

Chapter 1 : IMRAD - Wikipedia

Discussion of the Method outlines the heuristic-based reasoning used by engineers and generalizes it to a universal method for problem-solving. Delving into the connection between engineering and philosophy, this ground-breaking text illustrates how the theoretical and the practical can merge to form real-world solutions.

Importance of a Good Discussion The discussion section is often considered the most important part of your research paper because this is where you: If appropriate, the discussion section is also where you state how the findings from your study revealed new gaps in the literature that had not been previously exposed or adequately described, and Engage the reader in thinking critically about issues based upon an evidence-based interpretation of findings; it is not governed strictly by objective reporting of information. **San Francisco Edit, Structure and Writing Style** These are the general rules you should adopt when composing your discussion of the results: Do not be verbose or repetitive Be concise and make your points clearly Avoid using jargon Follow a logical stream of thought; in general, interpret and discuss the significance of your findings in the same sequence you described them in your results section [a notable exception is to begin by highlighting an unexpected result or finding] Use the present verb tense, especially for established facts; however, refer to specific works or prior studies in the past tense If needed, use subheadings to help organize your discussion or to categorize your interpretations into themes **II. The Content** The content of the discussion section of your paper most often includes: If appropriate, note any unusual or unanticipated patterns or trends that emerged from your results and explain their meaning in relation to the research problem. **References to previous research:** This can include re-visiting key sources already cited in your literature review section, or, save them to cite later in the discussion section if they are more important to compare with your results instead of being a part of the general literature review of research used to provide context and background information. Note that you can make this decision to highlight specific studies after you have begun writing the discussion section. For example, describing lessons learned, proposing recommendations that can help improve a situation, or highlighting best practices. This can be framed as new research questions that emerged as a result of your analysis. **Organization and Structure** Keep the following sequential points in mind as you organize and write the discussion section of your paper: Think of your discussion as an inverted pyramid. Organize the discussion from the general to the specific, linking your findings to the literature, then to theory, then to practice [if appropriate]. Use the same key terms, narrative style, and verb tense [present] that you used when when describing the research problem in your introduction. Begin by briefly re-stating the research problem you were investigating and answer all of the research questions underpinning the problem that you posed in the introduction. Describe the patterns, principles, and relationships shown by each major findings and place them in proper perspective. The sequence of this information is important; first state the answer, then the relevant results, then cite the work of others. If appropriate, refer the reader to a figure or table to help enhance the interpretation of the data [either within the text or as an appendix]. This part of the discussion should begin with a description of any unanticipated findings, followed by a brief interpretation as to why you believe it appeared and, if necessary, its possible significance in relation to the overall study. If more than one unexpected finding emerged during the study, describe each of them in the order they appeared as you gathered or analyzed the data. As noted, the exception to discussing findings in the same order you described them in the results section would be to begin by highlighting the implications of a particularly unexpected or significant finding that emerged from the study, followed by a discussion of the remaining findings. Before concluding the discussion, identify potential limitations and weaknesses if you do not plan to do so in the conclusion of the paper. Comment on their relative importance in relation to your overall interpretation of the results and, if necessary, note how they may affect the validity of your findings. Avoid using an apologetic tone; however, be honest and self-critical [e. The discussion section should end with a concise summary of the principal implications of the findings regardless of significance. Give a brief explanation about why you believe the findings and conclusions of your study are important and how they support broader knowledge or understanding of the research problem. This can be followed by any recommendations for further research.

However, do not offer recommendations which could have been easily addressed within the study. This would demonstrate to the reader that you have inadequately examined and interpreted the data. Overall Objectives The objectives of your discussion section should include the following: You should write a direct, declarative, and succinct proclamation of the study results, usually in one paragraph. Explain the Meaning of the Findings and Why They are Important Consider the likelihood that no one has thought as long and hard about your study as you have. Systematically explain the underlying meaning of your findings and state why you believe they are significant. If applicable, begin this part of the section by repeating what you consider to be your most significant or unanticipated finding first, then systematically review each finding. Otherwise, follow the general order you reported the findings in the results section. Relate the Findings to Similar Studies No study in the social sciences is so novel or possesses such a restricted focus that it has absolutely no relation to previously published research. The discussion section should relate your results to those found in other studies, particularly if questions raised from prior studies served as the motivation for your research. This is important because comparing and contrasting the findings of other studies helps to support the overall importance of your results and it highlights how and in what ways your study differs from other research about the topic. Note that any significant or unanticipated finding is often because there was no prior research to indicate the finding could occur. If there is prior research to indicate this, you need to explain why it was significant or unanticipated. Consider Alternative Explanations of the Findings It is important to remember that the purpose of research in the social sciences is to discover and not to prove. When writing the discussion section, you should carefully consider all possible explanations for the study results, rather than just those that fit your hypothesis or prior assumptions and biases. This is especially important when describing the discovery of significant or unanticipated findings. Note any unanswered questions or issues your study did not address and describe the generalizability of your results to other situations. If a limitation is applicable to the method chosen to gather information, then describe in detail the problems you encountered and why. Make Suggestions for Further Research You may choose to conclude the discussion section by making suggestions for further research [this can be done in the overall conclusion of your paper]. Although your study may offer important insights about the research problem, this is where you can address other questions related to the problem that remain unanswered or highlight previously hidden questions that were revealed as a result of conducting your research. You should frame your suggestions by linking the need for further research to the limitations of your study [e. Besides the literature review section, the preponderance of references to sources is usually found in the discussion section. A few historical references may be helpful for perspective, but most of the references should be relatively recent and included to aid in the interpretation of your results or used to link to similar studies. Problems to Avoid Do not waste time restating your results. Should you need to remind the reader of a finding to be discussed, use "bridge sentences" that relate the result to the interpretation. An example would be: Recommendations for further research can be included in either the discussion or conclusion of your paper, but do not repeat your recommendations in the both sections. Think about the overall narrative flow of your paper to determine where best to locate this information. However, if your findings raise a lot of new questions or issues, consider including suggestions for further research in the discussion section. Do not introduce new results in the discussion section. Be wary of mistaking the reiteration of a specific finding for an interpretation because it may confuse the reader. The description of findings [results] and the interpretation of their significance [discussion] should be distinct sections of your paper. If you choose to combine the results section and the discussion section into a single narrative, you must be clear in how you report the information discovered and your own interpretation of each finding. Use of the first person is generally acceptable. Using first person can help emphasize a point or illustrate a contrasting finding. However, keep in mind that too much use of the first person can actually distract the reader from the main points [i. Department of English Writing Guide. George Mason University; Discussion. Bates College; Hess, Dean R. University College Writing Centre. University of Toronto; Sauaia, A. Writing in Psychology course syllabus. University of Florida; Yellin, Linda L. Allyn and Bacon, Interpretation is a subjective exercise. As such, you should always approach the selection and interpretation of your findings introspectively and to think critically about the possibility of judgmental biases unintentionally entering into discussions about the

significance of your work. With this in mind, be careful that you do not read more into the findings than can be supported by the evidence you have gathered. Remember that the data are the data: One of the most common mistakes that you can make when discussing the results of your study is to present a superficial interpretation of the findings that more or less re-states the results section of your paper. Obviously, you must refer to your results when discussing them, but focus on the interpretation of those results and their significance in relation to the research problem, not the data itself. The discussion section should remain focused on the findings of your study. For example, if the purpose of your research was to measure the impact of foreign aid on increasing access to education among the poor in Bangladesh, it would not be appropriate to speculate about how your findings might apply to populations in other countries without drawing from existing studies to support your claim or if analysis of other countries was not a part of your original research design. If you feel compelled to speculate, do so in the form of describing possible implications or explaining possible impacts. Be certain that you clearly identify your comments as speculation or as a suggestion for where further research is needed.

Chapter 2 : What is Discussion and what are its types?

Discussion of the Method is an ideal supplement for introductory and advanced courses in engineering, philosophy, and other disciplines.

This is before looking at the statistics required, and studying the preferred methods for the individual scientific discipline. Every experimental design must make compromises and generalizations, so the researcher must try to minimize these, whilst remaining realistic. For biology, psychology and social sciences, there can be a huge variety of methods to choose from, and a researcher will have to justify their choice. Experimental Research Methods The first method is the straightforward experiment, involving the standard practice of manipulating quantitative, independent variables to generate statistically analyzable data. Generally, the system of scientific measurements is interval or ratio based. The researcher is accepting or refuting the null hypothesis. The results generated are analyzable and are used to test hypotheses, with statistics giving a clear and unambiguous picture. This research method is one of the most difficult, requiring rigorous design and a great deal of expense, especially for larger experiments. The other problem, where real life organisms are used, is that taking something out of its natural environment can seriously affect its behavior. It is also the biggest drain on time and resources, and is often impossible to perform for some fields, because of ethical considerations. The Tuskegee Syphilis Study was a prime example of experimental research that was fixated on results, and failed to take into account moral considerations. In other fields of study, which do not always have the luxury of definable and quantifiable variables - you need to use different research methods. These should attempt to fit all of the definitions of repeatability or falsifiability, although this is not always feasible. Opinion Based Research Methods Opinion based research methods generally involve designing an experiment and collecting quantitative data. For this type of research, the measurements are usually arbitrary, following the ordinal or interval type. Questionnaires are an effective way of quantifying data from a sample group, and testing emotions or preferences. This method is very cheap and easy, where budget is a problem, and gives an element of scale to opinion and emotion. These figures are arbitrary, but at least give a directional method of measuring intensity. By definition, this experiment method must be used where emotions or behaviors are measured, as there is no other way of defining the variables. Whilst not as robust as experimental research, the methods can be replicated and the results falsified. Observational Research Methods Observational research is a group of different research methods where researchers try to observe a phenomenon without interfering too much. Observational research methods, such as the case study, are probably the furthest removed from the established scientific method. Observational research tends to use nominal or ordinal scales of measurement. Observational research often has no clearly defined research problem, and questions may arise during the course of the study. Whilst the experiment cannot be replicated or falsified, it still offers unique insights, and will advance human knowledge. Case studies are often used as a pre-cursor to more rigorous methods, and avoid the problem of the experiment environment affecting the behavior of an organism. Observational research methods are useful when ethics are a problem. Conclusion In an ideal world, experimental research methods would be used for every type of research, fulfilling all of the requirements of falsifiability and generalization. However, ethics, time and budget are major factors, so any experimental design must make compromises. As long as a researcher recognizes and evaluates flaws in the design when choosing from different research methods, any of the scientific research methods are valid contributors to scientific knowledge. Check out our quiz-page with tests about:

Chapter 3 : Different Research Methods - How to Choose an Appropriate Design?

This is the Discussion Method, also called the Socratic Method after the Ancient Greek philosopher Socrates, who would engage his students with questions and dialogue. Because the class is small, the tutor is able to determine each student's progress, and students have ample occasion to make their difficulties known.

Bibliography Definition Quantitative methods emphasize objective measurements and the statistical, mathematical, or numerical analysis of data collected through polls, questionnaires, and surveys, or by manipulating pre-existing statistical data using computational techniques. Quantitative research focuses on gathering numerical data and generalizing it across groups of people or to explain a particular phenomenon. The Practice of Social Research. Wadsworth Cengage, ; Muijs, Daniel. Characteristics of Quantitative Research Your goal in conducting quantitative research study is to determine the relationship between one thing [an independent variable] and another [a dependent or outcome variable] within a population. Quantitative research designs are either descriptive [subjects usually measured once] or experimental [subjects measured before and after a treatment]. A descriptive study establishes only associations between variables; an experimental study establishes causality. Quantitative research deals in numbers, logic, and an objective stance. Quantitative research focuses on numeric and unchanging data and detailed, convergent reasoning rather than divergent reasoning [i. Its main characteristics are: The data is usually gathered using structured research instruments. The results are based on larger sample sizes that are representative of the population. The research study can usually be replicated or repeated, given its high reliability. Researcher has a clearly defined research question to which objective answers are sought. All aspects of the study are carefully designed before data is collected. Data are in the form of numbers and statistics, often arranged in tables, charts, figures, or other non-textual forms. Project can be used to generalize concepts more widely, predict future results, or investigate causal relationships. Researcher uses tools, such as questionnaires or computer software, to collect numerical data. The overarching aim of a quantitative research study is to classify features, count them, and construct statistical models in an attempt to explain what is observed. Things to keep in mind when reporting the results of a study using quantitative methods: Explain the data collected and their statistical treatment as well as all relevant results in relation to the research problem you are investigating. Interpretation of results is not appropriate in this section. Report unanticipated events that occurred during your data collection. Explain how the actual analysis differs from the planned analysis. Explain your handling of missing data and why any missing data does not undermine the validity of your analysis. Explain the techniques you used to "clean" your data set. Choose a minimally sufficient statistical procedure; provide a rationale for its use and a reference for it. Specify any computer programs used. Describe the assumptions for each procedure and the steps you took to ensure that they were not violated. When using inferential statistics, provide the descriptive statistics, confidence intervals, and sample sizes for each variable as well as the value of the test statistic, its direction, the degrees of freedom, and the significance level [report the actual p value]. Avoid inferring causality, particularly in nonrandomized designs or without further experimentation. Use tables to provide exact values; use figures to convey global effects. Keep figures small in size; include graphic representations of confidence intervals whenever possible. Always tell the reader what to look for in tables and figures. When using pre-existing statistical data gathered and made available by anyone other than yourself [e. Wadsworth Cengage, ; Brians, Craig Leonard et al. Quantitative and Qualitative Research Methods. Longman, ; McNabb, David E. Quantitative and Qualitative Approaches. Sharpe, ; Quantitative Research Methods. Colorado State University; Singh, Kultar. Quantitative Social Research Methods. Basic Research Design for Quantitative Studies Before designing a quantitative research study, you must decide whether it will be descriptive or experimental because this will dictate how you gather, analyze, and interpret the results. A descriptive study is governed by the following rules: An experimental design includes subjects measured before and after a particular treatment, the sample population may be very small and purposefully chosen, and it is intended to establish causality between variables. Introduction The introduction to a quantitative study is usually written in the present tense and from the third person point of view. It covers the following

information: Identifies the research problem -- as with any academic study, you must state clearly and concisely the research problem being investigated. Reviews the literature -- review scholarship on the topic, synthesizing key themes and, if necessary, noting studies that have used similar methods of inquiry and analysis. Note where key gaps exist and how your study helps to fill these gaps or clarifies existing knowledge. Describes the theoretical framework -- provide an outline of the theory or hypothesis underpinning your study. If necessary, define unfamiliar or complex terms, concepts, or ideas and provide the appropriate background information to place the research problem in proper context [e. Methodology The methods section of a quantitative study should describe how each objective of your study will be achieved. Be sure to provide enough detail to enable the reader can make an informed assessment of the methods being used to obtain results associated with the research problem. The methods section should be presented in the past tense. Study population and sampling -- where did the data come from; how robust is it; note where gaps exist or what was excluded. Note the procedures used for their selection; Data collection -- describe the tools and methods used to collect information and identify the variables being measured; describe the methods used to obtain the data; and, note if the data was pre-existing [i. If you gathered it yourself, describe what type of instrument you used and why. Note that no data set is perfect--describe any limitations in methods of gathering data. Data analysis -- describe the procedures for processing and analyzing the data. If appropriate, describe the specific instruments of analysis used to study each research objective, including mathematical techniques and the type of computer software used to manipulate the data. Results The finding of your study should be written objectively and in a succinct and precise format. In quantitative studies, it is common to use graphs, tables, charts, and other non-textual elements to help the reader understand the data. Make sure that non-textual elements do not stand in isolation from the text but are being used to supplement the overall description of the results and to help clarify key points being made. Further information about how to effectively present data using charts and graphs can be found here. Statistical analysis -- how did you analyze the data? What were the key findings from the data? The findings should be present in a logical, sequential order. Describe but do not interpret these trends or negative results; save that for the discussion section. The results should be presented in the past tense. Discussion Discussions should be analytic, logical, and comprehensive. The discussion should meld together your findings in relation to those identified in the literature review, and placed within the context of the theoretical framework underpinning the study. The discussion should be presented in the present tense. Interpretation of results -- reiterate the research problem being investigated and compare and contrast the findings with the research questions underlying the study. Did they affirm predicted outcomes or did the data refute it? Description of trends, comparison of groups, or relationships among variables -- describe any trends that emerged from your analysis and explain all unanticipated and statistical insignificant findings. Discussion of implications -- what is the meaning of your results? Highlight key findings based on the overall results and note findings that you believe are important. How have the results helped fill gaps in understanding the research problem? Limitations -- describe any limitations or unavoidable bias in your study and, if necessary, note why these limitations did not inhibit effective interpretation of the results. Conclusion End your study by to summarizing the topic and provide a final comment and assessment of the study. Summary of findings -- synthesize the answers to your research questions. Do not report any statistical data here; just provide a narrative summary of the key findings and describe what was learned that you did not know before conducting the study. Recommendations -- if appropriate to the aim of the assignment, tie key findings with policy recommendations or actions to be taken in practice. Doing Quantitative Research in the Social Sciences: Competencies for Analysis and Applications. Upper Saddle River, NJ: Merril Prentice Hall, ; Hector, Anestine. Bates College; Nenty, H. Basic Inquiry of Quantitative Research. Strengths of Using Quantitative Methods Quantitative researchers try to recognize and isolate specific variables contained within the study framework, seek correlation, relationships and causality, and attempt to control the environment in which the data is collected to avoid the risk of variables, other than the one being studied, accounting for the relationships identified. Among the specific strengths of using quantitative methods to study social science research problems: Allows for a broader study, involving a greater number of subjects, and enhancing the generalization of the results; Allows for greater objectivity and accuracy of results. Generally, quantitative

methods are designed to provide summaries of data that support generalizations about the phenomenon under study. Sharpe, ; Singh, Kultar. Limitations of Using Quantitative Methods Quantitative methods presume to have an objective approach to studying research problems, where data is controlled and measured, to address the accumulation of facts, and to determine the causes of behavior. As a consequence, the results of quantitative research may be statistically significant but are often humanly insignificant. Some specific limitations associated with using quantitative methods to study research problems in the social sciences include: Quantitative data is more efficient and able to test hypotheses, but may miss contextual detail; Uses a static and rigid approach and so employs an inflexible process of discovery; The development of standard questions by researchers can lead to "structural bias" and false representation, where the data actually reflects the view of the researcher instead of the participating subject; Results provide less detail on behavior, attitudes, and motivation; Researcher may collect a much narrower and sometimes superficial dataset; Results are limited as they provide numerical descriptions rather than detailed narrative and generally provide less elaborate accounts of human perception; The research is often carried out in an unnatural, artificial environment so that a level of control can be applied to the exercise.

Chapter 4 : Discussion of the Method - Paperback - Billy Vaughn Koen - Oxford University Press

Discussion of the Method is an ideal supplement for introductory and advanced courses in engineering, philosophy, and other disciplines, as well as a compelling read for general audiences. THE METHOD: AN OVERVIEW.

What are the Advantages of Discussion Method of teaching? Emphasis on Learning instead of Teaching, Discussion Method emphasises pupil-activity in the form of discussion, rather than simply telling and lecturing by the teacher. Thus, this method is more effective. In this method, everybody participates in the discussion, and therefore thinks and expresses himself. This is a sure way of learning. Development of Democratic way of Thinking. Everybody cooperates in the discussion, and the ideas and opinions of everybody are respected. Thus, there is a development of democratic way of thinking and arriving at decision. Training in Reflective Thinking. Students, during the course of discussion, get training in reflective thinking, which leads to deeper understanding of the historical problem under discussion. During discussion, everybody is required to express his ideas and opinions in a clear and concise manner. This provides ample opportunities to the students for training in self-expression. Spirit of Tolerance is inculcated. The students learn to discuss and differ with other members of the group. Thus, respect for the view points of others is developed. Learning is made Interesting. History is considered to be a dry subject. The learning of history is made interesting through Discussion Method. More effective learning is possible when the students discuss, criticise and share ideas on a particular problem. Active participation by the students in the discussion makes learning full of interest for the students. This also ensures better and effective learning. All types of topics cannot be taught by Discussion Method. This method cannot be used for teaching small children. The students may not follow the rules of discussion. Some students may not take part while others may try to dominate. The teacher may not be able to guide and provide true leadership in the discussion. In spite of these limitations, Discussion Method is a very useful and effective method for the teaching of History.

Chapter 5 : Method 6: Discussion

Discussion of the Method outlines the heuristic-based reasoning used by engineers and generalizes it to a universal method for problem-solving. Delving into the "While the study of the engineering method is important to create the world we would have, its study is equally important to understand the world we do have."

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So much of the learning we do comes from texts: Regardless of what form they come in, texts make up the bulk of how our students experience learning. In many text-based classes English, history, science , the learning cycle often consists of 1 consuming a section of the text, 2 answering teacher-created questions about the text, 3 taking a test after several sections have been completed. For years, high school English teacher Marisa Thompson followed this same programming, and got typical results: Some students did the required work, but never seemed particularly invested in the books themselves. Others completed the questions unevenly, sometimes not answering them all, other times copying work from their peers. As this pattern repeated itself year after year, Thompson became more frustrated: Instead, they had shallow interactions with them, doing whatever surface work had to be done to get a grade. Marisa Thompson Finally, she started experimenting with a different approach, and the way she teaches texts now is completely different from the way she used to. Her current approach, which she calls TQE , is similar to Socratic Seminar, where students lead a discussion on a given text, but with a few twists. Since implementing this new approach, Thompson has seen her students reading much more than they used to, and with much more depth than ever before. So as you read about TQE, think about how you might be able to apply it in your content area. The Problem As an English teacher, Thompson found that her students were experiencing books in a very shallow, grade-focused way. I was assessing whether or not they did their homework questions. One year I had 10 kids copy off each other. It turned this amazing storyâ€”this beautiful novel that everybody should read and enjoy and loveâ€”into a discipline problem. When a student participated in a way that demonstrated that he or she had read the book, their names would be crossed off of a chart. They were used to taking annotations, taking notes on their thoughts while they readâ€”you can show me those. You can sit down and have a conversation just one-on-one, or you can take a test. So my assessment was, on average, about 3 or 4 percent higher than what they were normally getting on their tests. Some were even reading ahead. Over time, Thompson refined her approach adding small-group time before the large-group discussions, offering scaffolding to help students develop better questions, and structuring student contributions so that the richest questions got the most discussion time. You could walk into a college course and have this discussion. Students Complete Assigned Reading at Home Usually, this will be a segment of a longer text, like a few chapters in a novel. Students who show up having not completed the reading are invited to finish up in the hall during small group discussion step 2 to catch up. They are welcome to return to class for the discussion when they finish. Early in the year, Thompson provides stems to help students generate these see below , encouraging them to move from the more simplistic ideas on the left to the more complex ones on the right. TQEs on the Board By the time the 15 minutes is up, each group needs to choose their top 2 TQEs from the group and write them on the board. Although these are meant to serve as the basis for the group discussion, they are not necessarily used as is. When the class is actively studying a novel, they will have these conversations in every class meeting. My student Sally might have participated a ton one day, and skipped the next day. But my standard-based grading says she is reading and analyzing at at least grade level. My prep is reading before bed every night. Students are in charge of the content of the discussions, and the ability to participate fully has become its own motivator for completing the homework. To have an idea, to have an opinion. And you want to talk about empowering a student? You just turned that student into a part of the classroom community. To read more of her work, visit her blog at UnlimitedTeacher. Come back for more. Join my mailing list and get weekly tips, tools, and inspiration that will make your teaching more effective and fun. Over 50, teachers have already joinedâ€”come on in.

Chapter 6 : The Big List of Class Discussion Strategies | Cult of Pedagogy

THE DISCUSSION TEACHING METHOD: AN INTERACTIVE STRATEGY IN TERTIARY LEARNING MRS. BRIDGET O.J. OMATSEYE (PH.D) Institute of Education University of Benin.

The larger the group, the more likely that some participants will dominate and others remain silent. To ensure that everyone has the opportunity to speak, you may want to divide participants into smaller units. When any discussion concludes, summarize the main points orally and in writing. Size will depend on time and the sensitivity or complexity of the subject. In most cases each group selects a reporter to summarize its discussion. Participants discuss in pairs for a limited period. This method is especially effective for articulating ideas in preparation for a general discussion or to give expression to personal response to a film, presentation, or experience. After talking in pairs, couples might be asked to combine in groups of four and compare their opinions. Facilitators need to develop the skills of keeping the goal of discussion clearly in mind and of asking questions that encourage participation and analysis. Here are some typical forms of open questions: One way to help create an environment of trust and mutual respect is to have participants develop "Rules for Discussion": If not already mentioned, you might want to suggest some of the following principles: The facilitator sets a topic or asks a question and everyone takes turns responding, usually within a set time. Limit the time consistently. Participants are divided in two groups, one sitting in a circle facing outward and the other facing inward so that each person faces someone else. These pairs then exchange views on an announced topic. After a set period, the facilitator asks everyone on the inside to move one seat to the right and discuss with the new person sitting opposite. This process continues until each person has changed views with several others. In this method, derived from Native American tradition, anyone who speaks must be holding a designated object, which could literally be a stick or anything else easily visible and portable. This method builds awareness of sharing the "air time. To provide everyone an equal opportunity to speak, give each participant three "talking tickets," each representing a certain amount of "air time. Participants have time to write or simply think on their own about a critical question; they then link with one other person to discuss and then bring their reflections to the entire group. This method is a discussion in written form. Pose a key question and ask everyone to write a response at the top of a page. Each paper is then passed to the person on the right, who reads the first statement and responds to it by writing something below. Repeat the process until three or four people have had a chance to respond. Then pass the papers back to the left so that everyone can see what has been written in this "silent discussion.

Chapter 7 : What are the Advantages of Discussion Method of teaching?

Some advantages of the discussion method are that it puts more emphasis on learning than teaching, encourages student participation, encourages democratic thinking, enhances reflective thinking, helps improve self-expression and nurtures the spirit of tolerance.

Top of Page Describe the organism s used in the study. This includes giving the 1 source supplier or where and how the orgranisms were collected , 2 typical size weight, length, etc , 3 how they were handled, fed, and housed before the experiment, 4 how they were handled, fed, and housed during the experiment. In genetics studies include the strains or genetic stocks used. For some studies, age may be an important factor. For example, did you use mouse pups or adults? Seedlings or mature plants? Describe the site where your field study was conducted. The description must include both physical and biological characteristics of the site pertinent to the study aims. Include the date s of the study e. Location data must be as precise as possible: When possible, give the actual latitude and longitude position of the site: It is often a good idea to include a map labeled as a Figure showing the study location in relation to some larger more recognizable geographic area. Someone else should be able to go to the exact location of your study site if they want to repeat or check your work, or just visit your study area. For laboratory studies you need not report the date and location of the study UNLESS it is necessary information for someone to have who might wish to repeat your work or use the same facility. Most often it is not. If you have performed experiments at a particular location or lab because it is the only place to do it, or one of a few, then you should note that in your methods and identify the lab or facility. Top of Page Describe your experimental design clearly. Be sure to include the hypotheses you tested, controls, treatments, variables measured, how many replicates you had, what you actually measured, what form the data take, etc. Always identify treatments by the variable or treatment name, NOT by an ambiguous, generic name or number e. When your paper includes more than one experiment, use subheadings to help organize your presentation by experiment. A general experimental design worksheet is available to help plan your experiments in the core courses. Describe the procedures for your study in sufficient detail that other scientists could repeat your work to verify your findings. Foremost in your description should be the "quantitative" aspects of your study - the masses, volumes, incubation times, concentrations, etc. When using standard lab or field methods and instrumentation, it is not always necessary to explain the procedures e. You may want to identify certain types of equipment by vendor name and brand or category e. It is appropriate to report, parenthetically, the source vendor and catalog number for reagents used, e. Always make sure to describe any modifications you have made of a standard or published method. Very frequently the experimental design and data collection procedures for an experiment cannot be separated and must be integrated together. If you find yourself repeating lots of information about the experimental design when describing the data collection procedure s , likely you can combine them and be more concise. Of course you did, because that is what all good scientists do, and it is a given that you recorded your measurements and observations. Describe how the data were summarized and analyzed. Here you will indicate what types of descriptive statistics were used and which analyses usually hypothesis tests were employed to answer each of the questions or hypotheses tested and determine statistical significance. The information should include: Here is some additional advice on particular problems common to new scientific writers. The Methods section is prone to being wordy or overly detailed. Avoid repeatedly using a single sentence to relate a single action; this results in very lengthy, wordy passages. A related sequence of actions can be combined into one sentence to improve clarity and readability: This is a very long and wordy description of a common, simple procedure. It is characterized by single actions per sentence and lots of unnecessary details. The lid was then raised slightly. An inoculating loop was used to transfer culture to the agar surface. The turntable was rotated 90 degrees by hand. The loop was moved lightly back and forth over the agar to spread the culture. The bacteria were then incubated at 37 C for 24 hr. Same actions, but all the important information is given in a single, concise sentence. Note that superfluous detail and otherwise obvious information has been deleted while important missing information was added. Here the author assumes the reader has basic knowledge of microbiological

techniques and has deleted other superfluous information. The two sentences have been combined because they are related actions. Avoid using ambiguous terms to identify controls or treatments, or other study parameters that require specific identifiers to be clearly understood. Designators such as Tube 1, Tube 2, or Site 1 and Site 2 are completely meaningless out of context and difficult to follow in context. In this example the reader will have no clue as to what the various tubes represent without having to constantly refer back to some previous point in the Methods. Notice how the substitution in red of treatment and control identifiers clarifies the passage both in the context of the paper, and if taken out of context. The A of the no-light control was measured only at Time 0 and at the end of the experiment. The function of the Results section is to objectively present your key results, without interpretation, in an orderly and logical sequence using both text and illustrative materials Tables and Figures. The results section always begins with text, reporting the key results and referring to your figures and tables as you proceed. Summaries of the statistical analyses may appear either in the text usually parenthetically or in the relevant Tables or Figures in the legend or as footnotes to the Table or Figure. Important negative results should be reported, too. Authors usually write the text of the results section based upon the sequence of Tables and Figures. Write the text of the Results section concisely and objectively. The passive voice will likely dominate here, but use the active voice as much as possible. Use the past tense. Avoid repetitive paragraph structures. Do not interpret the data here. The transition into interpretive language can be a slippery slope. Consider the following two examples: The duration of exposure to running water had a pronounced effect on cumulative seed germination percentages Fig. In contrast, this example strays subtly into interpretation by referring to optimality a conceptual model and tying the observed result to that idea: The results of the germination experiment Fig.

Chapter 8 : Deeper Class Discussions with the TQE Method | Cult of Pedagogy

method of teaching, for it is a method of leading a discussion in which a good deal of authority and control remain in the hands of the discussion leader and in which a good deal of content and theory can be imparted by.

Contact Us Listen to this post as a podcast: We will discuss the story. We will discuss our results. What questions will you ask? How will you ensure that all students participate? So here they are: The last group is the ongoing strategies. To watch each strategy in action, click on its name and a new window will open with a video that demonstrates it. Chat Stations Basic Structure: Stations or posters are set up around the classroom, on the walls or on tables. Small groups of students travel from station to station together, performing some kind of task or responding to a prompt, either of which will result in a conversation. Before I knew the term Gallery Walk, I shared a strategy similar to it called Chat Stations , where the teacher prepares discussion prompts or content-related tasks and sets them up around the room for students to visit in small groups. A statement that has two possible responsesâ€”agree or disagreeâ€”is read out loud. Depending on whether they agree or disagree with this statement, students move to one side of the room or the other. From that spot, students take turns defending their positions. In less formal variations which require less prep , a teacher may simply read provocative statements students are likely to disagree on, and a debate can occur spontaneously without a text to refer to I call this variation This or That in my classroom icebreakers post. Students are divided into 4 groups. Three of these groups are assigned to represent specific points of view. Behind each speaker, the remaining group members are seated: From above, this would look like a pinwheel. When high school English teacher Sarah Brown Wessling introduced this strategy in the featured video click Pinwheel Discussion above , she used it as a device for talking about literature, where each group represented a different author, plus one provocateur group. Socratic Circles Basic Structure: Students prepare by reading a text or group of texts and writing some higher-order discussion questions about the text. From there, students continue the conversation, prompting one another to support their claims with textual evidence. There is no particular order to how students speak, but they are encouraged to respectfully share the floor with others. Discussion is meant to happen naturally and students do not need to raise their hands to speak. This overview of Socratic Seminar from the website Facing History and Ourselves provides a list of appropriate questions, plus more information about how to prepare for a seminar. If students are beginners, the teacher may write the discussion questions, or the question creation can be a joint effort. Affinity Diagramming Basic Structure: Some teachers have students do much of this exerciseâ€”recording their ideas and arranging them into categoriesâ€”without talking at first. Often, this activity serves as a good pre-writing exercise, after which students will write some kind of analysis or position paper. Speed Dating Basic Structure: Students form two circles, one inside circle and one outside circle. The teacher poses a question to the whole group and pairs discuss their responses with each other. Then the teacher signals students to rotate: Students on the outside circle move one space to the right so they are standing in front of a new person or sitting, as they are in the video. Now the teacher poses a new question, and the process is repeated. Instead of two circles, students could also form two straight lines facing one another. Some teachers use this strategy to have students teach one piece of content to their fellow students, making it less of a discussion strategy and more of a peer teaching format. In fact, many of these protocols could be used for peer teaching as well. Students are placed into a few groups of students each and are given a discussion question to talk about. After sufficient time has passed for the discussion to develop, one or two students from each group rotate to a different group, while the other group members remain where they are. For the next rotation, students who have not rotated before may be chosen to move, resulting in groups that are continually evolving. Two students sit facing each other in the center of the room; the remaining students sit in a circle around them. Students on the outside observe, take notes, or perform some other discussion-related task assigned by the teacher. One student assumes the role of a book character, significant figure in history, or concept such as a tornado, an animal, or the Titanic. In another variation, several students could form a panel of different characters, taking questions from the class all together and interacting with one another like guests on a TV talk show. Pyramid Discussion Basic Structure:

Students begin in pairs, responding to a discussion question only with a single partner. Pairs share their ideas with the pair they just joined. Next, groups of four join together to form groups of eight, and so on, until the whole class is joined up in one large discussion. With a tool like Voxer, those limitations disappear. Voxer is also invaluable for collaborating on projects and for having one-on-one discussions with students, parents, and your own colleagues. Like many other educators, Peter DeWitt took a while to really understand the potential of Voxer, but in this EdWeek piece, he explains what turned him around. The first time I saw a backchannel in action was at my first unconference: While those of us in the audience listened to presenters and watched a few short video clips, a separate screen was up beside the main screen, projecting something called Today'sMeet. It looked a lot like those chat rooms from back in the day, basically a blank screen where people would contribute a few lines of text, the lines stacking up one after the other, no other bells or whistles. Anyone in the room could participate in this conversation on their phone, laptop, or tablet, asking questions, offering commentary, and sharing links to related resources without ever interrupting the flow of the presentations. Accountable Talk Talk moves are sentence frames we supply to our students that help them express ideas and interact with one another in respectful, academically appropriate ways. Talk moves can be incorporated into any of the other discussion formats listed here. Next, the teacher says Teach! Although WBT is most popular in elementary schools, this featured video shows the creator of WBT, Chris Biffle, using it quite successfully with college students. Simply have students think about their response to a question, form a pair with another person, discuss their response, then share it with the larger group. So what else do you have? I would love to have you come back for more. I look forward to having you join me.

Chapter 9 : Whatâ€™s in a methodology? - www.nxgvision.com

1. *Emphasis on Learning instead of Teaching, Discussion Method emphasises pupil-activity in the form of discussion, rather than simply telling and lecturing by the teacher. Thus, this method is more effective.* 2. *Participation by Everybody. In this method, everybody participates in the discussion.*

Overview[edit] Fig. Wineglass model for IMRaD structure. The above scheme schematically shows how to line up the information in IMRaD writing. It has two characteristics, first one is "top-bottom symmetric shape", second one is "change of width", that means "the top is wide and it narrows towards the middle, and then widens again as it goes down toward the bottom". First one, "top-bottom symmetric shape" represents the symmetry of the story development. Second one, the change of the width of above diagram, represents the change of generality of the viewpoint. Original research articles are typically structured in this basic order [2] [3] [4] Introduction â€™ Why was the study undertaken? What was the research question , the tested hypothesis or the purpose of the research? Methods â€™ When, where, and how was the study done? What materials were used or who was included in the study groups patients, etc. Results â€™ What answer was found to the research question; what did the study find? Was the tested hypothesis true? Discussion â€™ What might the answer imply and why does it matter? How does it fit in with what other researchers have found? What are the perspectives for future research? First one is "top-bottom symmetric shape" and Second one is "changing width" i. The First one, "top-bottom symmetric shape", represents the symmetry of the story development. Note the shape of the top trapezoid representing the structure of Introduction and the shape of the trapezoid at the bottom are reversed. See the relationship between abovementioned a , b and e , f. The Second one, "the change of the width" of the schema shown in Fig. As along the flow of the story development, when the viewpoints are more general, the width of the diagram is expressed wider, and when they are more specialized and focused, the width is expressed narrower. As the standard format of academic journals[edit] The IMRAD format has been adopted by a steadily increasing number of academic journals since the first half of the 20th century. The IMRAD structure has come to dominate academic writing in the sciences, most notably in empirical biomedicine. Although the IMRAD structure originates in the empirical sciences, it now also regularly appears in academic journals across a wide range of disciplines. Many scientific journals now not only prefer this structure but also use the IMRAD acronym as an instructional device in the instructions to their authors, recommending the use of the four terms as main headings. For example, it is explicitly recommended in the " Uniform Requirements for Manuscripts Submitted to Biomedical Journals " issued by the International Committee of Medical Journal Editors previously called the Vancouver guidelines: The text of observational and experimental articles is usually but not necessarily divided into the following sections: Introduction, Methods, Results, and Discussion. This so-called "IMRAD" structure is not an arbitrary publication format but rather a direct reflection of the process of scientific discovery. Long articles may need subheadings within some sections especially Results and Discussion to clarify their content. Other types of articles, such as case reports, reviews, and editorials, probably need to be formatted differently. It allows the most relevant information to be presented clearly and logically to the readership, by summarizing the research process in an ideal sequence and without unnecessary detail. Caveats[edit] The idealised sequence of the IMRAD structure has on occasion been criticised for being too rigid and simplistic. In a radio talk in the Nobel laureate Peter Medawar even criticised this instructive text structure for not giving a realistic representation of the thought processes of the writing scientist: Medawar and others have given testimony both to the importance and to the limitations of the device. Abstract considerations[edit] In addition to the scientific article itself a brief abstract is usually required for publication. The abstract should, however, be composed to function as an autonomous text, even if some authors and readers may think of it as an almost integral part of the article. The increasing importance of well-formed autonomous abstracts may well be a consequence of the increasing use of searchable digital abstract archives, where a well-formed abstract will dramatically increase the probability for an article to be found by its optimal readership. A few variations can occur, as follows: Many journals have a convention of omitting the "Introduction" heading, based on the idea that the reader who

begins reading an article does not need to be told that the beginning of the text is the introduction. The same considerations are true regarding the presence or proscription of an explicit "Abstract" heading. In some journals, the "Methods" heading may vary, being "Methods and materials", "Materials and methods", or similar phrases. Some journals mandate that exactly the same wording for this heading be used for all articles without exception; other journals reasonably accept whatever each submitted manuscript contains, as long as it is one of these sensible variants. Are you just making money off of saying it? How is it relevant to my clinical practice? Thus reporting guidelines guidelines for how best to report information arose. The general theme has been to create templates and checklists with the message to the user being, "your article is not complete until you have done all of these things. Other such standards , mostly developed in the s through s, are listed below. In fact, from the most rigorous versions of the evidence-based perspective, the distance to go is still quite formidable.