

RISK PERCEPTION

Perception

The concept of risk is highly complex. Our understanding of the complexity of the concept has increased as specialists in different disciplines have investigated what we mean when we refer to risk.

Risk communication initiatives must be designed to ensure that the messages target individual groups within the population. To do this one must first find ways of segregating individual differences and needs, and then include the real concerns of the public in the risk information provided.

People tend to be particularly resistant to the idea that they are at risk from any particular hazard. Most people believe that they are in less danger than the average individual, with a lower than average likelihood of dying from a heart attack, a lower probability of being burned, or of becoming addicted to drugs; they tend to feel infallible. For example, virtually all individuals believe that they drive their vehicles better than average; or that they have less likelihood of getting cancer than the average person. This unreal optimism is based on the information available and on a reasoning process that induces us to think that the hazard in question is not a real threat, even though it may affect persons known to us. All of this influences people's response to risk. The message "*this includes you*" is more difficult to get across than "*many will die.*"

Perception is an important factor to be taken into account when communicating risks. Studies by anthropologists and sociologists have shown that risk perception and the acceptance of a risk have their roots in cultural and social factors. It has been argued that the response to a hazard is among the social influences transmitted by friends, family, colleagues, and respected public officials. In many cases, however, the perception of risk can be formed through a process of reasoning on the part of the individual himself/herself.

It is important to transmit information about the magnitude of the risk so that people may become aware of risks that they had never heard of before; while information about personal vulnerability is important for the transition from awareness to the decision to act. The decision to act is not, however, the same thing as acting.

Since most people are concerned about the same things that concern their friends, they are alert and responsive when presented with evidence that a particular hazard may (or may not) represent a local concern.

Individuals who feel safe and those whose attitudes reflect some degree of knowledge about the risk in question experience fewer obstacles to modify their environment than those who respond defensively. This aspect will have repercussions when planning activities for a risk communication program.

Defining traits of perception

Researchers on risk perception have studied the characteristics of risk that influence perception. The conditions defined below have the greatest influence on the way risks are perceived.

1) *Dread*

Which idea frightens you more, being eaten by a shark or dying of heart disease? Both can kill, but heart problems are much more likely to do so. In spite of this, the most feared deaths are the ones that worry us the most. Cancer, for example, causes more dread because it is perceived as a terrible way to die. This explains why hazards that can cause cancer, such as radiation and chemical agents, arouse intense fears. Fear is a clear example of what we think about a risk in terms of our intuitive feelings, a process which is called the heuristic effect.

2) *Control*

Most people feel safe when they drive. Having the steering wheel in their hands produces a feeling of power, a sense of being in control. If we change places and ride in the passenger seat, we feel nervous because we are no longer in control. When people feel that they have some control over the process that determines the risk facing them, that risk will probably not appear so great as in the case when they have no control over it.

3) *Is it a natural risk or a man-made one?*

Nuclear energy sources, as well as mobile telephones or electric and magnetic fields, are often a greater cause of concern than the radiation produced by the sun. However, it is a well-known fact that the sun is responsible for a large number of skin cancers each year. The natural origin of a risk makes people perceive it as a lesser risk than a man-made one. This factor helps to explain the widespread public concern about many technologies and products.

4) *Choice*

A risk that we choose to take seems less hazardous than one imposed upon us by another person. If you use a mobile telephone while driving, you may perceive it as hazardous that another driver uses one and you will be angry because of the risk the other driver imposes on you, even though you are taking the same risk yourself. You are less concerned about the risk you yourself are taking: your control over your car influences your risk perception.

5) Effects on children

The survival of the species depends on the survival of its offspring. This explains why the risks run by children, such as exposure to asbestos at school or the kidnapping of a young person, appear to be more serious than the same risks in adults (exposure to asbestos in the workplace or the kidnapping of an adult).

6) New risks

New risks, including the severe acute respiratory syndrome (SARS), Nile virus, and new technologies and products, tend to be more alarming than those risks that we have lived with for some time and which our experience has helped us to put into perspective.

7) Awareness

The more aware we are of a risk, the better we perceive it and the more concerned we are. For example SARS was given wider coverage, received more attention, and caused greater concern than influenza, which is responsible for a large number of deaths each year. Awareness of certain risks can be high or low, depending on the attention given to them.

8) Possibility of personal impact

Any risk can seem greater to us if we ourselves or someone close to us are the victims. This explains why the statistical probability is often irrelevant and ineffective for communicating risks. The closer we are to the risk, and the clearer our knowledge of its consequences, the greater will be our perception of it.

9) Cost-benefit ratio

Some risk perception analysts and researchers believe that the cost-benefit ratio is the principal factor that determines how much we fear a given threat. If there is a perceived benefit in a specific behavior or choice, the risk associated with that behavior or choice will seem smaller than when no such benefit is perceived.

10) Trust

The more confidence we have in the professionals responsible for our protection or in government officials or institutions responsible for our exposure to risk (for example, environmental officials or industrial managers) or in the people who transmit risk information to us, the less fear we will feel. The less we trust them, the greater will be our level of concern.

11) Memory of risks

A memorable accident makes a risk easier to evoke and imagine, and therefore it can seem greater (for example, many people remember the methyl isocyanate gas leak in Bhopal, India, that affected thousands of persons). The experiences that people have had are an important element in their risk perception. A person's experience will determine whether he or she attaches greater importance to one particular risk than to other statistically significant ones.

12) Spread over space and time

Unusual events such as nuclear accidents are perceived as riskier than commonplace risks (collisions on the highway).

13) Effects on personal safety and personal properties

An event is perceived as risky when it affects basic interests and values; for example, health, housing, the value of property, and the future.

14) Fairness

People who have to face greater risks than others and who do not have access to benefits normally become indignant. The community believes that there should be a fair distribution of benefits and of risks.

15) Process

The agency or government must demonstrate trustworthiness, honesty and concern about impacts on the community. In addition, it needs to communicate with the population before making decisions, and establish a relationship of mutual respect. It should also listen to the people, and respond to any doubts or questioning on their part. When these conditions are not met, the perception of the risk in question is negatively affected.

Maslow's hierarchy of needs

Abraham Maslow developed the theory of humanism, and one of his major contributions to psychology was his theory of human needs, put forward in the late 1960s, where he explains that human needs are hierarchical in nature.

According to Maslow, people do not merely respond to mechanical forces (the stimuli and reinforcement forces of behaviorism) or the unconscious instinctual impulses of psychoanalysis, but to everything that contributes to their human potential. From this viewpoint, people make an effort to achieve the highest levels of consciousness and wisdom.

People at this level and below were labeled by other psychologists as "fully functioning" or possessing a "healthy personality". Maslow called the people who were at the top "self-actualizing" persons.

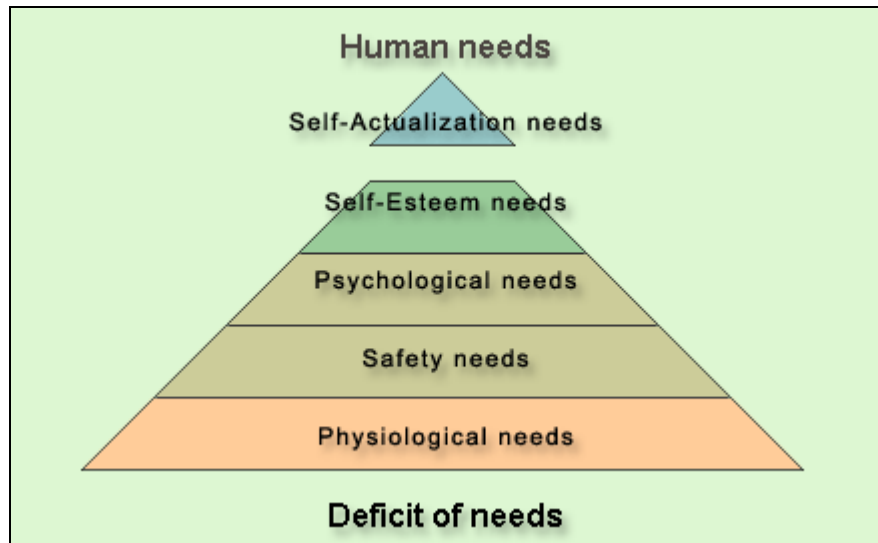
The theory of human needs has a hierarchical order of five levels. Maslow placed the animal or instinctive needs at the base of a pyramid and the human needs at the top. The persons who are at the base do not focus on values, but rather on the need for survival. A person suffering from hunger has his or her thoughts on food. For most people, each level of the pyramid depends on the level below it.

- Level 1 Physiological or biological needs for survival. Included at this level are oxygen, food, water, protection from heat or cold, and shelter from other inclement natural events. These needs are very important, because if an individual cannot satisfy them, he can die.
- Level 2 Safety needs. Very important in situations of emergency or times of social unrest (such as anarchy and social violence).
- Level 3 Psychological needs: These include such needs as the need to give and receive affection, the need to belong to a group, and to prevent loneliness or alienation.
- Level 4 Self-Esteem needs. The need for a stable base of self-esteem and the respect of others; important if we are to feel satisfied, confident and valued.
- Level 5 Self-Actualization needs. Maslow describes self-actualization as a process in which people are dedicated to an activity that they consider very valuable, sometimes called a vocation. Normally they are people who are healthy, creative, sagacious, and dedicated to what they do, with a vision of humanity different from that of others.

According to Maslow, self-actualization is a calling that persons perceive to do what they assume as a mission in their lives. This is what musicians, poets, and writers experience. However, self-actualized persons can dedicate themselves to any other activity creatively and with commitment. If these self-actualization needs are not satisfied, the person feels uneasy, irritated, tense or has the feeling that there is something else he needs to do. The needs of the lower levels produce similar feelings, but in this case the cause is easy to identify; if a person lacks food, affection, acceptance or self-esteem, the cause is apparent.

This hierarchical pyramid follows.

Maslow's Hierarchy of Needs



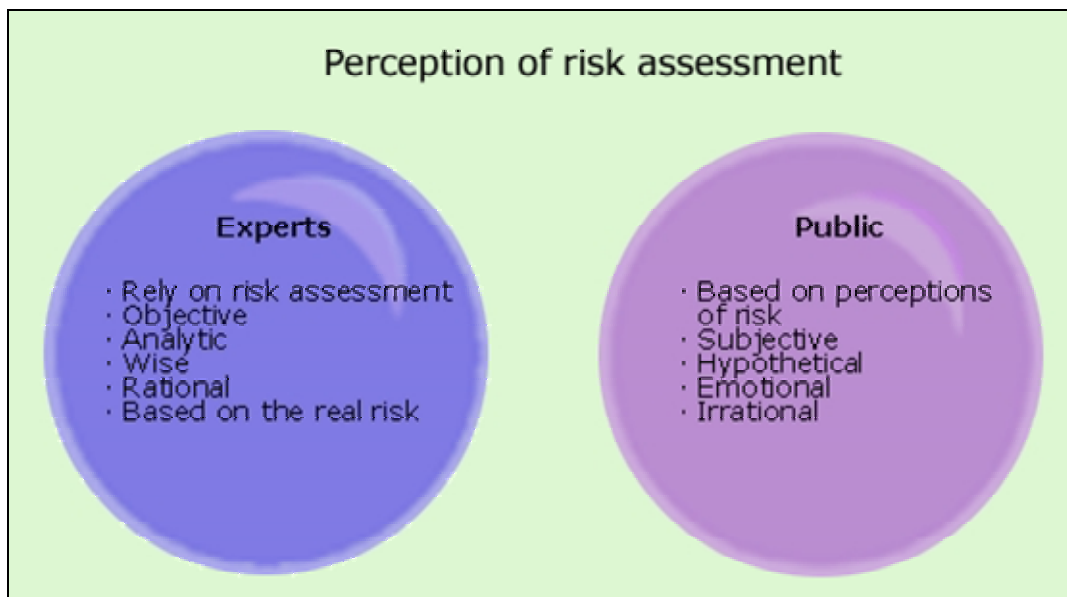
Individual aspects

One of the objectives of investigating risk perception has been to develop a taxonomy for understanding and predicting how individuals and society respond to hazards. A taxonomic outline could explain, for example, the extreme aversion people have to certain hazards, their indifference toward others, and the discrepancies between these reactions and the opinions of the experts. In the psychometric paradigm, quantitative judgments are made about the real and desired riskiness of different dangers and the desired level of regulation of each one. Then, those judgments are related to other conditions, such as: a) the characteristics hypothetically regarded as important for risk perception and attitudes; b) the benefits for society of each hazard; c) the number of deaths due to the hazard in an average year; and, d) the number of deaths in a disastrous year.

The main development in this area has been the discovery of mental or heuristic strategies used by people to cope in an uncertain world. Although these strategies are valid for certain circumstances, in other circumstances they lead to enormous, persistent biases that have serious implications in risk assessment. Laboratory research into knowledge and basic perceptions has shown that the difficulties in understanding probabilistic processes, the biased coverage of the mass media, misleading personal experiences, and anxieties produced by problems in life cause the denial of uncertainty, the deficient judgment of risks (sometimes they are overestimated and sometimes underestimated) and judgments on facts that are held without guaranteed confidence.

Research and experience both show that experts and the public seldom agree on risk, yet experts are prone to the same biases as the general public, particularly when they are forced to go beyond the limits of available data and rely on intuition.

The following is a comparison of the factors involved in the perception of risk by experts and by the public or audience.



Source: Canadian Food Inspection Agency

Gender and risk perception

Subgroups of a community can react according to their cultural and social characteristics, and also according to gender. Generally speaking, women feel more insecure with regard to an industrial threat because:

1. they perceive technological events as more potentially hazardous;
2. they have less knowledge of the organization of industry and consequently cannot perceive the effectiveness of industrial safety precautions; as a result they have less faith in such measures.
3. they have less real knowledge of the hazards and their origins; and
4. they are more prone to anxiety (as a personality trait).

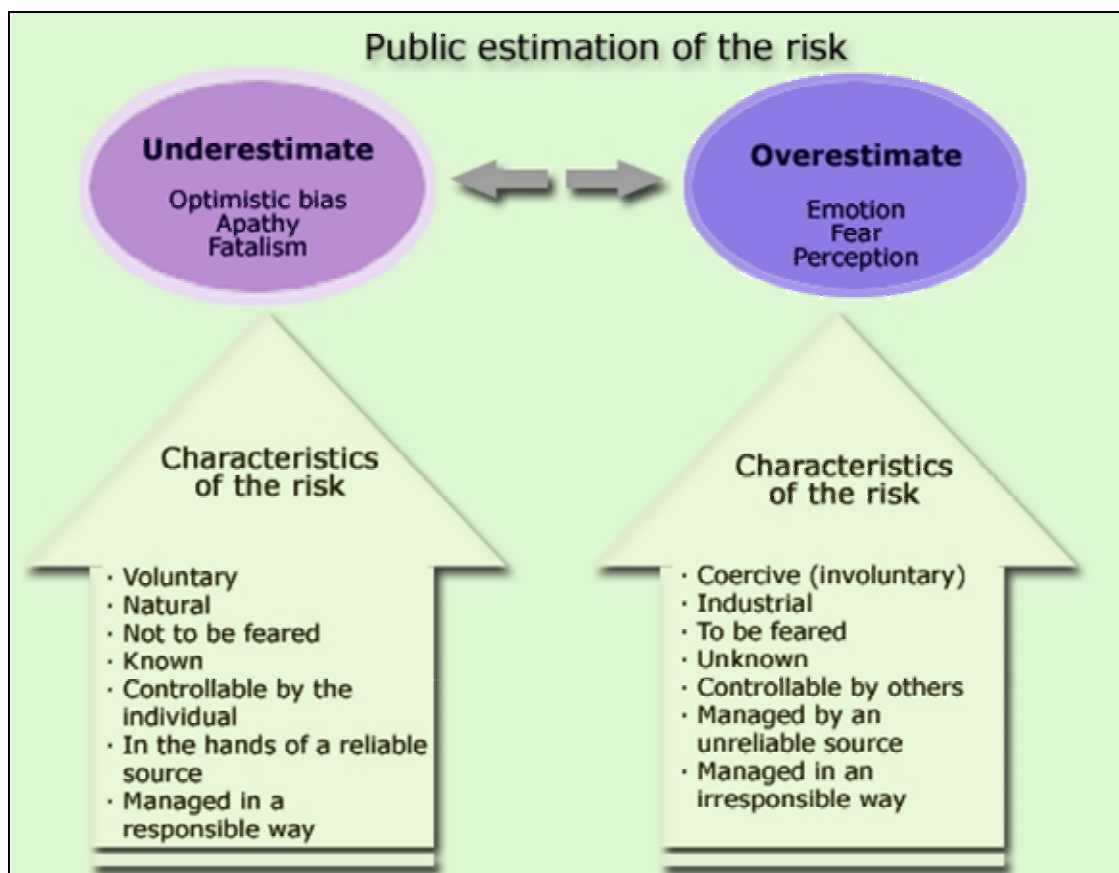
It has also been observed that women more frequently report situations of alarm with reference to industrial activities. Since women have higher values than men in terms of personal health, well-being and care for families, they are subject to greater stress than men and feel more threatened by industrial hazards.

Types of biases

Public attitudes toward risk are known to be influenced by a number of biases that result in personal risk perceptions that are seldom well-founded. "Optimistic bias" and "outrage bias" are two examples of why individuals may hold seemingly irrational points of view about certain risks.

Optimistic bias, also known as *unreal optimism*, is one of the many perceptual challenges facing risk communicators. Some researchers will claim that it is in fact one of the most important problems faced by those communicating about risk. Studies have shown that individuals may acknowledge the existence of a risk, but will often assume that they personally are not vulnerable to it; it is easier for them to recognize the hazards relative to others. It is the classic “it couldn’t happen to me” syndrome. The more an individual feels he or she knows about the hazard, the more control that person feels he or she has over exposure. It has been found that optimistic biases are more common for positive events, while pessimistic biases are rare.

The following figure shows the components related to public risk perception, which influence underestimates or overestimates of the risk.



Trust dimensions

Risk perception is also linked with the extent to which a specific public trusts the institution in charge of managing the risk. There are a series of conditions that can strengthen the relationship between risk communicators and the population. Among those conditions are commitment, care, competence, and honesty. The

public's appraisal of those conditions will gradually define its trust in the institution responsible for risk management.

Conditions for trust

<p>Commitment</p> <ul style="list-style-type: none"> • Risk managers are judged according to the commitment they show in reaching common goals. • This includes providing accurate information and participating in the decision-making processes. 	<p>Care or empathy</p> <ul style="list-style-type: none"> • Risk managers are judged according to their behavior and the concern they show for the public. • This includes the ability to listen and the capacity to see other people's point of view.
<p>Competence</p> <ul style="list-style-type: none"> • Risk managers must show technical competence in their area of responsibility. 	<p>Honesty</p> <ul style="list-style-type: none"> • Risk managers must show credibility, objectivity, and sincerity.

Kasperson, 1992.

Communicators must develop these conditions for trust if they aspire to be met with acceptance in the community in which they are working.

To evaluate the credibility of an organization or person, the most important factor -- which is decided in the first 30 seconds -- is empathy or the perception that the communicator really cares for the population; competence and experience determine more than 15% of credibility; honesty and openness from 15 to 20%; with the same percentage for dedication and commitment.

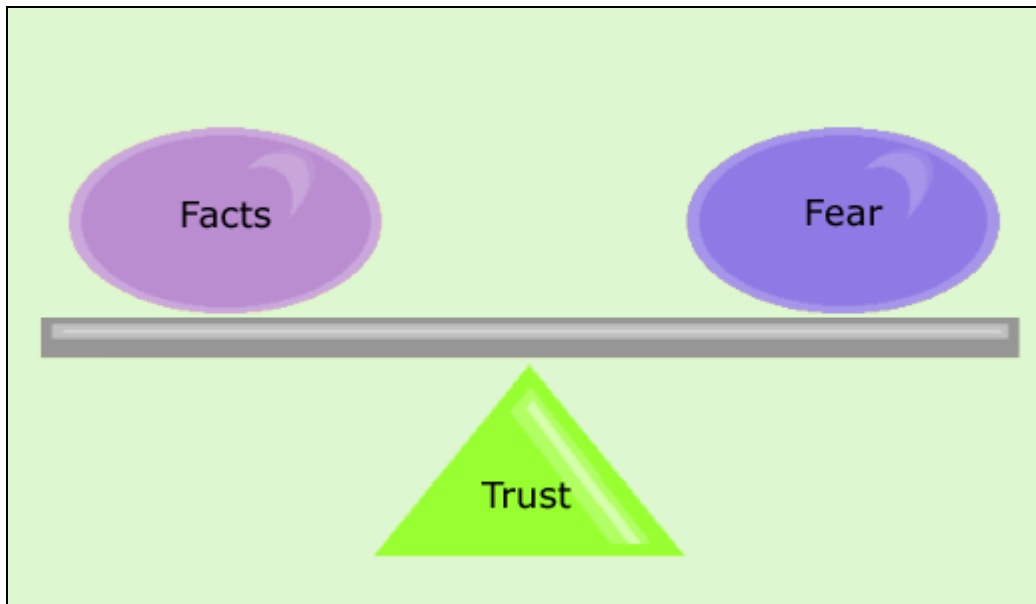
Emotional aspects of risk perception

Emotions play an important role in risk perception. Worry, anxiety and dread can be the product of a person's knowledge about the risk, which influences his or her risk perception. Many risk communicators fail to acknowledge emotion, justifying this by saying that it is out of respect for the public, or from a feeling of apprehension, and sometimes because of the erroneous belief that it could "backfire."

"The risks that kill you are not necessarily the risks that anger and frighten you. To bridge the gap between the two, risk managers in government and industry have started turning towards risk communication."
Peter M. Sandman, 1987.

Fear is one of the basic human emotions. It is grounded in the biological necessity for protection from danger and as such, it has a powerful impact on the perception of risk. It is acknowledged that there is a subtle balance in risk communication between emotions (fear), facts and trust: it is like a see-saw in which trust is the

fulcrum and facts and fear balance each other out at opposing ends, as shown in the following figure.



Source: Canadian Food Inspection Agency

People usually underestimate risks because they believe themselves to be safe and invulnerable, and they do not feel obligated to do anything about it. Technical assessments and those of the lay public differ in the identification of the most important risks. Research on risk perception shows that experts often define risk in a technical and limited way, while the public's perception of risk is influenced by a variety of psychological, social, institutional, and cultural factors.

Interculturality

Interculturality is a feature of societies that are made up of different social, racial and cultural groups. Some less favored or marginalized communities have given a new meaning to western practices and have included them as part of their own culture; they now even identify them as their own. Horizontal and vertical communication, ascendant and descendant communication all play a role in cultural dynamics. Consequently the cultural expression of all parties implies cultural confrontation at times. Suggestions have been made for such cases: that alternative health care models be developed in local health systems; that the need to design different intervention processes be acknowledged; and that work in the local area be strengthened. These measures will lead, in addition, to community participation, and to the successful operation of public health programs.

In intercultural communication, especially in the indigenous populations of Latin America, the situation is a complex one that acts as a constraint on the possibilities of transmitting messages successfully. In such cases particular care should be

taken when preparing the messages, paying attention to cultural aspects to ensure that the messages will be received in the best possible way.

Conclusions

Risk perception includes different elements that need to be considered as a whole for a good understanding of how individuals and social groups perceive risks. To know how a specific environmental problem is perceived in a community is essential if we are to prepare an effective plan for risk communication.

References:

- (1) Canadian Food Inspection Agency
www.inspection.gc.ca/english/corpaffr/publications/riscomm/riscomme.shtml
- (2) Fischhoff B. (1995). Risk perception and communication unplugged. *Risk Analysis*. 15: 137-145.
- (3) Earthscan Publications, 1998, pp.133-43.
- (4) Sandman, P.M. Risk communication: Facing public outrage, *EPA Journal*, Nov. 1987, pp. 21-22.
www.psandman.com/articles/riskcomm.htm
- (5) Kasperson, RE 1992 Social disturb as a factor in siting hazardous facilities and communication risks. *Journal of Social Issues*, 48 (4): 161-187.
- (6) Urbina, S. J. y Fregoso, M. J. Afrontamiento de riesgos ambientales: El caso de San Juanico. *Rev de Psic Soc y Pers*. 7(1):46-59. 1991.
- (7) Maslow A. *Toward a psychology of being*. 3. ed. Van Nostrand Co., 1968.
- (8) www.deepermind.com
- (9) Barragán FJ. 2003. Encuentros y desencuentros entre pueblos indígenas y programas de salud. La comunicación intercultural como hilo conductor. *Revista Universitaria*, Universidad de Xalapa, Año 3, No. 9.
- (10) Slovic P. 1985. Characterizing perceived risk. En Kates et al. (eds.) *Perilous progress: Technology as hazard*.
- (11) Slovic P. 2000. *The perception of risk*.
- (12) http://www.ocrwm.doe.gov/pm/program_docs/curriculum/unit_3_toc/14.pdf