BUSINESS RESEARCH: AN INTRODUCTION
ACKNOWLEDGEMENTS

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COURSE OVERVIEW

INTRODUCTION

This Business Research course is designed to prepare future entrepreneurs to employ research methods to gather, collate, and analyze business data that is important to the success of their business venture. Upon completion of the course, individuals will be able to use simple statistical analysis methods, produce data gathering instruments, identify types of data that would be useful to an entrepreneur and apply appropriate analysis methods to examine the impact of the data on business operations.

COURSE GOALS

Upon completion of this course, future entrepreneurs will be able to:

1. Examine how research can help an entrepreneur grow and manage his or her business.
2. Explain the principles of research as they apply to business requirements.
3. Select appropriate business research methods to address business issues.
4. Employ descriptive statistics to analyze business data.
5. Employ qualitative research and analysis methods to capture and evaluate business information.

COURSE STRUCTURE

The course is divided into four units:

Unit 1: Introduction to Business Research Methods

Unit 2: Tools and Techniques: Analyzing and Interpreting Quantitative Business Research Data

Unit 3: Tools and Techniques: Analyzing and Interpreting Quantitative Business Research Data

Unit 4: Writing an Effective Business Research Report

Each unit is further broken down into related topics. Each unit and many topics include self-reflection questions to ponder, activities to complete and formal assignments to complete and send to your instructor.

The units contain a number of references that learners are encouraged to review. This may require that you have access to a computer with Internet connection to download the reference. Each unit should take between two and three weeks to complete.
ASSIGNMENTS AND PROJECTS

A series of activities and assignments guide you through concepts in this course and ask you to demonstrate that you can apply the concepts to support the creation of your business idea and business model. A summary of this work is included at the beginning of each unit. The major assignment in this course is found in Unit Your institution / tutor will help you through this material and will also assign additional projects.

JOURNALING REQUIREMENTS

To capture the output from the reflective questions and activities you are asked to keep a personal journal. At the end of the course the personal journal will be submitted to your instructor for feedback and grading.

ASSESSMENT PROJECTS

Assessment takes the form of responding to activities, as well as written assignments and examinations as determined from time-time by the institution. In cases where coursework assignments, fieldwork projects, and examinations are used in combination, a percentage rating for each component will be communicated to you at the appropriate time.

TIME REQUIRED

This course is worth 16 credits, or a credit value assigned by your institution. Each credit is equivalent to 10 notional hours. You are, therefore advised to spend not less than 160 hours of study on the course. This notional time includes:

- going over activities embedded in the study material;
- peer group interaction (where necessary);
- face-to-face tutorials (where necessary);
- working on tutor-marked assignments; and
- preparation time for and sitting examinations (where that is a requirement.)

COURSE SCHEDULE

A course schedule with due dates and additional readings will be supplied to you by your institution.
STUDENT SUPPORT

ACADEMIC SUPPORT

<Insert the following information if relevant>

- How to contact a tutor/facilitator (Phone number, email, office hours, etc.).
- Background information about the tutor/facilitator if he/she does not change regularly. Alternatively provide a separate letter with the package describing your tutor/facilitator’s background.
- Description of any resources that they may need to procure to complete the course (e.g. lab kits, etc.).
- How to access the library (either in person, by email or online).

HOW TO SUBMIT ASSIGNMENTS

<If the course requires that assignments be regularly graded, then insert a description of how and where to submit assignments. Also explain how the learners will receive feedback.>

TECHNICAL SUPPORT

<If the students must access content online or use email to submit assignments, then a technical support section is required. You need to include how to complete basic tasks and a phone number that they can call if they are having difficulty getting online>. 
UNIT ONE – INTRODUCTION TO BUSINESS RESEARCH METHODS

UNIT INTRODUCTION
Welcome to the first unit in this course on Business Research. In other courses in the diploma and certificate programs you have been introduced to the world of entrepreneurship, and a range of topics that will help you to run your business and put it into operation. Starting and running an effective and profitable business is a complex undertaking and one which relies on up to date information about customers and potential competitors. Finding out which products and services are of interest to potential customers and how they want to access them requires knowledge of and skill in the use basic business research methods. In the first unit of this course, you will gain an understanding of basic business research methods and some of the important data collection methods and statistical approaches that can be applied to answer business research questions.

UNIT OBJECTIVES
Upon completion of this unit you should be able to:

1. Describe basic business research methods and tools.

2. Apply basic research methods and descriptive statistical tools to questions associated with a small business enterprise that you have started or wish to start in the future.

3. Identify basic business research sources and apply information gathered from them to a practical business research question.

4. Describe the importance of defining the information that an entrepreneur needs to make business decisions.

5. Describe basic business research methods and tools that can be used to answer business questions.

6. Apply one of the research methods to a problem or question that you want to answer for your small business or one that you wish to start.

7. Describe the main steps that go into a successful survey in general as well as the special aspects of customer satisfaction surveys.

8. Identify the characteristics of a good questionnaire.

9. Prepare and conduct customer interviews that will help you gather data to answer a basic business problem.

10. Set up and run a focus group with 6 – 8 participants.
11. Write a case study related to a business problem that you have identified.

12. Analyze and report on the data obtained from interviews and focus groups.

ASSIGNMENTS AND ACTIVITIES

There are a number of learning activities and assignments throughout this unit. The major assignment for this unit involves applying basic business research methods and tools in ways that will help you answer questions about your small business or a small business idea that you are considering launching. As in other courses in this program, you will also be asked to complete a self-assessment to help you identify your own strengths and weaknesses. This will help you identify areas that need improvement and strengths that you can build upon.
TOPIC 1.1 – AN OVERVIEW BASIC BUSINESS RESEARCH METHODS

TOPIC INTRODUCTION
Although entrepreneurs are often thought of as risk takers, those who are successful often attribute their success to careful planning and research. Successful businesses will use a number of research approaches to help grow their operations or solve business problems. The research used can take many forms including market, industry or business operations analysis, capturing business intelligence from a number of data sources by using investigative techniques, or testing theories about how the market will respond to a new product or idea.

In this topic, you will learn about the kinds of research methods and approaches that will assist you in answering questions and solving problems related to your business. In particular you will learn about survey and questionnaire design and the use of focus groups and interviews as means of gathering data to help you make informed business decisions.

You may find it useful to refer to the definitions of descriptive statistics and research terms found in Appendix 1 as you move through this course.

TOPIC OBJECTIVES
Upon completion of this topic you will be able to:

1. Describe the importance of defining the information that an entrepreneur needs to make business decisions.
2. Describe basic business research methods and tools that can be used to answer business questions.
3. Apply one of the research methods to a problem or question that you want to answer for your small business or one that you wish to start.

Before getting into the details concerning research methods and tools let’s begin by reviewing some of the key considerations associated with planning to undertake business research.

Planning Your Research

Research plans depend on the type of information you need and the resources that are available to you and your company. Often, organization members want to know everything about their products, services, programs, etc. Your research plans depend on what information you need to collect in order to make major decisions about a product, service, program, etc. Usually, you’re faced with a major decision for one reason or another (e.g., ongoing complaints from customers, the need to convince funders to loan money, unmet needs among customers, the need to improve an internal process, etc.).
The more focused you are about what you want to gain by your research, the more effective and efficient you can be in your research, the shorter the time it will take you and ultimately the less it will cost you (whether in your own time, the time of your employees and/or the time of a consultant).

There are tradeoffs, too, in the breadth and depth of information you get. The more breadth you want, usually the less depth you'll get (unless you have a great deal of resources to carry out the research). On the other hand, if you want to examine a certain aspect of a product, service, program, etc., in great detail, you will likely not get as much information about other aspects as well.

For those starting out in research or who have very limited resources, they can use various methods to get a good mix of breadth and depth of information. They can understand more about certain areas of their products, services, programs, etc., and not go bankrupt doing so.

**Key Considerations in the Design of a Business Research Approach**

Good business research is about collecting the information you really need, when you need it, to answer important questions and make important business decisions. What is the key to doing good business research? To make the best use of your time, get the information you really need, and make the best business decision, you will need to consider a number of questions before doing your research:

1. **Why am I doing this research? What important decision am I trying to make?**

   Always have an important decision in mind when you are doing your research. As an entrepreneur, you are too busy to waste time collecting information to help make a decision that is not vital to your business, or worse yet – collecting information with no purpose in mind. With a clear decision in mind, you will be able to keep your research focused.

2. **When do I need to make my decision?**

   Timing is everything in business. Having 60% of the questions answered in time to make your decision is better than having 100% of the answers after the deadline’s passed. But on the other hand, if your important decision really can wait, there’s no sense in rushing into things and acting on less information that you might have been able to get if you had taken your time. So you need to have a clear sense of when you need to make your important decision.
3. What questions do I really need to answer to make my decision? What information do I really need to answer my questions?

This is where many people get lost in their research. What do you really need to know to be able to make your business decision? Do you need to know a little about a bunch of things, or a lot about a few things? What kind of information do you need? Numbers? Opinions? And how much is enough? How you answer these questions will have a big impact on where you are going to have to go to get your information, and how you are going to get it.

4. Where is the best place (and who are the best people) to get the information I really need?

Overall, information sources can be broken down into two kinds: primary and secondary. Primary sources are those people and organizations in your marketplace, for example, your potential customers, suppliers, and competitors. Secondary sources are reports, articles, and statistics about the people in your marketplace.

While there are exceptions, it is usually safe to start with your secondary sources, because the information’s usually readily available at low or no cost. Once you have gotten what you can from the secondary sources, ask yourself the question, “Do I really need more information to make my decision?” If you really do, turn your attention to your primary information sources to get the last vital pieces of information you need. But often you can get what you really need from secondary sources.

The real challenge for you with secondary information sources is not having too little information. You will likely be faced with a large amount of information for any decision. The real challenge will be to selectively pick the best from what is available. And it is always a good idea to use at least two good sources of information for any decision, and to make sure that these different sources agree with each other.

If you have done things right up to this point, selecting your sources – primary and secondary – should not be too hard. You will know what decision you are trying to make and when you need to make it, and you will know what information you really need to make that decision. And if you can explain this to the reference librarian at your local library, they will get you pointed in the right direction. It is worth noting that many people go “researching” way before they really know what they are researching – and they waste a lot of time in the process.
5. What options do I have to collect that information?

With secondary information sources, collection is straightforward. You go to the source (library, resource center or website) and ask for the information. With primary information sources, deciding upon the right method is a little more involved. When considering your options, always remember to keep your business decision, timing and the information you really need clearly in your mind. These will help you to make the best decision.

6. What resources do I have to collect that information? Who or what can help me?

You are almost ready to go out and do your research. One final consideration is about the resources you have, or have access to. These resources can include:

- The time you are willing to commit
- Friends and family members who are willing and able to help you
- The money you are willing and able to spend
- Access to the internet, your trainer
- Other resource people in your community like the reference librarian at your local library

7. Given the time, options, and resources I have, what is the best way for me to get the information I need?

Now it is time to make a decision about how you are going to do your research. This is not so much a separate step as it is something that will emerge as you go through the earlier steps. Still, it is good to stop and think it through one last time before you move forward.

8. What am I actually going to do and when?

It is time to commit to a plan of action. Create a business research action plan to collect your thoughts.

Now let’s look at an overview of the basic business research methods that you might choose to use to gather data about your customers and potential customers and the products and services that you provide to them.

**Basic Business Research Methods**

There are a number of research methods that a small business entrepreneur can choose from depending upon the answers to the questions outlined in the previous section. This section of Unit 1 focuses on the basic methods for collecting data. Briefly these are:

- Questionnaires and Surveys
The following table outlines the purpose of each of these data collection methods and provides some of the advantages and disadvantages of each method.

<table>
<thead>
<tr>
<th>Research Method</th>
<th>Purpose</th>
<th>Advantages</th>
<th>Disadvantages</th>
</tr>
</thead>
</table>
| Questionnaires and surveys | To quickly and easily obtain a significant amount of information from potential customers in a non-threatening manner | • The anonymity of customers can be maintained.  
• Relatively inexpensive.  
• Ease of analysis and comparisons  
• Many appropriate sample questionnaires already exist | • Creation of custom surveys can be time consuming and difficult  
• Are impersonal  
• May need a sampling expert  
• Only tells part of the story |
| Interviews                 | To fully understand someone’s impressions or experiences (can also be used to learn more about a person’s response to questionnaires or surveys) | • Enables one to gather a full range and depth of information about a product or service  
• Helps to develop a relationship with the client  
• Provides flexibility when working with a client | • Can be time consuming and costly  
• Can be difficult to analyze and compare  
• The interviewer may bias the customer’s responses |
| Focus Groups               | To explore a topic in depth through group discussion (useful in evaluation and marketing) | • Enables one to quickly and reliably obtain common impressions about a product or service  
• Can be an efficient way to obtain a range and depth of information in a short period of time | • Can be difficult to analyze  
• Need a good meeting facilitator to ensure that participants stay on track  
• Scheduling groups of people can be difficult |
<table>
<thead>
<tr>
<th>Research Method</th>
<th>Purpose</th>
<th>Advantages</th>
<th>Disadvantages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Case Studies</td>
<td>To fully understand a customer’s experience with a product or service and to enable a cross-comparison of cases</td>
<td>• Fully depicts the customers experience&lt;br&gt;• Allows for a powerful portrayal of a product or service to those outside of the company</td>
<td>• Time consuming to collect, organize and describe&lt;br&gt;• Generally represents only the depth of information but rarely the breadth</td>
</tr>
</tbody>
</table>

**Self-Reflection Questions**

As a small business entrepreneur or someone who is interested in starting a small business, consider the following questions: What type of research would your business idea benefit from? Why did you select this type of research to inform your business decisions? What resources will you need to collect the information?

Record your thoughts in your personal journal.

**TOPIC SUMMARY**

In this topic you have learned about the importance of planning business research and determining the key questions that you need address to create an effective business research plan. You have also learned about the advantages and disadvantages of four major research methods that you can use to collect data about the services and products that you provide to customers.

Now, let’s move on to the next topic in this unit on designing surveys using questionnaires.
**TOPIC 1.2 – DESIGNING SURVEYS USING QUESTIONNAIRES**

**TOPIC INTRODUCTION**

Surveys look easy to do – just throw together a few items and away you go. Wrong! A survey is only as good as the quality of its construction. A poorly conducted survey will give you weak information while a well designed survey can provide rich input that will help you make important business decisions.

This section explores what it takes to conduct a good survey using a questionnaire and will provide tips on how to get ready to use the information it provides. But first, it is important to start with a clear understanding of the key terms in the title of this topic: what is the difference between a survey and a questionnaire?

Like many things in life, the answer to this usually depends on who you ask and you may find instances where these terms are used in different ways. Most use the label “survey” to refer to everything that is involved in the task of gathering input that will be analyzed or examined in some way. The term “questionnaire” refers to the specific set of questions that are asked (i.e., the survey tool written as a set of questions that are answered on paper, in person as an interview, over the telephone, or sent out electronically). So you can say that you are doing a survey to gather business intelligence and using a questionnaire to capture the information you need. You could however conduct a survey using a different kind of tool such as a focus group, customer comment cards, etc.

Surveys can be used to explore many different topics. A key to business success is having a sound understanding the level and effectiveness of the service you deliver to your customers. So while this section will explore surveys that can be used for many different business topics, it will focus more attention on customer surveys.

**TOPIC OBJECTIVES**

Upon completion of this topic you will be able to:

1. Describe the main steps that go into a successful survey in general as well as the special aspects of customer satisfaction surveys.
2. Identify the characteristics of a good questionnaire.

First we’ll look at what goes into the various steps in doing a survey and then we’ll dig into the practicalities of creating a good questionnaire.
What goes into a successful survey?

A good survey is a carefully designed and executed project. Regardless of the type of tool you use (e.g., questionnaire, focus group, etc.) the steps that need to be taken are the same:

1. **Project Management:** Like all good projects, surveys need to have someone taking the lead that has accountability for the success of the project. This leader needs to develop a project budget, timeline, and identify key milestones at the outset.

2. **Organizational and Employee Readiness:** While a good project plan is essential, surveys will fail if the organization and its employees are not ready. Anxiety can arise when employees don’t understand why a survey is being done or they don’t know what to expect. Ask yourself the following questions in order to understand the extent to which employees are ready for the survey:
   - Do employees know that a survey is being done?


**Step One: Get Ready**

Many surveys fail due to lack of preparation. There is often a temptation to jump right into creating a questionnaire without working through the things that will give your questionnaire a solid foundation. What are those things?
• Do they understand why? Do they know how the information will be used?
• Do they have basic knowledge of how and when the survey will be done?
• What can be done to make the survey matter to employees?

Addressing these questions will help ensure that you have paved the way for openness to the survey during the life of the project and you will help prepare the organization to use the results when they become available. But employees can only use the information from the survey if there is overall organizational readiness. The main questions here are:

• Are leaders committed to sharing and acting on the data?
• Have possible barriers/risks associated with doing a survey been identified?

3. **Communication and Risk Management:** In the survey process model these underscore and support every step. Since this starts with the first step it is useful to start working on them at this stage. A communication plan can help build employee readiness and help to prepare those whose input you want to obtain. Risk management helps you prepare for challenges that may arise along the way.

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**Self-Reflection Questions**

*All businesses can benefit from using surveys to learn new things drawing on questionnaire input from customers, suppliers, etc. But surveys need to be carefully planned and executed. What do you think are the most important things a new business needs to think about when it decides to do a survey? What steps would you take to build organizational and employee readiness?*

*Record your thoughts in your personal journal.*

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**Summary**

This topic explored the first step in the survey process model. You learned the role and importance of taking time to get your business ready for a survey and explored the roles project management, organizational and employee readiness, and communication and risk management play.

The next step in the model we are using helps you target the information you need to get from your survey.
Step Two: Define Your Research Objectives

Every business project needs clear objectives and surveys are no exception. In spite of this, many surveys are launched without them. If you can’t clearly tell someone why you are doing the survey you are not ready to move on.

In surveys the label “research objectives” is used. They describe the key concerns or topics you need to know (i.e., the information you need or the issues/gaps you need to explore). Think of them as defining the core purpose of your survey (i.e., what you need to achieve).

Why are they important? They matter as they determine the content of your survey – both what will be included and what will be excluded.

According to an unpublished document by Faye Schmidt, Ph.D. (Schmidt and Carbol Consulting Group, Inc., 2009) good research objectives are:

- **Clear and concise** – they easily communicate what information you need to know
- **Unique** – each objective defines a specific, distinct research direction
- **Practical** – they describe information that will have a practical purpose and lead to meaningful action
- **Feasible** – are issues that can be addressed through a survey project and within available resources
- **Are need to know, not nice to know issues**

Research objectives can be written as either statements or questions:

- **Question approach:** What...? Why...? How...? Where...?
  - Example: How satisfied are our suppliers with our payment process?
  - Example: How well are we meeting the needs of our customers for timely service?
- **Objective approach:** Statements that say “We are doing this in order to...”
  - Example: We are doing this in order to find out how satisfied our suppliers are with our payment process.
  - Example: We are doing this in order to determine how effective we are in meeting the needs of our customers for timely service.

These statements need to use strong action words (e.g., to determine, compare, verify, describe, etc.) not vague words like to study, to appreciate, etc.
Regardless of which approach you use, Schmidt recommends that you keep things workable by using no more than 4 to 6 research objectives. More than 6 is usually unmanageable as the result will be a questionnaire that is too long and/or too complex.

Schmidt also told us that research objectives are NOT...

- The items you will ask in your questionnaire (research objectives are at a higher level and usually are answered through several questions each).
- Usually able to cover everything you want to know – you will need to make important decisions that narrow and define the scope of your survey.

The main challenge you will likely face is resisting the temptation to have too many research objectives. Trying to make one survey do too much is a recipe for failure just as plugging too many things into one power source!

To avoid this test your research objectives by asking:

- Together do these objectives describe the things I MOST need to know?
- Can I ACT on the data each objective will provide?

It is also useful to test your research objectives by asking others in your organization to review them and answer each of the above questions. In particular, it is important to ensure that anyone with a critical interest in the survey (i.e., your key stakeholders) think your research objectives hit the mark in terms of the information that is needed.

Failing to take the time to develop strong research objectives is the reason many survey projects fail or produce results that don't get used. If your research objectives are not strong your survey will probably waste time and money and frustrate your key stakeholders as well as those asked to provide their opinions.

Let’s look at some good and bad examples of survey research objectives for a customer satisfaction survey conducted by a small grocery store:

**GOOD:**

- *How satisfied are our customers with the overall experience of shopping in our store?*

  While this is a broad objective it is still good as it will provide information the owner can use over time to track how different changes impact customer satisfaction.

- *Does our range of produce items meet the expectations of our clients?*
Customers are satisfied when their expectations are met or exceeded. A business owner who guesses what their customers expect will often be wrong. Customers of this store may expect what they are getting (which is good) or they may expect more types of produce (e.g., more different types of fruits), more range within product types (e.g., more types of apples), etc. Without knowing what customers expect you do not know what to fix if you find they are not satisfied.

- **What aspects of shopping in our grocery store are most in need of improvement?**

  Survey results may suggest many possible improvements making it difficult to know where to start. By focusing on understanding what customers want you will be prepared to make changes that will impact their satisfaction and, according to research, improve your profits too. (For more on the link between employee and customer satisfaction and profits search the “service value chain” to find publications by J.L. Heskett, W.E. Sasser, and L.A. Schlesinger).

**BAD:**

- **What do our customers think about our services?**

  This is too broad to work well. What does “think” mean? Which services?

- **Is the signage in our store making a difference?**

  The outcome of “making a difference” is too vague and can be interpreted in too many ways. It would be better to target a more specific impact of signage (e.g., do customers understand our signs, are our signs located in the right places, do we have enough signage, etc.).

- **How well are we doing in all of our service delivery?**

  Source: [http://lovestats.wordpress.com/dman/](http://lovestats.wordpress.com/dman/)
This is too broad and is also too vague. Trying to cover all aspects of the services offered by a grocery store spans too many things even if the store is small. And expecting a survey to tell you “how well we are doing” is too undefined.

Summary

This section looked at the role and importance of survey research objectives. You learned what research objectives are and how to make sure your research objectives are strong and effective. By exploring this you have learned how to create a strong foundation for a successful survey by clearing targeting the information you want your survey to give you.

The next step in the survey process model moves to the question of who do you need to survey in order to answer your research objectives.

Step Three: Determine Who Will be Surveyed

Once you know what your research objectives are you can ask yourself “Who can best provide me with the information I need?”. These will be your survey respondents.

To answer this question think about each of your research objectives and create a list of all of the groups or types of people whose opinions matter. To help you avoid missing any groups it can be useful to list all of the services and/or products your business offers and note all of the types of customers who use them, suppliers who support them, etc. If this produces a list that is very long you may need to prioritize it based on who is in the best position to have the information that is needed. Containing the scope of your survey is a key!

Once you have a list of possible respondents you need to check that you have ways of contacting them. This usually means having lists of mailing addresses, email addresses, etc. depending on how you will collect your information (we’ll look at that later). The important thing is that you need to make sure you get good coverage of all possible respondents. For example, if you send your questionnaire to just your most frequent customers you could bias your results. Frequent customers are likely more satisfied with your services which is why they continue to return. Likewise, if you only survey people who
have complained about your business you will probably get results with a negative bias.  

Source: http://lovestats.wordpress.com/dman/

The best approach is to identify all possible respondents and select those who will be surveyed randomly. For example, if all of the potential respondents frequent your business in person you can decide to give a questionnaire to every 5th customer (varying this number based on getting the number of responses you need).

**As a general rule, the more responses you get the better.** For example, if you manage to survey 100% of all respondents (i.e., you do not select a random sample) you can be confident that your results are a true, valid reflection of their opinions. Your confidence in the validity of your results decreases as your sample gets smaller – the more opinions you gather the better. There are numerous tools online that can help you figure out how big your sample needs to be (search for “sample size calculator”). Determining the number of respondents you need can be technical and a little challenging so it is often an area where business people seek the assistance of a consultant or survey research firm.

**Source:** http://lovestats.wordpress.com/dman/

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**Self-Reflection Questions**

*The quality of the results you get from a survey are only as good as the quality of your work on each step of the survey process. Why is it important to be careful about who you ask to respond to your survey? What steps can a business owner take to make sure their survey respondents will be a good representation of those whose opinions they want to hear?*

*Record your thoughts in your personal journal.*

---

**Summary**

The third step in the survey process looks at who will provide you with the information you need. It is easy to get the wrong picture from a survey if those who were asked to provide input are not a good cross-section of all of the points of view you need to hear. Figuring out who to include and how to select respondents for your survey can be technical and challenging. The key is to be as systematic and careful as possible so that you can trust the information your survey gives you.
Once you know what kinds of information you need (your research objectives) and who can provide you with that information (your survey respondents) you need to decide how best to get this information from these people. That’s the next topic we will look at.

**Step Four: Determine Your Methodology**

There are many methods that can be used to gather survey input but the ones that most business owners find helpful are focus groups, comment cards and questionnaires.

1. **Focus groups** bring a group of respondents together to discuss a set of predetermined questions. They encourage free exchanges of ideas through the interactions between participants. In addition, the focus group facilitator can ask additional probing questions to delve further into the topics of interest. This lets you explore your research objectives in new and possibly unexpected ways. The challenge they bring is that they produce a lot of information that can be hard to use. More will be discussed later in this Unit about working with focus groups.

2. **Comment cards** are an informal approach that invites anyone to be a respondent and provide information on what is important to them. They are effective in giving customers and others you work with an opportunity to share their ideas, concerns and praise with you. The challenge is that they are unsystematic and usually are so broadly focused that it can be hard to use the information they provide as a basis for making decisions, identifying trends, etc. But don’t dismiss them – they can play a role in letting people have a voice and you can use them to gather information that points to emerging problems, areas where a more systematic survey method may be used, etc.

3. **Questionnaires** work well when you plan to survey a large number of people and have fairly specific questions to ask. If you feel you can answer your research questions using questions that ask respondents to rate things, provide short written comments, and/or select answers from lists of options then a questionnaire is a good choice. They can take different forms:
   - **Paper and pencil**: Respondents are asked to answer questions directly on the questionnaire and send it in through the post or by leaving it in a secured survey return box. Paper questionnaires are the cheapest approach but you will have to deal with security of the returns, entry of the responses so they can be analyzed, and will have to copy and physically distribute the questionnaires.
   - **Online**: There are many software packages that help you design a questionnaire that will be sent to your respondents by email (e.g., Survey Monkey, Fluid Survey, etc.). They are useful as they guide you through the set-up of your questionnaire, give respondents a simple way to provide their input, they automatically enter the responses and often guide you through some simple ways of analyzing your results.
Interviews: The questions you want to ask can also be presented verbally either in-person or over the phone. This is the most expensive approach as you have to carefully train and oversee the interview process and, like a paper questionnaire, you have to enter all of the responses so they can be analyzed. More will be said later in this Unit about using interviewing techniques.

Your decision on which to use will depend on:

- **What best meets the needs of your respondents:** Do they have access to email? Can they read? Will they be receptive to being asked questions over the phone?
- **Your budget:** Do you have enough to pay for a more expensive approach?
- **Expertise:** Do you have people who can conduct interviews? How easy will it be for you to enter the information from paper questionnaires or interviews?

Questionnaires generally ask two types of questions: quantitative and qualitative.

- **Quantitative or close-ended/rated questions:** These are questions that can be answered using numbers (e.g., rating how much respondents agree with a statement) and usually give respondents options arranged on a scale (e.g., 1 to 5 where 1 is low and 5 is high). They work well when you know enough about what is being asked to design response scales that will make sense to your respondents and when numbers will provide the kind of information you need (e.g., numbers are good for tracking trends over time, benchmarking or comparing things, etc.). They also are an easy way of summarizing the opinions of large number of respondents.

- **Qualitative or open-ended questions:** These ask respondents to give an answer in their own words so they are best reserved for surveys that have a small number of respondents and situations where in-depth understanding or exploration is needed. Whereas quantitative questions can be summarized fairly easily using statistics, qualitative questions are more difficult and expensive to analyze as you have to go through all of the results and draw out common themes.

The most common approach is a questionnaire that uses mainly quantitative questions with one or two qualitative questions either to explore a specific topic or as a catch-all to capture things respondents want to tell you that your rated questions missed.

In addition to picking your approach, there are a few other things to consider:

- **When is the best time to do the survey?** For example, you may want to avoid major holidays, times when your respondents will be less available, etc. and times when your business cycle is too busy to give the survey the attention it needs.
- **About how long a survey will your respondents accept?** Keeping it short is better than trying to make it so long people fail to complete it.
• Will this be a one-time survey or do you plan to do it again perhaps at regular intervals?

**Self-Reflection Questions**

*Your survey methodology needs to be a good fit with your research objectives and it needs to work well with your respondents. What kinds of methods do you think will work best with the different groups you expect to deal with in your business? How will you decide which method you should use?*

*Record your thoughts in your personal journal.*

**Summary**

There are many things to consider when selecting your survey methodology. Whether you use focus groups, comment cards or one of the various forms of a questionnaire is an important decision in your survey project. In this section you learned the main features of these different methods and the types of situations they are most appropriate for. You also considered the difference between qualitative and quantitative questions and the role each can play in a questionnaire.

Having decided which method will work best in your survey project you can move onto the next step and create your tool.

**Step Five: Develop Your Tool**

Now you are finally ready to start writing the questions you want to ask. There are several things that go into this.

1. **Gather ideas:**
   - Start by getting *ideas from other surveys.*
   - Ask *employees* to give you suggestions (those on the frontlines of your business often have good insight into what is working and what isn’t).
   - Conduct *focus groups* with a sample of respondents to find out what they most want to comment on and how best to gather input from them.

2. **Develop an outline** for your survey and review it to ensure it covers all of your research objectives.

3. **Write the first draft:** Draft your questions and response scales (more on each is provided later)

4. **Get feedback on your draft questionnaire:**
   - Ask others who are familiar with your business to look at your research objectives and your questions in order to give you feedback on how to strengthen the questions.
• If possible, sit down one-on-one with a small number of respondents and ask them to read each question and tell you how they would answer it and what their answer means. This is called “cognitive testing” and can give you important insight into what works and what doesn’t (e.g., it will identify questions that are confusing, response scales that are unclear, etc.). You should also ask if the tool is about the right length and whether any key topics have been missed.

• Another way of testing the questionnaire is to administer it to a small sample of respondents in order to see how well it works. This is called “pilot testing”.

5. **Produce the final version of your tool:** Use all of this input to improve your questionnaire.

The biggest task in the above list is point 3: writing the first draft. Creating good questions and response scales needs to take many things into consideration. **Both qualitative and quantitative questions should:**

• Be clear and easy to understand (i.e., simple and short).
• Focus on asking about one thing (i.e., specific and not double barreled): anytime you see the word “and” in a question check it. Double barreled questions are hard to use as you can’t be sure which part of the question the person responded to.
• Be non-threatening (i.e., avoid emotionally loaded words).
• Avoid bias or leading the respondent (i.e., hinting at the answer you want).
• Avoid double negatives and framing questions in the negative.
• Follow logically within the questionnaire (i.e., don’t jump around between topics).
• Ask about something the respondent can be expected to answer.

**Response scales for qualitative questions also need to be carefully created and need to:**

• Fit with the question.
• Be clear and easy to understand (i.e., labels should be short and effective).
• Balanced (i.e., if a scale has more negative options than positive ones the results will tend to be more negative so the scale should have the same number of positive and negative options).
• Complete (i.e., include all possible options so every respondent can answer).
• Provide for non-response: Use NA, don’t know, other, prefer not to answer, etc.
• Have options that do not overlap (e.g., asking about the amount of time a customer waited using a scale of 1-5, 5-
10, etc. minutes doesn’t work as those who waited 5 minutes can use either response and this will confuse your results).

- Be not too long or too short: generally, 5 options is the best choice.
- Uses consistent response options (e.g., don’t mix months and years in the same scale).
- Be as consistent as possible across the questionnaire as possible (i.e., don’t change the response scale unless you have to in order to fit the question being asked).

There are two areas where there is a lot of debate over response scales. One is how many options there should be. If you ask respondents to show their agreement using a scale from low to high, how many response options should they be given? The best advice seems to be 5. This is neither so small that it forces respondents into answers that seem too extreme nor so long that it will be hard for them to decide which answer best reflects their opinion. Five options also work well statistically (better than an even number but the reasons for this are beyond the scope of this course).

The other issue is whether only the end-points of the scale should be labelled or whether every point on the scale should be labelled. Here it seems the best approach is to limit the labels to the end-points. Coming up with clear labels for every point in ways that describe an equal distance between each option is difficult (some would say impossible).

An example of a 5 point scale with only the end points labelled looks like this:

<table>
<thead>
<tr>
<th></th>
<th>Strongly disagree</th>
<th>Strongly agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Staff were courteous</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>2. The product I wanted was available</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>3. Parking was easy</td>
<td>NA</td>
<td>NA</td>
</tr>
</tbody>
</table>

Sometimes you may want to ask respondents to rate each question in more than one way. For example, you can add ratings of importance to the above set of questions. Doing this lets you find out how satisfied your customers are and what things stand out as needing to be improved (i.e., it shows you where they are dissatisfied and on things that are most important to them which is where you want to focus your improvements):

<table>
<thead>
<tr>
<th></th>
<th>Strongly disagree</th>
<th>Strongly agree</th>
<th>Not at all important</th>
<th>Very important</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Staff were courteous</td>
<td>1 2 3 4 5 NA</td>
<td>1 2 3 4 5 NA</td>
<td>1 2 3 4 5 NA</td>
<td>1 2 3 4 5 NA</td>
</tr>
</tbody>
</table>
There are two more important things that go into creating your questionnaire:

1. **Deciding how best to organize your questions:**
   - Don’t ask the most difficult questions first (start it off easy).
   - Keep the flow as natural as possible – think about how the respondent experienced the things you are asking about.
   - Group items within topics in a logical manner.
   - Ensure the total number of questions is not too great.
   - Limit how much personal information (e.g., age, income, etc.) you ask about (only ask what is absolutely necessary).
   - Check that the presentation/layout is clear and effective.

2. **Preparing things that will support your questionnaire when you send it out:**
   - Include a cover letter that motivates people to respond. Good cover letters tell potential respondents several things: why is the survey being done? Who will use the information? Why did they get the survey? Is the information they provide confidential? Is it anonymous? What is the deadline for responding? Who can they contact if they have questions?
   - Make sure the instructions to respondents are clear (at the outset and wherever else they are needed within the questionnaire).
   - Ensure the questionnaire is easy to use (e.g., paper tools are clearly printed, online surveys use software that is simple to use, a stamped, addressed envelope is provided for questionnaires that are returned through the mail).

**Self-Reflection Questions**

The five steps needed to create a questionnaire will take some time and effort to complete. What do you need to do to prepare yourself for this work? Who might be able to help you? Where might you go to find other surveys you can use as examples? Try writing a few quantitative questions with responses scales using the tips in this section.

Record your thoughts in your personal journal.
Summary

The amount of information in this section shows that writing a questionnaire is not as easy as it sometimes looks - a lot of care and attention to detail is needed to write good questions and create sound response scales. In this section you examined the steps that lead to the creation of a good survey and you learned what is needed to write good items and response scales. You also looked at how to structure or organize your questionnaire and how to support it when you send it out. All of these things will strengthen your survey and will make it easier for respondents. And remember, the more responses you get the better so making things easy for respondents is important.

With your tool designed you can use it to gather input which is the next step to take.
Step Six: Fielding, Data Analysis and Reporting

When you send out your questionnaire and ask people to complete it this is called “fielding”. You have to give your respondents enough time to complete the questionnaire: the amount will depend on who the respondents are and how interested they are in providing you with their opinions. Generally, 2 to 3 weeks is about right. If you send out your questionnaire by paper or email it is useful to send out one or two reminders to encourage more responses. Remember, the more input you have, the more confidence you will have in your results.

Ideally, your communication plan will have let your respondents know the survey was coming (e.g., advance letters or emails or posters in your place of business) and you should have identified key risks and challenges that could arise during your survey project. Both of these activities will prepare you for fielding.

Once fielding is done you are ready to analyze your data. More will be said later in this unit about how to analyze data and the tools that can be used but here is a brief introduction. There are several things to do:

1. First, the results have to be entered into a software program or tabulated by hand. As was discussed earlier, if you used an online survey software package this will be done automatically. If you didn’t, programs like Excel can be used to let you calculate a few basic statistics.

2. Once your data is entered it needs to be analyzed. Data analysis can range from basic to very fancy. How fancy you need to be depends on how you will use the information. If you are going to base a very important and expensive business decision on the results you should get a professional involved in your survey project. But if you are using the data more informally to help you improve, explore new business opportunities, etc. then you may be able to do the analysis yourself. It will depend in great part on how much knowledge you have of statistics:
   - At the most basic level, you want to look at the average or mean scores for each of the questions you asked people to rate. This involves adding up all of the responses and dividing that number by the number of respondents (remember to use the number who answered the question recognizing that not all respondents will necessarily have answered all of the questions).
   - When calculating averages or means, avoid combining any of the response options. For example, some people combine the number of respondents who selected points 1 and 2 on a 5 point scale or those who selected 4 and 5. This gives you less information. The difference between answering 1 or 2 (or 4 or 5) can be meaningful. So do your analysis using the full range of scores without combining any upfront.
• You should also **look at the distribution of responses.** For example, you could have an average score of 4.2 where no one selected points 1 or 2 on your 5 point scale. Or, you could get the same average with all of the points used. These are very different situations. In the first, since no one picked the bottom two options it means there is a fairly high level of agreement about this question. In the second situation there is a broader range of opinions so you may want to do more digging to find out if the pattern of responses varied in a systematic way (e.g., did younger customers tend to be more negative than older customers, etc.).

3. Now you need to think about how your will **summarize what you find and report your findings.** Producing **graphs and charts** is a good way to summarize and communicate your results. For example, graphs can be used to show the average or mean scores on key questions and how they differ among different groups of respondents. In addition, if you asked both satisfaction and importance questions you can display the results of both at the same time. You do this by plotting the average agreement score and the average importance score for each item so you can readily zero in on questions where satisfaction is low and importance is high:

![Graph diagram]

In this example, questions 4 and 5 are the starting points for service improvement since they are the areas where importance is high but agreement with the level of satisfaction is low.
Regardless of how you decide to present your results, your main priority should be on clearly and easily presenting the information so that it is easy to understand and use.

"I’ll pause for a moment so you can let this information sink in."

Source: http://lovestats.wordpress.com/dman/

Self-Reflection Questions

Think about what is involved in fielding, analyzing and reporting on a survey. What can you do to get ready for this work? What people or resources might be able to help you enter and analyze your data? When you see the results of a survey, what kind of information have you found most useful? How was it presented?

Record your thoughts in your personal journal.

Summary

In this topic you have learned about how to field a questionnaire, analyze the input you get back, and summarize and report your key findings. You have been introduced to different ways of analyzing survey results so that you can think about how the information you generate from your surveys can be made as useful as possible.
The last step in our survey process focuses on using your findings.

Step Seven: Act on the Results

Too often survey results don’t get as much use as they should which means all of the time, effort and resources that went into them are not fully leveraged. This happens for many reasons including surveys that did not have strong and meaningful research objectives, surveys with low response rates, surveys with unclear findings, and surveys that are poorly reported. By following all of the steps in the survey process you should be able to avoid these problems and produce information that is easy to use.

But even with the best survey and the best results, action won’t happen on its own. Your task as a business owner is to make sure the results are used. What can you do to make this happen?

- **Communicate the results to those who need the information**: Share your findings with employees, suppliers, or others who will benefit from the information. Make sure you help them understand what the results mean.
- **Develop an action plan**: Create a plan to address each of the key findings in your survey. Use all of your project management skills to make sure these actions are well planned and implemented.
- **Track your progress**: Keep an eye on how you are doing on each element in your action plan so you know where you are making progress and where you need to focus additional time and energy. Part of tracking your progress may involve another survey in order to measure the same things again to see how you are doing.
- **Learn from others**: Find other businesses that are doing well in the areas your survey suggests as opportunities for improvement and learn from their successes.

**Self-Reflection Questions**

How many creative ideas can you identify for communicating the results of a survey? What will you need to do in order to create an action plan to respond to what you learn from your survey? How might you track your progress against this plan? How will you find other businesses to learn from?

*Record your thoughts in your personal journal.*
Summary

In this final topic you have come to the end of your survey project and by communicating your results and creating and implementing an action plan you will be ready to move from doing a survey to making a difference in your business. You have learned what is needed to get from collecting data to action.

**ASSIGNMENT 1: UNDERSTANDING THE FEATURES OF A GOOD QUESTIONNAIRE**

Below is a questionnaire that is fictitious but is based on examples from actual surveys. Use what you have learned from this Topic to identify (1) the good features of this questionnaire and (2) its weaknesses. For each strength, describe what makes this feature good and for each weakness develop a recommendation for how you would improve it.

*Write your answers in your personal journal.*

**Car Repair Company Customer Satisfaction Survey**

Please respond to the following questions regarding the services you received when we last repaired your vehicle. Your input will help us identify what is working well and where there are opportunities for improvement.

Indicate your agreement with each of the following statements by circling the number that best describes your opinion.

When you are done, please give your survey to us.

<table>
<thead>
<tr>
<th>Number</th>
<th>Statement</th>
<th>Yes</th>
<th>No</th>
<th>Usually</th>
<th>Often</th>
<th>Don’t Know/ No Opinion</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>I was greeted promptly when I arrived.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>N/A</td>
</tr>
<tr>
<td>2.</td>
<td>Repair staff were professional and friendly.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>N/A</td>
</tr>
<tr>
<td>3.</td>
<td>My bill was easy to understand.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>NA</td>
</tr>
<tr>
<td>4.</td>
<td>I knew where to find your repair shop.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>N/A</td>
</tr>
<tr>
<td>5.</td>
<td>I had to wait too long for my vehicle to be repaired.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>N/A</td>
</tr>
<tr>
<td>6.</td>
<td>Cleanliness of the repair shop.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>N/A</td>
</tr>
<tr>
<td></td>
<td>Yes</td>
<td>No</td>
<td>Usually</td>
<td>Often</td>
<td>Don’t Know/ No Opinion</td>
<td></td>
</tr>
<tr>
<td>---</td>
<td>-----</td>
<td>----</td>
<td>---------</td>
<td>-------</td>
<td>------------------------</td>
<td></td>
</tr>
<tr>
<td>7.</td>
<td>It was not difficult to understand the signs showing me where to park when I arrived at the repair shop.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>N/A</td>
</tr>
<tr>
<td>Comments:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8.</td>
<td>Car repair company’s website.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>N/A</td>
</tr>
<tr>
<td>9.</td>
<td>Information on my bill.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>N/A</td>
</tr>
<tr>
<td>10.</td>
<td>Ability to pay by credit card.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>N/A</td>
</tr>
<tr>
<td>Comments:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11.</td>
<td>Would you recommend us to your friends?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>5</td>
</tr>
<tr>
<td>12.</td>
<td>Will you come back for future repairs?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>5</td>
</tr>
</tbody>
</table>

13. How did you hear about our car repair business?

Please tell us about yourself:

I am…
- [ ] Under 20 years of age
- [ ] 20 to 25 years
- [ ] 25 to 40
- [ ] 50 to 59
- [ ] 60 or over

I am…
- [ ] Male
- [ ] Female
- [ ] Prefer not to answer
After you have completed the assignment, let’s move on to a more in-depth consideration of how to analyze and interpret data.
TOPIC 1.3 – QUALITATIVE APPROACHES: INTERVIEWS, FOCUS GROUPS, AND CASE STUDIES

TOPIC INTRODUCTION
While collecting data using questionnaires can be an effective way to gain an understanding about the products and services that customers are receiving or may want to receive in the future, it is often beneficial to speak directly with customers to gain insights. In other instances a detailed review of documents and other artifacts may be required.

In this topic you will be introduced to the techniques associated with conducting effective interviews, setting up and running focus groups, and collecting data via a case study approach. These qualitative approaches while time consuming will yield a significant amount of rich data on which to base business decisions.

TOPIC OBJECTIVES
Upon completion of this topic you will be able to:

1. Prepare and conduct customer interviews that will help you gather data to answer a basic business problem.
2. Set up and run a focus group with 6 – 8 participants.
3. Write a case study related to a business problem that you have identified.
4. Analyze and report on the data obtained from interviews and focus groups.

With these objectives in mind, let’s now move on to consider how to conduct effective interviews.

Conducting Effective Interviews

The ability to conduct effective interviews is an essential skill for entrepreneurs who want to find out more about customers’ responses to the products and services that they offer.

Advance preparation on the part of the interviewer is essential to ensure the cooperation and engagement of the interviewee. Here are some useful suggestions that will help to ensure the success of an interview.

1. Selection of Interviewees

Selecting interviewees and securing their cooperation can be one of the most difficult parts of the interview process. In the context of market research, companies often encourage participation by offering a small reward or stipend. In other cases the research questions that are being considered will be sufficient to interest prospective interviewees. Regardless
of how selection is approached most often those involved in business research will be volunteers.

2. Setting the Stage

First, choose a setting with as little distraction in the surrounding environment as possible. Avoid bright lights or situations where noise might be a factor and ensure that the interviewee is comfortably seated. In many cases the best place for an interview is at the home or office of the interviewee.

3. Outlining the Purpose of the Interview

Next, explain the purpose of the interview. Clarity is important in gaining both the interest of the interviewee and in ensuring that you are collecting information that is consistent with the purpose of the research you are undertaking.

4. Confidentiality

Most interviewees will want to know that the information that you gather will remain confidential and that they will be anonymous. In this context it is important to indicate who will have access to the responses they provide and how these responses will be analyzed and reported. If you wish to use an interviewee’s comments in a quote, you must receive their written consent to do so. This is called informed consent and is an important part of the qualitative research process.

5. Interview Format

Another part of the communication process with interviewees is to explain to them the type of interview you are conducting and its nature. For example, in some instances interviewers will want to ask structured questions and record responses to each question verbatim (i.e. word for word) in order to create a transcript. In other circumstances, interviewers may want to engage the interviewee in a conversation where there is a more freedom for the interviewee to comment and ask questions of the interviewer. Knowing how the interview will proceed will allow the interviewee to respond in a manner that fits the interview situation.

6. Timing

All of us lead busy lives. Providing the interviewee with an indication of the amount of time that they will be expected to be involved in an interview is an important courtesy.
7. **Post-interview Contact**

Best interview practice involves letting interviewees know how to get in touch with the interviewer at a later point in time should they wish to do so. This allows the interviewee the opportunity to add thoughts that occurred to them coming away from the interview and provides them with the understanding that their input is valued.

8. **Questions**

Providing interviewees with the opportunity to ask questions both prior to and after the interview is an important way to ensure cooperation and gain the confidence of the interviewee.

9. **Recording**

Hand written notes and memories can fail to capture the richness and nuances of the responses provided by interviewees. As a result many professional interviewers rely on audio or video recordings which can be reviewed to determine exactly what was said. Other professionals use one of the many pen technologies that are currently on the market. These pens record audio at the same time that the interviewer is writing. The notes and the audio recording are linked together and can be reviewed on a computer or emailed to other colleagues for review or analysis.

With these interview tips in mind, let’s now consider the types of interviews that are generally conducted when gathering interview data within the context of business research.

**Types of Interviews**

In general, there are four main types of interviews that can be conducted. Each can produce effective results and a rich data set for analysis.

1. **Informal, conversational interview**

In an informal, conversational interview there are no predetermined questions. This enables the interviewer to be as open and adaptable as possible to the interviewee and what is important to them. One way of describing this type of interview style is that it is very much a ‘go with the flow’ approach.

2. **General interview guide approach**

The guide approach is intended to ensure that the same general areas of information are collected from each interviewee. Using a guide provides more focus than the conversational approach, but still allows a degree of freedom and adaptability in getting information from the interviewee.
3. **Standardized, open-ended interview**

In a standardized, open-ended interview, the same open-ended questions are asked to all interviewees. An open-ended question involves having respondents write (or verbalize) an answer to a question rather than choosing an answer from a range of alternatives. The written version of this approach facilitates faster interviews that can be more easily analyzed and compared.

4. **Closed, fixed-response interview**

This type of interview requires all interviewees to respond to the same questions and choose answers from among the same set of alternatives. This format is useful for those not practiced in interviewing.

An important issue that all interviewers face is the development of interview questions and topics. In the next section, question categories, sequencing of questions, and the wording of questions for interviews will be described.

**Interview Question Categories**

The questions that will be of interest to a business researcher or interviewer can be categorized in a number of ways. Here are some of the more common categories that business researchers will consider when drafting interview questions:

1. **Behaviours**

Questions about behaviours are typically focus on what a person has done or is doing. For example, here is a question that is attempting to find out about shopping behaviours of customers: “When do you usually shop for groceries at your local supermarket?”

2. **Opinions**

Questions about opinions or values are trying to determine what a person thinks about a particular product or service. An example of this type of question is: “How satisfied are you with the timeliness of the newspaper delivery service that you receive?”

3. **Knowledge**
Questions that ask for specific facts can be useful in determining the degree to which a customer is informed about a particular product or service. An example of this type of question is: “What hours is your local supermarket open?”

4. Background

Background or demographic questions are often used at the analysis phase to determine differences or similarities between various groups based on factors such as age, educational level, location, and experience.

Earlier in this topic, the importance of sequencing questions within a questionnaire was discussed. Sequencing questions during the interview process is also very important. The next section of this topic provides some suggestions that will help you to sequence questions so that your interview will have the greatest impact.

Sequence of Questions

There are several things that an interviewer can do to maximize the time spent during the interview process by sequencing questions as outlined below.

First, attempt to get the respondents involved in the interview as soon as possible. You can do this by asking them about things that they know about (facts). With this approach, respondents can more easily engage in the interview before warming up to more personal matters. Intersperse fact-based questions throughout the interview to avoid long lists of fact-based questions, which tends to leave respondents disengaged.

Second, Ask questions about the present before questions about the past or future. It's usually easier for them to talk about the present and then work into the past or future.

The last questions might be to allow respondents to provide any other information they prefer to add and their impressions of the interview.

Wording of Questions

As important as sequencing questions is to a successful interview process, it is also critical to attend to wording of questions. Here are some suggestions regarding how to word interview questions.

- Interview questions should be open-ended. Respondents should be able to choose their own terms when answering questions.
Questions should be as neutral as possible. Avoid wording that might influence answers, e.g., evocative, judgmental wording. Words such as ‘best’, ‘worst’ can influence how an interviewee responds.

Questions should be asked one at a time. Avoid stringing together two or more questions since that has the potential to confuse the interviewee.

Questions should be worded clearly. This includes knowing any terms particular to the program or the respondents' culture.

Be careful when asking "why" questions. This type of question infers a cause-effect relationship that may not truly exist. In addition, these questions may also cause respondents to feel defensive, e.g., that they have to justify their response, which may inhibit their responses to this and future questions.

Now let’s move on to consider some suggestions about how to conduct an interview.

Conducting the Interview

1. If you have obtained permission to record the interview, periodically check to make sure that the recording device is working.
2. Remember to ask one question at a time.
3. Attempt to remain as neutral as possible. That is, don’t show strong emotional reactions to their responses.
4. Encourage responses with occasional nods of the head, or other verbal means of helping the interviewee to understand that you have in fact heard and understood what they are saying.
5. Be careful about the appearance when note taking. That is, if you jump to take a note, it may appear as if you’re surprised or very pleased about an answer, which may influence answers to future questions.
6. Provide transition between major topics. For example, "we've been talking about (some topic) and now I'd like to move on to (another topic)."
7. Don’t lose control of the interview. This can occur when respondents stray to another topic, take so long to answer a question that times begins to run out, or even begin asking questions to the interviewer.
Immediately After an Interview

Now that you have successfully completed the interview, it is time to wrap-up the process. This should involve the following activities.

1. Verify that any recording devices used in fact captured the audio or video for the interview.
2. Add any notes to your written notes to clarify any visual diagrams, ensure pages are numbered and dated, and that you have collected all of the pertinent information.
3. Write down any observations made during the interview. For example, where did the interview occur and when, was the respondent particularly nervous at any time? Were there any surprises during the interview?

Self-Reflection Questions

Think of a situation for your small business that would benefit from gaining customer feedback by using an interview process. Describe why interviews would work in this situation. Write three interview questions that you would like to use.

Who would you select to approach for an interview? Describe where the interview would take place and how you would approach the interview process. Why did you take the approach that you outlined?

Record your thoughts in your personal journal.

Now, let’s move on to consider the use of focus groups to gather data about products and services. Turn to the next page to begin this section of the unit.
Focus Groups

The use of focus groups as a means of gathering information originated in the development of marketing as a means of connecting customers to products and services that they might be interested in or might buy.

By the middle of the twentieth century, advertising companies were hiring marketing firms to survey the public in order to find out what kinds of products and services were most appealing. While providing a great deal of useful information, the surveys did not explain why products held so little appeal for some people. Nor did they suggest how products currently on the market might be altered to elicit greater consumer support.

Focus groups gained popularity because they allowed participants to explain the reasons behind their reaction to products. They were then adopted as policy setting instruments by politicians interested in responding to "the voice of the people." It took a while for academic research to catch on to the usefulness of focus groups, and even when academia did begin to realize their potential, there was initially no standard methodology for gathering data.

Purposes of Focus Groups

At first, scholars embraced focus groups half-heartedly. During the 1980s focus groups were used as a supplement to other methods (Fern, 2001). Information garnered from group interviews was used to construct surveys, or the focus groups would be considered as "pilot" interviews for a larger study with one-on-one interviews. It was not until the late 1980s and early 1990s that the social sciences recognized focus group interviews as important data sources in themselves.

Focus groups are comprised of individuals assembled to discuss a particular subject, and differ from:

- **Nominal groups** - researchers do not meet individually with members of an organization
- **Delphi groups** - focus groups are not generally made up of trained experts
- **Brainstorming sessions** - focus groups do not set out to generate new ideas.

Rather, focus groups are designed to gather information from the lay people. The goal in organizing focus groups is to investigate concerns, experiences, or attitudes/beliefs related to a clearly defined topic.
### Research Uses for Focus Groups

Traditionally there have been several ways in which focus groups have been used to generate data. Here are four reported uses for focus groups:

- **Focus groups can help to generate hypotheses if researchers are exploring new territory.** Stories told by focus group participants can be used in questionnaires or turned into hypothetical-type questions on surveys.
- **Focus group findings can help to interpret survey responses if the focus groups are conducted mid-way through a mixed-method research project.**
- **Focus groups can offer insight into statistical findings—especially if unexpected outcomes occur.**
- **Focus groups are often conducted to assist with program development or evaluation.** Focus group interviews can provide valuable insight into whether a program or service has achieved desired goals.

Today focus group data are used independently to generate knowledge. Focus groups are seen as valuable tools for exploring how points of view are constructed as well as how they are expressed. Focus group data can explain how stories, ideas, attitudes, and experiences function within a certain cultural setting, especially within an ethnographic study.

Focus groups are often a good method of data generation if the question to be addressed:

- Involves gathering opinions and impressions from lay people or consumers
- Affects many people the same way
- Suggests that group discussions would help people to be frank

They are less useful if:

- Deep and detailed responses are needed
- Individuals' reactions are likely to vary, and this difference is important to capture
- The topic is likely to involve private reactions
Method

Selecting participants

Most focus group research relies on purposive sampling, with researchers selecting participants based on the project and on the potential contributions of participants. Alternatively, participants can be randomly selected from a larger group that should be able to give insight into the topic. For example, if someone wanted to know more about a particular religious congregation purposive sampling, (i.e., obtaining a church membership listing and randomly selecting parishioners to participate) would be a good approach. Occasionally focus groups use convenience sampling (picking people the easiest and fastest way possible) but this strategy is not recommended.

Purposive sampling can be broken into specific strategies. Five of these are:

1. Extreme or deviant case sampling is used to identify a subgroup within a culture. For example, drug users might be recruited for a focus group on a needle exchange.
2. Typical cases provide a cross section of a larger group.
3. Maximum variation case sampling identifies individuals who are able to adapt to different kinds of contexts and conditions.
4. Critical case sampling looks for individuals representing the most "critical" or relevant cases for transfer of findings to other related cases.
5. Politically important or sensitive cases are used to investigate important issues through the use of individuals who have particular viewpoints.

It is important to emphasize that regardless of sampling method, focus groups do not provide generalizable results—that is, the findings cannot be applied to all people similar to the participants. The most useful measure of validity may well be transferability, which asks whether the results are presented in a way that allows other educators to judge whether the findings apply in their context.

Recruiting participants

Recruitment is the process of gathering the group together in the same place at the same time. There are several ways to go about this. Membership lists are a great way to start. Another way is to find a contact who knows the target group. Using a previous example, the minister and deacons of the church might be willing to pass along the names of parishioners who would be willing to participate. Getting referrals from others, or through word of mouth, is a good means of gathering a sample. If one person is interested, she or he may be able to provide names of other potential participants. This type of recruiting is known as the snowball technique.
Other considerations include demographics. In conducting focus groups, it is important to consider if the focus group reflects the target population in terms of gender, ethnicity, religion, political views, socioeconomic status, age, education, and whatever other dimensions might be relevant. If research is conducted in order to understand a particular ethnic group of women and their interest in a certain product or service, the sample probably should be comprised of mostly women from that ethnic group.

A further question is whether to target a heterogeneous (everybody is different) or homogeneous (everybody is as similar as possible) sample. Most researchers prefer a homogeneous group with the common threads being the issues for discussion. In this approach it is believed that having too many different voices could detract from the overall purpose. An example might be a research project trying to understand how the police view the courts, resulting in a focus group of police officers meeting to discuss the court system. Those advocating heterogeneous groups argue that focus groups should capture a range of opinions, and that participants should feel able to present their perspective free from the fear of appearing different. In a heterogeneous group everybody is, by definition, different. If researchers wanted to discover if there were different views about the court system, they would invite a police officer, a judge, a lawyer, and so on.

It is important to consider whether focus group members will know each other or whether they will be complete strangers. The degree of familiarity unquestionably impacts group discussions. Most researchers prefer group members to be unfamiliar with one another in order to try to prevent acquaintances from influencing comments.

Focus group participants should be compensated if at all possible. If the research is without funding, researchers may find it difficult to compensate discussion members financially. However, refreshments consisting of beverages, cookies, chips, and other such snacks should be available throughout the entire session. A relaxed environment promotes openness and willingness to talk, two factors vital to a successful focus group.

**Recording**

While there is merit in video recording focus groups (nonverbal communication behaviors are easily missed otherwise), this could be inappropriate. Videotaping is extremely invasive, and many participants may not be eager to share their comments and concerns if they can see the camera in the room and know that every movement can be captured. Experience reveals that an audio recorder is much less intrusive and less likely to stifle discussion. If audio recording, two recorders should be used just in case one tape fails.

**Structure**

There is some disagreement among researchers disagree about the optimum number of participants for a successful focus group. Many seasoned moderators prefer a group
ranging from 8-12. Others say that the group should consist of 4-12 if the group is homogeneous and 6-12 if heterogeneous. A balance between the need to have enough people for a lively discussion and the danger of an overwhelming group size must be achieved.

Determining how many focus groups are needed for a study is more difficult than establishing the number of participants per group, and no one outside the research team can make that decision. Probably the best approach is to continue conducting groups until there is no repetition of themes and no new information is shared. This process should sound familiar to those who know of the constant comparative technique used in grounded theory.

**Role of the Moderator**

The moderator is vital to the success of the focus group. There are some simple tips that can help keep the moderator on track so that the discussion begins smoothly, flows well, maintains a level of organization, and ends easily. Additionally, the moderator’s role begins long before the actual focus group discussion, for it is usually the moderator (or an assistant) who recruits the participants. An important note is that preferably moderators should have no real vested interest in outcomes is preferable as moderator rather than someone within the research circle. Not having an "agenda" or stake in the outcomes makes it easier to claim a genuinely non-manipulated outcome.

**In advance of the focus group**

Reminder telephone calls should be placed the day or evening before the scheduled focus group to secure a commitment from the potential participants. Focus group participants should be informed that the group discussion will last for no longer than (for example) 1 hour 30 minutes, and that time frame must be adhered to. Many participants will start to exhibit signs of boredom or restlessness if kept too long. Telling people in advance of the ending time is likely to increase commitment and willingness to participate.

**Beginning of the focus group**

The moderator needs to establish rapport immediately by thanking the participants for coming. As people arrive they should be directed to the name tags (if there are any) and refreshments. A crucial step in the research process is to get the participants to sign consent forms before the focus group begins. The moderator (or assistant) needs to explain that the notes and audiotapes (if the discussion is audio recorded) will be kept completely confidential and that pseudonyms will be used in place of real names. Also, it should be stressed that no other personally identifying information will be used.
Moderating the focus group

Most scholars agree that moderators are not expected to be experts in the topic of discussion; and if they are, it is important that they do not insert opinions into the discussion. Probes should be used to clarify questions if the group members do not seem to be responding. After the introductions and general purpose of the focus group is reiterated, warm-up questions should be asked in order to facilitate discussion. Following a brief warm-up period, terms that will be used in the group talk should be mentioned and clarified, if needed. People should be informed that their responses are neither right nor wrong. The moderator's job is to let the group members know that it is okay to agree or disagree with others' responses.

The moderator should ask general, open-ended questions. As participants become more comfortable with contributing questions, the moderator can become more specific. When the time period is almost up or no new ideas are offered, the moderator should begin to wrap up the session by summarizing the discussion to make sure of what the participants said and how to interpret it. Finally, the moderator needs to provide a significant closing statement, thanking the participants for their time and assuring them that their responses will be kept completely confidential.

Later in the course, we will discuss approaches to analyzing focus group data.

Conclusion

Focus groups have the potential to become a central approach in sociological and educational research, whether focused on the pragmatic end of evaluation or the abstract goal of theory building. The aim of this brief overview was to provide an introduction to the method and provide readers with a sense of the benefits and caveats attached to focus groups. Before conducting such groups, readers are recommended to read more broadly on focus groups and think carefully about how appropriate focus groups are for their own work. When implemented correctly, however, focus groups can be an efficient and effective way to gain insights into social process.

Now turn to the next page and consider the questions for reflection.
Self-Reflection Questions

Think of a situation for your small business that would benefit from gaining customer feedback by using a focus group process. Describe why a focus group would work in this situation. Write three focus group questions that you would like to use.

Who would you select to approach for a focus group? Describe where the focus group would take place and how you would approach the process. Why did you take the approach that you outlined? Given the business questions that you are trying to address, do you think that a focus group or interview approach would be better? Why?

Record your thoughts in your personal journal.

Now, let’s move on to consider another qualitative approach, case studies.
Using the Case Study Approach

What is involved in Conducting Case Study Business Research? A case study is a story about something unique, special, or interesting—stories can be about individuals, organizations, processes, programs, neighborhoods, institutions, and even events. The case study gives the story behind the result by capturing what happened to bring it about, and can be a good opportunity to highlight a project’s success, or to bring attention to a particular challenge or difficulty in a project. Cases might be selected because they are highly effective, not effective, representative, typical, or of special interest.

When is a Case Study Appropriate?
Case studies are appropriate when there is a unique or interesting story to be told. Case studies are often used to provide context to other data (such as outcome data), offering a more complete picture of what happened in the program and why.

What are the Advantages and Limitations of a Case Study?
Some of the advantages and limitations of the case study approach were mentioned in the first topic of this unit. Let’s now consider some of these in more detail.

The primary advantage of a case study is that it provides much more detailed information than what is available through other methods, such as surveys. Case studies also allow one to present data collected from multiple methods (i.e., surveys, interviews, document review, and observation) to provide the complete story. There are a few limitations and pitfalls however, each of which is described below.

- **Case studies can be lengthy.** Because they provide detailed information about the case in narrative form, it may be difficult to hold a reader’s interest if too lengthy. In writing the case study, care should be taken to provide the rich information in a digestible manner.

- **There is a concern that case studies lack rigor.** Case studies have been viewed in the evaluation and research fields as less rigorous than surveys or other methods. Reasons for this include the fact that qualitative research in general is still considered unscientific by some and in many cases, case study researchers have not been systematic in their data collection or have allowed bias in their findings. In conducting and writing case studies, all involved should use care in being systematic in their data collection and take steps to ensure validity and reliability in the study.
Case studies may not be generalizable. A common complaint about case studies is that it is difficult to generalize from one case to another. But case studies have also been prone to overgeneralization, which comes from selecting a few examples and assuming without evidence that they are typical or representative of the population. Yin, a prominent researcher, advises case study analysts to generalize findings to theories, as a scientist generalizes from experimental results to theories.

What is the Process for Conducting a Case Study?
The process for conducting case study research follows the same general process as is followed for other research: plan, collect data, analyze data, and disseminate findings. Here are the detailed steps of a general research approach:

1. Plan
   - Identify stakeholders who will be involved.
   - Brainstorm a case study topic, considering types of cases and why they are unique or of interest.
   - Identify what information is needed and from whom (see “What are Potential Sources of Information?” and “What are the Elements of a Case Study?”).
   - Identify any documents needed for review.
   - List stakeholders to be interviewed or surveyed (national, facility, and beneficiary levels) and determine sample if necessary.
   - Ensure research will follow international and national ethical research standards, including review by ethical research committees.

2. Develop Instruments
   - Develop interview/survey protocols—the rules that guide the administration and implementation of the interview/survey. Put simply, these are the instructions that are followed to ensure consistency across interviews/surveys, and thus increase the reliability of the findings. The following instructions for the should be included in the protocol:
     - What to say to interviewees when setting up the interview/survey;
     - What to say to interviewees when beginning the interview/survey, including ensuring informed consent of the respondent (see Appendix 1 for an example);
     - What to say to respondent in concluding the interview;
     - What to do during the interview (Example: Take notes? Audiotape? Both?); and
     - What to do following the interview (Example: Fill in notes? Check audiotape for clarity? Summarize key information for each? Submit written findings?).
   - Develop an interview guide/survey that lists the questions or issues to be explored and includes an informed consent form. Please note that you will likely need interview guides/surveys for each group of stakeholders, as questions may differ.
• Where necessary, translate guides into local languages and test translation.

3. **Train Data Collectors**
   • Identify and train data collectors (if necessary). Where necessary, use interviewers that speak the local language.

4. **Collect Data**
   • Gather all relevant documents.
   • Set up interviews/surveys with stakeholders (be sure to explain the purpose, why the stakeholder has been chosen, and the expected duration).
   • Seek informed consent of each respondent (written or documented oral). Re-explain purpose of interview, why the stakeholder has been chosen, expected duration of, whether and how the information will be kept confidential, and the use of a note taker/tape recorder.
   • If the respondent has consented, conduct the interview/survey.

5. **Analyze Data**
   • Review all relevant documents.
   • Review all interview/survey data.

More on the analysis of qualitative data gleaned from interviews, focus groups and case studies will be provided in Unit 3: Tools and Techniques: Analyzing and Interpreting Qualitative Business Research Data

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**Self-Reflection Questions**

1. What kind of situations in your business would give rise to the need to use a focus group to answer a business question or reach a business decision? (If you don’t have your own business, think of a business idea that you would like to start).
2. What kind of business decisions were you thinking about when you answered the first question.
3. Similarly, what kind of situations would lend themselves to a case study approach as outlined above?

*Record your thoughts in your personal journal.*
TOPIC SUMMARY

In this topic you have learned about some of the issues and processes involved in conducting focus groups and using case studies to answer basic business questions and provide input into business decisions.

Now, let’s move on to consider the assignment for this course which deals with developing interview protocols that can be used with individual interviews and focus groups.

ASSIGNMENT 2: DEVELOPING AND USING AN INTERVIEW PROTOCOL

Assignment:

Think of a situation in your small business or one that you are thinking of starting where you want to gather information from a select group of customers concerning a product or service that you are providing.

1. Describe the product and service and why you are seeking the input of a focus group (or a set of individual interviewees).
2. Develop a set of focus group (or interview) questions that deal with the important dimensions of the product or service you are offering or intending to offer.
3. Create a focus group (or interview) protocol.
4. Select 4 individuals (either in a focus group setting or as individuals) who are willing to volunteer to participate in your research.
5. Conduct the focus group (or individual interviews), and
6. Report out on the findings of your research.

Record the details of this assignment in your personal journal.
UNIT ONE SUMMARY

In this unit of the course you have been introduced to survey research methods including how to design and administer an effective questionnaire, conduct interviews and focus groups and create a detailed case study. All of these approaches will help you as an entrepreneur to determine how your customers react to the products and services that you provide. The data that you gather can also help you to develop business intelligence and strategies that will help you shape your business for the future.

NEXT STEPS

In the next unit, you will have the opportunity to develop an understanding of some of the tools and techniques that can be used to analyze and interpret quantitative business research data. Since one of the major ways that businesses collect information about their products and services is through questionnaires, this unit will focus on how to analyze this type of data.

REFERENCES


OTHER RESOURCES
If you have access to the internet you may wish to refer to the following links as a source for ideas related to business research methods:

http://managementhelp.org/businessresearch/selecting-methods.htm

http://sciilifestyle.com/business-research-methods.html

Now, turn to the next page and begin the next unit on tools and techniques for analyzing quantitative business research data.
UNIT TWO – TOOLS AND TECHNIQUES: ANALYZING AND INTERPRETING QUANTITATIVE BUSINESS RESEARCH DATA

UNIT INTRODUCTION

Welcome to the second unit in this course on Business Research. Starting and running an effective and profitable business is a complex undertaking and one which relies on up to date information about customers and what interests them. Finding out which products and services are of interest to potential customers and how they want to access them requires knowledge of and skill in the use basic business research methods. In this Unit, you will gain an understanding of how to analyze and interpret quantitative information that is derived from questionnaires. Understanding basic statistical approaches and tools that can be used to gain insight into data is an important part of running a successful business.

UNIT OBJECTIVES

Upon completion of this unit you should be able to:

1. Describe the use of basic descriptive statistics (e.g. mean, median, and mode) in the analysis of quantitative business research data.
2. Apply analytic tools to gain an understanding of the meaning of the data that you have collected to solve a business problem or question.
3. Use the basic functions of an Excel spreadsheet to analyze business research data.
4. Analyze questionnaire data using a spreadsheet program such as Excel.

ASSIGNMENTS AND ACTIVITIES

There are a number of learning activities and assignments throughout this unit. The major assignment for this unit involves taking a data set for a small business, developing business research questions concerning the data set and arriving at conclusions that can be used to inform business decisions. As in other courses in this program, you will also be asked to complete a self-assessment to help you identify your own strengths and weaknesses. This will help you identify areas that need improvement and strengths that you can build upon.
TOPIC 2.1 – DESCRIPTIVE STATISTICS USED IN BUSINESS RESEARCH

TOPIC INTRODUCTION
As indicated in Unit 1, after you have collected data it is important to understand what you will need to do to analyze it and arrive at meaningful interpretations that you can act on for the benefit of your business.

In this topic, you will learn about various methods that are used to analyze quantitative data and how these approaches will assist you in answering questions and solving problems related to your business.

TOPIC OBJECTIVES
Upon completion of this topic you will be able to:

1. Describe the use of basic descriptive statistics (e.g. mean, median, and mode) in the analysis of quantitative business research data.
2. Apply analytic tools to gain an understanding of the meaning of the data that you have collected to solve a business problem or question.

Now let’s begin by looking at the basic statistics that will help you to analyze and gain meaning from the quantitative data that is often associated with questionnaires.

Scales of Measurement
An important consideration in reporting data from questionnaires to understand which measurement scale is most appropriate to use and in which circumstance. The four measurement scales that are most commonly described are:

- Nominal
- Ordinal
- Interval
- Ratio

Nominal
Nominal measurement involves grouping data into categories. For example, on a questionnaire one may ask for the gender (male or female) of the respondent. These categories are further labelled or coded as either 1 (for males) or 2 (for females). This labeling enables the responses to be sorted and analyzed separately.
Ordinal

Ordinal measurement involves ranking observations from low to high. For example, questionnaire respondents may be ranked from low to high in terms of other demographic variables that they have responded to. A common ordinal measure used in questionnaires is family income. Often customers will respond differently to a product or service based on their level of income. When these responses are ordered and the data sorted accordingly useful patterns can emerge.

Interval

Interval scales represent a more highly refined measurement than ordinal scales. In the case of interval scales, the numbers used represent the magnitude of the differences among the units that are being observed. For example, the difference between 10°C and 20°C is the as the difference between 20°C and 30°C. It is also important to note that 20°C is not twice 10°C in terms of heat.

Ratio

Ratio measurements are the most absolute. Typically, these measures apply to factors such as distance, time, weight, and absolute temperature but are not generally applied to data from questionnaires most of which are either nominal or ordinal.

Reporting Data with Tables and Graphs

After collecting questionnaire data, it is important to organize the data to enable interpretation and establish what the data are telling us. Without systematic organization, large quantities of data cannot be easily or accurately interpreted. Tables and graphs are useful tools which help to create a statistical synopsis of information.

A very commonly used approach for considering the data associated with a single variable is to create a frequency distribution or histogram of the data. The following table shows that respondents to a questionnaire were predominantly in the 31-50 age category. This type of comparative information can provide useful insights into the way that questionnaire respondents answer questions. The simple histogram (or bar graph) on the next page provides an example of how the frequency of responses to a particular question can be broken down by age category and easily visualized.
Sometimes you will wish to emphasize the proportional or percentage distribution. A suitable diagram for this is the pie chart (below):

![Frequency Chart](chart1.png)

Measures of Central Tendency

No doubt you have used averages or talked about them for years. The term can be quite ambiguous, however, and is often misused and misinterpreted. The term often has multiple meanings. In this section of the topic we will consider three common measures of central tendency. These are:

- the arithmetic mean
- the mode
- the median

The mean or arithmetic mean is the sum of the observations divided by the number of observations. Expressed as a mathematical equation, the arithmetic mean is:
The mode is the most common value in your data set.

The median is the value in the middle of the data set which splits the distribution of responses into two equal halves. For example if 100 individuals responded to a questionnaire item the point along the distribution that equally divides their responses so that 50 fall on one side and 50 on the other is considered the median.

Here is a graph that illustrates the mode and mean as measures of central tendency:

From the averages that were presented above, the researcher can usually choose the one that best shows the typical value of the variable. Arithmetic mean is the most popular one, but it can give the wrong picture e.g. in data which include one value which greatly differs from the others (see the graph above).

The same happens if the distribution is skewed. In the example, the minutes that the different subjects spend carrying out a certain task, have been listed. The fastest ones needed 5 minutes but the most common performance (= the mode) was seven minutes. The value in the middle, i.e. the median, has been shown as a blue letter M in the picture. The median has the value 11 here.

What about the mean? As the performance of the slowest subject took as long as 34 minutes, the mean went up to 11.98 minutes, which does not give a very accurate picture of the average performance in this case. This shows that if the data is skewed, the type of average must be chosen with care. A graphic presentation would often be more illustrative than calculating a single statistic.
The distribution shown in the graph is **positively** skewed, because the measurements that are larger than the median (which is 11) are spreading out on a large range (from 11 to 34) while the measurements below median concentrate into just a few values (from 5 to 11).

When selecting the most suitable measure of central tendency, you should consider the scale which was used in the collection of the data. If the scale was nominal, the only possible measure is the mode. If the scale was ordinal, you may use either the median or the mode. However, many researchers prefer using the mean, not the median, as a summary for most questionnaire data.

Finally, if the average was calculated from a sample you should test its statistical significance, or how probable it is that the same average is true in the population from which the sample was drawn. A suitable test for this is the t-test. Statistical testing and inference is beyond the scope of this course but as you become more familiar with questionnaire design and analysis, these techniques can help you to determine the validity of the inferences you are making concerning the data you have collected.

### Dispersion of Data

After calculating a mean, mode, and median for the questionnaire data you are considering it is often interesting to determine the degree to which the individual responses are scattered around the average. To determine the degree of scatter (called dispersion) you can choose a number of different statistics. Which one you choose depends on the measure of central tendency you have used. If the mode was used, the dispersion of values around the mode is seldom interesting.

If, however, you have calculated a median, you will often want to indicate the spread of values around it. A suitable measure for that is the **quartile deviation**. A "higher quartile" is the value which is surpassed by 25% of the number of all measurements; likewise 25% of all values are lower than the "lower quartile". The average deviation of the quartiles from...
the median is called the quartile deviation, and it is easily calculated by halving the difference of the quartiles. The graph to the right illustrates a normal quartile distribution.

An alternative and very simple statistic is the range: the difference between the greatest and the smallest value. When you have calculated a mean, you will often want to also calculate the standard deviation. In most cases, with questionnaire data you will be calculating the standard deviation for a sample of a population and not for the population as a whole. In this case the formula to calculate the standard deviation is:

\[ s = \sqrt{\frac{\sum(x - \bar{x})^2}{N - 1}} \]

where

- \( s \) = the standard deviation
- \( x \) = each value in the sample
- \( \bar{x} \) = the mean of the values
- \( N \) = the number of values (the sample size)

Since this isn’t a statistics course, we won’t bother to do the hand calculations that require you to sum the squared differences from the mean for each of the data points that may have been collected. As you can appreciate for a 20 item questionnaire that 100 individuals have responded to, calculating the standard deviation of each item from the mean would be an onerous task. There are many statistical programs that easily calculate the standard deviation of a sample including Excel. More will be said on these applications later in this course.

It is also important to note that the square of the standard deviation is called the variance, and it, too, is often used to describe and to analyze the dispersion. In many cases it is important to consider the statistical significance of the standard deviation obtained from the sample. Again, this goes beyond the scope of this course.

**Analyzing Relationships between Variables**

In many questionnaires, the variables of interest relate to the degree to which different groups (i.e. age groups, individuals with different ethnic backgrounds, gender) respond differently to certain questions. For example, it might be of interest to a business...
researcher to find out the degree to which men and women differ in terms of the amount of time they spend shopping at a local store. In this case there are two variables of interest:

- Gender
- Amount of time spent shopping

If these variables vary in such a way that they follow each other to some extent, we say that there is an association or covariation between the variables.

The science of statistics offers numerous methods for revealing and presenting the associations between two or more variables. The simplest means are the methods of graphic presentation and tabulation. The following graph illustrates this type of relationship:

![Graph showing the time spent at Store A by men and women](image)

The strength of an association between the variables can also be measured with the help of special statistics, such as correlation.

If, when analyzing the data, an association between two variables is discovered, the researcher often would like to know the reason of this association in the empirical world, in other words, he would like to explain this association. Common to all of them is that they give the cause of the phenomenon that is being studied. When measurements have been made from a series of these phenomena, one series of measurements, called independent variable is thus usually made from the presumed cause, and another series of measurements, the dependent variable, from the presumed effect on the phenomenon.
It should be noted that when analyzing variables, no method of mathematical analysis can find out the causal explanation for a statistical association, or even for finding out which variable measures the cause and which the effect. Indeed, a strong covariation between two variables, say, A and B, can be due to any of four alternative reasons:

- A is the cause of B.
- B is the cause of A.
- Both A and B are caused by C.
- A and B have nothing to do with each other. Their association in the analyzed data is a coincidence.

The researcher must thus find the causality or other explanation for the association of variables somewhere else than in the measurements. In many cases, the original theory of the researcher can provide an explanation; if not, the researcher must use his common sense to clarify the causal relationships.

Let’s summarize some of the background information that has been noted above. The following table will help to show how the type of analysis undertaken (i.e. graphical, statistical) is related to the type of research outcome that is desired:

<table>
<thead>
<tr>
<th>Research Outcome</th>
<th>Type of Analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Presenting data and its structure</td>
<td>Tabulation; graphics</td>
</tr>
<tr>
<td>Measuring the strength of association between two variables</td>
<td>Correlation</td>
</tr>
<tr>
<td>Finding which variables among several are associated</td>
<td>Factor analysis</td>
</tr>
<tr>
<td>Transcribing a statistical association into a mathematical function</td>
<td>Regression analysis</td>
</tr>
</tbody>
</table>

The first two types of research outcomes and their corresponding analyses are of interest in this course. The other analyses are beyond the scope of the course but are important to point out for future reference. In the next section, we will consider various means for tabulating and graphically representing data.
Tabulating Data

Tabulating is a usual way of presenting the associations between two or more variables. A table has the advantage that extensive data can be fitted into it and the precise figures are conserved. A disadvantage is that a large table is not illustrative: it seldom reveals more than the most obvious regularities or interdependencies of the data.

Here is an example of a questionnaire data table taken from the health care field which illustrates how questionnaire data can be grouped by theme and across two different categories of respondents. This type of tabular representation enables an ‘at a glance’ view of the overall results of a questionnaire.

<table>
<thead>
<tr>
<th>Themes</th>
<th>Inpatient residents</th>
<th></th>
<th></th>
<th></th>
<th>Outpatient residents</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Many times</td>
<td>Once</td>
<td>Never</td>
<td>Many</td>
<td>Once</td>
<td>Never</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>n (%)</td>
<td>n (%)</td>
<td>n (%)</td>
<td>times</td>
<td>n (%)</td>
<td>n (%)</td>
<td>p</td>
<td></td>
</tr>
<tr>
<td>To gather information</td>
<td>20 (40.0)</td>
<td>13 (26.0)</td>
<td>17 (24.0)</td>
<td>11 (78.6)</td>
<td>2 (14.3)</td>
<td>1 (7.1)</td>
<td>0.03</td>
<td></td>
</tr>
<tr>
<td>To explore perspectives</td>
<td>10 (20.0)</td>
<td>24 (48.0)</td>
<td>16 (32.0)</td>
<td>11 (78.6)</td>
<td>2 (14.3)</td>
<td>1 (7.1)</td>
<td>&lt;0.01</td>
<td></td>
</tr>
<tr>
<td>To be empathic and legitimate emotions</td>
<td>19 (38.0)</td>
<td>18 (36.0)</td>
<td>23 (26.0)</td>
<td>11 (78.6)</td>
<td>2 (14.3)</td>
<td>1 (7.1)</td>
<td>0.03</td>
<td></td>
</tr>
<tr>
<td>To provide information</td>
<td>19 (38.0)</td>
<td>14 (28.0)</td>
<td>17 (34.0)</td>
<td>12 (85.7)</td>
<td>1 (7)</td>
<td>1 (7.1)</td>
<td>&lt;0.01</td>
<td></td>
</tr>
<tr>
<td>To negotiate a decision</td>
<td>14 (28.0)</td>
<td>19 (38.0)</td>
<td>17 (34.0)</td>
<td>11 (78.6)</td>
<td>1 (7.1)</td>
<td>2 (14.3)</td>
<td>&lt;0.01</td>
<td></td>
</tr>
<tr>
<td>To break bad news</td>
<td>7 (14.0)</td>
<td>19 (38.0)</td>
<td>24 (48.0)</td>
<td>3 (21.4)</td>
<td>6 (42.9)</td>
<td>5 (835.7)</td>
<td>0.67</td>
<td></td>
</tr>
<tr>
<td>To manage a difficult relationship</td>
<td>12 (24.0)</td>
<td>16 (32.0)</td>
<td>22 (44.0)</td>
<td>4 (28.6)</td>
<td>5 (35.7)</td>
<td>5 (35.7)</td>
<td>0.85</td>
<td></td>
</tr>
<tr>
<td>To guide patients in changing a behaviour</td>
<td>7 (14.0)</td>
<td>15 (30.0)</td>
<td>28 (56.0)</td>
<td>6 (42.9)</td>
<td>5 (35.7)</td>
<td>3 (21.4)</td>
<td>0.03</td>
<td></td>
</tr>
<tr>
<td>To interact with patients from different cultures</td>
<td>5 (10.2)</td>
<td>11 (22.4)</td>
<td>33 (67.3)</td>
<td>5 (38.5)</td>
<td>4 (30.8)</td>
<td>4 (30.8)</td>
<td>0.02</td>
<td></td>
</tr>
<tr>
<td>To communicate with an interpreter</td>
<td>3 (6.0)</td>
<td>7 (14.0)</td>
<td>40 (80.0)</td>
<td>7 (50.0)</td>
<td>6 (42.9)</td>
<td>1 (7.1)</td>
<td>&lt;0.01</td>
<td></td>
</tr>
<tr>
<td>To conduct an interview with a third person</td>
<td>3 (6.0)</td>
<td>7 (14.0)</td>
<td>40 (80.0)</td>
<td>2 (14.3)</td>
<td>4 (28.6)</td>
<td>8 (57.1)</td>
<td>0.22</td>
<td></td>
</tr>
</tbody>
</table>

Graphical Presentation

Rather than simply presenting a table of numbers, often telling the story behind the data is more effectively done by using various graphical presentations. It is important to select a style of presentation which highlights the important patterns by eliminating or diminishing the uninteresting relations and structures.

If your data consists of only a few measurements, it is possible to show all of them as a scattergram. The graph on the next page illustrates a scattergram or Scatterplot as it is sometimes called.

You may exhibit the values of two variables on the two axes x and y, and additionally a couple of variables by utilizing the colours or shapes of the dots. In the diagram below the
variable Y has 5 values which are indicated by a blue diamond and the variable Z has five values, which are indicated by blue squares.

If you have hundreds of measurements rather than just a few, you will probably not want to show each of them as a scattergram. One possibility in this case is to classify the cases and present them as a histogram.

The histogram may be adapted to present up to four or five variables. You can do this by varying the widths of the columns, their colours, background patterns and by a three dimensional presentation. All these variations are easily created by a spreadsheet program like Excel, but they should not be used for decoration only. The patterns filling or making up the histogram columns may be chosen so that they symbolize one of the variables.

For example, in the histogram below, the columns describe the number (or frequency) of times that planes from a particular airline were either on time, delayed by 30 minutes, or cancelled when leaving from a particular airport.
Business researchers are often also interested in the relationship of two or more variables rather than in simple pairs of numbers. The common way of presenting two or more interdependent variables is the curve or line which implies a continuous variable (i.e. where the numbers of possible values are infinite).

The following graph illustrates the percentage of men and women in a number of age categories for a particular county. Age is a continuous variable so ‘connecting the dots’ is an acceptable approach to use with this type of data.

![Graph showing percentage of men and women in different age categories]

**Correlation**

Determining the relationship between two variables can be done by using the tabulation and graphical approaches outlined earlier but it can also be done through the use of statistics.

The statistics available for analyzing the links between two variables depend on what type of scale by which the variables have been measured. The correlation that is most often reported is the standard correlation or more precisely *product moment correlation* (also known as the Pearson Product Moment Correlation or Pearson r). This statistic is used when both variables are measured on an arithmetic scale.

The product moment correlation or Pearson's correlation which is usually abbreviated with the letter r measures how closely the association between two variables resembles the linear equation $y = ax + b$. If the correlation coefficient is high, in other words if its value
approaches either +1 or -1, it means that the relation between the two variables approaches this equation. If the correlation is low, e.g. something between -0.3 and +0.3, the two variables have not much to do with each other (more exactly, they have almost no linear covariation). The sign of the correlation coefficient is not important; the sign is always identical with the sign of the coefficient $a$ in the above equation.

The following scattergrams show three different sets of data from two variables, each set consisting of eight pairs of values. The correlations between the two variables have been calculated and are shown under each scattergram. It can be seen that there is no correlation between the variables in the set on the left, and the other two sets show correlations of 0.5 and 1.0.

Notwithstanding the fact that correlation analysis is able to handle only two variables, it is an excellent tool for the initial analysis of a large number of variables, when you have no clear idea of their relationship. A computer can quickly calculate the correlations between all possible pairs of variables, finally constructing a correlation matrix from the results. You can then select those pairs that have the strongest correlation and continue by examining these pairs with other, more refined tools for analysis.

A weakness of the correlation analysis is that it cannot detect other than linear relations between the variables. E.g., a relation that obeys the equation $y = ax^2$ would pass unnoticed. However, some analysis programs are able to detect even this and some other usual relationships of variables.

It can also be useful under these circumstances to make a scattergram of the two variables which you think might have a relation, and see whether the resulting pattern follows the shape of any appropriate mathematical function.

Once you have found a pair of variables with a strong correlation you can continue, for example, to consider which variable of the pair is independent (i.e. the reason) and which is dependent (the consequence), and whether the relationship can involve still more variables. A more statistically sophisticated approach would involve undertaking a regression analysis. Again, this is beyond this first research methods course but is
something that should be mentioned since even novice business researchers could encounter the need to use regression analyses.

Here is one final thing to bear in mind. If a correlation has been calculated from a sample (which is most often the case), its statistical significance should be determined with the t test. We won’t go into the details of statistical tests in this course but this is an important step to bear in mind.

Now let’s move on to consider an example of data analysis involving questionnaire data in the next topic.
TOPIC 2.2 – INTRODUCTION TO USING EXCEL DATA ANALYSIS TOOLS

TOPIC INTRODUCTION
In the last topic you were introduced to a number of important terms and concepts related to the analysis of quantitative data. In this topic you will work through a sample data analysis exercise using Microsoft Excel, a commonly-used spreadsheet tool which contains many of the statistical tools mentioned in the last topic.

In this topic, you will learn about the descriptive statistics tools available in Excel and how to code and analyze questionnaire data.

TOPIC OBJECTIVES
Upon completion of this topic you will be able to:

1. Analyze questionnaire data using a spreadsheet program such as Excel.

Questionnaire Analysis Begins with Good Research Questions
As has been pointed out earlier, before developing a questionnaire, it is essential to frame a set of research questions. What is it that you are trying to find out? Let’s consider the following example of a set of research questions that are focused on customer satisfaction.

Customer Service Satisfaction Questionnaire
Recently the city of Allgood, was interested in finding out how its citizens were using its large public park and the degree to which they were satisfied with the services that were available to them. In framing this research, the questions that most interested the city managers were:

1. Which activities to people engage in when they go to the park
2. What forms of transportation do most people use to get to the park?
3. Is the existence of a children’s playground in the park linked to visitors’ satisfaction?
4. Is there any relationship between what people do in the park and the amount of time they spend in the park?
5. Is there any relationship between the amount of time spent in the park and how people got to the park?
The following variables of interest were determined to be of interest:

- **Individual** is the observation number of the questionnaire. One questionnaire was completed for each family visiting the park.

- **Time** is a quantitative data type, measured in minutes. It is the time that an individual spends engaged in an activity in the park.

- **Mode** is a nominal data type consisting of four means of transportation to get to the park:
  - Walk (1)
  - By car (2)
  - Cycling (3)
  - By bus (4)

- **Activity** is a nominal data type consisting of 6 choices of activity in the park (more than one option could be selected):
  - Sporting activity (i.e. football, basketball) (1)
  - Family picnic (2)
  - Leisure (i.e. reading) (3)
  - Walking (including with the dog) (4)
  - Meditation (5)
  - Other (6)

- **Satisfaction** Measures an individual’s satisfaction concerning the park service it receives and is an ordinal scale with 5 values:
  - -2 = Very dissatisfied
  - -1 = dissatisfied
  - 0 = neither satisfied nor dissatisfied
  - 1 = satisfied
  - 2 = Very satisfied

- **Playground** is a nominal scale (Yes or No) about the existence of a playground for children.

With these research questions and variables in mind, the city managers developed a questionnaire which they distributed to park users. This following coding table (on the next page) was developed to enable the city managers to code each of the questionnaire responses for analysis:
A Sample Questionnaire Coding Table

A total of 12 individuals agreed to answer the questionnaire developed by the city managers. The results of the questionnaire are provided in the following data table.

Next, a summary data table was produced:

Although this is a very limited data set it can be used to illustrate how to use Excel to analyze data and help to answer the research questions posed above. The next section of this topic will walk you through how to analyze this data using Excel. For the purposes of this example Excel 2007 is used.

Descriptive Statistics Data Analysis Using Excel
Microsoft Excel (2007 or earlier or later) includes a selection of descriptive data analysis tools. To access the data analysis menu in Excel you will need to first be sure that you have installed the Add-in. To do this you must first go to the Menu button at the top left of an open Excel spreadsheet.

Click on the start button which will open a dialog box and click on Excel Options at the bottom of the dialog box. You will see the following screen:
Next, click on the Add-ins option and a screen with various add-ins will appear. If the Analysis ToolPak is inactive, highlight it and at the bottom of the page click ‘Go’ to enable the Analysis ToolPak.

With the Data Analysis ToolPak installed, you are now ready to work with the questionnaire data that was described earlier. By clicking on the Data tab, you will see a Data Analysis tab at the end of the row of options. Clicking this option will open the data analysis dialog box and that in turn displays the Descriptive Statistics option.

Clicking OK with the Descriptive Statistics option highlighted produces another dialog box which is an input form.
First you must complete the Input range. To do this, select range of your data that you want to be analyzed by highlighting it. In this example that means highlighting rows 3 through 14 inclusive and columns A though K (again, inclusive). Include the label in the first row and check that check box. Check also the Summary statistics check box and then click OK button.

Turn to the next page to see the highlighted area for input into the data range.
The majority of respondents use a car to get to the park.

Mean satisfaction is 1 or ‘satisfied’ with the park services.

This row provides a sum of all of the responses and can be used for further analysis.

Now take a moment to consider the results of the data analysis in the example outlined above.
One of the observations that you may wish to consider is creating a frequency chart. A sample is provided below.

<table>
<thead>
<tr>
<th>Activity</th>
<th>Frequency</th>
<th>Relative frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) sports activities</td>
<td>4</td>
<td>18.2%</td>
</tr>
<tr>
<td>(2) picnicking</td>
<td>6</td>
<td>27.3%</td>
</tr>
<tr>
<td>(3) reading</td>
<td>3</td>
<td>13.6%</td>
</tr>
<tr>
<td>(4) walking (including with the dog)</td>
<td>5</td>
<td>22.7%</td>
</tr>
<tr>
<td>(5) meditation</td>
<td>1</td>
<td>4.5%</td>
</tr>
<tr>
<td>(6) jogging</td>
<td>3</td>
<td>13.6%</td>
</tr>
<tr>
<td>Sum</td>
<td>22</td>
<td>100.0%</td>
</tr>
</tbody>
</table>

Now take this new piece of information and complete the following assignment:

**Mini-Assignment**

Using Excel, graph the data using an appropriate graphical chart. Which research question does this data help to answer and why?

*Record your answers in your personal journal.*

Now let’s move on to consider how to use Cross tabulation as a statistical tool.
Cross-Tabulation (Cross-Tabs)

In a number of cases, it is important to consider the relationship between two variables. In order to do this we will need to do what is called a cross tabulation or cross tab for short. A cross tabulation is a frequency table between two or more variables. In general, it is recommended that only two or three variables at most be considered at one time since a table with more variables can become difficult to read and interpret. These tables are often also called contingency tables. In Excel, the label Pivot Table is used.

To use the Pivot Table option in Excel, first go to the Insert tab and insert a data table. The image on the next page provides an example the Pivot Table icon in the top left of the picture.
When you click the icon, the Create Pivot Table dialog box pops open.

![Create Pivot Table dialog box](image)

After selecting the data range (including the labels at the top of the data table in row 2) and clicking OK the Pivot Table function will open. You will now be able to select the fields (variables) that you want to consider. For example, you may be thinking that those individuals who spend more time in the park are doing so because they are more satisfied with their experience. To create this cross tab, select the fields (check the tick boxes) for Time and Satisfaction as indicated in the image below:

![PivotTable Field List](image)

Next, drag the Satisfaction label into the box labelled Row Labels and the Time label in to the Sum (Σ) Value box.
This will result in a Pivot Table that looks like this:

<table>
<thead>
<tr>
<th>Satisfaction</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>-1</td>
<td>90</td>
</tr>
<tr>
<td>0</td>
<td>30</td>
</tr>
<tr>
<td>1</td>
<td>105</td>
</tr>
<tr>
<td>2</td>
<td>480</td>
</tr>
<tr>
<td><strong>Grand Total</strong></td>
<td><strong>705</strong></td>
</tr>
</tbody>
</table>

The left hand column in this cross tab table indicates the degree of satisfaction with the park experience. The -2 data point is missing since none of the respondents selected this response. The right hand column indicates the total time (in minutes) that those selecting a satisfaction rating selected.

**Self-Reflection Questions**

What do you make of this data? Which research question does this data help to answer and why?

What is the relationship between those individuals who used the playground facilities and their satisfaction with their park experience? Hint: Use the Pivot Table function in Excel to determine your response.

*Record your answers in your personal journal.*

Now, let’s move on to the next page and the assignment for this unit.

**Assignment 3: Making Sense of Business Data**
A small wholesale stationary company (ABC Stationary) that supplies a range of products including pens, pencils, binders, and office furniture to local distributors has a regional sales force that operates throughout the country. The following table provides an overview of the sales that have been completed by ABC’s sales representatives during 2010. Review the chart and then answer the questions that follow.

Data Set

<table>
<thead>
<tr>
<th>Order Date</th>
<th>Region</th>
<th>Rep</th>
<th>Item</th>
<th>Units</th>
<th>Cost</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/6/10</td>
<td>East</td>
<td>Jones</td>
<td>Pencil</td>
<td>95</td>
<td>1.99</td>
<td>189.05</td>
</tr>
<tr>
<td>1/23/10</td>
<td>Central</td>
<td>Kivell</td>
<td>Binder</td>
<td>50</td>
<td>19.99</td>
<td>999.50</td>
</tr>
<tr>
<td>2/9/10</td>
<td>Central</td>
<td>Jardine</td>
<td>Pencil</td>
<td>36</td>
<td>4.99</td>
<td>179.64</td>
</tr>
<tr>
<td>2/26/10</td>
<td>Central</td>
<td>Gill</td>
<td>Pen</td>
<td>27</td>
<td>19.99</td>
<td>539.73</td>
</tr>
<tr>
<td>3/15/10</td>
<td>West</td>
<td>Sorvino</td>
<td>Pencil</td>
<td>56</td>
<td>2.99</td>
<td>167.44</td>
</tr>
<tr>
<td>4/1/10</td>
<td>East</td>
<td>Jones</td>
<td>Binder</td>
<td>60</td>
<td>4.99</td>
<td>299.40</td>
</tr>
<tr>
<td>4/18/10</td>
<td>Central</td>
<td>Andrews</td>
<td>Pencil</td>
<td>75</td>
<td>1.99</td>
<td>149.25</td>
</tr>
<tr>
<td>5/5/10</td>
<td>Central</td>
<td>Jardine</td>
<td>Pencil</td>
<td>90</td>
<td>4.99</td>
<td>449.10</td>
</tr>
<tr>
<td>5/22/10</td>
<td>West</td>
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<td>Pen Set</td>
<td>74</td>
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<td>1,183.26</td>
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</table>

Turn to the next page for the assignment questions.
Assignment 3: Making Sense of Business Data

1. As the owner of ABC, what kinds of questions do you think should be asked concerning the sales activity represented in the data set provided by the sales team? Why do you think those questions are important?

2. What is the breakdown of sales by region?

3. Are there any important differences between regions in terms of products that are sold?

4. Which sales representative seems to be the most successful? Which one is the least successful?

Illustrate the most important relationships in this data set using the data analysis tools you have learned about in this unit.

Record your answers in your personal journal.

Now let’s go to the next page to consider what you have learned in this Unit.
UNIT SUMMARY

In this unit you considered various methods that are used to analyze quantitative data and how these approaches will assist you in answering questions and solving problems related to your business. You learned about a number of basic descriptive statistics and how these can help you portray data and information about your business. You also learned about some of the basic statistical functions that are included in spreadsheet programs such as Excel.

NEXT STEPS

In the next unit, you will have the opportunity to learn about approaches that can be used to analyze qualitative data that you have collected through interviews and focus groups. Making sense of the large volume of data that usually results from interview and focus group processes can be a difficult and challenging task. The next unit will provide some useful and practical advice on how to deal with this challenge.

REFERENCES


OTHER RESOURCES

If you have access to the internet you may wish to consider the following resources which will support your learning about the analysis of quantitative business research data:

http://home.ubalt.edu/ntsbarsh/excel/excel.HTM

Now let’s move on to the next unit in this course on analyzing qualitative business research data.
UNIT THREE – TOOLS AND TECHNIQUES: ANALYZING AND INTERPRETING QUALITATIVE BUSINESS RESEARCH DATA

UNIT INTRODUCTION

Welcome to the third unit in this course on qualitative data analysis. As you learned in the last unit on analyzing quantitative data understanding the structure of the data and the tools to use to analyze and interpret it is critical to making solid business decisions.

Building on this background, in this unit, we will consider qualitative tools and techniques for analyzing open-ended questionnaire responses, and interview and focus group data.

UNIT OBJECTIVES

Upon completion of this unit you should be able to:

1. Describe the various types of narrative data that you can collect.
2. Describe the steps in a content analysis process that you can adapt to business questions that you wish to ask customers and clients.
3. Apply what you have learned to an example in the business you are thinking of starting or already run.
4. Demonstrate an understanding of how to analyze qualitative data from interviews and focus groups by applying data coding techniques.

ASSIGNMENTS AND ACTIVITIES

There are a number of learning activities and self-reflection assignments throughout this unit. The major assignment for this unit involves

As in earlier courses, you will also be asked to complete a self-assessment to help you identify your own strengths and weaknesses. This will help you identify areas that need improvement and strengths that you can build upon.
TOPIC 3.1 – ANALYZING QUALITATIVE DATA FROM INTERVIEWS AND FOCUS GROUPS

TOPIC INTRODUCTION

In this topic related to the analysis of qualitative data, you will learn how to analyze data that you collect from a variety of sources including open-ended questions and written responses on questionnaires, interviews, and focus groups. You will learn about the analysis process and be provided with a step by step approach to analysis that you can apply to your own business.

Now, let’s consider the objectives for this topic on qualitative data analysis.

TOPIC OBJECTIVES

Upon completion of this topic you will be able to:

1. Describe the various types of narrative data that you can collect.
2. Describe the steps in a content analysis process that you can adapt to business questions that you wish to ask customers and clients.
3. Apply what you have learned to an example in the business you are thinking of starting or already run.
4. Demonstrate an understanding of how to analyze qualitative data from interviews and focus groups by applying data coding techniques.

Background

Qualitative data is often called narrative data and consists of words and observations and not numbers. As is the case with quantitative data, analysis and interpretation of qualitative data is needed in order to bring order and understanding. Doing this requires an orderly, disciplined and systematic approach. It is also important to note that there is no ‘one right way’ to undertake qualitative data analysis.

The analysis process that you use will depend upon:

- The questions you want to answer
- The needs of those who will use the information (i.e. is this for a board presentation or internal use by the management team)
- The resources that you have available to undertake the analysis.

In this topic, a basic approach for analyzing and interpreting qualitative data will be provided. This approach is typically called content analysis. References to other types of qualitative data analysis are provided in the references section at the end of this Unit. If you have collected or wish to collect audio, video, or other visual data, you may wish to consider reading a number of the references provided.
The Types of Qualitative Data

Text or narrative data come in a number of different forms and from a variety of sources. If you have used a questionnaire to collect data from customers it may include brief answers to open-ended questions. You may have also used interviews or focus groups to collect data. The data from these observations may come in the form of a transcript or a set of notes in a diary or log book. Data may also come from reports and documents. Data may come from many people, a few individuals or a single case.

Here is a summary of the types of qualitative data that you may be faced with in your attempt to analyze and interpret your observations:

- Written-responses on questionnaires – these may generate single words, brief phrases or full paragraphs of text
- Individual interviews – these can result in data in the form of notes or word for word transcripts
- Focus groups – often involve full transcripts and notes from a moderator or observer
- Observations – notes that are most often recorded in a field diary
- Documents and reports – any published material could be the subject of analysis
- Case studies – involve several of the above sources of data

The Analysis Process

After you have spent a great deal of time and energy collecting data what do you do with it? There are several steps that can be followed to ensure that you have done a thorough and systematic job of analyzing the data you have collected. Let’s go through these one at a time but bear in mind that you may need to jump back and forth between them since analysis is an iterative process.

Step 1: Getting a Feel for the Data (or how the pieces of the puzzle fit together)

Good analysis depends on gaining an understanding of the data. In qualitative analysis this means that you have to read and then re-read the text that you have collected. If you have audio tapes you listen to them several times. In either case you write down impressions as you go through the data since you may want to refer to them later in the analysis process.

You should also note the data that is not of
sufficient quality to warrant inclusion. After you have done this, it is important to define the limitations of the analysis and the level of analysis that you think is important and appropriate given the data that you have collected.

**Step 2: Focus Your Analysis**

After you have a feel for the data, review the purpose of the business research that you have undertaken and what you want to find out. Identify a few key questions that you want your analysis to answer and write them down. These questions may change as you work through the data but they will help you get started.

Here are two common approaches to gaining a focus on the data:

- **Focus by question, topic, time, or event.**

  In this approach you focus on how each individual (or group) responded to each question or topic or for a given time period or event. This approach often works well with open-ended questions. You will organize the data by question and look across all respondents to identify consistencies and differences. All of the data from each question is compiled. You then apply the same approach to each topic. After this has been done, you can look for connections and relationships between questions.

- **Focus by case, individual, or group.**

  Another way to focus your analysis is to try to get a picture of what is happening based on a single case (this could be a competitor or partner that you are working with), an individual (i.e. a customer of the product or service that you are interested in learning more about), or a group (e.g. all first time users of a product or service).

  In this approach the data are grouped by case, individual, or group, rather than by question. It should be noted that both approaches can be used at the same time. It is not a matter of one working better than the other. They can both add value to the analysis process.

**Step 3: Categorizing or Coding the Data**

An effective way to bring meaning to the words that you have collected through the data gathering process involves identifying the themes or patterns in the data (e.g. the ideas, concepts) and organizing them into distinct categories that summarize and bring meaning to the text.

Categorizing data can be a labour intensive process (particularly if you have a large volume of data) but it is the essence of qualitative analysis. Be forewarned that this step will involve reading and re-reading the text to find the distinct categories that are inherent in the data.
Usually at this stage of the analysis, researchers assign abbreviated codes (i.e. a few letters or symbols) and put them next to the themes and ideas that are found. This helps to organize the data into categories. As this process proceeds you may find other categories or sub-categories.

Here is an example of some of the categories that may be applied to the answers to open-ended questionnaire responses:

<table>
<thead>
<tr>
<th>Questions</th>
<th>Categories</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Why do you think we provide a quality service?</td>
<td>REL (relevance), TIME (timeliness), EFF (efficiency)</td>
</tr>
<tr>
<td>2. What benefits have you received from your subscription to our company’s service?</td>
<td>FAM (benefits to family), BL (helps the bottom line), COMM (community benefits)</td>
</tr>
<tr>
<td>3. What can our company do to ensure your continued purchase of our services?</td>
<td>IMP (improvements suggested), COM (more communication), U (uncertain)</td>
</tr>
</tbody>
</table>

Now let’s consider a couple of different ways to categorize textual or narrative data.

**Pre-set Categories**

One possible approach to qualitative data analysis is to start with pre-set categories or a list of themes and then search the data for these topics. You might start with concepts that you want information about or topics that come from another source such as consumer research on product preferences. The themes you select will guide you to what you should look for in the data.

**Emergent Categories**

Another approach is to read through the text and find themes that recur in the data. These recurring themes become your categories. The advantage of this approach is that you may find things in the data that had not occurred to you.

It is, of course, possible to combine these two approaches in which case an initial list of categories is modified by those that emerge through a reading of the text. This will result in a resorting of the data but will allow you to find the ‘hidden gems’ that could make all the difference in the business decisions you are trying to make.

Here is an example of data that has been labelled from an open-ended questionnaire. The categories that have been used to code or categorize this data are:

\[ P = \text{price}; \; T = \text{time}; \; CFS = \text{customer feedback \\& service}; \; N = \text{nothing}; \; T = \text{trial}; \; I = \text{information} \]
Step 4: Identify Patterns and Connections

After you have coded the data, it is important to summarize the information related to each theme and consider the similarities or differences in people’s responses within the categories. Here you are looking for nuances of difference and trying to ‘tease out’ the relevant pieces of information that could help you make an important business decision. It is not always the ‘loudest’ comments that are the ones that you need to pay attention to. Sometimes the most insightful comments are the simplest and most straightforward. It is helpful to write a summary of each category that describes what you have found.

In undertaking this kind of review, it may also occur to you that you need to collapse some categories into larger ones. You will also want to consider the relative importance of the categories and their relationships since some of these connections may suggest a cause and effect relationship. Also look for examples that run counter to the themes that you have used to code and classify the data. These ‘outliers’ may be important when it comes time to understand the data that you have collected.

Step 5: Interpretation

The themes and connections that you have established in the last step can be used to explain the findings. What do your findings mean? What are the most important findings?
This is what is meant by interpretation of the data. To start the interpretation process, develop a list of the key points or important findings. Take a look at each of them. What are the major lessons learned? How will these lessons be applied to the business decision that you need to make? In other words, it is not sufficient to simply list the findings. To gain value from the data you have collected you must extract their meaning within the context that you are working in.

It is often useful at this stage to develop an outline of the results so that you are ready to write a report. Highlighting some of the more important quotes or descriptive examples will enhance the meaning of the results that you will present in your report. You can also use these to suggest additional study that may help to ‘drill down’ and allow you to get to the heart of an issue.

**Practical Considerations**

There are a number of practical considerations in coding data that you should also be aware of. Here is a short summary of these details.

- Check your data – make sure that you have everything and that it is sorted and of sufficient quality to analyze.
- Add ID numbers – add an id number to each questionnaire, respondent, group or interview
- Prepare the data for analysis – transcribe any recorded interviews or focus groups or at a minimum ensure that there is a detailed summary of each
- Make copies – copy all of your data (electronically and hard copy) for security and safekeeping
- Identify the source of all data – keep track of the source of data and the context within which it was gathered and any remarks or observations that you have made
- Mark the key themes – do this in a manner similar to the example provided earlier in this topic or use a colour coding scheme or symbols
- Define your categories – organize or combine related themes into categories. Use descriptive phrases or key words from the text to help explain what is included in each category
- Cut and sort – group the data into categories by cutting and sorting them (either electronically using a spreadsheet such as Excel or physically). Here is an example:
Make connections – think about how the categories fit together and relate to one another and make notes or use a matrix to develop patterns (i.e. categories along each axis and the cells filled with evidence)

**Some Final Cautions**

There are a number of cautions that need to be taken when analyzing qualitative data. Avoid generalizing over an entire population. The goal of qualitative analysis is to find out what is unique and to gain insight into individual or group perspectives and to answer questions such as, “why do you think that is the case?”.

It is also important to choose quotes carefully and to ensure that you have permission to use them. This is an ethical consideration and involves insuring the confidentiality and anonymity of those responding to questionnaires and interview and focus group questions.

Lastly, be sure to outline the limitations of your analysis and present any problems or issues that you encountered while collecting the data. Also, outline how the data supports the interpretations that you have outlined.

**TOPIC SUMMARY**

In this topic you have learned about some of the approaches that can be used to analyze qualitative data that you have collected using a number of different techniques including questionnaires, interviews, and focus groups. A step by step process was described which can be applied to the data you collect for questions that you have concerning the products and services that your small business provides to its customers.

Now, let’s move on the assignment for this Unit of the course.
ASSIGNMENT 4: ANALYZING A NARRATIVE TEXT