CHAPTER III

METHODOLOGY

3.1. Introduction

The methodology of the study forms the pillar of the study. It directs the investigator on how to conduct the study for a specific problem by applying a particular study procedure. This chapter presents the methodology used for the study. The chapter includes the population, sampling, tools and techniques, data collection procedure, validity of the tools, and data analysis techniques. The details of the methods adopted for this study are presented as follows.

3.2 Research Design of the Study

A research design involves ordering situations for collecting and analysing data in a way that aims to generalise the findings of the sample to the population. A good research design aims to facilitate smooth scaling, provide a planning blueprint, minimise expenditures, collect relevant data and techniques, and provide other experts with a direction and an overview (Creswell, 2012). A descriptive survey method was followed in this study. A descriptive survey is a research approach that systematically collects, analyses, and interprets data to describe a phenomenon or population. It aims to provide a comprehensive picture of specific characteristics, behaviours, attitudes, or opinions in a particular community. This method uses questionnaires, interviews, and observations to collect quantitative and qualitative data. Statistics such as frequency, means and percentage are usually used to summarise and present findings in an organised and understandable manner (Fink, 2019). A descriptive survey method was used in this study.

3.3 Population

A population is the collection of individuals, objects, or phenomena with particular characteristics under investigation in a specific study endeavour. The larger group from which a sample is selected is considered, and its traits and attributes are the focus of the study. Understanding the study's population is critical to ensuring that the findings and conclusions drawn from the sample represent the larger target group (Sekaran & Bougie, 2019).

For this study, the population consisted of all fifteen public universities of Ghana, all counsellors at guidance and counselling centres in the 15 public universities of Ghana, all teaching staff, and all students who visited guidance and counselling centres in the 15 public universities of Ghana.

3.4 Sample

A sample is a subset of a population chosen for inclusion in a research study, representing the larger group or universe under study. Sampling techniques are the procedures used to select participants or items from the population to form the sample. According to Cohen et al. (2012), when the population size is too large, the researcher gathers data from the subset or a smaller population group so that the knowledge collected is representative of the overall population under study. Stratified random sampling was used to choose the sample for the study. The details are shown below in figure 3.1, tables 3.1, 3.2, 3.3, and 3.4.4.

Figure 3.1 Sample Selection

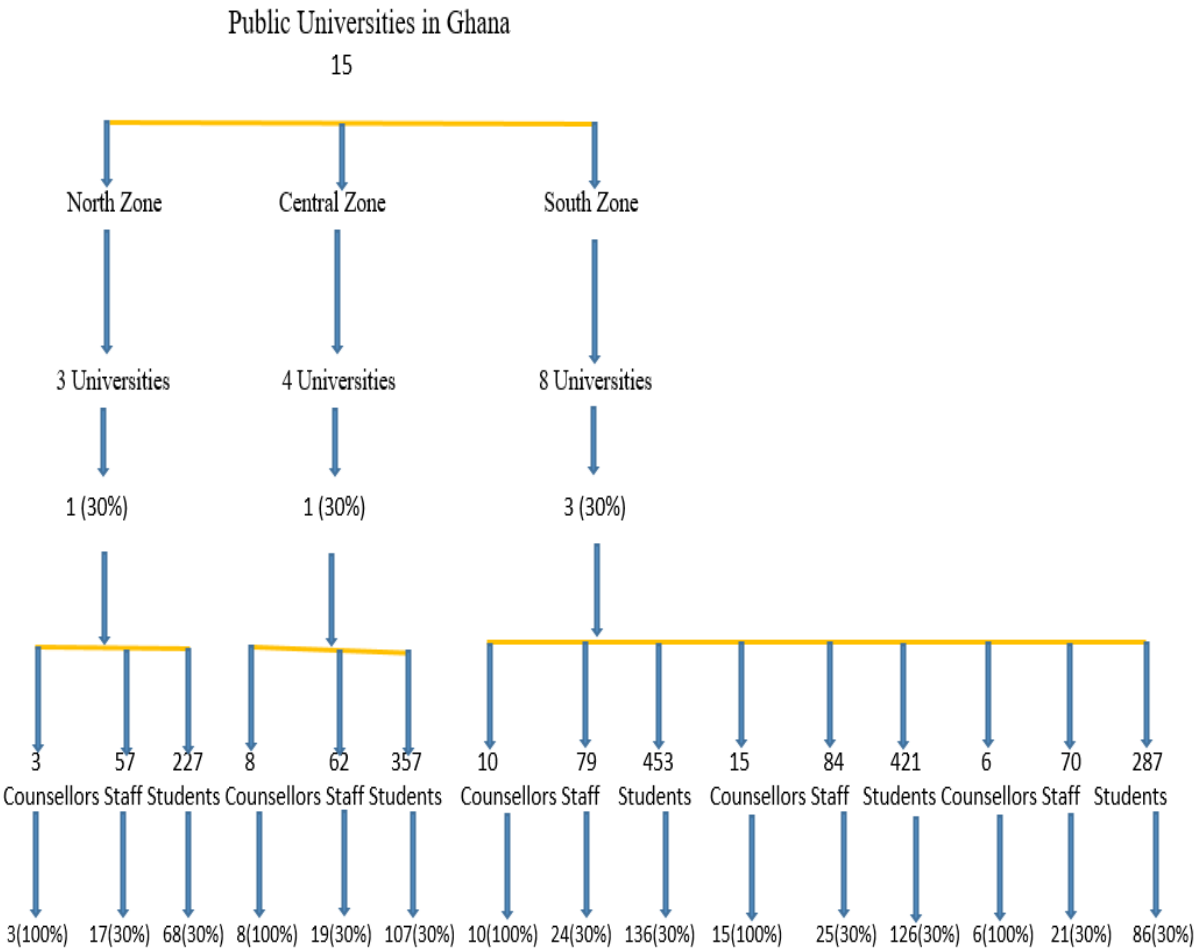


Table 3.1: North Zone

S/N	Regions	Name Of Universities	Sampled Universities	Year Established
1	Northern	University for Development Studies (UDS)	University for Development Studies (UDS)	1992
2	North East			
3	Savannah			
4	Upper East	CK Tadem University for Technology and Applied Sciences (CKT-UTAS)		2020
5	Upper West	Simon Diedong Dombo University for Business and Integrated Development Studies (SDD-UBIDS)		2020

Table 3.2: Central Zone

S/N	Regions	Name of Universities	Sampled Universities	Year Established
1	Central	1. University of Cape Coast (UCC) 2. University of Education Winneba (UEW)	University of Cape Coast (UCC) University of Education Winneba (UEW)	1961 1992
2	Greater Accra	1. University of Ghana (UG) 2. Ghana Institute of Management and Public Administration (GIMPA) 3. Ghana Communication Technology University (GCTU) 4. University of Professional Studies (UPS)	University of Ghana (LEGON)	1948 2005 1965
3	Oti			
4	Volta	University of Health and Allied Sciences (UHAS)		2011
5	Eastern	University of Mines and Technology (UMAT)		2001
6	Eastern North			

Table 3.3: South Zone

S/N	Regions	Name Of Universities	Sampled Universities	Year Established
1	Ahafo			
2	Ashanti	1. Kwame Nkrumah University of Science and Technology (KNUST) 2. Akenten Appiah Menkah University for Skills Training and Entrepreneurial Development (AAM-USTED)	Kwame Nkrumah University of Science and Technology (KNUST)	1952 2020
3	Bono	University of Energy and Natural Resources (UENR)		2012
4	Bono East			
5	Eastern	University of Environmental and Sustainable Development (UESD)		2020

A stratified random sampling technique was used to select the sample. The stratified random sampling technique was used to group the 15 public universities in Ghana into three strata: North zone, Central zone, and South zone. The researcher employed this sampling strategy to ensure that all groups in the population had the same chance of being represented in the sample.

The lottery method was used to select the universities in each zone. One out of the three public universities in the North zone was selected (30%), thus constituting University for Development Studies. In the Central zone, one out of the four public universities was selected (30%), thus constituting Kwame Nkrumah University of Science and Technology. Finally, three out of eight public universities in the South zone were selected (30%), thus constituting University of Ghana, University of Cape Coast and University of Education, Winneba.

Table 3.4: Number of Universities and Participants Selected for the Study

S/N	Name of Universities	Number of students visited the centres in the 2022/2023 academic year	Number of teaching staff visited the centres in the 2022/2023 academic year	Number of counsellors at the centres in the 2022/2023 academic year	Number of students who were selected (30%).	Number of teaching staff who were selected (30%).	All counsellors (100%)	Total selected
1	University of Ghana	453	79	10	136	24	10	125
2	Kwame Nkrumah University of Science and Technology	357	62	8	107	19	8	98
3	University of Cape Coast	421	84	15	126	25	15	166
4	University of Education Winneba	287	70	6	86	21	6	113
5	University for Development Studies	227	57	3	68	17	3	88
Total		**1745**	**352**	**42**	**523**	**106**	**42**	**671**

All 42 counsellors of the five sampled public universities formed the part of the sample. In proportion, 106 out of 352 teaching staff members who visited the guidance and counselling centres were selected (30%). 523 out of 1745 students who visited the guidance and counselling centres were selected (30%).

Table 3.5: Final Sample for the Study

No. of public universities	**Counsellors**	**Teaching Staff**	**Students**	**Total**
5	42	106	523	671

The sample covered five public universities, All 42 counsellors from the five selected public universities, 106 teaching staff who visited the guidance and counselling centres, and 523 students who visited the centres. The total sample size selected was 671 participants.

3.5 Brief Overview of the Selected Sample Universities

Brief overview of the five public universities selected for the study in Ghana is given below.

1. University of Ghana (UG): University of Ghana (UG) is the oldest and largest among the public universities in Ghana. In 1948, the University College of the Gold Coast was established when the British colonised the Gold Coast.

The university motto is the *"Integi Procedamus."*

Vision: *"To become a world-class research-intensive university".*

Mission: *"We will create an enabling environment that makes University of Ghana increasingly relevant to national and global development through cutting-edge research as well as high-quality teaching and learning"* (University of Ghana, 2017).

It was an affiliated college of the University of London and oversaw academic programs and awarded degrees. After independence in 1957, the university was renamed University College of Ghana. When it was granted full university status in 1961, its name was again changed to the University of Ghana. University of Ghana is located west of the Accra Legon Hills and northeast of central Accra. There were more than 70,000 enrolled students. University of Ghana initially focused on the humanities, social sciences, law, basic sciences, agriculture and medicine. However, as part of the country's educational reform programme, the university's curriculum has been expanded to offer more technology-based professional courses and postgraduate training. Based primarily in Legon, approximately 12 kilometres northeast, it has a medical school and teaching hospital at Korle-Bu, with a secondary/external campus at Accra.

2. Kwame Nkrumah University of Science and Technology (KNUST): Kwame Nkrumah University of Science and Technology (KNUST) dates back to 1951 when the Kumasi Institute of Technology was founded. In 1961, the university was granted full status and became Kwame Nkrumah University of Science and Technology.

The university motto was written in Ashanti Twi: *"Nyansapɔ wɔsane no badwenma."*

Vision: "*To be the leading hub for advancing applied research knowledge, developing and adapting innovative technologies, providing high-quality training, leadership, and technology transfer in transport, mobility and integrated logistics."*

Mission: *"Our mission is to support the improvement in the transport system by providing the environment for the training of high calibre transport professionals and mentoring academics with world-class expertise; conducting interdisciplinary research with academic and relevant national and regional industries to support strategic directions and development; collaborating with other researchers for knowledge sharing and advancement; being a key training centre for transport and road safety resources; being a stakeholder in the coordination support for the integration and growth of all modes of transport and establishing a data hub to support research and industry"* (Kwame Nkrumah University of Science and Technology, 2010).

The university is situated in Kumasi, the capital of the Ashanti Region, in southern Ghana. Kumasi is the second largest city in Ghana after the capital, Accra. The university has six colleges: the College of Arts and Architecture, the College of Agriculture and Natural Sciences, the College of Technology, the College of Natural Sciences, the College of Health Sciences, and the College of Humanities and Social Sciences. These colleges consist of faculties divided into departments offering various undergraduate and postgraduate degrees. The graduate studies board was established in 1974 to provide further education to students specialising in science and technology. In 2000, the board received school status and developed postgraduate programmers to contribute to Ghana's economic, scientific, technological, and social progress. Outside of class, students are encouraged to participate in university extracurricular activities. There are more than 100 student groups and organisations on campus, and this number grows each year as students form new clubs that match their interests. Kwame Nkrumah University of Science and Technology has more than 120,000 students.

3. University of the Cape Coast (UCC): University of the Cape Coast (UCC) is a public university on the historic Cape Coast.

The university motto is in Latin words: "*Verities Nobis Lumen."*

Vision: *"To be a University with worldwide acclaim strongly positioned for innovative teaching, research, outreach and professional development."*

Mission: *"University of Cape Coast is an equal opportunity University uniquely placed to provide quality education through the provision of comprehensive, liberal and professional programmes that challenge learners to be creative, innovative and responsible citizens"* (University of Cape Coast, 2018).

The campus has an unusual boardwalk on a hill overlooking the vast Atlantic Ocean. It operates from the South Campus (old location) and North Campus (new location). Ghana's most important historical sites, Elmina and Cape Coast Castles, are just a few kilometres from campus. University of Cape Coast was founded as a university in October 1962. This is to meet the country's urgent need for a highly skilled and skilled workforce in the education sector. As such, the university's original mandate was to train university teachers in second-cycle institutions, teacher training colleges, and technical institutions; moreover, the two public universities that existed at that time were not equipped to serve their purpose. On 1 October 1971, the College was granted full and independent university status by an Act of Parliament, with the power to award its degrees, diplomas and certificates. Today, the expansion of some faculties/schools and the diversification of programmers enable universities to serve the human resources needs of other ministries and industries in the country, in addition to the Ministry of Education. Currently, the university has expanded to include the education of doctors and health care professionals, business economists, administrators, lawyers, and farmers. The university currently has more than 80,000 students.

4. ***University of Education, Winneba (UEW):*** University of Education, Winneba (UEW), is in Winneba, Central Ghana. Government regulation established it jointly with the University of Cape Coast in 1992 (PNDC Act 322).

It has its motto as "*Education for Service."*

Vision: *"To be an internationally reputable institution for teacher education and research."*

Mission: *"To train competent professional teachers for all levels of education as well as conduct research, disseminate knowledge and contribute to educational policy and development"* (University of Education Winneba, 2016).

The university has more than 60,000 students. Its primary aim is to train teachers in the Ghanaian education system. University of Education is responsible for training teachers to become professional educators who will spearhead a new national education vision that aims to orient Ghana's efforts toward rapid economic and social development. The university is expected to lead in Ghana's quest to produce scholars whose knowledge is fully responsive to the realities and needs of today's Ghana. The university has seven faculties and twenty-nine departments and centres. It also has eighteen regional distance learning centres across Ghana.

5. ***University for Development Studies (UDS):*** In 1992, the Government of Ghana established the University for Development Studies, Tamale (UDS), to accelerate the development of Ghana's three Northern Regions (Northern, Upper East and Upper West Regions). The University for Development Studies' motto is *"Knowledge for Service."* This is reflected in its motto, "Knowledge for Service," and its teaching, research, and outreach methodology.

Vision: "*The University is envisaged to be a Home of World Class Pro-Poor Scholarship."*

Mission: The University seeks to achieve its vision by:

- *"Promoting equitable and socio-economic transformation of communities through practically oriented, community-based, problem-solving, gender-sensitive and interactive research, teaching, learning and outreach activities."*
- *"Providing higher education to persons suitably qualified for and capable of benefiting from it."*
- *"Positioning itself as a national asset in facilitating lifelong learning."*
- *"Developing its information and communication technology infrastructure as the driving force for the education of more people, more rapidly and the improvement of efficiency and academic quality in order to advance community and national development"* (University for Development Studies, 2020).

The late President Jerry John Rawlings performed a key role in its creation, using his $50,000 World Food Prize money as seed funding. It was established as a multicampus facility. The UDS was the fifth public university to be founded in Ghana. It is a Circumvent from the usual practice of having a university with a central campus and an administrative department. This was also made for the three northern regions in Ghana. It has four campuses, eight faculties, a research institute, a medical school, a business school, a graduate school, and three centres.

3.6 Description of Tools

As per the requirements of the objectives of the study, data selected to human, financial, and physical infrastructure resources; functioning of the guidance and counselling centres; and problems facing the centres was required. Data related to perceptions of the teaching staff and students towards the functioning of guidance and counselling centres was needed. The tools were constructed by the researcher to collect the data to achieve the objectives.

I. Questionnaire: To achieve objective no. one, two and three of the present study. A questionnaire for counsellors was constructed.

II. Observation schedule: An observation schedule to achieve objective no. one (physical infrastructure resources) was prepared.

III. Perception Scale: To achieve objective no. four, perception scales for teaching staff and students was constructed.

3.6.1 Questionnaire for Counsellors

The questionnaire included dimensions such as human resources, financial resources, functioning of guidance and counselling centres and problems facing guidance and counselling centres. The questionnaire comprised of 87 items. The questionnaire was used to obtain data on human and financial resources, the functioning of guidance and counselling centres and problems facing the centres. Open-ended and close-ended questions were included in the questionnaire.

Figure 3:2 Dimensions in Questionnaire for Counsellors

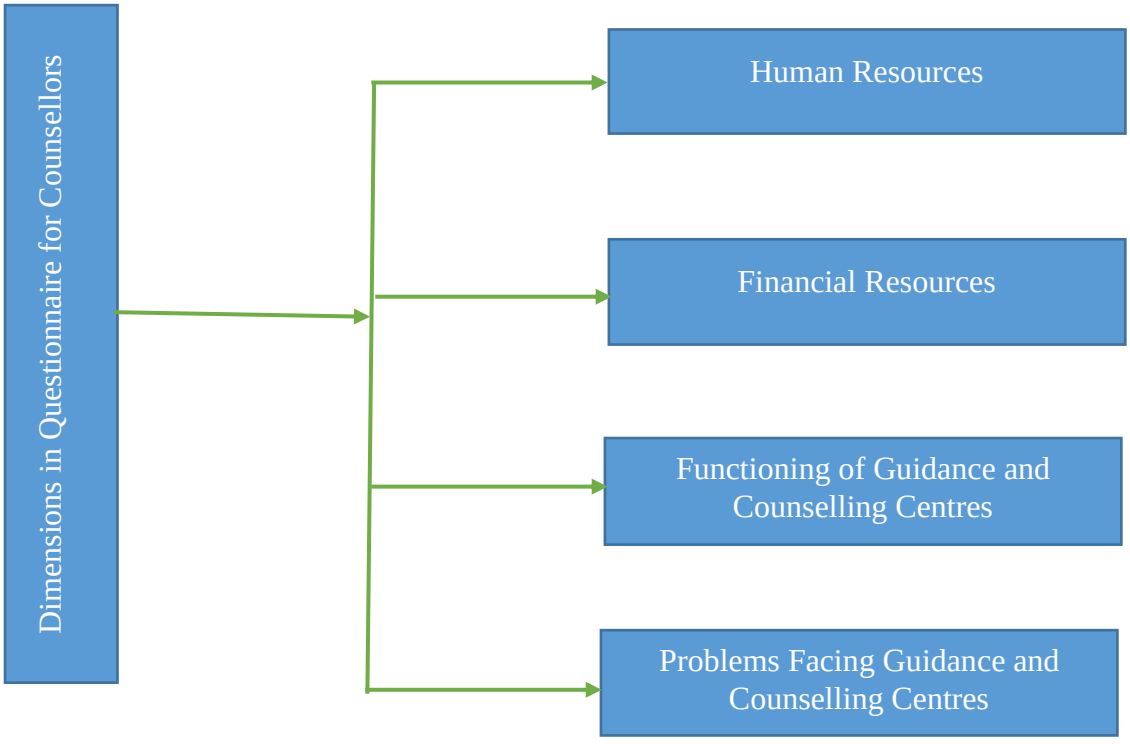


Table 3.6 List of Dimensions and Components with their Respective Item Numbers in the Questionnaire for Counsellors

Sr. No.	Item number	No. of items	Dimensions	Components
1	1 to 7	7	Human Resources	Professional qualifications, academic qualifications, number of lecturer counsellors, work experience of counsellors, field of specialisation and availability of counsellors at university centres.
2	8 to 15	8	Financial Resources	Sources of funding and frequency of funds received
3	16 to 72	57	Functioning of Guidance and Counselling Centres	Vocational guidance and counselling, educational guidance and counselling, social/personal guidance and counselling, use of time in guidance and counselling centres, counselling tools and techniques, services provided by a counsellor, online counselling, keeping record of counselling sessions, and recording of counselling services.
4	73 to 76	4	Problems Facing Guidance and Counselling Centres	Human resources, financial resources, physical infrastructure resources, and online counselling.

There were 76 items, which covered 4 dimensions of the questionnaire for counsellors. The dimension of human resources comprised of 7 items. It included components such Professional qualifications, academic qualifications, number of lecturer counsellors, work experience of counsellors, field of specialisation and availability of counsellors at university centres. The dimension of financial resources consisted of 8 items. It comprised components such as sources of funding and frequency of funds received. The dimension on the functioning of guidance and counselling centres comprised of 57 items. It included components such as vocational guidance and counselling, educational guidance and counselling, social/personal guidance and counselling, use of time in guidance and counselling centres, counselling tools and techniques, services provided by a counsellor, online counselling, keeping record of counselling sessions, and recording of counselling services. The dimension of problems facing guidance and counselling centres consisted of 4 items. It comprised components such as human resources, financial resources, physical infrastructure resources, online counselling and any other issues the respondents faced problems.

3.6.1 Validity of Questionnaire for Counsellors

The validity of a tool refers to what it measures and how well it measures it. A tool is considered highly valid if it measures what it is designed to measure effectively.

The content area of the current questionnaire was rigorously examined to ensure that the items appropriately covered all essential components. The questions were presented to eight experts for validation. Experts in Education and Psychology from the Maharaja Sayajirao University of Baroda (Faculty of Education and Psychology), University of Education Winneba, Ghana (Department of Counselling Psychology) and University of Zululand, South Africa (Department of Curriculum Studies). The experts analysed and scrutinised the tools prepared by the investigator in terms of content appropriateness and relevance to the study. The language employed was also analysed for ambiguity, comprehension and understanding of the questions by indicating relevant (√) or irrelevant (x) to each item in every dimension and providing comments and suggestions. There were four dimensions in the questionnaire, which are as follows: Dimension A= human resources; Dimension B= financial resources; Dimension C= functioning of guidance and counselling centres; and Dimension D= problems facing guidance and counselling centres. The experts' judgments on questionnaire items for the counsellors are presented in Table 3.7.

Table 3.7 Experts' Judgments on Items of Questionnaire for Counsellors

Dimensions	Item Number	Experts' Judgment									
		EXPERT 1	EXPERT 2	EXPERT 3	EXPERT 4	EXPERT 5	EXPERT 6	EXPERT 7	EXPERT 8	Total	Remarks
A	1 & 3,	√	×	√	√	√	√	×	√	6	Modification needed in items 1 & 3
	2, 4,5,6,7,8,9	√	√	√	√	√	√	√	√	8	No modification needed
B	5	×	√	√	√	√	√	√	√	7	Modification needed in item 5
	11,2, 3,4,6,7,8,9	√	√	√	√	√	√	√	√	8	No modification needed
C	9 & 32	√	√	√	×	√	√	√	×	6	Modification needed in items 9 & 32

	1,2,3,4,5,6,7,8,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,33,34,35,36,37,38,39,40,41,42,43,44,45,46,47,48,49,50,51,52,53,54,55,56,57,58,59.	√	√	√	√	√	√	√	√	8	No modification needed
D	1,2,3,4	√	√	√	√	√	√	√	√	8	No modification needed

This symbol (√) refers to relevant, while (×) means irrelevant.

Based on the expert's suggestions, the questionnaire was modified. It can be seen from table-3.8 that out of 81 items, 76 were judged by the experts as relevant, whereas 5 were modified. This suggests a good sign of the validity of the questionnaire for collecting the needed data. The experts who validated the questionnaire are listed in the appendix. In addition, the finalised validated questionnaire is included in the appendix.

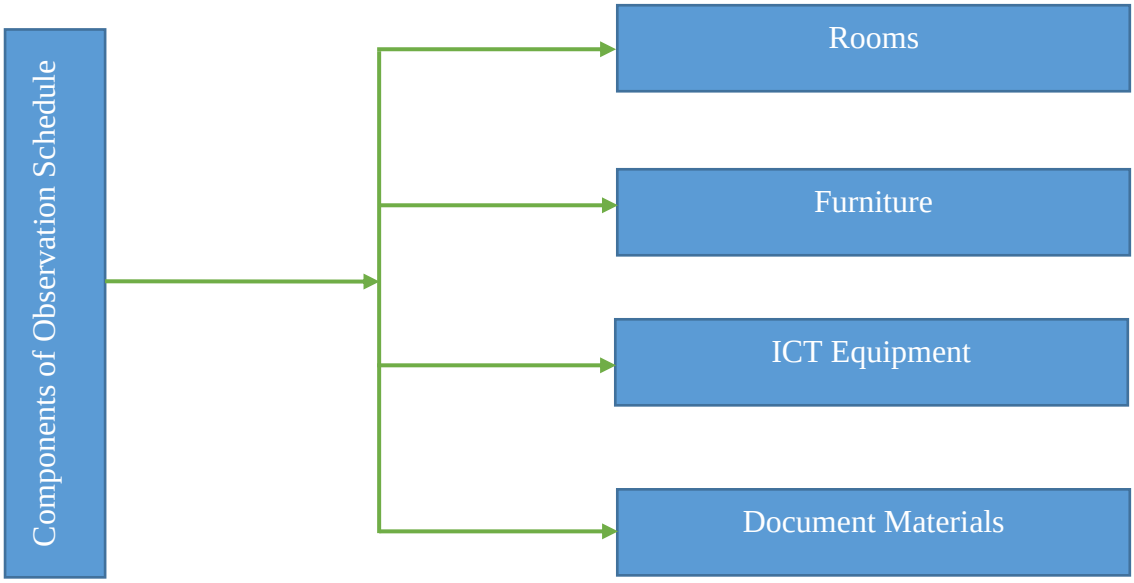
Table 3.8 Modified Questionnaire for the Counsellors

Dimensions	No of Items	Number of Items Modified	Total
A	9	2	7
B	9	1	8
C	59	2	57
D	4	-	4
Total	**81**	**5**	**76**

3.6.2 Observation Schedule

The observation schedule included components such as rooms, furniture, ICT equipment and document materials. The observation schedule comprised of 31 items. The observation schedule was used to obtain data on physical infrastructure resources of guidance and counselling centres.

Figure 3:3 Components of Observation Schedule



Infrastructures Components with their Respective Item Numbers in the Observation Schedule

There were 31 items, which covered 4 components of the observation schedule on physical infrastructure resources. The 4 components included rooms, furniture, ICT equipment and document materials.

Table. 3.9 Room

S/N	Infrastructures	Availability		Quantity	Adequacy			Remarks
		Yes	No		Less	Adequate	More	
1	Separate room(s) for testing							
2	Separate room(s) for interview							
3	Office for counsellor(s)							
4	Store for storage(s)							
5	Any other							

The component of rooms consisted of 5 items. It included rooms such as separate room(s) for testing, separate room(s) for interview, office for counsellor(s), store for storage(s) and any other room available.

Table. 3.10 Furniture

S/N	Infrastructures	Availability		Quantity	Adequacy			Remarks
		Yes	No		Less	Adequate	More	
6	Tables							
7	Cabinets							
8	Shelves							
9	Chairs							
10	Cupboards							
11	Writing board							
12	Notice Board							
13	Any other							

The components of furniture comprised of 8 items. It included furniture such as tables, cabinets, shelves, chairs, cupboards, writing board, notice board and any other furniture available.

Table. 3.11 ICT Equipment

S/N	Facilities	Availability		Quantity	Adequacy			Remarks
		Yes	No		Less	Adequate	More	
14	Printer							
15	Scanner							
16	Shelves							
17	Films							
18	Telephone							
19	Internet							
20	Computer							
21	Any other equipment							

The components of ICT equipment consisted of 8 items. It included equipment such as printer, scanner, shelves, films, telephone, internet, computer and any other ICT equipment available.

Table. 3.12 Document Materials

S/N	Materials	Availability		Quantity	Adequacy			Remarks
		Yes	No		Less	Adequate	More	
22	Daily Newspapers							
23	Employment News							
24	Magazines							
25	Journals							
26	Monographs							
27	Career information manuals							
28	Records/ file							
29	Charts							
30	Posters							
31	Any other materials							

The components related to document materials comprised of 10 items. It included document materials such as daily newspapers, employment news, magazines, journals, monographs, career information manuals, records/ file, charts, posters and any other document materials available.

3.6.2.1 Validity of Observation Schedule

The validity of the observation schedule was determined. The content of the observation schedule was rigorously examined to ensure that the items appropriately covered all essential components. The observation schedule was presented to eight experts for validation. The experts analysed and scrutinised the observation schedule prepared by the investigator in terms of content appropriateness and relevance to the study. The language employed was also analysed for ambiguity, comprehension and understanding of the questions by indicating relevant (√) or irrelevant (x) to each item in every component and providing comments and suggestions. There were five components in the questionnaire, which are as follows: Component A= rooms; Component B= furniture; Component C= ICT equipment; and Component D= document materials. The judgments of the experts on the observation schedule items are presented in table 3.13.

Table 3.13 Experts' Judgments on Items of the Observation Schedule

Components	Item Number	Experts' Judgment									
		EXPERT 1	EXPERT 2	EXPERT 3	EXPERT 4	EXPERT 5	EXPERT 6	EXPERT 7	EXPERT 8	Totals	Remarks
A	3	√	√	√	×	√	√	√	×	6	Modification needed in item 3
	1,2,4,5,6	√	√	√	√	√	√	√	√	8	No modification needed
B	4 & 7	√	×	√	×	√	√	×	√	5	Modification needed in items 4 & 7
	1,2, 3,5,6, 8,9,10	√	√	√	√	√	√	√	√	8	No modification needed
C	5,9 & 11	×	√	√	×	√	√	√	×	5	Modification needed in items 5,9 & 12
	1 1,2, 3,4,6,7,8, 10,	√	√	√	√	√	√	√	√	8	No modification needed
D	6 & 9	√	√	×	√	√	×	√	√	6	Modification needed in items 6 & 9
	1,2,3,4,5,7,8,10,11,12	√	√	√	√	√	√	√	√	8	No modification needed

This symbol (√) refers to relevant, while (×) means irrelevant.

Based on the expert's suggestions, the observation schedule was modified. Table 3.14 shows that out of 39 items, 31 were judged by the experts as relevant, whereas 8 were modified. This suggests a good sign of the validity of the observation schedule for collecting the needed data. The experts who validated the observation schedule are listed in the appendix. In addition, the finalised validated observation schedule is included in the appendix.

Table 3.14 Modified Observation Schedule

Dimensions	No of Items	Number of Items Modified	Total
A	6	1	5
B	10	2	8
C	11	3	8
D	12	2	10
Total	**39**	**8**	**31**

3.6.3 Perception Scale for Teaching Staff

A 5-point Likert-type perception scale was constructed. The perception scale comprised of 22 items. The perception scale included dimensions such as qualification of counsellors, functioning of guidance and counselling and social/personal guidance and counselling. The perception scale was used to measure the perceptions of the teaching staff.

Figure 3:4 Dimensions in Perception Scale of Teaching Staff

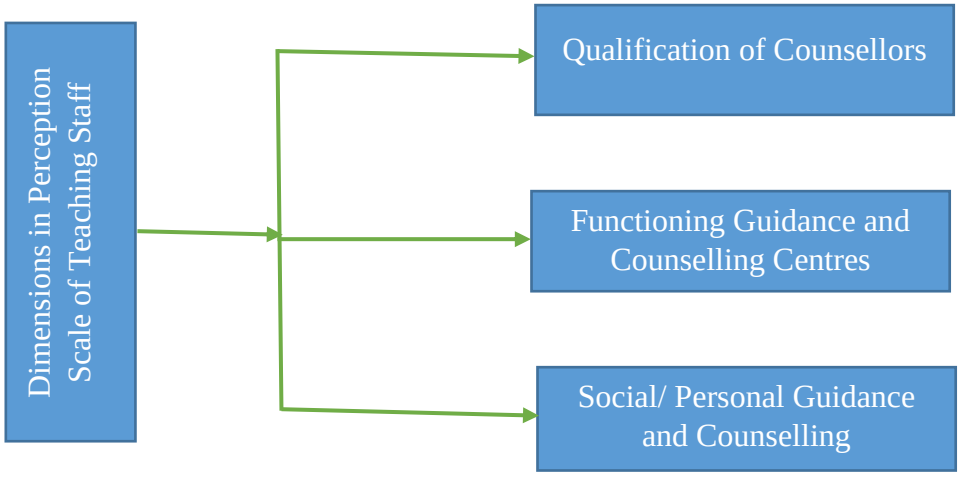


Table 3.15 List of Dimensions and Components with their Respective Item Numbers in the Perception Scale of Teaching Staff

Sr. No.	Item number	No. of items	Dimensions	Components
1	1 to 3	3	Qualification of counsellors	Professional qualifications, number of lecturer counsellors, work experience of counsellors.
2	4 to 18	15	Functioning of guidance and counselling centres	use of time in guidance and counselling centres, services provided by a counsellor, online counselling, keeping records of counselling sessions
3	19 to 22	4	Social/personal guidance and counselling	social/personal counselling, social/personal guidance, social/personal problems and orientation programmers

There were 22 items, which covered 3 dimensions of perception of teaching staff. The dimension related to qualification of counsellors consisted of 3 items. It comprised of components such as professional qualifications, number of lecturer counsellors, and work experience of counsellors.

The dimension of functioning of guidance and counselling centres comprised of 15 items. It included components such as use of time in guidance and counselling centres, services provided by a counsellor, online counselling, keeping records of counselling sessions. The dimension of social/personal guidance and counselling comprised of 4 items. It included components such as social/personal counselling, social/personal guidance, social/personal problems and orientation programmes.

Marking Scheme

Table 3.16 5-point Likert perception scale

Scale	Score
Strongly agree	5
Agree	4
Undecided	3
Disagree	2
Strongly disagree	1

The 5-point Likert-type perception scale consisted of 22 statements. Every statement had 5 alternatives stated in the scale. The scores of the alternatives ranged from strongly agree to strongly disagree. The 5 alternatives included strongly agree, agree, undecided, disagree, and strongly disagree. The scores were assigned as follows: strongly agree (5), agree (4), undecided (3), disagree (2), and strongly disagree (1). For each statement, teaching staff were required to tick (√) on one alternative only.

3.6.3.1 Validity of Perception Scale of Teaching Staff

The validity of the perception scale was determined. The content area of the current perception scale was rigorously examined to ensure that the items appropriately covered all essential components. The questions were presented to eight experts for validation. The experts analysed and scrutinised the tools prepared by the investigator in terms of content appropriateness and relevance to the study. The language employed was also analysed for ambiguity, comprehension and understanding of the questions by indicating relevant (√) or irrelevant (x) to each item in every dimension and providing comments and suggestions. There were five dimensions in the perception scale, which are as follows: Dimension A= qualification of counsellors; Dimension B= functioning guidance and counselling; and Dimension C=

social/personal guidance and counselling. The experts' judgments on items of a perception scale for the teaching staff are presented in table 3.17.

Table 3.17 Experts' Judgments on Items of Perception Scale of Teaching Staff

Dimensions	Item Number	Experts' Judgment									
		EXPERT 1	EXPERT 2	EXPERT 3	EXPERT 4	EXPERT 5	EXPERT 6	EXPERT 7	EXPERT 8	Total	Remarks
A	1,2,3	√	√	√	√	√	√	√	√	8	No modification needed
B	6,9,14	×	√	√	√	√	√	×	×	5	Modification needed in items 6,9,14
	1,2,3,4.5,7,8,10,11,12, 13,15,16,17,18	√	√	√	√	√	√	√	√	8	No modification needed
C	3	√	√	√	√	√	√	√	×	7	Modification needed in item 3
	3 1,2,4,5	√	√	√	√	√	√	√	√	8	No modification needed

This symbol (√) refers to relevant, while (×) means irrelevant.

Based on the expert's suggestions, the perception scale for teaching staff was modified. Table 3.18 shows that out of 26 items, 22 were judged by the experts as relevant, whereas 4 were modified. This suggests a good sign of the perception scale validity for teaching staff to collect the needed data. The experts who validated the tools are listed in the appendix. In addition, the finalised validated perception scale for teaching staff is included in the appendix.

Table 3.18 Modified Perception Scale of Teaching Staff

Dimensions	No of Items	Number of Items Modified	Total
A	3	-	3
B	18	3	15
C	5	1	4
Total	**26**	**4**	**22**

3.6.4 Perception Scale of Students

A 5-point Likert-type perception scale was constructed. The perception scale comprised of 30 items. The perception scale included dimensions such as qualification of counsellors, functioning of guidance and counselling centres, social/personal guidance and counselling, vocational guidance and counselling and educational guidance and counselling. The perception scale was used to measure the perceptions of the students.

Figure 3:5 Dimensions in Perception Scale of Students

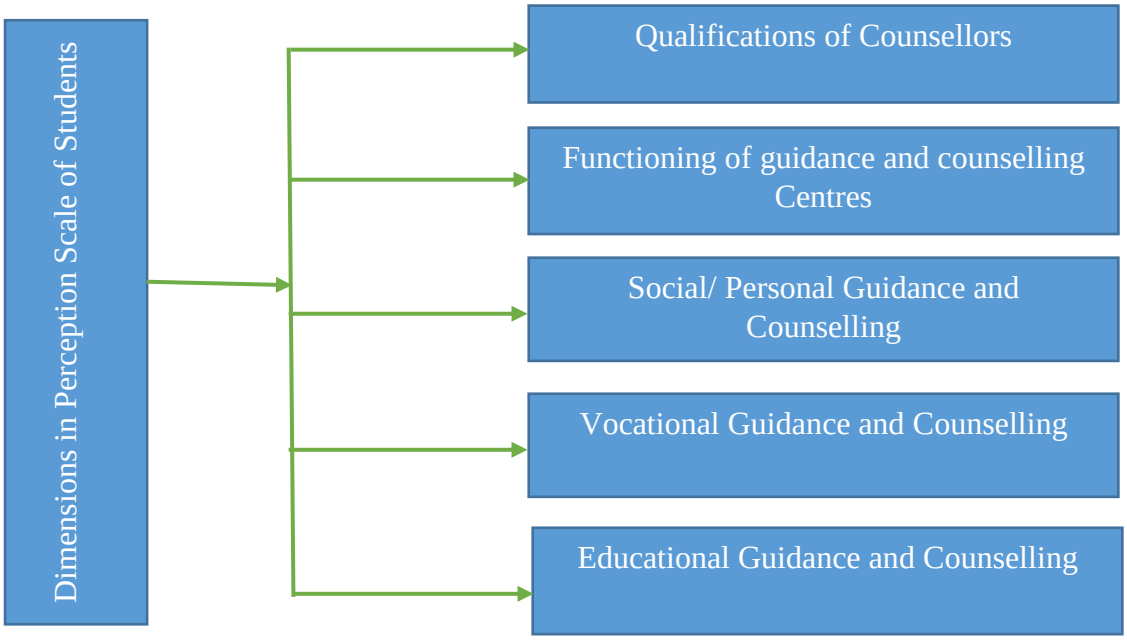


Table 3.19 List of Dimensions and Components with their Respective Item Numbers in the Perception Scale of Students

Sr. No.	Item number	No. of items	Dimensions	Components
1	1 to 3	3	Qualification of counsellors	Professional qualifications, number of lecturer counsellors, work experience of counsellors.
2	4 to 18	15	Functioning of guidance and counselling centres	use of time in guidance and counselling centres, services provided by a counsellor, online counselling, keeping records of counselling sessions
3	19 to 22	4	Social/personal guidance and counselling	social/personal counselling, social/personal guidance, social/personal problems and orientation programmers

4	23 to 26	4	Vocational guidance and counselling	vocational counselling and vocational guidance
5	27 to 30	4	Educational guidance and counselling	educational counselling and educational guidance

There were 30 items, which covered 5 dimensions of perception of students. The dimension related to qualification of counsellors consisted of 3 items. It comprised of components such as professional qualifications, number of lecturer counsellors, and work experience of counsellors. The dimension of functioning of guidance and counselling centres comprised of 15 items. It included components such as use of time in guidance and counselling centres, services provided by a counsellor, online counselling, and keeping record of counselling sessions. The dimension of social/personal guidance and counselling comprised of 4 items. It included components such as social/personal counselling, social/personal guidance, social/personal problems and orientation programmes. The dimension of vocational guidance and counselling consisted of 4 items. It comprised components such as vocational counselling and vocational guidance. The dimension of Educational guidance and counselling comprised of 4 items. It included components such as educational counselling and educational guidance.

Marking Scheme

Table 3.20 5-point Likert perception scale

Scale	Score
Strongly agree	5
Agree	4
Undecided	3
Disagree	2
Strongly disagree	1

The 5-point Likert-type perception scale consisted of 30 statements. Every statement had 5 alternatives stated in the scale. The scores of the alternatives ranged from strongly agree to strongly disagree. The 5 alternatives included strongly agree, agree, undecided, disagree, and strongly disagree. The scores were assigned as follows: strongly agree (5), agree (4), undecided (3), disagree (2), and strongly disagree (1). For each statement, students were required to tick (√) on one alternative only.

3.6.4.1 Perception Scale of Students

The perception scale validity was determined. The content area of the current perception scale was rigorously examined to ensure that the items appropriately covered all essential components. The questions were presented to eight experts for validation. The experts analysed and scrutinised the perception scale prepared by the investigator in terms of content appropriateness and relevance to the study. The language employed was also analysed for ambiguity, comprehension and understanding of the questions by indicating relevant (√) or irrelevant (x) to each item in every dimension and providing comments and suggestions. There were five dimensions in the perception scale, which are as follows: Dimension A= qualification of counsellors; Dimension B= functioning guidance and counselling; Dimension C= social/personal guidance and counselling; Dimension D= vocational guidance and counselling; and Dimension E= educational guidance and counselling. The experts' judgments on items of a perception scale for the students are presented in table 3. 21.

Table 3.21 Experts' Judgments on Items of Perception Scale of Students

Dimensions	Item Number	Experts' Judgment									
		EXPERT 1	EXPERT 2	EXPERT 3	EXPERT 4	EXPERT 5	EXPERT 6	EXPERT 7	EXPERT 8	Total	Remarks
A	1,2,3	√	√	√	√	√	√	√	√	8	No modification needed
B	6,9,14	×	√	√	√	√	√	×	×	5	Modification needed in items 6,9,14
	1 2,3,4.5,7,8,10,11,12, 1 13,15,16,17,18	√	√	√	√	√	√	√	√	8	No modification needed
C	2,7,8	×	√	√	√	√	√	√	×	5	Modification needed in items 2, 7,8
	1,3,4,5	√	√	√	√	√	√	√	√	8	No modification needed
D	1&4	√	×	√	√	√	√	×	√	6	Modification needed in items 1 & 4

	2,3,5,6	√	√	√	√	√	√	√	√	8	No modification needed
E	3	√	√	√	√	√	√	√	×	7	Modification needed in item 3
	3 1,2,4,5	√	√	√	√	√	√	√	√	8	No modification needed

This symbol (√) refers to relevant, while (×) means irrelevant.

Based on the expert's suggestions, the perception scale for students was modified. Table 3. 22 shows that out of 39 items, 30 were judged by the experts as relevant, whereas 9 were modified. This suggests a good sign of the validity of the perception scale for students for collecting the needed data. The experts who validated the tools are listed in the appendix. In addition, the finalised validated perception scale for students is included in the appendix.

Table 3.22 Modified Perception Scale of Students

Dimensions	No of Items	Number of Items Modified	Total
A	3	-	3
B	18	3	15
C	7	3	4
D	6	2	4
E	5	1	4
Total	**39**	**9**	**30**

3.7 Data Collection Procedure

The researcher commenced the data collection process by obtaining an introductory letter from his guide at the Department of Education, The Maharaja Sayajirao University of Baroda. This letter was used to seek permission from the authorities of the sampling universities, as well as to gain consent from the respondents, including counsellors, teaching staff, and students. As part of the preliminary phase of the study, informal introductory visits were conducted to the guidance and counselling centres of the selected universities in the sampling frame. These visits aimed to familiarise the researcher with the environment and establish rapport with the respondents.

Following these preliminary visits, the researcher proceeded with the administration of the data collection instruments. The research utilised three main tools: a questionnaire, perception scales, and an observation schedule. These instruments were personally administered to the respondents over a period of three months, from June to August 2023. During this time, the researcher made several visits to the various centres, where he engaged with the teaching staff, students, and counsellors, ensuring that a representative sample was gathered from each stratum.

To ensure minimal disruption to the participants' schedules, the questionnaire and perception scales were distributed during the respondents' free time. The researcher made a conscious effort to avoid interfering with their work and study hours. Respondents were then asked to complete the questionnaire and perception scales at their convenience, providing valuable data for the study without impacting their daily responsibilities. This approach allowed for the collection of comprehensive and non-intrusive data while maintaining respect for the participants' time and commitments.

3.8 Data Analysis

The data collected from the respondents were analysed quantitatively and qualitatively using descriptive analysis techniques, applying frequency, percentage and intensity index to achieve the study objectives. The data analysis was performed objectively as follows.

Table 3.23 Objective-Wise Tools and Data Analysis Techniques

Objectives	Tools	Statistical Technique Used
Objectives 1,2 and 3	Questionnaire	Frequency and percentage
Objective 1	Observation schedule	Descriptive
Objective 4	Perception scales	Frequency, percentage, intensity index

3.8.1 Data Analysis Pertaining to Objectives 1, 2 and 3

To study the functioning of guidance and counselling centres, both close-ended and open-ended questions were used to collect the data. The data collected from the close-ended questions were analysed quantitatively. However, the data collected from the open-ended questions were also analysed qualitatively. Both close-ended and open-ended questions were analysed using descriptive statistical analysis through frequency and percentage to determine the responses of

the majority. The analysed data are presented in tabular form with frequencies and percentages for clarity.

To study the availability of physical infrastructure resources in guidance and counselling centres, an observation schedule was used to collect the data. The observation schedule data collected were analysed qualitatively.

3.8.2 Data Analysis Pertaining to Objective 4

Perception scales were used to collect data to study the perceptions of teaching staff and students towards the functioning of guidance and counselling centres. The data collected by the perception scales were analysed using descriptive analysis, employing frequency and percentage.

The intensity index was used to determine the intensity statements of the teaching staff and student. In each dimension, the average intensity index was calculated. The perception Scales had five options: strongly agree, agree, undecided, disagree, and strongly disagree. The intensity index for each statement was calculated using the formula shown below.

$$\textbf{Intensity index (II)} = \frac{5\ X\ f1+4\ X\ f2+3\ X\ f3+2\ X\ f4+1\ X\ f5}{n}$$

Where

f1 = Frequency of Strongly Agree

f2 = Frequency of Agree

f3 =Frequency of Undecided

f4 = Frequency of Disagree

f5 = Frequency of Strongly Disagree

n = Number of Respondents

After obtaining each statement's intensity index, the average intensity index was then calculated for each dimension, and the overall average intensity index was obtained using the formula below.

$$\textbf{The Average Intensity Index (AII)} = \frac{\text{Sum of Intensity Index of all respondents}}{\text{Total No.of Statements}}$$

3.9 Ethical Consideration

The researcher conducted the study without any ethical problems. The procedures considered under ethical considerations were not to violate the ethical issues. An introductory and ethical clearance letter from the Dean of the Faculty of Education and Psychology/ Head, Department of Education, The Maharaja Sayajirao University of Baroda, was obtained to enable approval from the respondents. The respondent's consent to participate in the study was obtained. The respondents were allowed to decide whether to participate in the study or not. Again, respondents were told that they could terminate the study at any stage should they feel uncomfortable with specific questions. Furthermore, to ensure the confidentiality of the respondents' welfare, their identities (names, contact and email) were protected to avoid causing discomfort and embarrassment. Finally, the references used in the text were acknowledged to avoid plagiarism.

3.10 Conclusion

In conclusion, this chapter describes the detailed methods followed in this study for selecting samples, constructing the tools, and collecting data from various sources. Additionally, the methods used to analyse the collected data have been presented. Chapter IV presents the data analysis and interpretation, followed by a summary, findings and discussion, implications and conclusions in Chapter V.