CHAPTER 8

Empirics in Argumentative Inquiry

This chapter will argue that empirical evidence used in support of an argumentative inquiry needs to be validated. The collection of evidence from interviews, questionnaires, case studies, participation meetings, observations and action research needs to be suspicious of the source. For example, claims from interviewees need to be challenged, justified and verified and observations need to be double-checked. The implication of this argument, if accepted, is that your research report needs to provide justification of the validity of the evidence. An analogy may be with 'journalists' who need to be suspicious of their sources. The purpose of validating the evidence is to make the overall report more convincing.

> I began this chapter while sitting in West Side Park in Champaign watching a construction worker in his thirties on a picnic lunch with his wife. Like many picnics, theirs was invaded by ants. Watching the man, I tried to understand his attitude toward ants only from his behavior. When one bold ant hoisted itself onto his plate, it appeared as if he would crush it between his fingers in disgust. He appeared enraged at the ant, perhaps thinking of its affront to his food, and brushed it aside. And when the ant returned, he seemed to grow in his anger, pushing it more brusquely, muttering something about "these damn pests", infuriated at the ant's obstinancy [sic]. And the ant, though stunned for a few moments, returned again. The man, having finished with his food, now simply watched the creature and seemed not at all concerned about the footprints it deposited on his potato salad. Perhaps he was wondering at the ant's hunger, or its fortitude and courage. The food appeared to fade from focus. Perhaps he thought of the familiar creature as an individual and noticed the crook to its walk, and worried that he had put it there. And the man appeared now to think well of the ant, pushing some of his food in its direction, then noting to his wife, "God, look at that strength," as the ant lifted a stray fragment of chicken. Yet only moments later, when his wife's plate was infested by several ants, he brushed them to the ground and stepped on them. And so it went with this man and those ants moving for twenty minutes through each other's world. And when it was over, I wondered what, in truth, could we ever hope to say about his attitude toward ants at picnics? (48, p. 51) [From, AN APPRECIATION OF SOCIAL CONTEXT: ONE LEGACY OF GERALD SALANCIK, By: Weick, Karl E., Administrative Science Quarterly, Dec 96, Vol. 41, Issue 4]

This quote is intended to underline the complexity of studying social situations. Repeatability of behaviours is often not reliable, yet the scientific method is based on repeatable observations. People are fickle yet have essential experiences. In the absence of repeatability as a guarantor that truth is being captured as knowledge, this book has argued that social research needs to adopt good argument, which in turn involves seeking insight from the concerns of interlockers. However, some cynicism is required when seeking these concerns.

Argumentative inquiry is a methodology based on competing ideas creatively improving our understanding of the world. At the core is the suggestion to start research from a claim (plea, conclusion, conjecture, argument line, supposition). Therefore, under the argumentative inquiry approach, research becomes an act of attempting to formally justify conjectures, first to ourself and then to others through research reports. The empirical evidence used in this justification process will itself need to be collected in this competitive atmosphere as this is believed not only to validate the evidence but also help improve its quality.

Before discussing particular methods it may be worth recapping on the connection between the argument, the literature review, the evidence 'topics' and the empirics. This book has argued that social research, after some initial discovery, starts 'in earnest' when the sandwich of a research question and the conclusion can be articulated together. Research is seen as the process of collecting and interlocking the supporting evidence so as to 'fill the sandwich, that is, make the argument convincing to a particular audience. This evidence comes in two forms, reasoning or empirics (sometimes called first hand or primary evidence). The reasoning will be made up of a mix of

definitions, concept construction, 'if then' statements and prior literature. This is usually called the literature review, but may be more usefully called supporting evidence from the literature. The chapter on systems thinking then suggested 'topics' (purpose, boundary…) that could be used to structure this evidence, including the identification of alternative concerns that might require different evidence.

Repeatability Data

Repeatable 'facts', usually called objective knowledge, or knowledge-that is the best evidence you can find to convince someone of an argument. The more repeatable the facts are, especially by a wide range of people, the more convincing they are. Examples include *that* if you drop something heavier than air while near the planet Earth it falls towards the Earth's centre. Another example is *that* my coffee desk has four legs. Statistical data such as the population of Australia, or the percentage of people who have used a phone on Earth, appear to be repeatable knowledge but the difficulties of just anyone going out and re-counting, or reproducing them, make them less convincing. This may be why statistics are not a very popular means of 'convincing' in courts or with experienced politicians. Their use usually turns into a disagreement about how they were collected or how they are to be interpreted. A recent advert says on average 20,000 people die of smoking related diseases every year in Australia, so therefore you should stop smoking. Apparently, this statistic should be proof enough for you to be convinced and thus stop smoking. However, measured against a comparison of the 200,000 people that die anyway, plus questions about the 20,000 being in decline and because it is so easy to question how 'smoking related diseases' are defined, the statistical argument becomes less convincing. Nevertheless, it is a good start.

The same problem occurs with regression. There are literally millions of correlations of almost every statistic against every other statistic. For instance, children who eat breakfast cereal are more likely to go to University, and fashion skirt-length is positively correlated to the stock market. While these correlations are interesting, there may be a very a more generic explanation behind them. The first may be because many 'poor' children simply do not get breakfast, and second because when the stock market is high so is self-confidence. Without good arguments, backed up by further good evidence, correlations are unconvincing. That said, there are numerous research method books available that will explain how to collect and crunch these sorts of statistics into correlations.

Experiments are another very convincing form of repeatable evidence, and are closely aligned with argumentation. Typically they work by seeing the effect of an "if – then" argument. **If** I heat up water **then** it boils at 100 deg. C. **If** light passes through a change in medium **then** it is refracted. The discovery part of these 'if – then' arguments is that sequences of decision tree paths can be set and tested. Take the example of an inquiry into why the headlights on my car fused out in what at first seemed like a very frequent but random manner. In order to investigate, I purchased a number of fuses and began to experiment. I tested the, **if** I turn on the lights before starting the car **then** they will fuse: nothing. I tested the, **if** I started the car and turned on the lights, then the lights will fuse: nothing. I tested the, **if** I apply full right lock with the lights then they will fuse: again nothing. And so it went on, until I noticed that **if** I moved the gear stick into the drive gear position when the lights were on, then the lights fused. This process of experimentation using the 'if – then' test can provide very convincing evidence. However, it is hard to do such repetitions when undertaking social research. While you might be able to experiment with one variation in facilitating meetings for the negotiation of Aboriginal land title rights, you will appreciate that the opportunity for the sort of near endless experimentation discussed with the car is not feasible. But an alternative to the experiments on my car might have been to talk to it, if it had been human.

An Argumentative Interview

What are interviews? As Gub and Daz [] point out in their ethnography of interviews, the term 'interviews' has been used for a wide range of dialogue situations. The term is most comfortably used in relation to job interviews, where a few people question one claimant (actor, subject, respondent, participant, or candidate) to see if their claim to be suitable for the job is justified. It is usually distinguished from the term, 'meeting,' where there is a group informing each other, rather than focusing on one particular claimant whose claims need to be questioned. In the case of social research, such as a police interview, again, there is a focus is on an individual who claims to be a witness or

pleads not guilty. The role of the police is to question them in order to seek justification for their claim. Increasing numbers of information systems researchers are including interviews in their empirical evidence. The interview is usually intended to seek the interviewee's reaction to some social event, like the installation or failure of a new system. By interview it is meant a preferably physical meeting, with two or more people present for a period of about an hour. Group interviews are attractive if they are conducted as an interactive discussion that does not suppress or average different participant's concerns. Recording the interview is preferable; video if body language is thought to be relevant, however this does not replace having a drafted list of evidence "*Topics"*. Fully and mechanically transcribing and coding interview tapes is not believed necessary, as the interviewer should be able to identify what part of the responses will be relevant to their overall argument, in the way a barrister can quickly identify whether a witness's comments are defending or prosecuting the accused.

The context of interviews is important. It is suggested that the researcher should ensure he or she has done their homework before an interview. Especially in terms of the history and issues of the evidence *"Topics"* and on how their own agenda may be distorting their view of any answers to their questions. Furthermore, the researcher should appreciate and acknowledge that a one-hour interview with a stranger on a topic fairly new to the researcher is very different from more ethnographic situations where the researcher has been situated in the research location for some time. The classic example of this was Margaret Mead's interviews in Samoa. While an experienced anthropologist, Mead's interviews with teenagers about their sex life resulted in very poor evidence. The teenagers teased her with their responses, but due to cultural and language barriers she did not realise. Later a Samoan, who had been overseas to train formally as an anthropologist, was able to easily recognise the responses of the teenagers as incorrect and mischievous. He reinterviewed some of those who had been interviewed many years earlier by Mead. This type of interview is what was meant by ethnographic. The interviewee has extensive emersion in the world of those being interviewed, which results in far more convincing evidence. The researcher needs to be aware that a one-hour interview with strangers, with no ethnographic context, might produce low validity evidence, and should accordingly be constructed as a very different quality.

Interviewing is seen to be what Kuhn [1970] and Chalmers [1982] call a value-laden observation. Our brain uses past experiences and biases to interpret what our eyes see. A lump of wood of the right shape, finish and colour becomes a table. Therefore, some thought has to be given to make explicit the concern the researchers' past experiences is implicitly giving their eyes and ears, telling them what is relevant, what is being seen. This thinking about the researcher's concern will help with the design of interviews so as to direct questions and appreciate, or anticipate, responses. The interviewer has to 'learn how to see', and hear. Without this, opportunities may be wasted during the interview and interviewee's responses may not be fully understood. The questions need to be informed by the literature. However, having a clear argument and well-structured evidence 'topics,' will improve learning not blind it. Care needs to be taken to treat the respondents as a chance to present new concerns, new knowledge, not merely to confirm previous research. The interviewer needs to proactively seek something unexpected from the interviews that will to cause him or her to alter their argument as 'learning from doing' occurs. The questioning needs to be designed so that the interviewees are probed to at least try and inform the interviewer of something they did not understand or fully appreciate earlier. Thus, the process between the interviewer and interviewee needs to be being interactive and dialectic with each influencing the responses of the other.

As mentioned, the purpose of the interviews, under argumentative inquiry, is to seek responses to an argument so as to produce supporting and/or counter evidence. This means deciding whom to interview, which under argumentative interviewing is very important. It is not a sampling exercise, rather one of seeking new concerns so as to see the research situation differently. Respondents are selected because they may have a new concern (sufficiency) that they can justify. Finding people to repeat the same concern is not necessary except maybe to reinforce the first viewpoint or to add some more justification. If the interviewees' responses are to be persuasive, it is very important to establish the credibility of the interviewee much as is done with expert witnesses in court. The background, experiences and expertise of the interviewee has to be established to the satisfaction of whoever is reading the research report. Put another way, it is important to establish that the interviewee is not insane, mistaken, inconsistent, deluded, or in a state of changing their mind, so as to avoid the dangers of relativism. Moreover, the interviewee has to be treated as an intelligent feeling person with a rational concern, not as a

research object unaware of their thoughts compared to the researcher or some social norm, as is common in questionnaire type interviews.

The key to argumentation interviews is to remember that responses to the researcher's argument are sought. The responses are to be treated as the respondent's own counter argument, which he or she needs to justify. For example, on hearing that you are undertaking research into the argument that system failure can be avoided with good consultation, the respondent might say, "only written consultation works." This is now their argument and the researcher needs to seek justification from the respondent as to why they hold this view. However, prior to getting the respondent's arguments, Armstrong [1985] recommends that some 'warm-up' questions be asked. The 'context' questions might be used for this, for example, you might ask for definitions such as what they understand by the term 'pre-design consultation', and whether they think the research is useful (motivation and implications). Therefore, the sequence for an argument interview might be to start with a statement of the researcher's argument, and then the context evidence questions are asked, followed by encouraging the respondent to provide their own claim or argument in response to the researchers argument, for which justification is sought. From this process the researcher should pick up supporting or counter evidence for their argument. Also, interviewees need to be asked for their view on both the object under research and the researcher's concern. Using the systems failure example, the concern sought from interviewees need to be on both the failed systems *and* the concern that failure is mainly due to a lack of pre design communications. Responses may cause a re-scoping of concepts like 'failure' and 'communications' and confirm, or otherwise, the respondent's concern on the centrality of pre design communications in failure. Of course, the respondents and the researcher's argument may change during the interview, which in itself is interesting and should be noted and investigated.

It was argued above that the interviewer must seek justification of the interviewee's argument, which should involve some healthy suspicion or critical thinking on the part of the interviewer [Klein and Myers, 1999]. Having a well-developed concern, coupled with a healthy appreciation of human information processing problems, is a good start [Armstrong, 2002]. For example, it is useful to know how much thought the respondent has put into their answers, and whether are they answering from actual experience or speculation. People can be confident yet very mistaken when commenting on things they have not experienced, for example the predictions of mobile phone and email usage were much understated. People are much better at reflecting upon activities they have actually experienced such as prior and analogous system failures, so grounding their response in past experiences may help avoid too much speculation. For example, if a respondent says he or she wants more pre design consultation for new systems then some discussion on their response to opportunities for consultation in the past might be useful for drawing analogies. Other human information processing problems include; telling the interviewer what they want to hear, repeating phrases heard recently without thinking too much about them, anchoring responses on the introductory remarks, optimism, and poor causality.

The respondent's justifications for their concern may require that tacit or implicit feelings be changed into explicit ones. While respondent's emotional responses may be relevant, it helps if these can be verbalised. For example, anger at not being consulted may initially be expressed using terms like, "it is only right", but do need to be further explained in a form acceptable to the rules of reasoned argument such as, peer recognition, or cognitive closure on why an option was unavailable. Care needs to be taken with this process of turning emotions into reasoned statements, or as Argyris [] calls them, 'espoused theory'. He suggests that responses may be fanciful or couched in terms of current management jargon because the genuine concerns may appear irrational, selfish or too 'base'. Basic human concerns include 'face', wealth and power. Good interview technique needs to ensure that these basics are discussed and an attempt is made to explore them, including why respondents may be inclined not to verbalise their genuine concerns.

Interviews are not only about recording the flow of words that come out of the respondent's mouths. Some research method writers [] recommend that two interviewers be used so that one can concentrate on the questions and answers and the other on the bigger picture of the responses, their location, attitude to the questions and questioners and their body language. One obvious issue is cynicism. Is the respondent smiling when recanting the 'corporate line'? Does the respondent think the interviewers are competent, able to appreciate the complexities of

the situation, or have a hidden agenda? Undertaking interviews rather than observation of actions allows for the respondents to justify their actions and understandings but carries the problem that their actions are not aligned with their words. This can be accidental, purposeful or self-delusion, but interviewers need to be aware that there is often a lot of difference between what is said and what is done. Any attempt to correlate words with actions will add to the researcher's understanding.

After each interview, and after all the interviews, drawing on the reflective learning literature [] to conduct a 'post mortem' on the action (experience) is suggested. In the spirit of a reflection an attempt can be made to generalise from the specific experience against what Ackoff calls an 'ideal design'. In systems design, this may include what has been learnt about design and communications. However, the success of the interview, in terms of what was hoped for and the information collected, may also be considered. As ever, this reflection should both consider what is being reflected upon as well as what is being used to make the reflection. It may be worth compiling a series of questions to ask yourself about your interview successes, especially in terms of the usefulness of what was learnt in the eyes of your intended audience and your worse critic.

Argumentative Intervention

The now extensive action research literature [e.g.] draws a distinction between intervening and not intervening in a social event. Non-intervention means observing and measuring while trying not to alter or interfere with a social event in any way. Watching a meeting, or interviewing people about a meeting, is distinguished from participating in the meeting. Watching and questioning stakeholders in the development of a new system is considered different to making some design or organisational suggestions about the new system. The 'grey area' or boundary of the distinction between intervention and observation may be what Gub and D [] call, 'active questioning' where the questions are meant to alter the respondents thinking. The very act of observing and questioning makes it very easy to do this, thereby altering the behaviour of those under study, even if unintentionally. However, pro-active intervention can be seen as having a different intent to taking an observer role, whose intention is to cause the minimum impact on the social action under study.

The upfront philosophy of argumentation agrees with that part of the action research literature Checkland [2000] that argues that an intervention should not take place until the argument and evidence 'Topics' have been developed. The intervention can then take place and is reflected upon at intervals against these 'Topics'. Using the example of 'pre design consultation', some concept of what in meant by 'adequate and reasonable pre design consultation' divided up into issues (evidence topics) needs to be developed prior to the intervention. Again, an upfront argument and evidence plan is simply a starting position and not intended to be inflexible as learning emerges during the intervention. The upfront thinking about your thinking as an approach is to be contrasted with some forms of emergent 'theory' which calls for a blank mind, usually expressed as an open mind with no pre-conceptions at the onset of research, thus allowing the evidence to emerge. This approach is rejected as a starting point, as the brain of the researcher is thought to be full of prior experiences and unjustified conjectures. Moreover, deep or double loop learning [Schon,] requires that experiences be reflected upon against some prior 'Ideal'. If an intervention is undertaken in an attempt to justify an explicit argument and undertaken using a reflected upon 'Ideal Design' then it satisfies the criteria for argumentative research.

Intervention as research under the argumentative approach only really differs from the interview in that the intervention is adding 'doing' to 'talking'. The core aim is still one of seeking evidence to justify the researcher's argument to a hostile audience in a research report. The intervention may include providing a certain quantity, or type of consultation, and seeing how much impact it had. It is assumed that interviews will still be required even with the intervention. The intervention can be seen as providing thought about experiential data in context. It differs from thinking about past experiences in that it focuses on gathering evidence. The 'upfrontness' ensures the double loop, or deep learning as actions, are reflected against this upfront perception. An intervention differs from observing and interviewing others doing the task, in that the doing immerses and enriches inputs to the researcher's senses. Thus, alternative actions can be experienced, and intervention as a project member with a genuine role gives more access to all the project details, meetings, minutes, records and other member's behaviours.

The task of seeking, confirming, or refuting evidence has not changed with an intervention. Participants' claims can be sought or interpreted from their actions. While verbal justification can be sought, intervention allows for activities to be arranged that seek more justification than verbal reasoning. For example, if you wanted to seek supporting evidence for the argument that 'consultation improves morale' then the intervention may involve designing a series of actions to demonstrate the point. This may involve starting an email discussion and asking those involved to access its effect.

Argumentation Questionnaires

Having first set the a priori research argument, questionnaires can be designed to provide supporting or refuting evidence. By questionnaires I mean a list of short answer questions, read by the respondent in the absence of the researcher. The answers may be given in ticks, numbers or sentences. Only questions that are relevant to the research argument need to be included on the questionnaire. Again, preparation of 'Topics' from the literature should act to improve the questions and reduce definitional problems. The weakness of questionnaires is in the definition of terms, as it is easy for the respondent to misunderstand the question. Coupled with this, it is very easy for the researcher to misunderstand the answer.

The researcher's argument can easily be explained in the covering letter, but the types of questions need to be thought through carefully. Questionnaires are very good at collecting numbers as supporting evidence. For example, questionnaires could be used to average the number of hours respondents spent in consultation for some project. However, if responses to the researchers' argument are sought, as was assumed with interviews, then care needs to be taken in the collection of respondent's claims, which then need to be justified. If you ask, "How much pre design consultation is enough" and the respondent ticks the box that says, "You can never have enough" then this is their claim and some attempt to get them to justify that claim needs to be made. This makes for a very complicated questionnaire, especially if written responses are being avoided due to mechanical computation. In order to identify each question's possible responses the researcher will need to include something like: "Did you choose the option 'Very much' because of a, b, c, or d"? This underlines why questionnaires are not really appropriate for interpretive and argumentative research beyond the collection of some numbers. They are not good for researching the 'why' questions deemed to be so fundamental to interpretive social research.

Argumentative Participation Meetings

There is an increasing use of group debate to bring out interesting issues. Focus groups[], community participation [] and computerized Dephi [ ] are a few examples. The focus groups are popular in marketing, the second in social research and the last in system design. Using the argumentative inquiry approach, design advice might simply be to encourage debate with a little, but not too much, competition. This can be hard to facilitate but useful if controlled, as many followers of debating teams will know. If a more consensual approach is required a 'reverse survey' [List] approach can be used with the group. Here, after some preliminary discussion, a series of statements (claims, propositions, arguments) are put to the group to edit until the majority agrees (two thirds). For example, the claim that the new system considerably reduces work flexibility, may be discussed and only agreed upon when written as, 'that the new system somewhat reduces work flexibility for experienced managers.' Some 20 of these statements may be produced in a one day meeting. This approach aligns with the idea of group meetings identifying the common ground between members of a diverse stake-holding.

Holding Court

The obvious evidence collection method for an argumentative inquiry is to set up a debate or 'hold court'. This approach can help address any power issues that are blocking some respondents from speaking openly, as well as provide a dialectic environment for idea creation. The method includes an arbitration process that allows public debate before an independent audience. Correctly constructed, this provides a pragmatic way to deal with disputes, ensures good communication, and enables the researchers to argue that a transparent process was followed.

Debate may be new as a research method, but is a familiar democratic process and may be the best alternative for dealing with research issues that are causing some tension.

It is not being suggested that either debates, or the court system in the wider community, are ideal means to generate justified knowledge, rather they provide the opportunity for an appreciation of alternative concerns. Walker and Daniels [1993] outline a range of dispute resolution systems, but interestingly, the basic structure of setting up a formalised debate is not put aside. Formalised argument is about the best legal system our competitive hierarchical species has managed to come up with in 3,000 years of civilisation. There has been some attempt to label an argumentative process as too adversarial, but alternatives are available. First, there is the need to see argument as a way of gaining knowledge, not merely to persuade. Second, methods like Rogerian-argument are slightly less competitive as the idea is to assist the interlocker to argue with him or herself. Dialogue appears ultimately to need structure, especially in a research setting, which is what debate aims to do.

There are two basic court systems. One is well known to Australians, North Americans and the British. It is the adversarial system with a prosecutor, a defence lawyer, and a jury. In this system the judge cannot call or ask questions of the witnesses. The other system, known as the Inquisitional model, is used in Royal Commissions, Senate Hearings and some European law court processes. In order to try to work out a fair result the judge is able to call witnesses and make inquiries of who-ever he or she feels is relevant. It is unclear which one is preferable, but the objective is to ensure fair due process. To create and test knowledge a balanced adversarial presentation of evidence lies at the core of the system recommended by Aristotle. The setting up of 'sides' is thought to provide defences that are more inventive, and appears more explicitly to address the risk of unequal power differences. The disadvantage is that it can be very divisive. Each side does not necessarily put forward the truth, but rather the best possible version to support their side. This can cause tensions. If not facilitated very well it is not a healing, consensus building process; but, perhaps hopes of harmony and consensus are naive in a hierarchical species co-competing for resources.

Before the court is convened there needs, as ever, to be a clear statement of what is to be claimed, who is to defend the claim and who is to counter. The evidence to be presented must be available to all parties before the trial starts. A 'judge', or facilitator, runs the process, including the final summing up to the 'jury'. A carefully chosen jury of (maybe) 'independent researchers' will declare what has been justified and what has not. Stakeholders can make up the witnesses. The person defending the claim will present their evidence first, each part being open to questions in a well-controlled manner. The Counter will then present their case, while being open to questions. The Defence should then do their summation, followed by a shorter summation by the Counter. The stakeholders direct their concerns to either the Defender, or the Counter, prior to the start of the debate. The role of the jury is to make suggestions regarding what should be done next. This may be a direct decision, or it may be a call for more information. While 12 is a traditional number for a jury, the group literature [eg. Metcalfe, 1995] suggests that a number between five and seven would be more productive, unless an electronic meeting facility was being used, in which case 12 may be practical. Thought should be given to having a different jury for each debate. It is important to remember the innovative and reflective purpose of the debate, but also that some type of learning, or good knowledge, is sought from this research exercise.

Other methods

Other research methods, such as content analysis [], and observation, can be adapted to the overall argumentative inquiry approach. Before text or speeches are analysed, the research argument needs to be made explicit. 'Topics' can be developed from the literature to make the supporting or disconfirming evidence from the text, or sightings, more insightful.

In Summation

This chapter has briefly introduced the issue of evidence validity. This can be partly achieved by the researcher having a critical or suspicious attitude towards all the evidence collected. This aligns with our expectations of good

journalist; they should validate their sources. By thinking of evidence as one side of an argument, and there being a need to seek the counter position, some validity might be added to the evidence collection process. This allows the creative power of the dialectic to operate and create valid knowledge. Evidence needs to be justified not accepted at face value.

Empirics, reasoning and previous literature are the evidence used to support an argument. In order for these to be convincing an orchestrated, validated, mix is required. The literature suggests what to look for in the empirics, but both may be wrong so a critical cynical approach is required. Empirical data cannot be collected with a clear sense of purpose and should not become a disconnected end in itself but nor should prior expectations blind the researcher to what the validated empirics show. Empirics need to expose the concern of the researcher and the researched. They need to assist both in thinking about these concerns. The guarantor of knowledge being collected is not merely accuracy, rigor and measurement, but rather as evidence in an argument process that uses competition to bring out novel concerns and assumptions.

Therefore In Your PhD

Make your empirical evidence justify itself. What would a cynical audience say about your empirics? Have you cross checked your evidence with what others say, what has been recorded elsewhere and are people's actions aligned with what they say? Explain why your audience should accept your empirical evidence. Suspect people of self-delusion.

REFERENCES

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