

Chapter 3

Research Methodology

This research is qualitative research. The details about the research method as follows:

1. Research design
2. Population and sample size
3. Research instruments
4. Data collection
5. Data analysis

Research Design

This study employed a qualitative research method that utilized document analysis, interviews, and site surveys to collect data. The research methodology details were based on the concepts proposed by Flick (2006) and Liamputtong (2009), both of whom emphasized the importance of coding strategies. The study used open-ended questions such as "What?", "Who?", "How?", "When?", "How long?", "Where?", "Why?", "What for?", and "By which?", as demonstrated in Table 3.1.

Table 3.1 Maintaining Greening in Community during the Period of COVID-19 Pandemic in Suzhou City Research Design by Coding Strategies

Questions	What look for
What	What problems were encountered in the greening and maintenance of Suzhou residential area during the pandemic and how to solve them?
Who	Interview with experts from four greening maintenance units in Suzhou

Table 3.1 Maintaining Greening in Community during the Period of COVID-19 Pandemic in Suzhou City Research Design by Coding Strategies (Cont)

Questions	What look for
-----------	---------------

How	How to solve the problems encountered, especially the labor force, the flow of people and the low efficiency of workers
When? how long? where?	Greening in Suzhou Community during the pandemic
Why	Due to the impact of COVID-19, the progress of prevention and control will affect greening units every day, which is particularly serious for urban greening related work
What for	To study the current conditions, problems and obstacles of greening garden management during the Period of COVID-19 Pandemic in Suzhou City
By which	We will solve these problems by doing a good job in pandemic prevention and emergency management, effective control of labor force, ideological work of employees, establishment of a normalized management system, and component technical teams

The details of population and sample size, research instruments, data collection, and data analysis were as follows:

Population and Sample Size

The study involved conducting interviews with experts from four greening maintenance units in Suzhou to gain insights into how greening was maintained in the community during the pandemic, utilizing a purposive sampling technique. The main source of information was Manager Xu from Suzhou New Area Shishan Street Greening Municipal Co., Ltd., along with at least 12 other community gardening experts who shared their knowledge on the topic, and one Thai expert who specialized in innovation management.

Purposive sampling, also referred to as judgmental sampling, is a non-probability sampling technique that entails selecting participants based on specific criteria relevant to the research question. This research encompassed conducting interviews with experts from four greening maintenance units in Suzhou to gain insights into maintaining greening in the community during the pandemic. The use of purposive sampling enabled the researchers to select participants based on their expertise and knowledge in maintaining community greening during the pandemic.

Purposive sampling is commonly employed in qualitative research studies with relatively small sample sizes, focusing on gaining in-depth insights into a specific phenomenon. This sampling technique is valuable when the population is heterogeneous, and researchers need to select participants with particular characteristics or knowledge pertinent to the research question. By utilizing purposive sampling in this study, the researchers could select experts from four distinct greening maintenance units in Suzhou who possessed substantial knowledge about maintaining greening in the community during the pandemic. This approach facilitated gathering rich and comprehensive information from participants who were highly knowledgeable and experienced in the topic of interest, thereby enhancing the validity and reliability of the study findings.

Selecting appropriate key informants is crucial for obtaining reliable and accurate information in research. In this study, the researchers identified experts from four greening maintenance units in Suzhou to provide insights on maintaining greening in the Suzhou community during the pandemic. Additionally, they included one Thai expert with expertise in management innovation. The criteria for selecting key informants in this research were based on the research objectives and the expertise and knowledge necessary to address the research questions. Key informants should possess a deep understanding and experience in the research topic, offering valuable insights into the research objectives. In this study, the researchers selected experts from greening maintenance units in Suzhou who had extensive experience and knowledge in maintaining community greening.

In addition to expertise and knowledge, key informants should also be willing and able to participate in the research study. The researchers established good communication and rapport with the key informants to ensure their participation and cooperation in the research process. The key informants should also provide accurate and reliable information, devoid of bias or personal interests. Furthermore, researchers should consider diversity among key informants. Including a diverse range of key informants is essential to provide a variety of perspectives and insights into the research topic. In this study, the researchers selected key informants from different greening maintenance units in Suzhou to obtain a range of perspectives and experiences.

Research Instruments

The research instruments used included interview guidelines. Researchers created interview questions according to the research framework, which was derived from a review of literature related to the concept of efficiency in maintaining a green community, visitor's flow rate, labor force, normal management, effective control, and ideological work. Experts were then consulted to check the accuracy and appropriateness of the content and wording used. The interview questions and observation lists were subsequently revised again. The questions that were used for interviews are shown in Table 3.2

Table 3.2 Questions used for interviews

Concepts	Questions
Efficiency in maintain greening community	1. How efficient has the maintenance of green spaces been in a community during the COVID-19 pandemic? <ul style="list-style-type: none"> ● money ● time

Table 3.2 Questions used for interviews (Cont)

Concepts	Questions
	<ul style="list-style-type: none"> ● effort ● plant material ● other resource
	2. What are the problems or obstacles in providing efficient maintenance of green spaces in a community?
Labor force	3. How can we balance the benefits of maintaining green spaces in a community during the COVID-19 pandemic with the associated costs? 4. What challenges do you think could arise when involving the community in the maintenance of greening community, and how could they be addressed?
Visitors Flowrate	1. What are the problems or obstacles related to managing visitor flow rates in maintain greening community during the COVID-19 pandemic? 2. How can visitor flow be managed appropriately to maintain greening community during the COVID-19 pandemic?

	3. How can we ensure that resources are directed towards achieving the goal or outcomes of greening community
Effective control	1. What are the problems or obstacles related to monitoring and evaluating issues in maintaining a green community during the COVID-19 pandemic? Such as 2. How can we effectively ensure that issues related to maintaining a green community during the COVID-19 pandemic are monitored and evaluated?"

Table 3.2 Questions used for interviews (Cont)

Concepts	Questions
Ideological work	1. Can you tell me about the role of ideological work in maintaining greening initiatives in the community? 2. How does promoting the importance of environmental sustainability through language, symbols, and narratives create a culture of environmental consciousness and responsibility among residents? 3. Can you describe any public awareness campaigns that have been implemented to promote greening initiatives in the community? 4. In your opinion, how effective are education and community engagement initiatives in promoting environmental sustainability in the community? 5. What kind of public policies and regulations have been put in place to support greening initiatives in the community? 6. Can you share any success stories of greening initiatives that have been maintained through ideological work in the community?

The research instruments used included interview questions that were developed based on a comprehensive literature review related to the concept of efficiency in maintaining a greening community, visitor flow rate, labor force, normal management, effective control, and ideological work. The development of interview

questions based on a sound theoretical framework was important to ensure that the data collected were relevant to the research objectives and provided valuable insights into the research topic.

The process of developing and refining research instruments was crucial to the success of the research project. It ensured that the data collected were relevant, reliable, and valid, providing a solid foundation for data analysis and interpretation. Through expert review and consultation, researchers could ensure that their research instruments met high standards of quality and were effective in achieving the research objectives.

Data Collection

Document study, semi-structured interviews, and site survey methods were used in this research as data collection methods.

1. Document Study

The researcher conducted a document study on "Maintaining Greening in the Community during the Period of the COVID-19 Pandemic in Suzhou City." The first step involved identifying the documents related to the topic. These documents included reports, studies, articles, policies, and other materials. The researcher utilized academic databases, government websites, and online search engines to locate the relevant documents pertaining to maintaining greening in the community during the COVID-19 pandemic in Suzhou City. Once the documents were identified, they were reviewed, and information about the topic was gathered. Taking notes on the key findings, themes, and ideas presented in the documents was deemed important.

2. Semi- Structured Interview

Qualitative research methods, such as interviews, were widely used in social sciences to gain a deeper understanding of people's experiences, perspectives, and attitudes. Interviews provided rich and detailed data that could be analyzed to generate insights and knowledge. The interviews were arranged in Shishan Community, Suzhou, on a working day. All interviews were recorded in notebooks. All interview records were approved by participants.

The first aspect of this data collection method was the choice of the interview location. Conducting interviews in a natural setting, such as the community where the research was focused, could provide context and a sense of familiarity for the participants. The Shishan Community, located in Suzhou, was a suitable location for this research as it allowed for the investigation of green spaces and gardening

practices in a community setting. This was consistent with the ecological perspective of community gardening research, which emphasized the importance of social and environmental factors in shaping gardening practices (Wakefield et al., 2007).

The second aspect of this data collection method was the use of notebooks to record the interviews. Notebooks provided a portable and low-tech solution for recording data in the field. Notebooks allowed the researcher to capture data in real-time, which reduced memory biases and increased data accuracy (Flick, 2018). However, using notebooks also had some limitations, such as the risk of data loss or damage, and the time-consuming process of transcribing handwritten notes into a digital format for analysis (Wick, 2017).

The final aspect of this data collection method was the requirement for participant approval of the interview records. This was an important ethical consideration in qualitative research, as it ensured that participants were aware of and consented to the use of their data. Participant approval could also increase trust and cooperation between the researcher and participants, which could lead to more in-depth and meaningful data (Seidman, 2006).

3. Site Survey

Qualitative research methods, such as site surveys, were widely used in social sciences to gain a deeper understanding of the physical and social environment. Site surveys could provide rich and detailed data that could be analyzed to generate insights and knowledge. In this research, the researcher used site surveys for the qualitative data collection method (Wakefield et al., 2007; Pink, 2013). The researcher visited the community gardens and carried out on-the-spot investigations. Through methods such as taking photos and videos, they collected site information and delved deeply into details such as the site's topography, plants, buildings, water elements, and cultural resources.

The first aspect of this data collection method was the choice of on-site investigations. Conducting on-site investigations provided researchers with direct and detailed access to the physical and social environment. This helped to identify key features of the environment and contextualize the social practices and interactions taking place within it. For community gardening research, on-site investigations provided insights into the design and use of community gardens, as well as the social and cultural dynamics of gardening practices.

The second aspect of this data collection method was the use of photos and videos to collect site information. Photos and videos provided visual documentation of the physical and social environment, which was useful for later analysis and

interpretation. Additionally, photos and videos captured details that might not have been easily observable during on-site investigations, such as changes in light or weather conditions. However, using photos and videos also had some limitations, such as the potential for bias or selective representation, and the time-consuming process of organizing and analyzing visual data.

The final aspect of this data collection method was the emphasis on delving deeply into details such as the site's topography, plants, buildings, water elements, and cultural resources. This was an important aspect of qualitative research, as it allowed researchers to develop a comprehensive understanding of the environment under study. By examining the physical and social details of the environment, researchers could identify patterns and relationships that might not have been apparent through other methods. Conducting on-site investigations provided direct and detailed access to the physical and social environment, using photos and videos captured visual documentation of the environment, and delving deeply into details provided a comprehensive understanding of the environment under study.

Data Analysis

Qualitative data analysis is a process that involves examining and interpreting non-numerical data, such as interview transcripts or field notes, to gain insights into a research question or topic of interest. In this research, the researcher explored the five steps involved in the qualitative data analysis process (Bailey, 2008; Bazeley & Jackson, 2013; Vaismoradi et al., 2016; Mezmir, 2020; Michelle &, 2020), which are related to maintaining greening in a community during the COVID-19 pandemic in Suzhou, as shown in Figure 3.1.

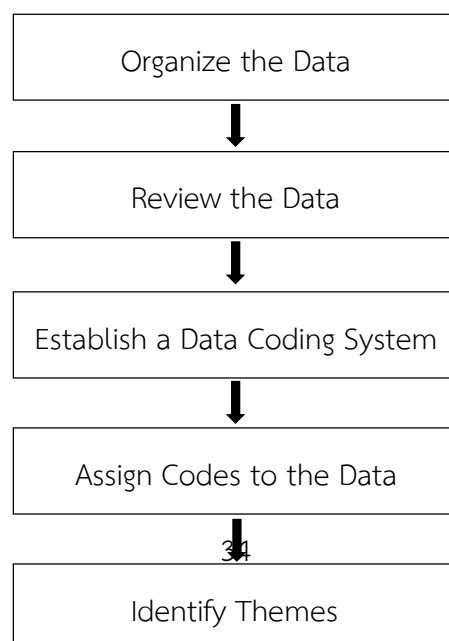


Figure 3.1 Data Analysis Process (Adapted from Vaismoradi et al., 2016; Mezmir, 2020)

Step 1: Organized the Data

The first step in the qualitative data analysis process was to organize the data. In this case, the data was collected through expert interviews, and the interview records were completed. The next step was to transcribe the interviews and ensure that the transcripts accurately reflected the experts' answers. The transcripts were then organized into a file or database for easy access during the analysis process.

Step 2: Reviewed the Data

The second step was to review the data and examine the ideas presented by the experts. This involved reading through the transcripts and identifying key points and concepts that were relevant to the research question. It might have also involved taking notes and creating summaries of the data to aid in the analysis process.

Step 3: Established a Data Coding System

The third step was to establish a data coding system. This involved classifying the questions raised by the interviewer and the answers provided by the experts into relevant categories or themes. For example, in this case, the coding system might have included categories related to labor shortage, a large traffic of people in the green belt of the community, and low efficiency of workers. These categories could have been informed by the research question and the experts' responses.

Step 4: Assigned Codes to the Data

The fourth step was to assign codes to the data. This involved categorizing the data based on the coding system established in step 3. The data related to the research question, such as labor shortage, might have been coded as "LS," the data related to a large traffic of people might have been coded as "LT," and the data related to low efficiency of workers might have been coded as "LE."

Step 5: Identified Themes

The final step in the qualitative data analysis process was to identify themes. This involved analyzing the coded data and identifying patterns and themes that emerged. In this example, the theme might have been "Maintaining Greening in Community during the Period of COVID-19 Pandemic in Suzhou." The theme could have been informed by the categories established in step 3 and the data coded in step 4. The theme could have provided insight into the research question and informed future research and practice.

Additionally, for the site survey data, content analysis was used. This approach involved analyzing qualitative data (such as photos and videos) to identify and categorize patterns or themes within the data (Hsieh & Shannon, 2005). To apply qualitative content analysis to the site survey data, the researcher could have transcribed any audio recordings made during the on-site investigations and then coded the data by identifying common themes related to the site's topography, plants, buildings, water elements, and cultural resources. Once the data had been coded, the researcher could have analyzed the coded data to draw conclusions about the community gardens and the factors that contributed to their success or challenges.

Data analysis could have provided great help for innovation in green maintenance management. It would not only have helped to evaluate and predict the future but also would have enabled green maintenance management to draw conclusions from previous events, which would have been very useful in many cases. As a result of addressing risks and creating assumptions, data analysis would have helped green maintenance management units make reasonable choices.

The most significant benefit of data analysis would have been its impartiality. Human nature tends towards a certain position or thinking process, which leads to bias. Therefore, the choices of enterprises are often influenced by management preferences. On the other hand, contrary to human beings, data does not bring bias. This would have been one of the reasons why data analysis is becoming increasingly popular among enterprises in various vertical industries.

Through interviews with experts, issues such as a tight labor force, hindered work progress, high pedestrian flow, difficult control, high ideological fluctuations among workers, and low work efficiency were raised during the epidemic period. These issues were addressed through expert responses, and data analysis was conducted to obtain new innovative green care solutions.

มหาวิทยาลัยราชภัฏธนบุรี