling Technique PPMA used in this Study

The chosen systematic sampling technique image (Bhat, n.d.-b) shown in Fig. 6 below and the corresponding responses and interpretation of the data are presented in table 13 and 14.

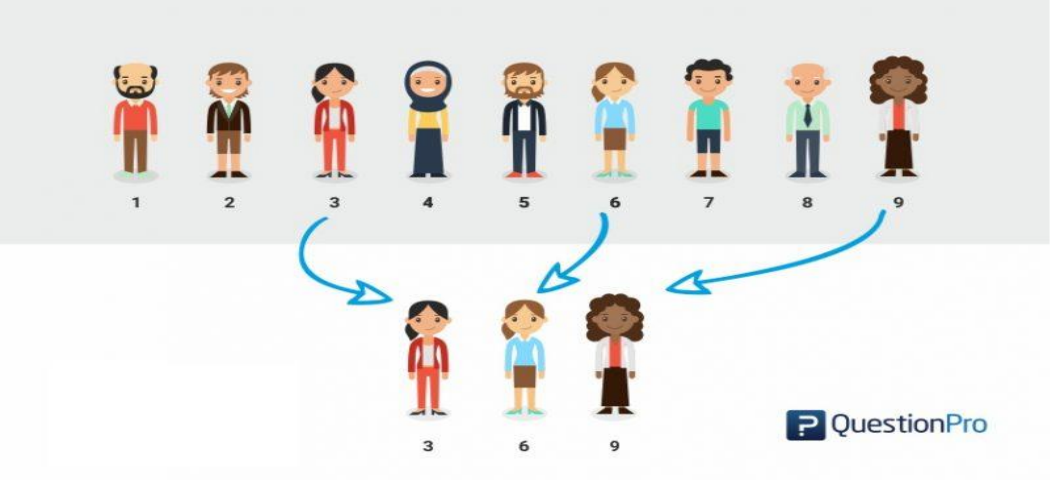

Figure 6: *Image to Show Systematic Sampling Technique* (Bhat, n.d.-b)

Table 13: *Clues to Arrive at a Correct Answer in Item 6: Systematic Sampling*

Code	***Descriptive Responses***	***F***	***%***
1	Easy to answer; it shows that people were arranged into classes	1	2.5
2	Illustration shows random selection	5	12.5
3	every nth as clue taken from the definition	5	12.5
4	Illustration itself as clue	6	15.0
5	Definition itself as clue	7	17.5
6	Answered correctly but with difficulties due to similar images present	1	2.5
7	Selection of members wisely	2	5.0
8	The use of 3,6,9 on the selection	2	5.0
9	A system or a pattern is observe in the illustration	1	2.5
10	The picture show the selection using a system not by random	1	2.5
11	The image portrayed that there is an interval of 3	1	2.5
12	A system is observed	1	2.5

13	Guess	5	12.5
14	Void Answer	2	5.0
	Total	40	

Table 13 has given a lot of varied responses. All elements may have contributed them to answer correctly with great number. So it is good to keep this illustration (Fig. 6) as a material to understand systematic Sampling.

Table 14: *Difficulties that Made the Answer Wrong in Systematic Sampling PPMA*

Coding	***Descriptive Responses***	***Frequency***	***Percentage***
1	Has Similar Illustration	1	20
2	Failed to consider the nth	1	20
3	Admitted that we were wrong	1	20
4	We can't get any clue	2	40
		5	

Table 14 show only a small portion of the respondents who got the wrong answer. So, this illustration for Systematic Sampling (Fig. 6) is worth keeping.

3.7 Students' Perception on the Judgment Sampling Technique PPMA used in this Study

The chosen judgment sampling image (Benedictine University, n.d.) shown in Fig. 7 and the corresponding responses and interpretation of the data are presented in table 15 and 16.

Figure 7: *Image to Show Judgment Sampling Technique* (Benedictine University, n.d.)

Table 15: *Clues to Arrive at a Correct Answer in Judgment Sampling PPMA*

Code	***Descriptive Responses***	***Frequency***	***Percentage***
1	"Highly qualified" as caption	33	86.84
2	The illustration itself	1	2.63
3	The meaning itself	1	2.63
4	Difficult but arrived with the correct answer	1	2.63

5	Easy; it shows that respondents are selected	1	2.63
6	It shows that respondents are chosen by its status	1	2.63
	Total	38	

Table 15. It can be shown from the table that the caption "highly qualified" (found in fig. 7) aided the understanding of the respondents on the meaning of Judgment Sampling.

Table 16: *Difficulties Encountered that Made the Answer Wrong in Judgment Sampling PPMA*

Code	***Descriptive Responses***	***Frequency***	***Percentage***
1	Illustration is confusing	2	25
2	Mistakenly thought as cluster	1	12.5
3	We admittedly go the wrong answer	1	12.5
4	Similar illustration	1	12.5
5	Looks similar as the systematic sampling	1	12.5
6	No given explanation	1	12.5
7	Void	1	12.5
	Total	8	

Table 16 show a small number on respondents who got the wrong answer so this illustration (fig. 7) is worth keeping.

3.8 Students' Perception on the Convenient Sampling Technique PPMA used in this Study

The chosen judgment sampling image (Benedictine University, n.d.) shown in Fig. 8 below and the corresponding responses and interpretation of the data are presented in table 17 and 18.

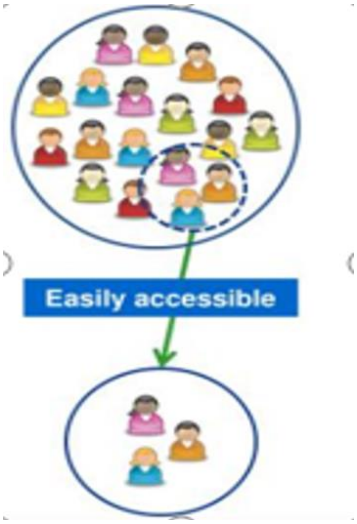

Figure 8: *Image to Show Convenient Sampling Technique* (Benedictine University, n.d.)

Table 17: *Clues to Arrive at a Correct Answer in Convenient Sampling PPMA*

Code	***Descriptive Responses***	***F***	***%***

1	Illustration itself as clue	2	5.41
2	Definition itself as clue	2	5.41
3	"easy access" as caption	23	62.16
4	Illustration that respondents were chosen @ the right time and place	5	13.51
5	Guess	2	5.41
6	No given explanation	3	8.11
	Total	37	

Table 17 Shows that the "easy access" as a caption in the illustration used in the study (fig. 8) significantly contributed to the respondents to answer correctly. So this material is worth keeping.

Table 18: *Difficulties Encountered that Made the Answer Wrong in Convenience Sampling PPMA*

Coding	***Descriptive Responses***	***Frequency***	***Percentage***
1	Similar illustrations existed	2	25
2	It looks like stratified Sampling	1	12.5
3	It looks like cluster sampling	1	12.5
4	Difficult; it is hard to identify the picture	4	50
5	Mistakenly thought as convenience sampling	8	
	Total		

Table 18 shows that the number who got the wrong answer when using the PPMA in the study (fig. 8) is less, so the material is worth keeping.

4. Conclusions

1. The respondents attitude towards the Phrase- Picture Match Activity (PPMA) is positive
2. The respondents felt that the Phrase- Picture Match Activity (PPMA) help the understanding of the Different Sampling Techniques.
3. The respondents greatly recommends the Phrase- Picture Match Activity (PPMA) to the incoming Senior High Students.
4. Considerably, the Phrase- Picture Match Activity (PPMA) is better than without using any instructional material.
5. Preserve the presence of no arrow in the simple random sampling.
6. Hire a sketch artist to vividly design a somewhat similar illustration but with different characters from the rest of the drawings. Make sure that each sampling technique illustration has different characters used.
7. Ball to illustrate snowball must be kept.

8. Consideration of the use of emoji in all of the illustration to understand each of the sampling techniques.
9. Cluster sampling illustration should be kept.
10. The research shall look for a replacement of the caption "Quota" because this prevents the respondents to understand the deeper meaning of the quota sampling.
11. Keep the illustration in cluster sampling as it supports the understanding of its meaning.
12. Replace caption strata with more simple terms in the stratified random sampling illustration.
13. Keep the illustration for systematic sampling as material to understand its concept.
14. Keep the illustration for judgment sampling as material to understand its concept.
15. Keep the illustration for purposive sampling as material to understand its concept.
16. Further modification of the PPMA may be done and test the instruments for future research.

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