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## Chapter 1 : Quantitative analysis (chemistry) - Wikipedia

*Qualitative analysis tells 'what' is in a sample, while quantitative analysis is used to tell 'how much' is in a sample. The two types of analysis are often used together and are considered examples of analytical chemistry.*

Comparison of Qualitative and Quantitative Research Quantitative and qualitative research are commonly considered to differ fundamentally. Yet, their objectives as well as their applications overlap in numerous ways. Quantitative Research is considered to have as its main purpose the quantification of data. This allows generalizations of results from a sample to an entire population of interest and the measurement of the incidence of various views and opinions in a given sample. Yet, quantitative research is not infrequently followed by qualitative research which then aims to explore select findings further. Qualitative research is considered to be particularly suitable for gaining an in-depth understanding of underlying reasons and motivations. It provides insights into the setting of a problem. At the same time, it frequently generates ideas and hypotheses for later quantitative research. The main differences between quantitative and qualitative research consist in respect to data sample, data collection, data analysis, and last but not least in regard to outcomes. Data collection in qualitative research is not seldom based on unstructured or semi-structured, but methodologically flexible techniques, e. Quantitative research uses highly structured, rigid techniques such as online questionnaires, on-street or telephone interviews. Unlike qualitative research, which allows unlimited expression from respondents, quantitative research relies responses to pre-formulated questions. Its findings are often not conclusive and cannot automatically be used to make generalizations. However, it is indispensable in developing a deep understanding of a given thematic complex and sound rationale for further decision making. Quantitative research is essential for providing a broad base of insight on which typically a final course of action is recommended. Sample selection in qualitative research is usually based on a smaller number of not-necessarily representative cases. Respondents are frequently selected with the expectation that they fulfill certain criteria. In quantitative research, sample selection seeks out a large number of cases that are expected to best represent the population of interest. Individual respondents are selected at random. Qualitative data analysis is non-statistical, its methodological approach is primarily guided by the concrete material at hand. In quantitative research, the sole approach to data is statistical and takes places in the form of tabulations. Findings are usually descriptive in nature although conclusive only within the numerical framework. Rather, one could compare the two approaches as follows: Quantitative research seeks out explanatory laws whereas qualitative research aims more at in-depth description. Qualitative research measures, in hopes of developing universal laws where qualitative research can be described as an exploration of what is assumed to be a dynamic reality. Qualitative research does not claim that what is discovered in the process is universal, and thus, replicable. Common differences usually cited between these types of research include. In general, qualitative research generates rich, detailed and valid process data that contribute to the in-depth understanding of a context. Quantitative research, on the other hand, generates reliable population-based and generalizable data that is suited to establishing cause-and-effect relationships. The decision of whether to choose a quantitative or a qualitative design is ultimately a philosophical question. Which methods to choose will depend on the nature of the project, the type of information needed the context of the study and the availability of resources time, money, and human. Qualitative analysis involves a continual interplay between theory and analysis. In analyzing qualitative data, we seek to discover patterns such as changes over time or possible causal links between variables. Combining of qualitative and quantitative research is becoming more and more common. It is important to keep in mind that these are two different philosophies, not necessarily polar opposites. In fact, elements of both designs can be used together in mixed-methods studies.

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## Chapter 2 : Qualitative and Quantitative research - Data Analysis | calendrierdelascience.com

*Analysis of qualitative and quantitative data is different. For getting the flexible and precise results for your research it is important to use reliable research methods and follow the instructions for the research conduction but that is not enough.*

How Can It Help? For some researchers it became a good tone to combine both for conducting the surveys and the others refuse to accept that kind of practice, taking them as two various dimensions, two various philosophies that should not be mixed in the one study. Qualitative vs Quantitative Data Analysis But what are the differences between quantitative and qualitative data analysis that make them particularly good or bad for some kind of research? The main purpose of quantitative research and analysis is to quantify the data and assess it from the angle of numbers and other commonly adopted metrics. Such kind of approach gives the ability to generalize the examples let it be a separate sample of something or the entire population such. At the same time, such kind of research in most cases is followed by the qualitative research for specifying the studying the findings more closely. That kind of research is used for getting the larger, more closeup picture of the issue in order to understand something deeper and dig the problem until the cause is found. At the same time, the qualitative research may be a preceding one to the quantitative for generating ideas. Rich and Precise The detailed picture that is rich of data and descriptions appears to be the ultimate purpose of conducting a qualitative analysis. General, Steady and Reliable For the quantitative analysis, the researcher needs to process the received data using the detailed set of classification and rules, before that the futures are classified, that helps to create the statistical models, reflecting the outcomes of the observation. Such method can be called more objective as it skips the mere coincidences or events that happen randomly leaving the place for discovering what phenomena will likely take place in the future based on given research data. Quantitative analysis constructs the precise picture of the event occurrences, it can describe the normality and the abnormality of something that takes place in statistics media. While qualitative analysis idealizes the data causing opening the gap for the rare occasions in the research results the quantitative skips the rare and random events. Analysis of Qualitative and Quantitative Data Both qualitative and quantitative data analysis bear their own value and have features that can contribute the research results of each other and enrich the research results. The combined approach involving the both methods now gaining more and more popularity among the scientists all around the world it helps to reject the biases and eliminate the breaches of the both approaches creating broader ground for studying the objects groups. It is very important to remember to take one step back from time to time in order to re-think the data gathered. Upon gaining the fresh look and new data understanding you will be able to sort and code information more successfully, reducing all unnecessary elements. Coding too many pieces of irrelevant data can take a serious negative toll on the time you spend on your research and lead to the distortions of the results. Before you started the research set the questions the resulting research should give the definite answers on, only replying to all of them will give your research its fullness. Apart of those questions you need to determine the key elements like: Who conducts the research? What are the research questions? What is the research design? When is the data collected? Who are the participants of the research? What analysis plan is used? What are the findings? Basically, the research moves through 4 big stages during which the researchers take the particular steps, defined by the research flow sequence. If you know where to get the qualitative analysis help the whole procedure will be very easy for you. Primary and secondary nuances are discussed. The data source trustworthiness verification. The data reducing stage that is based on the interpretation. The collected coded data should be ready and systematized for synthesizing your findings. As the result, the researcher should come up with new themes, taxonomies, and theories. Analysis of qualitative and quantitative data is different. For getting the flexible and precise results for your research it is important to use reliable research methods and follow the instructions for the research conduction but that is not enough. The qualitative analysis provides good opportunities to gather the profound

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and extensive data for the research but does not generalize the population. The quantitative analysis causes limited conclusions as it ignores the additional factors for analysis so the better practice for researchers becomes combining advantages of both analyses. Nothing easier than that when you do the research with our help!

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## Chapter 3 : Qualitative Analysis Definition | Qualitative Chemical Analysis

*Unlike in the case of qualitative analysis, in the quantitative analysis the data is analyzed through statistical means. Let us comprehend this through an example. If a person is made to undergo a blood test, and it confirms that alcohol percentage is in his blood, it is said to be a quantitative test as the result comes out with numbers.*

In business and in science, you will often see sets of data that have been gathered using suboptimal techniques, leading to poor quality predictions and marring any insight that you might gain from analyzing these data sets. In general, for most purposes, you want to gather quantitative data. Quantitative data is a data type which revolves around collecting numerical data rather than qualitative data. Qualitative data is much more ephemeral, lacking the impact and being much less useful than quantitative data. Qualitative data is often collected in fields where you cannot gain numerical answers, such as psychology and other social sciences. If you are having trouble devising a system that allows you to collect sufficient quality and quantity of qualitative data for your business or project, you could try out this Inferential Statistics in SPSS course, which is based in the SPSS statistical analysis program written by IBM, but can be applied to any type of statistics work. What Exactly are Quantitative Techniques? The term quantitative techniques covers a broad range of statistical gathering techniques that are all focused on getting numerical data for statistical analysis. These statistics are often then used for research and analysis leading to business decisions. These quantitative results can come from a wide variety of sources. The best quality data that you can get, in terms of quantitative techniques, is the double blind test. A double blind test gives the most accurate results as any bias that might occur in the test subjects or the tester will not be represented in the result. A double blind test makes it so both the tester and the test subjects in the experiment do not know the true reason for the experiment and are often told that the experiment is testing something else completely. Whilst you could just ask the test subjects to be open minded and try not to use bias over the course of the experiment, it is often unconscious bias that is reflected in the data sets. If you are testing a drug that makes people stronger, you give half of the test subjects a fake, sugar pill which is often known as a placebo, whilst giving the other half of the group the real drug. If you were to give everyone the same drug, any effects you see in the patients may not be because of the drug as the human mind is very easily manipulated. The placebo group are used as a type of baseline for any experiment. In business, there are many other types of quantitative techniques you might apply to your data. All quantitative techniques fall broadly under the umbrellas of mathematical, statistical, or programming based techniques and each has their own benefits and drawbacks. Most businesses will use multiple techniques simultaneously as this will give the company a more rounded picture of how to use the data correctly. Quantitative techniques are much more accurate than Qualitative techniques, as they eliminate the bias associated with both qualitative tests and non blind tests. Differentiation A popular type of quantitative technique is differentiation. Differentiation is a mathematical process involving calculus and it is useful for seeing change over time within a given system. Differentiation is generally used to figure out the changes in a system when a variable in the system changes, measuring how the end result changes by altering a variable. This could be used in many ways: Differentiation also has an opposite, integration, which works in the opposite way. Integration is used to see the changes to a variable when the system changes. Both of these are valuable quantitative techniques to learn and are very difficult to get your head around. The mathematics involved is very high level and people often struggle with it even after being taught how to do it. This course in Integral Calculus will serve you well in remembering or even learning calculus for the first time. The course is fantastic and will help you develop your quantitative data analysis techniques and also will teach you in easy understandable steps how to use calculus for many different situations. Regression Analysis Regression analysis is incredibly useful and a whole host of people use this technique every single day in their business life. Generally, economists are interested in the concept of regression analysis, which is based around finding a causal link or correlation between two independent variables in any given system. A common example for

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regression analysis is that of measuring the salary of an employee and their level of education, to see if there is a correlation between the two factors. You could also use this in cooking and many other fields, as you can see. Regression analysis is useable in many fields and will save you time if you learn how to use it and integrate in to your business. Regression analysis uses two sets of data, predictors and independent variables. These values can be anything, from total revenue to tax rate to advertisement budgets and so on. Comparing the two is the basis of regression analysis. Simulation Simulation is a great way to get pseudo real world data on anything that can be simulated effectively in a controlled environment. If you can simulate a scenario effectively, you can then see how test subjects respond to stressors and often this information is very valuable. This data allows the manufacturer to make tweaks in design and concept and can show data which may lead to the product being discontinued before production starts. This is obviously a good thing as recalling product lines is costly and should be avoided at all costs. Simulation allows these kind of usability tests, even in unlikely scenarios. Factor Analysis Factor analysis is another often used data technique used for quantitative data analysis. This type of analysis tries to thin down the amount of data that is available to be used by exploring the similarities between multiple sets of data. This way, you can analyze the overall trends that are hiding in the data without having to figure these out yourself. Market researchers and economists are very avid users of Factor Analysis as it makes trawling through large sets of data received from surveys easy and quick. Indexes Another one for the economists, indexes are a fantastic way to use quantitative research to simplify and share data with the general public in an efficient and easy manner. Analyzing indexes is useful as they are a useful way to see how the overall trend of a given environment is behaving. Game and Probability Theory Game Theory is a class of thought that aims to find the most optimal strategy in any given scenario. It achieves this by using quantitative methods and thought experiments and always finds the optimal course of action in a competitive situation. This type of quantitative technique is slightly less applicable to business, yet very useful if you find yourself in a situation where you are unsure of the options. They are offered the chance to testify about the other person, getting released from prison at the expense of the other prisoner spending times in the jail. The other option is to be quiet, not telling the officer anything. If both parties stay silent, both parties are in jail for a year, whereas in the other scenario, the jail time served is greater. This shows that the correct thing to do is stay silent. Of course, in that situation, you would probably try to get out of jail by offering evidence against the others. The dilemma occurs as both parties are given these options, meaning if both parties try to get no jail time, they both end up in jail for longer. Quantitative thinking techniques like these allow people to make more logical and useful real world decisions and are a cornerstone of advanced logical reasoning. Probability theory is useful to use in conjunction with statistics allowing someone to semi-accurately predict how someone or something will act in a given situation, assuming you have access to all of the necessary data. Probability theory is useable to see patterns in apparent randomness. This is how we know that the probability of getting a heads or tails on any given coin flip is equal. Quantitative Data Collection As mentioned above, the best way to collect non-biased and useful quantitative data is choosing to conduct double or triple blind experiments which allow more accurate results for a given portion size. Quantitative data can also be collected in many other ways, depending on the situation you are trying to gather data upon. For data from inanimate objects, you can use sensors and electronic surveying tools to gather numerical data. When you are trying to get quantitative data from people, it is a little more difficult to get accurate data. Surveys and questionnaires will get you some useable data but the data from these may be inaccurate. Many people will answer untruthfully on a questionnaire for lots of different reasons. If you need to find data on objects or the general population, city records and other standardized records will be of a great help to you. For products, most manufacturers will keep records of their product specifications, for the general public to browse. This is helpful for techniques, which need complete information to use, such as testing audio or visual equipment and tests of this sort. Conclusion Whilst quantitative data is useful for many things, you will find that it will not give you all the answers. Qualitative data is still useful as it allows you to gain an understanding of the motivations of the subject and can be used to figure out things about prevalent thought

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patterns. Quantitative research is used more and more every day in almost all fields of commerce and science. If you feel you need to include some quantitative techniques in your work or would like to learn more about them, there are a huge number of resources on the web that can help you learn more about these techniques. Quantitative Research is a fantastic course that will explain more about these techniques and how you can integrate them in to your businesses and day to day workflow.

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## Chapter 4 : Qualitative chemical analysis | chemistry | calendrierdelascience.com

*Quantitative data is numerical. (Quantities) This type of data results from measurements. Some examples of quantitative data would be: the mass of a cylinder of aluminum was g the length of the pencil was cm Qualitative data is non-numerical.*

Gustav Kirchhoff left and Robert Bunsen right Analytical chemistry has been important since the early days of chemistry, providing methods for determining which elements and chemicals are present in the object in question. During this period significant contributions to analytical chemistry include the development of systematic elemental analysis by Justus von Liebig and systematized organic analysis based on the specific reactions of functional groups. The first instrumental analysis was flame emissive spectrometry developed by Robert Bunsen and Gustav Kirchhoff who discovered rubidium Rb and caesium Cs in During this period instrumental analysis becomes progressively dominant in the field. In particular many of the basic spectroscopic and spectrometric techniques were discovered in the early 20th century and refined in the late 20th century. Starting in approximately the s into the present day analytical chemistry has progressively become more inclusive of biological questions bioanalytical chemistry , whereas it had previously been largely focused on inorganic or small organic molecules. Lasers have been increasingly used in chemistry as probes and even to initiate and influence a wide variety of reactions. The late 20th century also saw an expansion of the application of analytical chemistry from somewhat academic chemical questions to forensic , environmental , industrial and medical questions, such as in histology. Many analytical chemists focus on a single type of instrument. Academics tend to either focus on new applications and discoveries or on new methods of analysis. The discovery of a chemical present in blood that increases the risk of cancer would be a discovery that an analytical chemist might be involved in. An effort to develop a new method might involve the use of a tunable laser to increase the specificity and sensitivity of a spectrometric method. Many methods, once developed, are kept purposely static so that data can be compared over long periods of time. This is particularly true in industrial quality assurance QA , forensic and environmental applications. Analytical chemistry plays an increasingly important role in the pharmaceutical industry where, aside from QA, it is used in discovery of new drug candidates and in clinical applications where understanding the interactions between the drug and the patient are critical. Classical methods[ edit ] The presence of copper in this qualitative analysis is indicated by the bluish-green color of the flame Although modern analytical chemistry is dominated by sophisticated instrumentation, the roots of analytical chemistry and some of the principles used in modern instruments are from traditional techniques, many of which are still used today. These techniques also tend to form the backbone of most undergraduate analytical chemistry educational labs. Qualitative analysis[ edit ] A qualitative analysis determines the presence or absence of a particular compound, but not the mass or concentration. By definition, qualitative analyses do not measure quantity. Chemical test There are numerous qualitative chemical tests, for example, the acid test for gold and the Kastle-Meyer test for the presence of blood. Flame test Inorganic qualitative analysis generally refers to a systematic scheme to confirm the presence of certain, usually aqueous, ions or elements by performing a series of reactions that eliminate ranges of possibilities and then confirms suspected ions with a confirming test. Sometimes small carbon containing ions are included in such schemes. With modern instrumentation these tests are rarely used but can be useful for educational purposes and in field work or other situations where access to state-of-the-art instruments are not available or expedient.

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## Chapter 5 : Analytical chemistry - Wikipedia

*Qualitative analysis is used to identify and separate cations and anions in a sample substance. Unlike quantitative analysis, which seeks to determine the quantity or amount of sample, qualitative analysis is a descriptive form of analysis.*

Abstract With an increasing number of Internet research in general, the number of qualitative Internet studies has recently increased. Online forums are one of the most frequently used qualitative Internet research methods. Despite an increasing number of online forum studies, very few articles have been written to provide practical guidelines to conduct an online forum as a qualitative research method. In this paper, practical guidelines in using an online forum as a qualitative research method are proposed based on three previous online forum studies. First, the three studies are concisely described. Practical guidelines are proposed based on nine idea categories related to issues in the three studies: Practical Guidelines With advances in computer and Internet technologies, the number of Internet studies both quantitative and qualitative has recently increased in nursing. For instance, Web-pages could be easily used to conduct a quantitative Internet survey, but they could be also used to observe group dynamics with or without interacting with the group members as a qualitative research method. Qualitative researchers could login to the Web-pages, read and analyze the posted messages, and track the postings by different users to explore interactions among the members, while posting or not posting messages to the Web-pages. In a recent review of Internet qualitative research, 5 it was found that online forums were one of the most frequently used qualitative Internet research methods. Online forums refer to Internet sites for discussion where users can post messages on specific topics and interact with other users to discuss the topics. Online forums are known to be commonly used by diverse groups of users for elective emotional and informational support. First, characteristics of online forums as a qualitative research method are concisely described. Then, the three studies that are the bases for the guidelines for an online forum as a qualitative research method are described. Finally, included are the guidelines for future research using an online forum as a qualitative research method. Characteristics of Online Forums A researcher-led online forum is a discussion site on the Internet where users can discuss specific topics through posting a series of messages and a researcher moderate the discussion. The online forum is not just analyzing an existing online forum, but rather it is a forum intentionally established by a research team as a method to study a topic. Typically, when participants visit the online forum site, they are assigned with user IDs and passwords through which they could access the online forum site. Compared with traditional focus groups, online forums have unique characteristics that influence the relationships between researchers and research participants. Due to non-face-to-face interactions in online forums, researchers and research participants cannot see each other in person. Thus, researchers cannot even determine if the research participants are actually those whom they target, especially when the inclusion criteria depend on physical characteristics such as race, ethnicity, and gender. Indeed, researchers pointed out that Internet interactions made corporeal characteristics vague so that researchers could not affirm social groups of research participants. Asynchronous interactions could be another unique characteristic of online forums. In qualitative research, close interactions and short distances between researchers and research participants are essential to establish trust between them and to get credible rich data. However, this characteristic could be beneficial for qualitative researchers because the participants could directly communicate with researchers without restrictions in time zones and geographic distance. Despite recent changes in demographics of Internet users, Internet users still tend to be a selected group of people who tend to be well-educated, literate, and skilled users of computers and have access to the Internet. Furthermore, compared with simple Internet survey questionnaires, online forums require more advanced computer skills because online forums usually require the users to register and login using usernames and passwords. Finally, online forums have unpredictable security issues as in other Internet research methods. The Studies The three studies that provided the basis for the guidelines that are proposed in this paper include:

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Each study is concisely described as follows. The data collection phase included an Internet survey of cancer patients Whites, Hispanics, African Americans, and Asians and four ethnic-specific online forums of 82 cancer patients 29 Whites, 15 Hispanics, 11 African Americans, and 27 Asians. The Internet survey included multiple instruments to measure cancer pain, symptoms accompanying with pain, and functional status. For the online forums, nine online forum topics related to cancer pain experiences were used to guide the 6-month online forum. The quantitative data were analyzed using descriptive and inferential statistics, including ANOVA and hierarchical multiple regression analyses; and the qualitative data were analyzed using thematic analysis. For this paper, only the findings from the qualitative part of the study qualitative online forums were used. More detailed information on the study can be found in other publications by the authors. The instruments for the Internet survey included questions on background, self-reported ethnic identity, health and menopausal status and menopausal symptoms, and an interview protocol on perceived causes, meanings, and management strategies for menopausal symptoms. In the online forums, seven topics related to the menopausal symptom experience were discussed. The quantitative data were analyzed using descriptive and inferential statistics, including ANOVA and multiple regression analyses; the qualitative online forum data were analyzed using thematic analysis. The Internet survey was conducted among midlife women Whites, Hispanics, African Americans, and Asians , and four ethnic-specific online forums involved 90 women 29 Whites, 23 Hispanics, 21 African Americans, and 17 Asians recruited from the Internet survey participants. The quantitative data were analyzed using descriptive and inferential statistics, including ANOVA, correlation analyses, and hierarchical multiple regression analyses; and the qualitative data were analyzed using thematic analysis. More detailed information on this study can be found in other publications by the authors. These memos, as well as written records of discussions during weekly group meetings, were reviewed and analyzed using the content analysis methodology suggested by Weber. Then, the codes were categorized according to the contents while trying to identify issues related to online forum administration as a qualitative research method. Finally, idea categories were developed from the categorization process. During the analysis process, nine idea categories were extracted: Practical Guidelines for Qualitative Online Forum Studies Specific guidelines, based on the extracted nine idea categories related to issues in administration of online forms as a qualitative research method, are proposed as follows. A Fit with Research Purpose and Questions When planning a qualitative online forum study, the first thing to do would be to check if the research purposes and questions actually require the study to be an online forum study. Although the use of online forums could be viewed as innovative, the method has some inherent limitations due to its unique characteristics that were described above. Also, some research purpose and questions could be adequately addressed with conventional research methods. If a conventional research method works well for the research purpose and questions, there is no need to conduct an online forum study that has a number of shortcomings such as lack of theoretical saturation and difficulties in trust building. In Studies 1 to 3, we chose the online forums as a qualitative component of the study because we needed a national approach to recruit an adequate number of ethnic minority participants and because the participants resided in nationally dispersed areas. Thus, without the use of online forums, the researchers or participants would have made long-distance trips to generate the qualitative data, which would have increased the study cost. Also, some participants of Study 1 Asian Americans had stigma attached to cancer, which might have inhibited their participation in in-depth discussion on cancer pain experience in face-to-face interactions. Some participants of Study 2 Asian Americans and Hispanics tended not to discuss their menopausal symptom experience with strangers, including researchers, which might have prevented their participation in face-to-face discussions on menopausal symptom experience. However, if a study could be conducted in a local area and there is no stigma attached to the specific condition of interest, traditional focus groups would likely work better than online forums. Logistics Researchers need to decide detailed logistics of online forums in the planning stage. In all three studies, detailed procedures for the online for online forums were pre-set and followed. When any issue in following the pre-set procedures came up during the actual online forum process, the research team discussed and

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resolved the issues through their research team meetings. The detailed logistics for the online forums in the three studies were as follows. First, in all three studies, the participants were recruited from among the Internet survey takers while asking if they would be interested in participating in additional online forums. When a participant agreed to participate in the online forums, the participants were asked to be registered, and IDs and initial passwords were emailed to them with a registration confirmation message. They were asked to choose pseudonyms for the online forum discussions so that their real names could not be identified by other participants. The IDs and passwords must be used whenever participants log in to the online forum sites. Also, their visits at the online forum sites were recorded, monitored and controlled. Only those who register were allowed to enter the online forums to ensure confidentiality and protect privacy. In all three studies, when adequate numbers of participants a minimum of 30 per forum were recruited, one of the researchers sent an e-mail to registered participants to tell them the forums had begun. The opening page of the online forums showed the introductory questions so that participants could introduce themselves with their pseudonyms when they first visited. These questions, along with discussions topics, were posted serially on the forum sites 3–4 topics per month and remained for the whole 6 months. Participants could post messages about the topics at their convenience in any form they wanted. The researcher in charge of online forums steered discussions about the online topics throughout the 6-month period using related prompts as needed, always considering the content and flow of discussion. The number and length of messages were not limited, yet at least one message per topic was required for reimbursement of participation. Although there was an initial concern of this monetary reimbursement. Probably, the 6-month period was long enough to not attract unauthentic cases. During the 5th month, the participants were asked to add topics that they wanted to discuss with other participants, and the added topics were available on the online forum sites for the remainder of the 6 months; 2 additional topics were added by the participants. The discussions from online forums were summarized monthly and posted on the online forum sites so that participants could see and provide feedback. In all three studies, the roles of research team members in the online forums were clearly set at the beginning stage. During the online forum process, two researchers were intensely involved in each of the forums; one engineering researcher oversaw daily monitoring and control of access to the online forum sites, and the other researchers oversaw electronic communications with participants, building trust, steering discussions about the online forum topics, and carefully reviewing messages twice a week. In posting feedback messages, researchers encouraged the discussion to flow naturally with a minimum of interruptions, subtly guided the proceedings when necessary, were comfortable with displays of emotion, welcomed diversity of opinion, and remained nonauthoritarian and nonjudgmental. Electronic versus Conventional Informed Consent When planning a qualitative online forum study, one of the major issues to consider is how to get informed consent from their participants. In all the three studies, researchers used electronic informed consent because the participants resided in different geographical areas throughout the nation. Although we expected that the study could be easily approved by the IRB committees, the reality was not easy in Study 1. The research team needed to attend a full board IRB meeting and explained that there would not be any risks other than those experienced in daily lives. Thus, compared with an Internet quantitative survey, stricter and more rigorous measures to ensure safety of participants needed to be made for the online forums. In Study 3, the online forums involved discussion on physical activity that added an additional dimension to safety issues of the online forums. Because the participants could increase their physical activity during the online forums by the influences of their discussions on benefits of physical activity, researchers needed to add two cautionary measures in the online forums. First of all, all the participants were asked to consent to keep their usual level of physical activity because a sudden increase of physical activity could increase some cardiovascular and musculoskeletal risks. Also, to prevent the potential risks, the messages posted on the online forums were monitored daily by a registered nurse under the supervision of a nurse practitioner, and any potential and actual adverse reactions. Therefore, before starting the online forums, the participants were asked if they had a regular source of health care so that the researcher could refer them if there were to be an adverse event

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identified during the online forum. Also, at the end of the study, the participants were provided with information on what they would need to do prior to becoming more physically active. Structure and Functionality of Online Forums Researchers need to decide the structure and function of the online forums during the planning process. In all three studies, interruption by the researchers was minimized to make the participants interact in a more natural way, and the researchers took a role of facilitator of discussion rather than moderating the discussion. However, in online forums, researchers could be more active in the discussion by acting in a moderator role so that researchers could draw out the in-depth data that they aim at. Thus, in the planning process, a researcher needs to decide the structure of the online forums and the role of the researchers. In all three studies, online forums were used as a data collection method rather than a data collection setting e. However, online forums could also provide a setting for observation of group dynamics or an intervention administration. Depending on the purpose of the study, the functionality of the online forums needs to be set appropriately. The Necessity of an Interdisciplinary Team In all three studies, the research teams included both a nursing research team and an engineering research team. The nursing research team focused on the administration of the recruitment process and the data collection while the engineering team focused on technical aspects of the studies e.

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## Chapter 6 : What is the difference between a quantitative and a qualitative measurement? | Socratic

*Qualitative data analysis is non-statistical, its methodological approach is primarily guided by the concrete material at hand. In quantitative research, the sole approach to data is statistical and takes places in the form of tabulations.*

Source Qualitative analysis watches over inexact and abstract concerns which belong to the experimental and social realm, instead of mathematical one. This approach is based on the kind of smartness that machines lack. Things like, customer satisfaction, positive associations with a brand, etc. Overall you can say that qualitative analysis is done to keep a check on the quality of inputs for the productivity of any company. There are few questions which get confronted during the process of qualitative analysis. Does the company adopt any unique way to solve issues of its customers? Has the company invented any new technology that is hard to replicate? Does its product have any attractive quality? Will the company survive until upcoming 20 years? The main idea behind to do a qualitative analysis is to understand all the aspects of growth after a quantitative analysis is done. Qualitative analysis is based on facts. Context is the main key here. Elements of Qualitative analysis Qualitative analysis can take much more time than Quantitative analysis. It is like listening to your inner voice but keeping facts in mind. The most important thing is that how the employees view their company and its management? Are they all satisfied or are they not? You should become a person, with whom people can open and up a bit and give their time too. Qualitative analysis is linked to all these factors. All these are elements of effective qualitative analysis. Qualitative Data Analysis QDA is a range of various procedures and processes when we move from the qualitative data which has been collected. It is collected in the form of either interpretation, explanation or understanding of the situations and people whom we are investigating. Qualitative data analysis is based on a philosophy which is interpreted. The idea behind this is to, study the symbolic and meaningful content of qualitative data. Principles of Qualitative data analysis Following are the principles of Qualitative data analysis: People have different understandings and experience of reality. Qualitative analysis is also used to generate theory or describe any phenomenon which is based on data. There are exceptional cases which may yield insights into a problem. They may even develop new ideas for further inquiry. The understanding develops slowly and gradually. Features of Qualitative data analysis Following are the features of Qualitative data analysis: Level of analysis differs. Compact interaction with the data. Analysis is uneven and kind of circular. The collection of data and analysis, works together in a sync. Qualitative data analysis uses conjugation pointing out something in particular. It can be sorted out in various ways. Points to focus on while analyzing a text data Your first job is to study primary message content. Analyze the evaluative attitude which a speaker has, towards the message. You need to analyze that, whether the message will represent individual ideas or group shared views. Analyze the speakers degree in which he is representing his actual vs hypothetical experience. Approaches used during Qualitative data analysis i. Inductive Approach It is used when qualitative research becomes the major picture of the inquiry. To use emergent framework to group the data first and then other things. Deductive Approach To use research questions to first arrange the data and then look for any similarities or differences. It is used when the recourses and time are limited. It is used when qualitative research becomes a smaller part of a bigger quantitative study. The difference comes in when it is about the purpose of the study. Following are the methods of Qualitative analysis: Ethnography It is one of the most applicable and familiar types of qualitative method amongst the professionals. By doing so, you get to understand their goals, challenges, cultures, motivations, and themes. Ethnography has involvements in cultural anthropology too, where the professionals dive within a culture to understand it. When someone researches something, they rely on interviews or the surveys. But, Ethnography helps you to experience the environment directly. It is moreover practical, rather than assuming things hypothetically and then solving an issue. Narrative Narrative approach revolves around a series of events, generally from one or two individuals to form a united story. You have to take brief interviews, look for themes, read documents, etc. You need not arrange everything in sequences; instead, you can create a story, maybe in a narrative form. You can highlight

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the challenges and tensions which led to those success stories. It might become an opportunity for new innovation. A narrative approach can be a useful method to build a persona. Also, interview with an identified persona can help you with the details that lead to describe the culture of a place. Grounded Theory Grounded Theory looks forward to giving an explanation or theory behind an event. Here, you use the initial interviews and already present documents to build a theory which is based on that data. You will have to go through many axial coding techniques and series to find out themes and thus, build the theory. You will have to go through many samples around 20 to 60 and then, according to them, develop a theory. Through Grounded theory, you get a better understanding of how a community of users at present, use a product or how are they performing the tasks? Phenomenological In the phenomenological study, you use different methods together in a combination of reading documents, watching videos, visiting places, etc. It is to understand the participants place on whatever subject, being examined. You have to conduct a lot of interviews like around 5 to 25 for similar themes. It is to get ready for emerging themes and also to validate your findings. Case Study A case study includes in-depth understandings via different types of data sources. Case studies can be exploratory, describing and explanatory. In a case study, you get all the information regarding your subject, and then you study it thoroughly. It includes a set of techniques which provide non-numerical information about any specimen. Qualitative analysis gives you the full information that whether, an atom, functional group, ion or compound is there in a sample or is it absent? The quantity is then calculated by quantitative analysis. Branches under Qualitative Analysis-Chemistry There are two main branches of qualitative analysis. One is Organic Qualitative analysis, and another one is Inorganic Qualitative analysis. The organic analysis looks up to different types of functional groups, molecules, and chemical bonds. The inorganic analysis looks upon the iconic and elemental composition of a sample by examining the ions in the aqueous solution. Tests and Techniques One of the most common qualitative chemical test is the Kastle-Meyer test. It is done for blood, and then there is Iodine test for starch. Another commonly used qualitative test is the flame test. It is used in the inorganic chemical analysis. The qualitative analysis calculates or checks out changes in colour, odor, melting point, radioactivity, reactivity, boiling point, precipitation and bubble production. These methods include extraction, distillation, chromatography, precipitation, and spectroscopy. Quantitative- Concerned towards finding out the facts about the social situation. Qualitative- Assumes a reality which is vast and negotiated. Quantitative- Assumes a reality which is fixed and which can be measured. Quantitative- The collection of data is by calculating things. Qualitative- Data gets analyzed by themes from informants descriptions. Quantitative- Data gets collected by statistical inferences and the numerical comparisons made. Quantitative- The data is reported after a proper statistical analyses. Qualitative- The data is reported in the language of the person informing. Conclusion So, guys, this was all about qualitative analyses, and I hope that you have got all the answers regarding this topic. I would love to learn from you. Also, do subscribe to my Blog for more such informative articles. If you have any queries or, if you want any online assignment help , then you can contact us on our website. We would love to assist you as, we have a huge team of professional writers who very well know how to write down academic assignments which will help the students score excellent grades.

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## Chapter 7 : Quantitative Techniques and its real world uses

*In analytical chemistry, quantitative analysis is the determination of the absolute or relative abundance (often expressed as a concentration) of one, several or all particular substance(s) present in a sample.*

Methods[ edit ] Once the presence of certain substances in a sample is known, the study of their absolute or relative abundance can help in determining specific properties. Knowing the composition of a sample is very important, and several ways have been developed to make it possible, like gravimetric [2] and volumetric analysis. Gravimetric analysis yields more accurate data about the composition of a sample than volumetric analysis but also takes more time to perform in the laboratory. Volumetric analysis can be simply a titration based in a neutralization reaction but it can also be a precipitation or a complex forming reaction as well as a titration based in a redox reaction. However, each method in quantitative analysis has a general specification, in neutralization reactions, for example, the reaction that occurs is between an acid and a base, which yields a salt and water, hence the name neutralization. In the precipitation reactions the standard solution is in the most cases silver nitrate which is used as a reagent to react with the ions present in the sample and to form a highly insoluble precipitate. Precipitation methods are often called simply as argentometry. In the two other methods the situation is the same. Complex forming titration is a reaction that occurs between metal ions and a standard solution that is in the most cases EDTA Ethylene Diamine Tetra Acetic acid. In the redox titration that reaction is carried out between an oxidizing agent and a reduction agent. For example, quantitative analysis performed by [mass spectrometry] on biological samples can determine, by the relative abundance ratio of specific proteins , indications of certain diseases, like cancer. Quantitative Analysis refers to analyses in which the amount or concentration of an analyte may be determined estimated and expressed as a numerical value in appropriate units. Qualitative Analysis may take place with Quantitative Analysis, but Quantitative Analysis requires the identification qualification of the analyte for which numerical estimates are given. For instance, a chemist might be given an unknown solid sample. He or she will use "qualitative" techniques perhaps NMR or IR spectroscopy to identify the compounds present, and then quantitative techniques to determine the amount of each compound in the sample. Careful procedures for recognizing the presence of different metal ions have been developed, although they have largely been replaced by modern instruments; these are collectively known as qualitative inorganic analysis. Similar tests for identifying organic compounds by testing for different functional groups are also known. Many techniques can be used for either qualitative or quantitative measurements. For instance, suppose an indicator solution changes color in the presence of a metal ion. It could be used as a qualitative test: It could also be used as a quantitative test, by studying the color of the indicator solution with different concentrations of the metal ion. This would probably be done using ultraviolet-visible spectroscopy.

## Chapter 8 : Practical Guidelines for Qualitative Research Using Online Forums

*Chemistry - Quantitative Mass Analysis in Chemical Equations (30 of 38): Ex 1 Qualitative and Quantitative Data - Duration: Functional group analysis of organic chemistry, Practical.*

## Chapter 9 : Difference between qualitative and quantitative research.

*Qualitative chemical analysis, branch of chemistry that deals with the identification of elements or grouping of elements present in a calendrierdelascience.com techniques employed in qualitative analysis vary in complexity, depending on the nature of the sample.*