

1: Explore Strategies - Eberly Center - Carnegie Mellon University

Chapter 1: The Knowledge Situation. The different classes which you will be attending in the Academy are supposed to represent the different needs of your psychological personality, which mostly receive scant attention from us on account of an overemphasis laid on certain needs only, due to the pressure of circumstances.

In a lot of survival situation, the fate of the person or persons depends on one thing and one thing only – energy access. This might be a strange concept, but when any scenario is taken into consideration, energy can make the difference between life and death. Here is why – food is energy, just like transportation, shelter or almost anything else. Getting nutrients means providing the body with the right energy. Using principles that allow for easier movement or using improvised vehicles like rafts means that a person in a survival situation will spend less of their energy reserves. The same goes for shelter – the better the cover from the outside environment, the more a person will save up their bodily energy reserves. A fire, which is a form of energy release, will help in any survival moment with cooking, warmth, and protection. Thanks to this, every survivalist has to realize that surviving in a challenging situation is all about the ability to gather energy and save themselves from expending it wastefully. Yet, at the same time, every survival situation on the face of the planet has an element that provides a constant and endless stream of energy. This element is the sun. Our star allows the Earth to be habitable and without it, this world would never evolve life as we know it. What is even more important, most of these can be attained without any special equipment or hardware. In other words, using the sun is a thing any prepper has to be fully informed about. To help with that, here is a list of potential uses of the sun in a survival situation.

A range of bacteria in otherwise clear-looking water might provide a person with a range of problems, especially things like diarrhea. Fortunately, the sun can help with that. SODIS, which stands for Solar Water Disinfection is a way of purifying water with nothing more than a clear plastic bottle, something that is ever-present in the modern world. What is even better is the fact that the principle works even at low temperatures, because the rays do all of the jobs. It is basically a well-isolated box that features a clear top lid, either from plastic or glass. This lid allows the sunlight to shine through it and heat the interior of the box. During prolonged exposure to the rays, the interior will continue to heat up and reach a temperature where it can slow-cook almost any kind of food. Having a solar oven is something that can resolve a prepper cooking needs in any environment.

Evaporating Water from Plants With nothing more than a clear plastic bag and direct sunlight, a plant can produce water. This is achieved by placing a bag on a green branch and allowing the sun to slowly heat up space and the water will begin to evaporate from the leaf. The humidity will then be caught by the bag and it will slowly trickle down into its lowest part. This method can take several hours to produce a significant amount of water so you might want to setup multiple bags at the same time if you use this method.

Orientation with Sun Rise and Sun Set While this use of the sun is not connected to energy expenditure, its proper use can save a lot of otherwise wasted energy for anyone in a survival situation. Essentially, the sun is a great celestial element for orientation and this is particularly true for the location where the sun rises, which represented east and the place where it sets – west. With these two bearings, anyone will be able to find north and south as well. This way, they can find a way out of their predicament. To do this, you only need a way to harness those rays into a focal point. This can be done using things like a magnifying glass, but also a range of other improvised means. For example, reading glasses can be used for the same purpose, but also a polished bottom part of an aluminum beverage can or even a clear plastic bag filled with water. It might sound unbelievable, but these bags can act just like lenses and result in a proper fire.

Drying Meat to Preserve it Longer Just like with a solar oven, using the sun to prepare food is a tried and tested way in survival situations. Here, the idea is to quickly take out the moisture out of the meat and this way stop any bacteria or mold from growing on it. While on the rack, the meat strips should be turned regularly for an even drying process. If the situation allows, a small and smoky fire below the rack will further improve the process of sun drying.

Generating Energy using Solar Panels Last option uses the biggest need for external devices that cannot be improvised, but also provides the most impressive results. A solar panel can generate electric energy with the power of the sun. This energy can then be used to power communication

devices or anything else, which can be lifesavers for a stranded person or group. Today, there are many forms of solar power devices that are both efficient and compact. Many come in the form of durable gadgets that can survive things like falls and hard bumps. Having one of these is essential for anyone who wants to have power anywhere on the planet. With these proven uses for the sun in a survival situation, anyone can get an immense help from the biggest natural source of energy.

2: The Knowledge Situation - What is Knowledge - Chapter 1

Having no knowledge (of situation or fact) Clue: Having no knowledge (of situation or fact) We have 1 possible answer for the clue Having no knowledge (of situation or fact) which appears 1 time in our database.

According to this analysis, justified, true belief is necessary and sufficient for knowledge. The Tripartite Analysis of Knowledge: S knows that p iff p is true; S believes that p; S is justified in believing that p. Much of the twentieth-century literature on the analysis of knowledge took the JTB analysis as its starting-point. It became something of a convenient fiction to suppose that this analysis was widely accepted throughout much of the history of philosophy. In fact, however, the JTB analysis was first articulated in the twentieth century by its attackers. Consequently, nobody knows that Hillary Clinton won the election. One can only know things that are true. Many people expected Clinton to win the election. Not all truths are established truths. If you flip a coin and never check how it landed, it may be true that it landed heads, even if nobody has any way to tell. Truth is a metaphysical, as opposed to epistemological, notion: Knowledge is a kind of relationship with the truth—“to know something is to have a certain kind of access to a fact. The general idea behind the belief condition is that you can only know what you believe. Failing to believe something precludes knowing it. Outright belief is stronger see, e. Suppose Walter comes home after work to find out that his house has burned down. Critics of the belief condition might argue that Walter knows that his house has burned down he sees that it has , but, as his words indicate, he does not believe it. A more serious counterexample has been suggested by Colin Radford Suppose Albert is quizzed on English history. One of the questions is: E Elizabeth died in Radford makes the following two claims about this example: Albert does not believe E. The fact that he answers most of the questions correctly indicates that he has actually learned, and never forgotten, such historical facts. Since he takes a and b to be true, Radford holds that belief is not necessary for knowledge. But either of a and b might be resisted. David Rose and Jonathan Schaffer take this route. The justification condition is the topic of the next section. Why not say that knowledge is true belief? The standard answer is that to identify knowledge with true belief would be implausible because a belief might be true even though it is formed improperly. Suppose that William flips a coin, and confidently believes—“on no particular basis—“that it will land tails. For William to know, his belief must in some epistemic sense be proper or appropriate: For example, if a lawyer employs sophistry to induce a jury into a belief that happens to be true, this belief is insufficiently well-grounded to constitute knowledge. Internalists about justification think that whether a belief is justified depends wholly on states in some sense internal to the subject. Conee and Feldman present an example of an internalist view. Given their not unsubstantial assumption that what evidence a subject has is an internal matter, evidentialism implies internalism. Propositional justification concerns whether a subject has sufficient reason to believe a given proposition;[9] doxastic justification concerns whether a given belief is held appropriately. The precise relation between propositional and doxastic justification is subject to controversy, but it is uncontroversial that the two notions can come apart. Suppose that Ingrid ignores a great deal of excellent evidence indicating that a given neighborhood is dangerous, but superstitiously comes to believe that the neighborhood is dangerous when she sees a black cat crossing the street. Since knowledge is a particularly successful kind of belief, doxastic justification is a stronger candidate for being closely related to knowledge; the JTB theory is typically thought to invoke doxastic justification but see Lowy This view is sometimes motivated by the thought that, when we consider whether someone knows that p, or wonder which of a group of people know that p, often, we are not at all interested in whether the relevant subjects have beliefs that are justified; we just want to know whether they have the true belief. For example, as Hawthorne One could allow that there is a lightweight sense of knowledge that requires only true belief; another option is to decline to accept the intuitive sentences as true at face value. In what follows, we will set aside the lightweight sense, if indeed there be one, and focus on the stronger one. Although most agree that each element of the tripartite theory is necessary for knowledge, they do not seem collectively to be sufficient. There seem to be cases of justified true belief that still fall short of knowledge. Here is one kind of example: Imagine that we are seeking water on a hot day. We suddenly see water, or so we think. In fact, we

are not seeing water but a mirage, but when we reach the spot, we are lucky and find water right there under a rock. Can we say that we had genuine knowledge of water? The answer seems to be negative, for we were just lucky. The 14th-century Italian philosopher Peter of Mantua presented a similar case: Let it be assumed that Plato is next to you and you know him to be running, but you mistakenly believe that he is Socrates, so that you firmly believe that Socrates is running. However, let it be so that Socrates is in fact running in Rome; however, you do not know this. Gettier presented two cases in which a true belief is inferred from a justified false belief. He observed that, intuitively, such beliefs cannot be knowledge; it is merely lucky that they are true. Since they appear to refute the JTB analysis, many epistemologists have undertaken to repair it: Above, we noted that one role of the justification is to rule out lucky guesses as cases of knowledge. A lesson of the Gettier problem is that it appears that even true beliefs that are justified can nevertheless be epistemically lucky in a way inconsistent with knowledge. Epistemologists who think that the JTB approach is basically on the right track must choose between two different strategies for solving the Gettier problem. The first is to strengthen the justification condition to rule out Gettier cases as cases of justified belief. No False Lemmas According to one suggestion, the following fourth condition would do the trick: There are examples of Gettier cases that need involve no inference; therefore, there are possible cases of justified true belief without knowledge, even though condition iv is met. Suppose, for example, that James, who is relaxing on a bench in a park, observes an apparent dog in a nearby field. So he believes There is a dog in the field. Suppose further that the putative dog is actually a robot dog so perfect that it could not be distinguished from an actual dog by vision alone. Given these assumptions, d is of course false. And since this belief is based on ordinary perceptual processes, most epistemologists will agree that it is justified. If so, then the JTB account, even if supplemented with iv, gives us the wrong result that James knows d. Suppose there is a county in the Midwest with the following peculiar feature. The landscape next to the road leading through that county is peppered with barn-facades: Observation from any other viewpoint would immediately reveal these structures to be fakes: Suppose Henry is driving along the road that leads through Barn County. Naturally, he will on numerous occasions form false beliefs in the presence of barns. Since Henry has no reason to suspect that he is the victim of organized deception, these beliefs are justified. Now suppose further that, on one of those occasions when he believes there is a barn over there, he happens to be looking at the one and only real barn in the county. This time, his belief is justified and true. Yet condition iv is met in this case. His belief is not the result of any inference from a falsehood. Once again, we see that iv does not succeed as a general solution to the Gettier problem. Sensitivity, to a first approximation, is this counterfactual relation: Given a Lewisian Lewis semantics for counterfactual conditionals, the sensitivity condition is equivalent to the requirement that, in the nearest possible worlds in which not-p, the subject does not believe that p. One motivation for including a sensitivity condition in an analysis of knowledge is that there seems to be an intuitive sense in which knowledge requires not merely being correct, but tracking the truth in other possible circumstances. This approach seems to be a plausible diagnosis of what goes wrong in at least some Gettier cases. For if there were no water there, you would have held the same belief on the same grounds—viz. However, it is doubtful that a sensitivity condition can account for the phenomenon of Gettier cases in general. It does so only in cases in which, had the proposition in question been false, it would have been believed anyway. But, as Saul Kripke Consider for instance the Barn County case mentioned above. Henry looks at a particular location where there happens to be a barn and believes there to be a barn there. The sensitivity condition rules out this belief as knowledge only if, were there no barn there, Henry would still have believed there was. But this counterfactual may be false, depending on how the Barn County case is set up. Relatedly, as Kripke has also indicated We assume Henry is unaware that colour signifies anything relevant. Since intuitively, the former belief looks to fall short of knowledge in just the same way as the latter, a sensitivity condition will only handle some of the intuitive problems deriving from Gettier cases. Most epistemologists today reject sensitivity requirements on knowledge. For example, George, who can see and use his hands perfectly well, knows that he has hands.

3: Knowledge | Definition of Knowledge by Merriam-Webster

Synonyms: knowledge, information, learning, erudition, scholarship, lore 1 These nouns refer to what is known, as through study or experience. Knowledge is the broadest: "Science is organized knowledge" (Herbert Spencer).

I find it absolutely incredible that you take the time to answer students and write your posts. Just today I was talking with another friend of mine who, I just found out, also happens to be following your blog. A big thank you from Dallas, TX. Woods, thank you so much for your structure for TOK essays. Definitely recommending to all my peers. Thank you very much for your help in my IA. You saved my life. Argentina wishes the best for you. They have been extremely helpful for me, I was just about to panic and give up on my IA and now I am actually really proud of it. Woods, your initiative is highly appreciated and needless to say, the resources on this website are helping thousands of students tremendously. Nothing better than spreading wisdom! I just wanted to thank you for being a lifesaver. It is such a great help to have word counts of different sections and a detailed description on how to score high marks. Thank you so much. So plain, simple but so effective. My students in Barcelona love it too and it makes my job easier. Keep up the good work, and thank you once again. Really good and inspirational information on your site! This is tremendously helpful. I am writing three IAs tonight. Your site gave my extended essay a plan on how to go about it and made the journey simpler. They are easy to follow and digest. My son was very grateful. Your blog has been a fabulous resource! Keep up the great work!

4: Test Your Knowledge - Situation 1

TOK knowledge questions are one of the focus points of the TOK essay and presentation. We examine how to identify and explore them via real life situations. Helping TOK students around the world to read between the lines.

Transfer of Learning Teaching for transfer is one of the seldom-specified but most important goals in education. We want students to gain knowledge and skills that they can use both in school and outside of school, immediately and in the future. You need to know about transfer of learning in order to help increase the transfer of learning that you and your students achieve. Transfer of learning is commonplace and often done without conscious thought. For example, suppose that when you were a child and learning to tie your shoes, all of your shoes had brown, cotton shoelaces. You mastered tying brown, cotton shoelaces. Then you got new shoes. The new shoes were a little bigger, and they had white, nylon shoe laces. The chances are that you had no trouble in transferring your shoe-tying skills to the new larger shoes with the different shoelaces. This example gives us some insight into one type of transfer of learning. Transfer occurs at a subconscious level if one has achieved automaticity of that which is to be transferred, and if one is transferring this learning to a problem that is sufficiently similar to the original situation so that differences are handled at a subconscious level, perhaps aided by a little conscious thought. However, there are many transfer of learning situations that are far more difficult than shoe tying. For example, a secondary school math class might teach the metric system of units. From the math class, students go to a science class. Frequently the science teacher reports that the students claim a complete lack of knowledge about the metric system. Essentially no transfer of learning has occurred from the math class to the science class. On a more general note, employers often complain that their newly hired employees have totally inadequate educations. Part of their complaint is that the employees cannot perform tasks on the job that they "should have" learned to do while in school. Schools respond by saying that the students have been taught to accomplish the tasks. Clearly, this is a transfer of learning problem that is owned jointly by schools, employees, and employers. The goal of gaining general skills in the transfer of your learning is easier said than done. Researchers have worked to develop a general theory of transfer of learning--a theory that could help students get better at transfer. This has proven to be a difficult research challenge. At one time, it was common to talk about transfer of learning in terms of near and far transfer. This "near and far" theory of transfer suggested that some problems and tasks are so nearly alike that transfer of learning occurs easily and naturally. A particular problem or task is studied and practiced to a high level of automaticity. When a nearly similar problem or task is encountered, it is automatically solved with little or no conscious thought. This is called near transfer. The shoe-tying example given above illustrates near transfer. A major goal in learning to read is to develop a high level of decoding automaticity. Then your conscious mind can pay attention to the meaning and implications of the material you are reading. A significant fraction of children are able to achieve this by the end of the third grade. Many potential transfer of learning situations do not lend themselves to the automaticity approach. There are many problems that are somewhat related, but that in some sense are relatively far removed from each other. A person attempting to make the transfer of learning between two such problems does not automatically "see" or sense the connections between the two problems. Far transfer often requires careful analysis and deep thinking. The theory of near and far transfer does not help us much in our teaching. We know that near and far transfer occur. We know that some students readily accomplish far transfer tasks, while others do not. We know that far transfer does not readily occur for most students. The difficulty with this theory of near and far transfer is that it does not provide a foundation or a plan for helping a person to get better at far transfer and dealing with novel and complex problems. It does not tell us how to teach to increase far transfer. It usually requires a great deal of practice in varying settings. Shoe tying, keyboarding, steering a car, and single-digit arithmetic facts are examples of areas in which such automaticity can be achieved and is quite useful. In high-road transfer, there is deliberate mindful abstraction of an idea that can transfer, and then conscious and deliberate application of the idea when faced by a problem where the idea may be useful. Quoting from the Website: High road and low road transfer. In keeping with the view of Greeno et al. A relatively reflexive process, low

road transfer figures most often in near transfer. For example, when a person moving a household rents a small truck for the first time, the person finds that the familiar steering wheel, shift, and other features evoke useful car-driving responses. Driving the truck is almost automatic, although in small ways a different task. High road transfer, in contrast, depends on mindful abstraction from the context of learning or application and a deliberate search for connections: What is the general pattern? What principles might apply? What is known that might help? Such transfer is not in general reflexive. It demands time for exploration and the investment of mental effort. It can easily accomplish far transfer, bridging between contexts as remote as arteries and electrical networks or strategies of chess play and politics. For instance, a person new to politics but familiar with chess might carry over the chess principle of control of the center, pondering what it would mean to control the political center. The article listed here provides a good overview of the domain of transfer of learning and how to teach transfer. It also contains an extensive bibliography, so it is a good starting point if you want to study the research on transfer of learning. Planning Workplace Education Programs [Online]. Transfer of learning is pervasive in our everyday life at work, at home and in the community. Transfer takes place whenever our existing knowledge, abilities and skills affect the learning or performance of new tasks. But what are the principles of effective transfer of learning? How can workplace instructors design training programs to facilitate transfer? What can the shop floor supervisor do to encourage transfer of learning? How should trainees or participants prepare for transfer back on the job? Given the centrality of this topic to so many areas of workplace education, this discussion paper will draw together the results of research and some practical techniques that will help practitioners in the field. It is organized into four parts: The report is summarized through a number of application exercises that challenges the reader to recall former workplace education experiences and interact with contents of the document.

5: Situation Synonyms, Situation Antonyms | www.enganchecubano.com

In a way, probability as all about your "knowledge of the situation" - or, to be more accurate, your "lack of knowledge of the situation". Take the classic random coin toss - someone tosses a coin and slaps it down, then asks you "heads or tails?".

Without this idea of a "theory of knowledge," it is hard to imagine what "philosophy" could have been in the age of modern science. The classical definition, described but not ultimately endorsed by Plato, [5] specifies that a statement must meet three criteria in order to be considered knowledge: Some claim that these conditions are not sufficient, as Gettier case examples allegedly demonstrate. Richard Kirkham suggests that our definition of knowledge requires that the evidence for the belief necessitates its truth. What is different here is not the mental state of the speaker, but the activity in which they are engaged. For example, on this account, to know that the kettle is boiling is not to be in a particular state of mind, but to perform a particular task with the statement that the kettle is boiling. Wittgenstein sought to bypass the difficulty of definition by looking to the way "knowledge" is used in natural languages. He saw knowledge as a case of a family resemblance. Following this idea, "knowledge" has been reconstructed as a cluster concept that points out relevant features but that is not adequately captured by any definition. Hence the transfer of the symbolic representation can be viewed as one ascription process whereby knowledge can be transferred. Other forms of communication include observation and imitation, verbal exchange, and audio and video recordings. Philosophers of language and semioticians construct and analyze theories of knowledge transfer or communication. While many would agree that one of the most universal and significant tools for the transfer of knowledge is writing and reading of many kinds, argument over the usefulness of the written word exists nonetheless, with some scholars skeptical of its impact on societies. In this excerpt, the scholar Socrates recounts the story of Thamus, the Egyptian king and Theuth the inventor of the written word. In this story, Theuth presents his new invention "writing" to King Thamus, telling Thamus that his new invention "will improve both the wisdom and memory of the Egyptians" Postman, Neil Technopoly, Vintage, New York, p. King Thamus is skeptical of this new invention and rejects it as a tool of recollection rather than retained knowledge. He argues that the written word will infect the Egyptian people with fake knowledge as they will be able to attain facts and stories from an external source and will no longer be forced to mentally retain large quantities of knowledge themselves Postman, Neil Technopoly, Vintage, New York, p. Classical early modern theories of knowledge, especially those advancing the influential empiricism of the philosopher John Locke, were based implicitly or explicitly on a model of the mind which likened ideas to words. This created a situation in which the spatial alignment of words on the page carried great cognitive weight, so much so that educators paid very close attention to the visual structure of information on the page and in notebooks. It is only recently that audio and video technology for recording knowledge have become available and the use of these still requires replay equipment and electricity. Verbal teaching and handing down of knowledge is limited to those who would have contact with the transmitter or someone who could interpret written work. Writing is still the most available and most universal of all forms of recording and transmitting knowledge. For the Donna Haraway essay, see *Situated Knowledges*. Situated knowledge is knowledge specific to a particular situation. According to Haraway, vision in science has been, "used to signify a leap out of the marked body and into a conquering gaze from nowhere. This is what Haraway terms a "god trick", or the aforementioned representation while escaping representation. One of the main attributes of the scientific method is that the theories it generates are much less situational than knowledge gained by other methods. This integration of situational knowledge is an allusion to the community, and its attempts at collecting subjective perspectives into an embodiment "of views from somewhere. The pure existence of a term like "a posteriori" means this also has a counterpart. In this case, that is knowledge "a priori", meaning before. The knowledge prior to any experience means that there are certain "assumptions" that one takes for granted. For example, if you are being told about a chair, it is clear to you that the chair is in space, that it is 3D. This knowledge is not knowledge that one can "forget", even someone suffering from amnesia experiences the

world in 3D. Fundamentally, both argue the contingency of knowledge on the presence of history ; power , and geography , as well as the rejection of universal rules or laws or elementary structures; and the idea of power as an inherited trait of objectification. In most cases, it is not possible to understand an information domain exhaustively; our knowledge is always incomplete or partial. Most real problems have to be solved by taking advantage of a partial understanding of the problem context and problem data, unlike the typical math problems one might solve at school, where all data is given and one is given a complete understanding of formulas necessary to solve them. Intuition is the ability to acquire partial knowledge without inference or the use of reason. Scientific knowledge Sir Francis Bacon , " Knowledge is Power " The development of the scientific method has made a significant contribution to how knowledge of the physical world and its phenomena is acquired. As science itself has developed, scientific knowledge now includes a broader usage [20] in the soft sciences such as biology and the social sciences " discussed elsewhere as meta-epistemology , or genetic epistemology , and to some extent related to " theory of cognitive development ". Note that " epistemology " is the study of knowledge and how it is acquired. Science is "the process used everyday to logically complete thoughts through inference of facts determined by calculated experiments. His famous aphorism, " knowledge is power ", is found in the Meditations Sacrae Sometimes the notion might stretch to Society-as-such, as in e. Nor was it usual to consider unconscious knowledge in any systematic way until this approach was popularized by Freud. See the list of four "epistemological domains": Popper , ; [23] and Traill Such considerations seem to call for a separate definition of "knowledge" to cover the biological systems. For biologists, knowledge must be usefully available to the system, though that system need not be conscious. Thus the criteria seem to be: The system should apparently be dynamic and self-organizing unlike a mere book on its own. The knowledge must constitute some sort of representation of "the outside world", [25] or ways of dealing with it directly or indirectly. Some way must exist for the system to access this information quickly enough for it to be useful. Scientific knowledge may not involve a claim to certainty , maintaining skepticism means that a scientist will never be absolutely certain when they are correct and when they are not. It is thus an irony of proper scientific method that one must doubt even when correct, in the hopes that this practice will lead to greater convergence on the truth in general. Paroksh Gyan also spelled Paroksha -Jnana is secondhand knowledge: Pratyaksh Gyan also spelled Pratyaksha-Jnana is the knowledge borne of direct experience, i. It is compared and contrasted with Bhakti Yoga and Karma yoga. In Islam , knowledge Arabic: Muhammad is reported to have said "Seek knowledge from the cradle to the grave" and "Verily the men of knowledge are the inheritors of the prophets". Islamic scholars, theologians and jurists are often given the title alim , meaning "knowledgeable". Observant Jews recite three times a day in the Amidah "Favor us with knowledge, understanding and discretion that come from you. Exalted are you, Existent-One, the gracious giver of knowledge. As a measure of religiosity in sociology of religion According to the sociologist Mervin F. Verbit , knowledge may be understood as one of the key components of religiosity. Religious knowledge itself may be broken down into four dimensions:

6: Situation awareness - Wikipedia

By "propositional knowledge", we mean knowledge of a proposition—for example, if Susan knows that Alyssa is a musician, she has knowledge of the proposition that Alyssa is a musician. Propositional knowledge should be distinguished from knowledge of "acquaintance", as obtains when Susan knows Alyssa.

This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited. This article has been cited by other articles in PMC. It is necessary that dental students start clinical practice immunized with the vaccine, response monitored and informed about the means of transmission of the disease. Rarely, there are studies, which evaluate concomitantly knowledge of these academics and their vaccine situation. Objectives To evaluate the knowledge about Hepatitis B, the vaccine situation and the immunization status of dental students and to investigate the probable correlation between the status of immunization, vaccination membership and adherence to the test of seroconversion and associated factors. Patients and Methods students from the dentistry course at the Federal University of Piauí UFPI who attended from the 3rd to 9th period were invited to participate in the research. Their knowledge about HBV, attitude regarding protection and their vaccine situation were assessed through a self-administered form. Results Of the students surveyed, As to the means of transmission, A minority of students Among the students who reported having taken three doses of the vaccine, There was no significant correlation between the variables. Conclusions Dental academics were unsure about the means of infection and prevention against HBV. Many of them had not completed the immunization scheme and did not have the test of seroconversion. The serological analysis revealed unprotection, even after students completed the vaccination schedule. Background Viral hepatitis B is one of the most serious public health problems worldwide 1. There are more than two billion people infected in the world, of whom about million are chronic carriers 2 and approximately 1 million people die annually because of the disease 3. The transmission of the hepatitis B virus is by the parenteral route, and above all, it is transmitted sexually, being considered a sexually transmitted disease 4. Most people infected do not develop active liver disease, however, persistent infection can cause cirrhosis, liver failure or hepatocellular carcinoma 5. Liver transplant is the only hope for many patients with terminal liver diseases resulting from the HBV 6 and this represents a high cost to public health 5. Surgeon-dentists are at increased risk of being infected by HBV 7 , 8. The main methods of contamination include needle punctures or exposure to blood and other body fluids 9. These professionals are at up to ten times greater risk of acquiring Hepatitis B than an ordinary citizen To prevent blood transmission of infection, it is recommended that health care professionals receive immunization against the disease 11 and use personal protective equipment PPE Vaccination represents the main instrument to prevent HBV infection 1 , Immunization should be carried out in three doses, with a month interval between the first and second dose and of six months between the first and the third dose, in order to stimulate the production of antibodies anti-HBs 4. Although efforts have been made to vaccinate healthcare workers in Brazil, many do not vaccinate or do not complete the vaccination schedule Thus, they must do the post-vaccination test until three months after the last dose of the vaccine 3. The awareness of dentistry students about the measures that can prevent the transmission of Hepatitis B, is of great importance. It is necessary that they start clinical practice immunized with the vaccine, are response monitored and well informed about the possible transmission of viral infections in the dental office. Rarely, there have been studies that assess simultaneously the knowledge of dental students about Hepatitis B, their vaccination status and their immunization status. Furthermore, there are no reports of mandatory programs for vaccination together with the analysis of seroconversion in dental schools in Brazil. Study Population The sample was of censitary type, composed of students from the Dentistry course of the UFPI, who were from the 3rd to the 9th period, who accepted to participate in the research. Stages of the research 1st step: In this campaign, students were invited to participate in the third stage of the study. Data Analysis The blood was centrifuged to separate the serum used for research of antibodies. Anti-HBs Certain parameters for the reading the results: Interpretation of the Results Positive results for anti-HBs indicate

immune response against HBV infection, immune response to the vaccine or the presence of passively acquired antibodies. Anti-HBc Total Certain parameters for the reading the results: After laboratory analysis, the volunteers were classified into three profiles: Statistical Analysis For analysis of the data, the Stata v. The univariate analysis was performed by descriptive statistics through frequencies and percentages. Ethical Aspects The research followed the standards contained in the Declaration of Helsinki governing research involving human beings and was approved by the Research Ethics Committee of the UFPI Results During the study period, students were registered from the course of dentistry of the UFPI, from the 3rd to 9th period. From these candidates, Of the students, During clinical care,

7: Knowledge | Define Knowledge at www.enganchecubano.com

the sum of what is known: Knowledge of the true situation is limited. Archaic. sexual intercourse. Compare carnal knowledge. Show More. adjective.

Patricia Benner;¹ Ronda G. Clinical reasoning and judgment are examined in relation to other modes of thinking used by clinical nurses in providing quality health care to patients that avoids adverse events and patient harm. The expert performance of nurses is dependent upon continual learning and evaluation of performance. Critical Thinking Nursing education has emphasized critical thinking as an essential nursing skill for more than 50 years. There are several key definitions for critical thinking to consider. The American Philosophical Association APA defined critical thinking as purposeful, self-regulatory judgment that uses cognitive tools such as interpretation, analysis, evaluation, inference, and explanation of the evidential, conceptual, methodological, criteriological, or contextual considerations on which judgment is based. It presupposes assent to rigorous standards of excellence and mindful command of their use. It entails effective communication and problem solving abilities and a commitment to overcome our native egocentrism and sociocentrism. Every clinician must develop rigorous habits of critical thinking, but they cannot escape completely the situatedness and structures of the clinical traditions and practices in which they must make decisions and act quickly in specific clinical situations. Scheffer and Rubenfeld⁵ expanded on the APA definition for nurses through a consensus process, resulting in the following definition: Critical thinking in nursing is an essential component of professional accountability and quality nursing care. Critical thinkers in nursing exhibit these habits of the mind: This is demonstrated in nursing by clinical judgment, which includes ethical, diagnostic, and therapeutic dimensions and research⁷ p. Critical thinking underlies independent and interdependent decision making. Critical thinking includes questioning, analysis, synthesis, interpretation, inference, inductive and deductive reasoning, intuition, application, and creativity⁸ p. Course work or ethical experiences should provide the graduate with the knowledge and skills to: Use nursing and other appropriate theories and models, and an appropriate ethical framework; Apply research-based knowledge from nursing and the sciences as the basis for practice; Use clinical judgment and decision-making skills; Engage in self-reflective and collegial dialogue about professional practice; Evaluate nursing care outcomes through the acquisition of data and the questioning of inconsistencies, allowing for the revision of actions and goals; Engage in creative problem solving⁸ p. Taken together, these definitions of critical thinking set forth the scope and key elements of thought processes involved in providing clinical care. Exactly how critical thinking is defined will influence how it is taught and to what standard of care nurses will be held accountable. Professional and regulatory bodies in nursing education have required that critical thinking be central to all nursing curricula, but they have not adequately distinguished critical reflection from ethical, clinical, or even creative thinking for decisionmaking or actions required by the clinician. Other essential modes of thought such as clinical reasoning, evaluation of evidence, creative thinking, or the application of well-established standards of practice⁶ "all distinct from critical reflection⁶" have been subsumed under the rubric of critical thinking. In the nursing education literature, clinical reasoning and judgment are often conflated with critical thinking. The accrediting bodies and nursing scholars have included decisionmaking and action-oriented, practical, ethical, and clinical reasoning in the rubric of critical reflection and thinking. One might say that this harmless semantic confusion is corrected by actual practices, except that students need to understand the distinctions between critical reflection and clinical reasoning, and they need to learn to discern when each is better suited, just as students need to also engage in applying standards, evidence-based practices, and creative thinking. The growing body of research, patient acuity, and complexity of care demand higher-order thinking skills. Critical thinking involves the application of knowledge and experience to identify patient problems and to direct clinical judgments and actions that result in positive patient outcomes. These skills can be cultivated by educators who display the virtues of critical thinking, including independence of thought, intellectual curiosity, courage, humility, empathy, integrity, perseverance, and fair-mindedness. The emerging paradigm for clinical thinking and cognition is that it is social and dialogical rather than monological and individual.

Early warnings of problematic situations are made possible by clinicians comparing their observations to that of other providers. Clinicians form practice communities that create styles of practice, including ways of doing things, communication styles and mechanisms, and shared expectations about performance and expertise of team members. By holding up critical thinking as a large umbrella for different modes of thinking, students can easily misconstrue the logic and purposes of different modes of thinking. Clinicians and scientists alike need multiple thinking strategies, such as critical thinking, clinical judgment, diagnostic reasoning, deliberative rationality, scientific reasoning, dialogue, argument, creative thinking, and so on. Critical Reflection, Critical Reasoning, and Judgment Critical reflection requires that the thinker examine the underlying assumptions and radically question or doubt the validity of arguments, assertions, and even facts of the case. Critical reflective skills are essential for clinicians; however, these skills are not sufficient for the clinician who must decide how to act in particular situations and avoid patient injury. Available research is based upon multiple, taken-for-granted starting points about the general nature of the circulatory system. As such, critical reflection may not provide what is needed for a clinician to act in a situation. This idea can be considered reasonable since critical reflective thinking is not sufficient for good clinical reasoning and judgment. The powers of noticing or perceptual grasp depend upon noticing what is salient and the capacity to respond to the situation. Critical reflection is a crucial professional skill, but it is not the only reasoning skill or logic clinicians require. The ability to think critically uses reflection, induction, deduction, analysis, challenging assumptions, and evaluation of data and information to guide decisionmaking. Critical thinking is inherent in making sound clinical reasoning. The clinician must act in the particular situation and time with the best clinical and scientific knowledge available. The clinician cannot afford to indulge in either ritualistic unexamined knowledge or diagnostic or therapeutic nihilism caused by radical doubt, as in critical reflection, because they must find an intelligent and effective way to think and act in particular clinical situations. Critical reflection skills are essential to assist practitioners to rethink outmoded or even wrong-headed approaches to health care, health promotion, and prevention of illness and complications, especially when new evidence is available. Breakdowns in practice, high failure rates in particular therapies, new diseases, new scientific discoveries, and societal changes call for critical reflection about past assumptions and no-longer-tenable beliefs. Clinical reasoning stands out as a situated, practice-based form of reasoning that requires a background of scientific and technological research-based knowledge about general cases, more so than any particular instance. It also requires practical ability to discern the relevance of the evidence behind general scientific and technical knowledge and how it applies to a particular patient. Situated in a practice setting, clinical reasoning occurs within social relationships or situations involving patient, family, community, and a team of health care providers. The expert clinician situates themselves within a nexus of relationships, with concerns that are bounded by the situation. Expert clinical reasoning is socially engaged with the relationships and concerns of those who are affected by the caregiving situation, and when certain circumstances are present, the adverse event. Expert clinicians also seek an optimal perceptual grasp, one based on understanding and as undistorted as possible, based on an attuned emotional engagement and expert clinical knowledge. However, the practice and practitioners will not be self-improving and vital if they cannot engage in critical reflection on what is not of value, what is outmoded, and what does not work. As evidence evolves and expands, so too must clinical thought. Clinical judgment requires clinical reasoning across time about the particular, and because of the relevance of this immediate historical unfolding, clinical reasoning can be very different from the scientific reasoning used to formulate, conduct, and assess clinical experiments. While scientific reasoning is also socially embedded in a nexus of social relationships and concerns, the goal of detached, critical objectivity used to conduct scientific experiments minimizes the interactive influence of the research on the experiment once it has begun. The scientist is always situated in past and immediate scientific history, preferring to evaluate static and predetermined points in time. For example, was the refusal based upon catastrophic thinking, unrealistic fears, misunderstanding, or even clinical depression? *Techne*, as defined by Aristotle, encompasses the notion of formation of character and habitus as embodied beings. While some aspects of medical and nursing practice fall into the category of *techne*, much of nursing and medical practice falls outside means-ends rationality and must be governed by concern for doing good or what

is best for the patient in particular circumstances, where being in a relationship and discerning particular human concerns at stake guide action. Such a particular clinical situation is necessarily particular, even though many commonalities and similarities with other disease syndromes can be recognized through signs and symptoms and laboratory tests. Phronesis is also dependent on ongoing experiential learning of the practitioner, where knowledge is refined, corrected, or refuted. The Western tradition, with the notable exception of Aristotle, valued knowledge that could be made universal and devalued practical know-how and experiential learning. Descartes codified this preference for formal logic and rational calculation. Aristotle recognized that when knowledge is underdetermined, changeable, and particular, it cannot be turned into the universal or standardized. It must be perceived, discerned, and judged, all of which require experiential learning. In nursing and medicine, perceptual acuity in physical assessment and clinical judgment i. Dewey 32 sought to rescue knowledge gained by practical activity in the world. He identified three flaws in the understanding of experience in Greek philosophy: In practice, nursing and medicine require both *techne* and *phronesis*. Aggregated evidence from clinical trials and ongoing working knowledge of pathophysiology, biochemistry, and genomics are essential. Thinking Critically Being able to think critically enables nurses to meet the needs of patients within their context and considering their preferences; meet the needs of patients within the context of uncertainty; consider alternatives, resulting in higher-quality care; 33 and think reflectively, rather than simply accepting statements and performing tasks without significant understanding and evaluation. Clinical decisionmaking is particularly influenced by interpersonal relationships with colleagues, 39 patient conditions, availability of resources, 40 knowledge, and experience. This requires accurate interpretation of patient data that is relevant to the specific patient and situation. As Dunne notes, A practice is not just a surface on which one can display instant virtuosity. It grounds one in a tradition that has been formed through an elaborate development and that exists at any juncture only in the dispositions slowly and perhaps painfully acquired of its recognized practitioners. Clearly Dunne is engaging in critical reflection about the conditions for developing character, skills, and habits for skillful and ethical comportment of practitioners, as well as to act as moral agents for patients so that they and their families receive safe, effective, and compassionate care. Professional socialization or professional values, while necessary, do not adequately address character and skill formation that transform the way the practitioner exists in his or her world, what the practitioner is capable of noticing and responding to, based upon well-established patterns of emotional responses, skills, dispositions to act, and the skills to respond, decide, and act. MacIntyre points out the links between the ongoing development and improvement of practice traditions and the institutions that house them: Lack of justice, lack of truthfulness, lack of courage, lack of the relevant intellectual virtues—these corrupt traditions, just as they do those institutions and practices which derive their life from the traditions of which they are the contemporary embodiments. To recognize this is of course also to recognize the existence of an additional virtue, one whose importance is perhaps most obvious when it is least present, the virtue of having an adequate sense of the traditions to which one belongs or which confront one. This virtue is not to be confused with any form of conservative antiquarianism; I am not praising those who choose the conventional conservative role of *laudator temporis acti*. It is rather the case that an adequate sense of tradition manifests itself in a grasp of those future possibilities which the past has made available to the present. Living traditions, just because they continue a not-yet-completed narrative, confront a future whose determinate and determinable character, so far as it possesses any, derives from the past 30 p. It would be impossible to capture all the situated and distributed knowledge outside of actual practice situations and particular patients. However, students can be limited in their inability to convey underdetermined situations where much of the information is based on perceptions of many aspects of the patient and changes that have occurred over time. Simulations cannot have the sub-cultures formed in practice settings that set the social mood of trust, distrust, competency, limited resources, or other forms of situated possibilities. Experience One of the hallmark studies in nursing providing keen insight into understanding the influence of experience was a qualitative study of adult, pediatric, and neonatal intensive care unit ICU nurses, where the nurses were clustered into advanced beginner, intermediate, and expert level of practice categories. The advanced beginner having up to 6 months of work experience used procedures and protocols to determine which clinical actions

were needed. When confronted with a complex patient situation, the advanced beginner felt their practice was unsafe because of a knowledge deficit or because of a knowledge application confusion. The transition from advanced beginners to competent practitioners began when they first had experience with actual clinical situations and could benefit from the knowledge gained from the mistakes of their colleagues. Competent nurses continuously questioned what they saw and heard, feeling an obligation to know more about clinical situations. Beyond that, the proficient nurse acknowledged the changing relevance of clinical situations requiring action beyond what was planned or anticipated. Both competent and proficient nurses that is, intermediate level of practice had at least two years of ICU experience. As Gadamer 29 points out, experience involves a turning around of preconceived notions, preunderstandings, and extends or adds nuances to understanding. Experiential learning requires time and nurturing, but time alone does not ensure experiential learning. Aristotle linked experiential learning to the development of character and moral sensitivities of a person learning a practice. Gadamer, in a late life interview, highlighted the open-endedness and ongoing nature of experiential learning in the following interview response: Being experienced does not mean that one now knows something once and for all and becomes rigid in this knowledge; rather, one becomes more open to new experiences. A person who is experienced is undogmatic.

8: Knowledge Questions in International Baccalaureate Subjects

Knowledge Management: Situations, Problems, and Perspectives institution, www.enganchecubano.com's as stated by Bill Gates (Gejts, -). \neq A relatively large number of authors also define it as a knowledge.

References and Further Reading 1. Kinds of Knowledge We talk of knowledge: But what is knowledge? We can best answer that potentially complex question in several stages. Let us begin by considering whether there are different kinds of knowledge. Epistemologists have contemplated at least the following general possibilities. Knowing by Acquaintance Your knowing a person, it seems, involves direct interaction with him or her. Otherwise, at most, you should claim only that it is almost as if you know him or her: Nonetheless, could you know facts about a person without ever meeting him or her? If so, there could well be a kind of knowledge which is different to knowing a fact; maybe knowing a thing or entity such as a person is distinct from knowing a fact about that thing or entity. Bertrand Russell [1]: With these, we can designate individuals with whom we have not interacted. Then we can formulate claims using such descriptions. Some of these claims could be knowledge. Thus, we may open up for ourselves a world of knowledge beyond what is revealed by our immediate experiences. Knowledge-That Most philosophical discussion of knowledge is directed at knowledge-that \neq such as knowledge that kangaroos hop, knowledge that koalas sleep most of the time, knowledge that kookaburras cackle, and the like. Knowledge by description mentioned in section 1. In principle, knowledge-that is the kind of knowledge present whenever there is knowledge of a fact or truth \neq no matter what type of fact or truth is involved: It will therefore be the intended sense throughout most of this article. Knowledge-Wh But should knowledge-that receive such sustained and uninterrupted focus by philosophers? Here are some of them collectively referred to as knowledge-wh: How should these be understood? The usual view among epistemologists is that these are specific sorts of knowledge-that. For example, knowing whether it is 2 p. Knowing who is due to visit is knowing, for some specified person, that it is he or she who is due to visit. Knowing what the visit is meant to accomplish is knowing, for some specified outcome, that it is what the visit is meant to accomplish. Knowing how that outcome is best accomplished is knowing, for some specified description of how that outcome could be accomplished, that this describes the best way of accomplishing that outcome. Still, not everyone will assess these examples in quite that way. Note a variation on this theme that is currently being developed. Called contrastivism, its basic idea is that perhaps always; at least sometimes to know is to know this rather than that. For different versions, see Schaffer ; ; Morton Consider the example of knowing-who. On contrastivism, you could know that it is Fred rather than Arjuna and Diego who is due to visit; and this might be the only way in which you know that Fred is due. Your knowing-who would be your knowing that it is Fred as against Arjuna or Diego who is due to visit. This remains propositional knowledge, nonetheless. Knowing-How Gilbert Ryle [2]; made apparent to other philosophers the potential importance of distinguishing knowledge-that from knowledge-how. These seem to be skills or at least abilities. Are they not simply another form of knowledge-that? If Ryle was right, knowing-how is somehow distinct: Might knowledge-that even be a kind of knowledge-how itself, so that all instances of knowledge-that themselves are skills or abilities for example, Hetherington a: Knowledge as a Kind Section 1 shows how there might be different kinds of knowledge. We will now focus on one of them \neq knowledge-that. What kind of thing is such knowledge? In particular, is it a natural kind \neq a naturally occurring element in the scientifically describable world? Alternatively, is knowledge at least partly a conventional or artifactual kind \neq a part of our practices of judging and evaluating, possessing a socially describable nature? The former idea portrays knowledge as an identifiable and explanatory aspect of what it is for beings relevantly like us to function as a natural component of a natural world. Is that because these beliefs are knowledge? Is that part of why humans as a natural kind if this is what we are have prospered so markedly? In introducing epistemologists to the idea of what he called a naturalized epistemology, W. Quine recommended that philosophy conceive of us in psychological terms, so that when it seeks to understand us as reasoning, as believing, and as rational, it does not do this in terms distinct from those scientific ways of describing our psychological and physical features. Hilary Kornblith continues that theme: There would be

natural laws, say, or at least natural regularities – scientifically formulable ones, we may hope – about how we know. In contrast, we may feel that knowing is a distinctively conventional accomplishment. It might consist of socially constituted and approved patterns – not thereby natural laws or regularities admitting of scientific description – in aspects of how we interact with other people. Perhaps we can collectively choose what to count as knowledge. Perhaps that is all there is to knowing. Such a view could even say that this is how knowledge differs from belief: And we might do this deliberately, subjecting ourselves and others to social norms of inquiry, responding to other people and their concepts, aims, and values. As civilizations expand and mutate, could knowing change not only its content that is, what is known, but its basic nature for example, how the knowing occurs and even what in general is required for it to occur? Different social arrangements would bring into being different ways of thinking and acting, new aims and values. In that sense, possibly knowledge is an artefact, created by us in social groupings, used by us in those same groupings – often wittingly and deliberately so. In short, maybe knowing is a matter of functioning in socially apt ways. The rest of this article will remain neutral between these two broad ideas. Some of the suggestions to be considered will be more appropriate and clearly so for one than the other of the two.

Ways of Knowing

To say the least, not everyone knows everything, not even everything that in principle is knowable. Individual instances of knowledge come to individual people at individual times, remaining in place for varying – individual – lengths of time. So it is right to ask how it is that individual cases of knowledge reach, or are acquired by, people; along with how it is that these cases of knowledge are then retained by people. In what broadly characterisable ways do people gain and maintain their knowledge? In practice, philosophers do not treat that as a question about the ineliminable specificities of each person, each moment, and each particular piece of knowledge. It is treated as a question about general ways and means of coming to know a specific fact or truth. Over the centuries, these have been some of the more philosophically pondered forms of answer to that question: Some or all knowledge is innate. And then it is remembered later, during life. Some or all knowledge is observational. Some or all knowledge is non-observational, attained by thought alone. Some or all knowledge is partly observational and partly not – attained at once by observing and thinking. The rest of this section will consider these in turn.

Innate Knowledge

If some instances of knowledge accompany a person into life, how will they reveal themselves within his or her life? How would the person, or indeed anyone else, know that he or she has this innate knowledge? It could depend on what is being known innately – the subject matter of this knowledge with which the person has been born. For example, if people begin life already knowing some grammatical rules an idea famously due to Noam Chomsky: These instances of people learning so readily and predictably would be actions expressing some knowledge-how. But as section 1. Or consider another possible example: Seemingly, Plato in the *Meno*, one of his dialogues accorded people this sort of innate knowledge; as did Leibniz, in his *New Essays*. For excerpts from Plato and from Leibniz, see Stich, ch. Plato presented us with a story of a slaveboy, lacking education, whom Socrates brought, via minimal questioning, to a state of remembering some geometrical knowledge. Naturally, it could be difficult to ascertain that any particular knowledge is genuinely innate. Knowledge which is not innate, but which is acquired especially easily, seemingly effortlessly, might nonetheless feel innate. And as section 1. The answer to that question might be that there is only knowledge-how present – without owing its existence to some related prior knowledge-that. As ever throughout this article these possibilities are suggested for continued consideration, not as manifestly decisive refutations. Let us consider a few of the vast number of philosophical questions that have arisen about such knowledge. Can there be purely or directly observational knowledge? When you observe a cat sleeping in front of you, do you know observationally – and only observationally – that the cat is sleeping there? Still, is there a perceptual experience present, along with some conceptual or even theoretical knowledge for example, that cats are thus-and-so, that to sleep is to do this-and-not-that, and so forth? Otherwise, how could your experience constitute your knowing this-content-rather-than-another? Is conceptual knowledge what gives knowledgeable content to your observational experience? Is this so, even for experiences that are as simple as you can imagine having?

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Your real life situation should serve as a backdrop for your Areas of Knowledge. In all honesty, there's no 'good' or ideal real life situation I could suggest to you because of how vague and subjective the term 'good' is.

Situational understanding[edit] Situation awareness is sometimes confused with the term "situational understanding. It is the "so what" of the data that is perceived. Situational assessment[edit] In brief, situation awareness is viewed as "a state of knowledge," and situational assessment as "the processes" used to achieve that knowledge. Endsley argues that "it is important to distinguish the term situation awareness, as a state of knowledge, from the processes used to achieve that state. Sensemaking[edit] Klein, Moon, and Hoffman distinguish between situation awareness and sensemaking as follows: In contrast, sensemaking is about the process of achieving these kinds of outcomes, the strategies, and the barriers encountered. Endsley points out that as an effortful process, sensemaking is actually considering a subset of the processes used to maintain situation awareness. SA states can be described as: Awareness of various objects in the world, and their current status. Objects and their status may be indicative of particular situations that they are about to occur, that they are ongoing, etc. Then they are often referred to as cues. Awareness of what kind of situation is on-going, e. Awareness of objects within frames, of what their current status means in a particular situation. The implications refer to time and space, to an event horizon. An awareness of plans and events in time and space. It includes an awareness of what has happened useful for diagnosis, to achieve SA, to frame situations. It also includes prognosis, an awareness of what might happen next. That includes on the one hand an awareness both of what might occur based on diagnosis and the current situation, and on the other hand on an awareness of current plans and intentions. All four aspects may drive SA processes. Being aware of the status of particular objects cues , one might infer that particular situations are on-going, and frame the objects accordingly. The cues then drive re-framing of situations. Having a particular frame, or pre-conception of a situation, this may drive the perception of objects. Further, having realized the implications of objects of their status, this drives the process of what to attend to next. Event horizon awareness may also guide SA, e. Further, to describe SA in e. Awareness of different accounts e. Mica Endsley b , which has historically been widely used. Perception Level 1 SA: The first step in achieving SA is to perceive the status, attributes, and dynamics of relevant elements in the environment. Thus, Level 1 SA, the most basic level of SA, involves the processes of monitoring, cue detection, and simple recognition, which lead to an awareness of multiple situational elements objects, events, people, systems, environmental factors and their current states locations, conditions, modes, actions. Comprehension Level 2 SA: The next step in SA formation involves a synthesis of disjointed Level 1 SA elements through the processes of pattern recognition, interpretation, and evaluation. This includes developing a comprehensive picture of the world, or of that portion of the world of concern to the individual. Projection Level 3 SA: The third and highest level of SA involves the ability to project the future actions of the elements in the environment. Level 3 SA is achieved through knowledge of the status and dynamics of the elements and comprehension of the situation Levels 1 and 2 SA , and then extrapolating this information forward in time to determine how it will affect future states of the operational environment. For example, individuals vary in their ability to acquire SA; thus, simply providing the same system and training will not ensure similar SA across different individuals. Although alone it cannot guarantee successful decision making, SA does support the necessary input processes e. This is a synthesis of versions she has given in several sources, notably Endsley a and Endsley et al Peter Lankton, May SA also involves both a temporal and a spatial component. Time is an important concept in SA, as SA is a dynamic construct, changing at a tempo dictated by the actions of individuals, task characteristics, and the surrounding environment. As new inputs enter the system, the individual incorporates them into this mental representation, making changes as necessary in plans and actions in order to achieve the desired goals. SA also involves spatial knowledge about the activities and events occurring in a specific location of interest to the individual. Thus, the concept of SA includes perception, comprehension, and projection of situational information, as well as temporal and spatial components. In summary, the model consists of several key factors: For a more complete description of the

model, see Endsley b and Endsley See also Endsley for a review of other models of SA. This criticism is an example of the difficulty that cognitive science has in addressing a concept such as SA, which through its definition and assumptions appears to stand robustly, however when the theorized processes are exposed at the cognitive level of analysis assumptions must be radically reviewed. To date the most widely cited model of SA is lacking in support from cognitive science, one notable observation that still stands is that: It was found that in these types of tasks, verbal communication lengthens the time it takes to complete a task when compared to people completing a task individually. Thus, it is necessary to consider the SA of not just individual team members, but also the SA of the team as a whole. To begin to understand what is needed for SA within teams, it is first necessary to clearly define what constitutes a team. A team is not just any group of individuals; rather teams have a few defining characteristics. As defined by Salas et al. The success or failure of a team depends on the success or failure of each of its team members. If any one of the team members has poor SA, it can lead to a critical error in performance that can undermine the success of the entire team. By this definition, each team member needs to have a high level of SA on those factors that are relevant for his or her job. It is not sufficient for one member of the team to be aware of critical information if the team member who needs that information is not aware. Team SA, therefore, can be represented as shown in Figure 2. It is this subset of information that constitutes much of team coordination. That coordination may occur as a verbal exchange, a duplication of displayed information, or by some other means. As implied by this definition, there are information requirements that are relevant to multiple team members. A major part of teamwork involves the area where these SA requirements overlapâ€”the shared SA requirements that exist as a function of the essential interdependency of the team members. In a poorly functioning team, two or more members may have different assessments on these shared SA requirements and thus behave in an uncoordinated or even counter-productive fashion. Yet in a smoothly functioning team, each team member shares a common understanding of what is happening on those SA elements that are commonâ€”shared SA. Thus, shared SA refers to the overlap between the SA requirements of the team members, as presented in Figure 3. As depicted by the clear areas of the figure, not all information needs to be shared. Clearly, each team member is aware of much that is not pertinent to the others on the team. It is only that information which is relevant to the SA requirements of each team member that is needed. Endsley and Jones ; describe a model of team situation awareness as a means of conceptualizing how teams develop high levels of shared SA across members. Each of these four factorsâ€”requirements, devices, mechanisms and processesâ€”act to help build team and shared SA. Team SA devices â€” the devices available for sharing this information, which can include direct communication both verbal and non-verbal , shared displays e. As non-verbal communication, such as gestures and display of local artifacts, and a shared environment are usually not available in distributed teams, this places far more emphasis on verbal communication and communication technologies for creating shared information displays. The possession of shared mental models can greatly facilitate communication and coordination in team settings. Team SA processes â€” the degree to which team members engage in effective processes for sharing SA information which may include a group norm of questioning assumptions, checking each other for conflicting information or perceptions, setting up coordination and prioritization of tasks, and establishing contingency planning among others. In time critical decision-making processes[edit] See also: In these situations it is common that the key decision maker is supported by other team members or by complex monitoring systems feeding them information, which can involve multiple sources and formats of information. Even in these time-critical situations, the importance of having situation awareness SA is not constant: At the critical point the perceived situational awareness utilized to make the decision is directly affected by the cognitive workload to gain, comprehend and process the SA that is coming in to the operator, both general background SA and the SA specifically related to the decision. This involves aligning the terms and concepts used by different research areas, so that the causal relationships can be identified and defined. This approach of integrating situation awareness, workload , signal processing theory, decision theory , etc. In other words, instead of asking does a modification to the system provide more SA, we are asking does this modification to the system provide more SA in a form that can be used at the time when it is needed? In general, techniques vary in terms of direct measurement of SA e. These SA measurement approaches are further described next.

Specifically, objective measures collect data from the individual on his or her perceptions of the situation and compare them to what is actually happening to score the accuracy of their SA at a given moment in time. Thus, this type of assessment provides a direct measure of SA and does not require operators or observers to make judgments about situational knowledge on the basis of incomplete information. Objective measures can be gathered in one of three ways: Subjective measures[edit] Subjective measures directly assess SA by asking individuals to rate their own or the observed SA of individuals on an anchored scale e. Subjective measures of SA are attractive in that they are relatively straightforward and easy to administer. However, several limitations should be noted. Individuals making subjective assessments of their own SA are often unaware of information they do not know the " unknown unknowns ". Subjective measures also tend to be global in nature, and, as such, do not fully exploit the multivariate nature of SA to provide the detailed diagnostics available with objective measures. These observer ratings may be somewhat superior to self-ratings of SA because more information about the true state of the environment is usually available to the observer than to the operator, who may be focused on performing the task i. In this case, such actions and verbalizations are best assessed using performance and behavioral measures of SA, as described next. Performance and behavioral measures[edit] Performance measures "infer" SA from the end result i. Common performance metrics include quantity of output or productivity level, time to perform the task or respond to an event, and the accuracy of the response or, conversely, the number of errors committed. The main advantage of performance measures is that these can be collected objectively and without disrupting task performance. However, although evidence exists to suggest a positive relation between SA and performance, this connection is probabilistic and not always direct and unequivocal Endsley, b.

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