INTRODUCTION TO ACADEMIC RESEARCH

What is research?

According to Zikmund et al (2012), if we look at the word "research" literally, we will see that it consists of two terms, which are "re" and "search". Because "re" means again, the word "re-search" in this sense means "to search again". Sound simple, right? Anyway, please keep in mind that this is just a rough and informal definition of research. But before we take about research seriously, let's begin by something less serious for now.

If the term 'research' means to search again, the next questions are: what do we search and why do we need to search? Generally, the simple reason why we research is that we want to find out some information in order to solve a specific problem. Ironically, we do research because we have a problem. By anyway, the word "problem" by itself tends to be quite broad. The problem can be your personal problem. Even curiosity can be a problem. Sometime people do research simply because of curiosity. There is something that they want to know, something they doubt about, or something they seek to find an answer to it. Generally, it is a basic human nature; if we don't have a problem, we won't waste our valuable time and energy to get involve with the issue. When people are curious to know something but they cannot know it, they feel uneasy. Sometime, a problem can be a serious issue that requires serious research to provide solutions. For example, the company that has experienced high turnover problem may need to hire the consultants to conduct research to find out why the organization cannot retain good employees. But no matter how serious a problem is, people need an answer or explanation to ease their concern or to quench their curiosity. Therefore, when we research, we search for information that will help us address a problem or a question that we have.

By the way, if you think of a research in an informal sense, you will discover that you probably have already conducted a lot of research in your daily life. For example, suppose that you are a big fan of online shopping and one day you know that there is a cool product just launched to the online store. You don't know much about it because it is new to you, but still, you want to buy it. So what will you

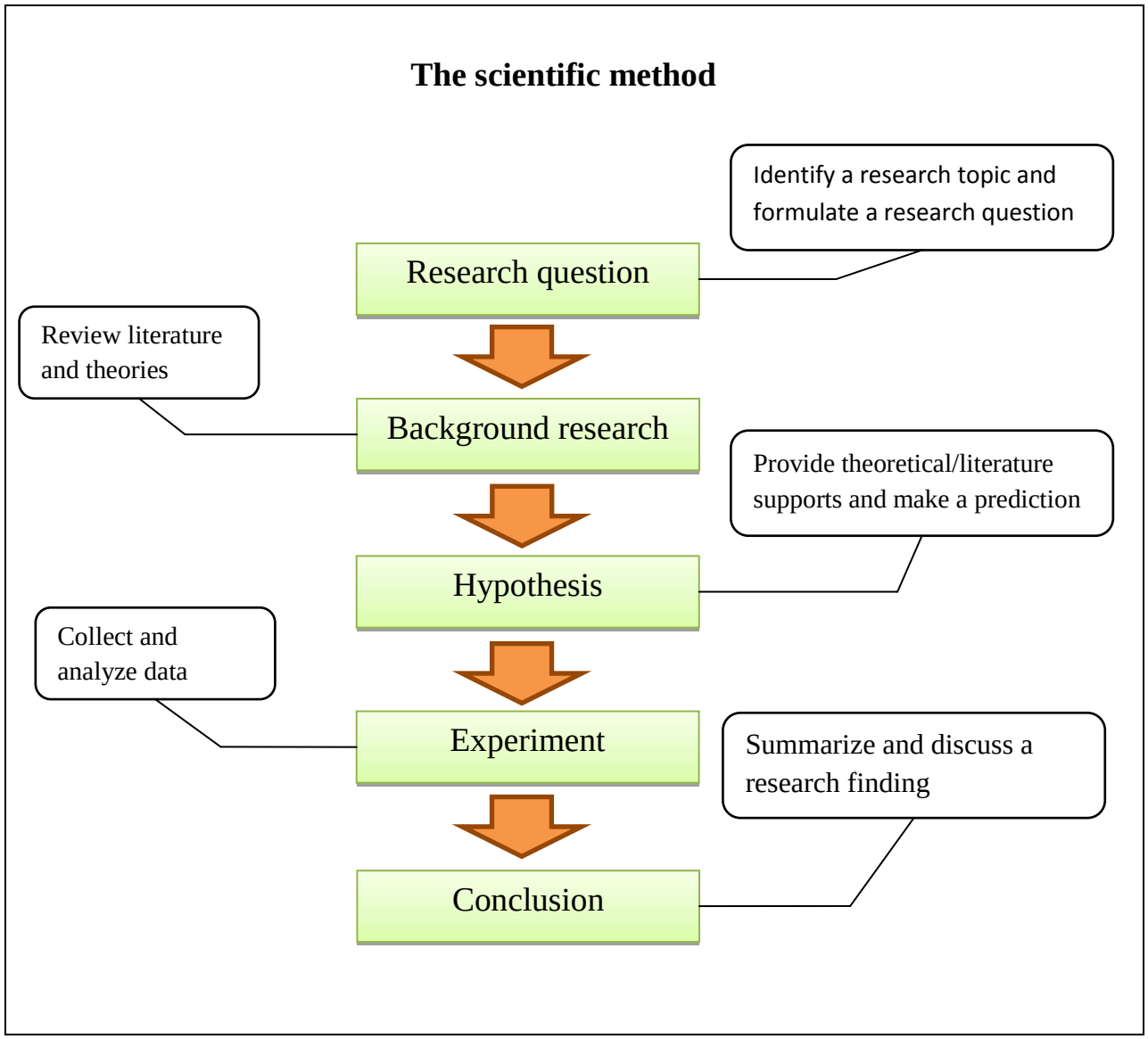
normally do in this case? Because you want to buy the product but you don't have sufficient information to guide a buying decision, you have a problem. And when the problem like this happens, normally you have to search for more information; and yes, you have to research. Basically, information that you need can be acquired from many sources. For example, you may read reviews from the Internet or ask your friends who know about it. After you have obtained some certain amount of information, you have to use the information to support whether the product is worth buying or not. Suppose that you believe the information is convincing enough for you to make a buying decision, then you order the product from the online store. After you bought the product and have used it for some time, you will know exactly whether you made a right decision or not. If the product is as you expected, you are happy and you might recommend it to your friends. However, if the product is not what you expected, you are upset and you might spread negative word-of-mouth about it as a result.

This example, although it does not sound academic, can give you some basic idea about the process of academic research. From what you read, you can see that the situation involves a series of steps, starting from having a problem that you want to find an answer to it (*research question*), searching for information (*background research*), making a prediction (*hypothesis*), proofing whether the prediction is correct or not (*experiment*), and making a final decision (*conclusion*). Academic research is also based on a process similar to this. In particular, the process that is employed in academic research is called a "*scientific method*".

THE SCIENTIFIC METHOD

The scientific method starts with identifying and formulating research question. A *research question* is a specific issue that the researcher aims to understand or aims to seek an answer to it. Normally a research question is related to the research topic that the researcher plans to work on. In particular, coming up with a research question is the beginning step that the researcher needs to plan carefully. This is

because it tends to determine the whole process that the researcher needs to carry on afterward.



A research question can come from many sources; but in particular, it normally comes from prior knowledge and direct experience of the researchers. The researchers may come across a research question from direct experience in daily life. Sometimes, curiosity that arises from observation can play an important role in helping the researchers come up with a potential research question. Interestingly, it is evident that many great inventions of the world also came from curiosity and direct observation of the scientists. For instance, the discovery of the

law of gravity by Sir Isaac Newton was originated from his curiosity when he saw an apple fell down from an apple tree. Sometime, a research question can emerge when the researcher reviews previous works of other scholars. For example, when the researcher is skeptical about the findings that were reported in the previous research, he/she may want to disprove or reprove them with the new data. Sometime a research question arises when the researcher spots a gap in the research area that has never been explored before, and that motivates him/her to conduct research to provide additional evidence to fill the literature gap.

The next step, after a research question is identified, the researchers have to perform *background research* to gain more understanding about the issue of interest. In particular, information from books and academic journals are the major sources that allow the researchers to have better understanding about the topics or concepts under investigation. In this step, the researchers need to review previous works to see what have been done already and how the information from previous research can help clarify or provide some insight to a research question that they have. In particular, this step in research can also be called a *literature review*.

After the researchers performed background research and have gained more understanding about the topics or concepts of interest well enough already, they can use the knowledge that they obtained as a guidance to formulate a logical reason to provide some plausible answer a research question that they have. In this step, the researchers come up with a *hypothesis*. Basically, a hypothesis is a prediction that the researchers make based on logical explanations and prior supported evidence that the researchers already reviewed in background research.

After the hypothesis is set, it is important for the researchers to provide the evidence to prove whether the prediction they made can be supported in real life or not. In order to test the hypothesis, the researchers need to perform an *experiment*, which is a process by which the researchers use real-life data to verify or falsify a hypothesis. In this step, the researchers have to collect the real-life data, analyze them, and then verify whether the finding they obtain is consistent with what they predicted in a hypothesis or not. Sometime the finding is consistent with a hypothesis, but sometime it may contradicts a hypothesis. Based on the finding,

researchers have to come up with a final *conclusion* and communicate their finding to others.

When applying the scientific method to the situation that we used earlier about online buying decision, we can see that each process of situation can be linked to the steps in the scientific method as the following:

Research question:

You want to know whether the product is worth buying or not.

Background research:

You search information to know more about the product.

Hypothesis:

You use the information you obtain to support your decision to buy the product.

Experiment:

You buy the product to see if it meets your expectation or not.

Conclusion:

You recommend the product to your friends if the product meets your expectation, or spread negative word-of mouth if it is not.

Now you can see that the steps involved in the scientific method can be applied to informal way of doing research that you perform in real life. In the next section, we will see that actual academic research also needs to follow these steps in the scientific method as well.

Practical example of using scientific method is research

Previously you already saw some non-academic example of how scientific method works. Here, let's see how the steps in the scientific method are actually applied to the process of doing academic research. Let's use the research conducted by the author as the example. One of the research areas that the author is interested is the

study about the impacts of using social networking sites (SNSs) such as Facebook, LINE, and Instagram (Charoensukmongkol, 2014, 2015). We know that nowadays, SNSs have become the main integral part of people of all age groups. On the one hand, SNSs offer tremendous benefits by allowing people from all around the world to get closer together. However, there is also a criticism from a society that using SNSs may damage social relationship that people have in real-life. Anyway, there are several areas of impact caused by SNSs that research at that time focused on; most of them studied the impacts of SNSs on general psychological outcomes, using student samples. But in the research that the author conducted, the focus is on the effects of employees' using SNSs in a workplace. In particular, the main research question that the author aimed to explore is whether employees' using SNSs during work is counterproductive to work outcomes? Is it possible that using SNSs during work might actually provide some benefit for employees.

Anyway, how did the author began the first step in the scientific method "*Identify the research problem"*? In particular, the motivations for this research topic came from two sources: prior knowledge of the author about the topic related to the impacts of SNSs and direct observation of the author in a workplace. Regarding the prior knowledge, before the author decided to work on this area, the author had already exposed to some prior research, articles, and news that portray the positive and negative outcomes of SNSs. One day the author came across one online article which reported that many organizations in the U.S. began to ban employees from using Facebook in a workplace because it distracted employees from focusing on jobs. In particular, this article (along with other prior research works that the author came across) raised some awareness about some potential area of research on the impact of SNSs that the author would work on.

In addition to prior knowledge that the author had, direct observation of the author in workplace also contributed to the research questions that the authors identified. When the author was in the office with colleagues who was working seriously on some important tasks, the author noticed that some colleagues, after they had worked for some time, they took a break and spending time once in a while on SNSs updating status, reading and commenting on their friends' posts. From the informal interview that the author had with colleagues, they mentioned that

spending some time on SNSs during work actually made them become more productive because when they had a chance to communicate with their family and friends on SNSs it made them relax from work stress. The information that the author obtained is the next starting point that made the author raise the question whether using SNSs at work is actually harmful to work performance like what the online article portrayed. In summary, this is how prior knowledge and direct experience together helped the author to identify the research question.

In the second step in the scientific methods named "*Background research*", the author searched existing literature to see what had already been done about the impact of SNSs; then the author summarized them as part of the literature review. In order to support why using SNSs at work can benefit work outcomes, the author also searched literature to see if there is any theory or related literature that can explain the benefit of using SNSs. In particular, some theories that the author found include job-demands-resources model (social support from family and friends can serve as a critical resource that help lower work stress) and social capital theory (social connection that people develop with others can provide critical resources and knowledge that facilitate work performance). The author used those theories and related literature to supports the prediction why using SNSs at work could somehow benefit job-related outcomes. Using theories and related literature to support a prediction in the research is the third step named "*Hypothesis*" in the scientific method.

After the prediction about the benefit of SNSs use at work on job-related outcomes was established as a hypothesis, it was time for the author to prove whether the prediction that the author made could be verified in reality or not. To begin, the author used questionnaire survey to collect data from employee sample. After that, the statistical technique was performed to analyze the data. Based on statistical evidence obtained from data analysis, the author found that there was actually a positive connection between SNSs use at work and job-related outcomes. The empirical results verified the prediction that the author made. In particular, the process to data collection and data analysis in the fourth step of the scientific method is called "*Experiment*". Because the hypothesis that the author established was confirmed by real-life data, the author made recommendations in the end of the paper that using SNSs during work may not necessarily cause negative

consequences to work outcomes. Instead, it may somehow help employees achieve better performance. The recommendation that the author communicated to the readers based on the research findings is the last step in the scientific method named "*Conclusion*".

BASIC VS APPLIED RESEARCH

Research can be classified broadly into (1) basic research, and (2) applied research. In particular, the key difference between basic research and applied research is the purpose and the benefits that the research provides.

For *basic research* (also known as *pure research*), the main objective is simply to expand scientific knowledge in general. Basic research does not aim to solve a specific problem in an organization or a society. Its role is to advancement our understanding of some specific issue. Some examples of basic research are the study about the origin of the universe, why dinosaurs extinct, how our behaviors are influenced by our emotions. In particular, basic research is normally conducted without a commission and there is no commercial value associate with the research findings.

On the other hand, *applied research* is conducted with the main objective to solve the specific problem of an organization or a society. Usually, applied research is sponsored by organizations or institutions that will benefit commercially from the research findings. For example, a car manufacturing company may commission a team of researchers to conduct a study on how to increase fuel efficiency. In this case, the new knowledge gained from the research can be a valuable know-how that the car manufacturing company can use to come up with the new fuel-efficient vehicle and make money from it in the market.

In terms of practical implications, it seems that applied research tends to gain more dominant in the society nowadays as compared to basic research. Among the major reasons that drive the demand for applied research is the intense competition

in business which motivates many firms to invest heavily in research and development to help them gain higher competitive edge *vis-à-vis* competitors. However, although basic research does not intend to solve specific problems or to generate commercial value like applied research does, it still serve as a fundamental that applied research can develop base on it (Stanovich, 2007). For example, although basic research about how human behaviors are influenced by emotions may generally help us understand the interconnection between emotions and behaviors, it can be applied to help corporations make money as well. For instance, because some particular behaviors can be expressed when people experience a certain emotion, marketers can use this psychological knowledge to invent a marketing campaign that triggers impulse buying of consumers.

QUALITATIVE VS QUANTITATIVE RESEARCH

Research can also be classified in terms of the methodology into two types: (1) qualitative research, and (2) quantitative research. Here is some basic analogy to understand some differences between these two types of research.

When we consider the word "qualitative", we know that it is about "quality". Let's think of the time when you go to dine at the gourmet restaurant. You know that gourmet foods normally have exceptional quality, but they are usually served in a very small portion. You don't need to eat a lot of them to make you full; you just eat a small amount and enjoy their rich and savory taste. On the other hand, when we consider the words "quantitative", it implies about "quantity". Using different example, when you go to the buffet restaurant, your primary goal is not to eat a small portion of foods, but to eat as much as you can. So what you care more in this case would be a quantity instead of a quality.

This analogy suggests some basic idea about the differences between qualitative research and quantitative research. In terms of information, if it is qualitative research, the focus is on in-depth and meaningful detailed information that is obtained from a few key persons. If it is a quantitative research, the focus is to

obtain the large amount of data from the population to prove that something can be verified. By the way, there are more formal points that distinguish the characteristics of qualitative research method and quantitative research method. In particular, when choosing which method to be used, there are six main aspects that need to be considered. These aspects include (1) research objective, (2) data collection technique, (3) types of data collected (4) sample selection, (5) data analysis technique, and (6) outcome/weaknesses.

Qualitative research

Research objective

Generally, qualitative research is conducted when the researchers want to gain an in-depth understanding about the phenomenon that is quite new, unclear, or when there is still no solid clue or prior evidence to help the researchers make sense of the phenomenon. In this regard, qualitative research is conducted to obtain meaningful and in-depth information in order to broaden the perspective about the issue of interest.

For example, a manager who was newly assigned to work for a corporation observed that the collective morale of employee tended to drop significantly since he had come to run the corporation. So there must be something wrong happened to employees. However, because this situation was quite new to him, so he had no clue about what actually caused the problem. He tried to think of some possible reasons. Although he came up with many reasons, he still couldn't pinpoint what could be the valid reasons that explain the problem. In addition, work moral has a lot involves with attitude of employee that is quite complicate and difficult to understand. Thus, using qualitative research can be appropriate for this situation, not only because it allows a manager to gain an in-depth understanding of employees' attitude, but it also helps him to dig down into the roots causes of the problem more precisely.

Data collection technique

Because the objective of the qualitative research is to help the researchers gain in-depth knowledge about the issue of interest, an unstructured interview (either one-on-one interview or focus-group interview) is appropriate for this purpose. When using unstructured interview, the researchers are able to ask open-ended questions and let the informants describe in detail about their opinion towards the issue that the researchers want to know. In particular, this method allows the researchers to uncover many areas that they might not think about. Using the above example, a manager who wanted to know what caused morale of employees to drop may arrange the focus-group interview with a group of employees to let them tell the problems openly in detail.

Type of data collected

Generally, the data obtained in qualitative research are thoughts and opinions of people. For this reason, the open-ended questions that allow informants to express their ideas openly are usually used in qualitative research. When interviewing an informant, a researcher normally notes down the information or use a tape recorder to capture the conversation. The information is subsequently encoded in text by the researcher.

Sample selection

Using the interview methods to collect the data tend to limit the number of informants that the researcher can recruit. Generally, each round of the interview is time-consuming. Thus, it is quite uneconomical for the researcher to recruit a large amount of informants for the interview. In addition, because the data obtained from the interview are captured in the text format, having a lot of interviewees might create more difficulty and complexity for the researcher to code and interpret the data. For this reason, the number of informants used in the qualitative research is usually quite small. However, it is crucial that the researchers need to make sure that people who are selected for the interview are the persons who have solid experience or have a very good knowledge about the issues that the researchers want to know. Usually, the researchers have to justify

beforehand whether a person to be recruited for the interview has adequate qualification to be a key informant or not.

From the example case, a manager who wanted to know the reasons that caused employees morale to drop may select a group of employees to join the focus-group interview. Anyway, not every employee was suitable to be selected. He needed to select only employees who knew very well about the problem. Some potential informants are employees who had noticeable drop in work morale. Also, immediate supervisors who worked closely with employees may be potential informants in this case as well.

Data analysis technique

Because the data collected through interview are thoughts and opinions of informants that are coded in a text format, it requires the researchers to use subjective judgment to interpret the data and to summarize the findings.

Outcome/Weaknesses

Although qualitative research allows the researchers to gain an in-depth understanding of a phenomenon of interest, it still has major weaknesses. The first weakness of qualitative research is that the results obtained from this approach tend to come from a small group of informants. Thus, small and limited sample size makes it difficult for researchers to infer the results back to a larger population. For example, the information that a manager obtained from the focus-group interview only came from a few employees. Due to this small number of participants, a manager could not make sure that the information he got from employees who were in the interview is also true for the rest of employees who did not participate in the interview. This issue causes the *generalizability* of the research findings to be weak. For this reason, the results obtained from qualitative research are not suitable to be used for a final decision making. Another weakness of qualitative research is that the results obtained from this approach are based on subjective evaluation of the researchers who interprets the information. Therefore, results from this approach are quite susceptible to subjective bias.

Quantitative research

Research objective

Quantitative research is usually used for theory/hypothesis testing. The primary goal of the quantitative research is to confirm whether the hypothesis or the prediction that the researchers have is true in reality by using the evidence obtained from a larger group people. When conducting a quantitative research, usually the researchers tend to have some idea about what are some specific causes of the problem. However, they just need to confirm them using the real-world data. For example, a manager who encountered a sharp drop in employee morale knew from his experience in managing people in other organizations that the main reasons why employees lose work morale tend to come from lack of opportunity for career advancement and dissatisfaction with current salary. However, he didn't want to make the conclusion right away unless he found some evidence to prove that what he believed was correct. Therefore, using quantitative research tends to fit this objective quite well.

Data collection technique

In the field of behavioral sciences, the data collection method that is normally used in quantitative research is structured or semi-structured questionnaire survey. In addition to the questionnaire method, the researchers may also use numerical data (such as financial data or economic data) from secondary sources.

From the example case, a manager may collect the data from employees by using a close-end questionnaire that contain questions that measure the variables of interest (e.g., the level of work morale, perception about opportunity for career advancement, satisfaction with salary).

Type of data collected

Generally, the data obtained from the quantitative method are coded in the numerical format. For example, when using a questionnaire survey, the researchers usually ask the informants to indicate the degree to which they agree or

disagree with something or to rate the frequency that they have engaged in some activity. This information is then coded in the numerical format (e.g. strongly disagree is coded 1; disagree is coded 2, neutral is code 3, agree is code 4, strongly agree is coded 5).

Sample selection

Because the objective of the quantitative research is to verify the hypothesis, it is important for the size of the sample used for this method to be large enough. Normally, the number of informants required for quantitative research could be hundreds or thousands. Using a small number of informants for quantitative research can make the generalizability of the results becomes problematic. From the example case, a manager may distribute the questionnaire he designed to every employee in the company to ensure that the information would cover the opinions of everyone. However, when deciding who will participate in the data collection, a random process is normally required in quantitative research to guarantee that everyone will have equal chance to be selected.

Data analysis technique

Because the data obtained from quantitative research are in numerical format, statistical techniques (such as descriptive statistics, means comparison, regression analysis) are used to analyze the data.

Outcome/Weaknesses

Usually the findings from quantitative research can be used to guide a final decision/recommendation because the results are verified from the data obtained from a large group of people. In this case, the generalizability of the findings is significantly higher than qualitative method. However, the major weakness if quantitative method is that the results from this approach are based largely on the data that are measured using fixed and predefined scales. This particular weakness, therefore, limits the ability of the researchers to obtain in-depth and meaningful information. In this regards, Hathaway (1995, p. 554) argued that "empirical-analytical (quantitative) research systematically overlooks critical

features of human phenomena so that results are often of limited value". Basically, we all accept that attitudes of mankind are inherently subtle and complicated; thus they cannot be measured perfectly on a physical scale. For example, asking the employees to evaluate their level of job satisfaction using a scale ranging from 1 (strongly agree) to 5 (strongly disagree) just simply provide a rough estimation of their attitude; it is impossible to measure the real feeling that employees actually have using the rating scale like this.

Moreover, Cohen and Manion (1996) criticized that data obtained from quantitative research are just selected based on repetitive and predictable aspects of human behavior. In particular, this weakness inevitably presents when the limited number of questions that are predefined by the researchers are used in the questionnaire. This issue, therefore, limit the scope of information that the researchers can obtain. For example, if a manager believed that there are only two reasons that caused employee morale to drop, the questionnaire that he set would contain questions that mainly measure those two variables. In reality, there would be more reasons that might explain employee morale problem beyond what he believed; but those reasons were not identified in the questionnaire. Using quantitative research in this case may prevent a manager from discovering more key issues that he may not think of.

Combining qualitative method and quantitative method

Quantitative method and quantitative method can be used in combination in research. Indeed, the combination of quantitative method and quantitative method allows the researchers to benefit from the combined strengths and to overcome the limitations of both methods (Schulze, 2003). As a result, using the combined method can strengthen the findings that the researchers discover in research. In particular, when the researchers are unclear about which variables might be the causes of the problem, the researchers can begin with qualitative research by interviewing people to gain better understanding about the phenomenon of interest and to identify potential variables. After the potential variables are identified, then the quantitative research is conducted to test the validity of the variables using the data collected in a large scale.

Referring to the example case, a manager may conduct the focus-group interview with key employees to obtain information about what could be major reasons that affected employee morale. Based on the information that a manager obtain from an interview, he may be able to identify some potential factors that explained employee morale problem. In order to confirm whether those factors are relevant, a manager can incorporate them in the questionnaire and then use the questionnaire to survey employees as a whole. By using the combination of qualitative method and quantitative method, not only it allows a manager to identify potential factors that cause the problem, but he can also verify whether those factors are actually relevant for the majority of employees.

Sometime qualitative method can be conducted as a follow-up to provide some explanations to the results of quantitative research that are unclear to the researchers. For example, an in-depth interview with some key informants can provide additional insight why the results from quantitative research do not come out as the researchers expected.

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ASSIGNMENT

Select one qualitative paper and one quantitative paper from the academic journal databases, summarize the main idea of each paper, and then explain why you think it is qualitative/quantitative research. Use the following criterion to support your answers: (1) research objective, (2) data collection method, (3) type of data collected, (4) sample selection, (5) data analysis technique, and (6) outcome/weaknesses