ONE HEALTH TRAINER’S TRAINING

THE ONE HEALTH FOR ENVIRONMENTAL LITERACY IN A CHANGING WORLD (EnvirONE-HEALTH)

Guide

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İçindekiler

I. ONE HEALTH

Aim:

To learn about One Health.

Learning Objectives:

1. Ability to define the concept of One Health.
2. Ability to explain the relationship between human health and environmental health in the context of One Health.
3. Ability to explain the relationship between human health and climate change in the context of One Health.
4. Ability to explain the relationship between human health and the control of zoonotic diseases, antimicrobial resistance, and food safety in the context of One Health.
5. To gain an understanding of potential improvements in the field of One Health.

Methods and Techniques:

Lesson

Questions

Tools and Materials:

Whiteboard

Papers and pencils

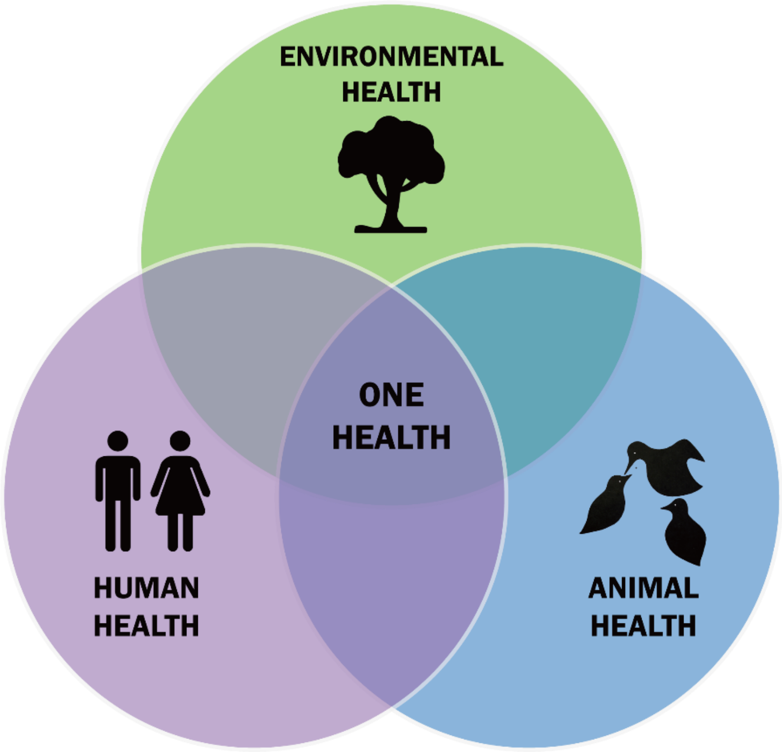
Computer

Projector

ONE HEALTH

One Health is an integrated, unifying approach that aims to balance and optimize the health of people, animals, plants, and ecosystems at the local, regional, national, and global levels in a sustainable manner. One Health defines the relationship between humans, animals, plants, and their shared environments. It works collaboratively across different scales to achieve optimal health outcomes. One Health is characterized by its collaborative, multi-sectoral, and interdisciplinary nature. This approach promotes the integration of human, animal, and environmental health through multisectoral and interdisciplinary collaboration.

Figure 1. One Health brings together humans, animals, and the environment



The most fundamental principle of the "One Health" concept is that human health, animal health, and ecology are interconnected and cannot be considered separately. This perspective is familiar and has been advocated since the 1800s. Due to concerns arising from zoonoses (common diseases in humans and animals), particularly the bird flu epidemic, efforts have intensified to conduct joint studies that bring together professionals in human health and animal health fields.

Undoubtedly, besides the branches of science related to animal health (veterinary medicine), other scientific fields and professional groups impact human health. The most crucial among these is the field of ecology (environmental science). Therefore, the most rational approach is for these scientific fields and their practitioners to collaborate. This partnership should encompass training, project development, and implementation involving professional groups in these domains. Without such collaboration, service disruptions may occur. For instance, when the "West Nile Virus" emerged in the USA in 1999, mass bird deaths were observed alongside neurological symptoms in humans. However, due to inadequate communication between veterinarians and physicians, establishing the connection between these occurrences took a significant amount of time. Based on this perspective, the term "One Health" can be defined not only as a concept related to controlling infectious diseases that can transmit from animals to humans, posing a public health threat, but also as collaborative efforts across various scientific fields, especially medicine, veterinary medicine, and ecology. This concept advocates that combining scientific research outcomes from these fields will synergize, leading to more positive developments. In particular, human and animal health partnerships also seek to leverage common traits between species.

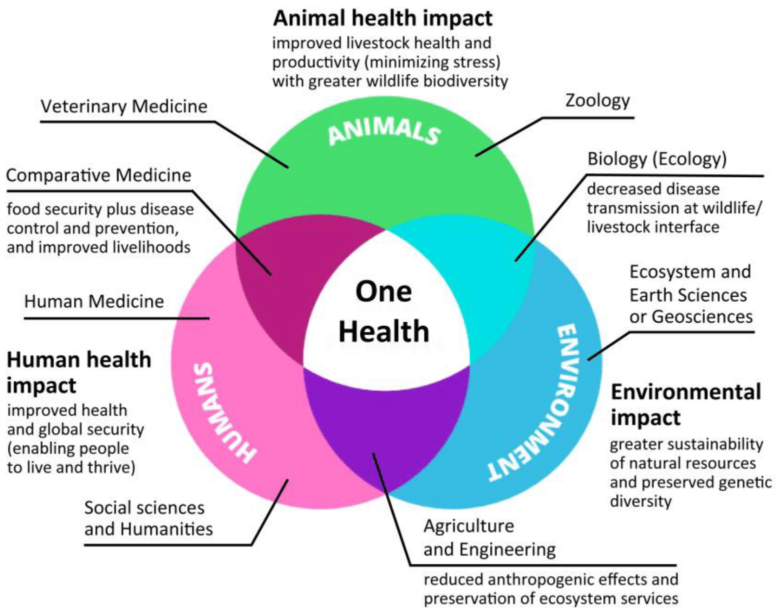
Sixty percent of infectious diseases seen in humans, at least 75 percent of re-emerging infections (including Ebola, HIV, and influenza), and 3 out of 5 new diseases discovered in humans each year have animal origins. Additionally, up to 80 percent of agents used for biological warfare or by terrorists cause zoonotic diseases.

One of the notable examples of One Health practices is the development of microbial antibiotic resistance. As is known, due to patients' unnecessary and improper use of antibiotics in terms of duration and dosage, microorganisms develop resistance to these drugs, diminishing their effectiveness in society. However, a significant risk of resistance arises from the antibiotics used in animal farming, particularly broiler production.

Because approximately 90 percent of the total antibiotics used are used on these farms, the solution to the resistance problem, which is a significant danger to humans, can only be solved by working with veterinarians.

A similar example is the production and consumption of genetically modified foods (GMOs). Examining the effects of such foods on human health and eliminating their negative effects can only be achieved with the cooperation of agricultural experts, physicians, and veterinarians.

Physician Rudolf Virchow, an anthropologist, public health professional, and politician considered the father of pathology, made significant contributions to the formation of the One Health concept. Rudolf Virchow also played an essential role in establishing the veterinary profession. In a speech he made in parliament in 1873 to educate lawyers who wanted veterinary education to be carried out under the Ministry of Agriculture or the Ministry of War and who did not even want to see veterinary medicine as a field of science, he said: "I can only emphasize that veterinary medicine is There is no barrier between medicine and human medicine; It shouldn't be anyway. "Experience gained in one field will support the development of the other field," he said. In the early years of medical science, there was no distinction between veterinarians and human physicians. Although human and animal medicine were intertwined in the 19th century, they rapidly separated from each other in the 20th century. Today, the only field where veterinarians and human physicians share their expertise, experiences, and opinions is "Public Health."



Source: Barcaccia, G., D'Agostino, V., Zotti, A., & Cozzi, B. (2020). Impact of the SARS-CoV-2 on the Italian agri-food sector: An analysis of the quarter of pandemic lockdown and clues for a socio-economic and territorial restart. Sustainability, 12(14), 5651.

Various training programs have been initiated at universities to address the lack of adequately trained personnel, especially in the relationship between human health, animal health, and ecosystem health. One such initiative is the launch of the Illinois Veterinary College and the Chicago School of Public Health's dual degree program (DVM/MPH – Doctor of

Veterinary Medicine/Master of Public Health) in 2004 for veterinarians. The American Veterinary Association has also begun work on integrating human and veterinary medicine to improve public health. Similarly, the American Medical Association has decided to take initiatives within the "One Health Initiative" framework to strengthen the bond between medical schools and veterinary science, conduct joint research, and develop diagnoses, drugs, and vaccines.

Some of the goals of the One Health Initiative can be listed as follows:

1. Unifying medical, veterinary, and public health school educational systems.
2. Improving interdisciplinary communication in scientific publications and conferences.
3. Conducting joint research on disease transmission between humans and animals.
4. Establishing partnerships for observing and controlling human, animal, and wild animal life and the diseases affecting these groups.
5. Conducting comparative research on diseases affecting humans and animals, such as diabetes, cancer, autoimmune diseases, and obesity.
6. Conducting joint studies on developing new diagnostic methods, drugs, and vaccines to control common diseases between species.
7. Conducting awareness and lobbying activities for the public and political staff.

As can be seen, the concept of One Health is an understanding parallel to the concept of intersectoral coordination in health (health in all sectors). One Health is an approach that takes the understanding of intersectoral cooperation a step further and argues that cooperation, especially in the fields of medicine, environment, and veterinary medicine, should be tighter and even unified.

1. One Health and the Environment

One Health is an interdisciplinary approach aimed at improving human health at the intersection of humans, animals, and the environment. However, the role of the environment within this trio has often been overlooked. It serves a triple role in animal-mediated diseases by acting as a reservoir for accumulating and transporting environmental substances, as a focal point for ecological and chemical processes, and by transmitting environmentally derived agents to animals and humans. Therefore, the environment plays a significant role in people's physical and mental well-being. Anthropogenic stressors such as land use change, biodiversity loss, climate change, and air pollution further impact the environment's role at the human-animal health intersection.

One Health definitions encompass human and animal health interaction with the environment or ecosystems. The state of the environment and the changes and processes occurring in it play a central role in diseases transmitted from animals. The One Health approach has fostered collaboration between health and veterinary professionals, with recent attention focusing on the emergence of zoonotic diseases and the relationship between human and animal health. Similarly, the importance of environmental health – the impact of physical, chemical, and biological hazards on human health – has long been recognized.

The world ecosystem, our environment, is the source of life on Earth and is indispensable for human life in all its aspects. From the microbial scale to the ecosystem scale, biodiversity is closely linked to human health. More concretely, the function of the environment in the One Health triad can be reduced to three main mechanisms: reservoir, processes, and health mediator.

The environment serves as a reservoir for substances and nutrients, with land areas hosting communities of organisms, including soil and water bodies. It is also a natural reservoir of pathogens, antibiotic-resistant genes, and chemicals. Human-caused air, water, and soil pollution precipitate toxic chemicals, excess nutrients, pathogens, and antibiotics, which accumulate in the environment for extended periods. These compounds are transported from one place to another through the flow of air and water and even within living organisms.

The environment is the backdrop for ecological processes that provide numerous ecosystem services fundamental to human health. Habitat conditions determine biota composition and spatial distribution, and ecological community processes such as food web interactions, competition, and symbiosis regulate population sizes and lead to evolution. Environmental stressors may have a significant impact on pathogens, resistant microbes, and resistance genes, particularly given the short lifespan of microorganisms, including viruses.

Some chemicals undergo transformations in the environment. For instance, microorganisms can methylate inorganic mercury to form methylmercury, which is highly toxic and bioaccumulative. Similarly, antibiotics – often easily degradable – can bind to soil particles and retain their efficacy over extended periods.

The environment acts as a health mediator, exerting positive or negative effects on animal and human health based on its health status. Chemicals, genes, and pathogens are transferred to humans and animals either directly through soil, air, and water or through ingestion or contact with infected animals. Environmental health also influences the immune systems of animals and humans, affecting the rate of pathogen shedding (the release of disease-causing microorganisms into the environment) and transmission.

These three environmental mechanisms require better understanding within the context of the human-animal-environment intersection. Additionally, it is crucial to note that environmental degradation further impacts these mechanisms, as the environment undergoes constant changes influenced by numerous anthropogenic stressors and natural processes. Stress sources have a notable impact on the dynamics occurring at the human-animal-environment interface. The rapid exchange of pathogens at local, regional, and global levels is propelled by globalization, characterized by human population growth, high population density, and extensive movement of people, goods, animals, and food products. Although some trade occurs locally, regional and global trade intensifies through land, sea, and air transport, facilitating the transmission of pathogens, chemicals, and toxins. These stress factors play a crucial role in animal-borne diseases. The stressors mentioned include changing land use, biodiversity decline, climate change, and chemical pollution in land, air, water, and oceans.

Environmental issues contribute to numerous non-communicable diseases, such as cardiovascular diseases, cancer, respiratory diseases, and diabetes. Additionally, environmental pressures, especially ecosystem degradation, compromise natural environments' ability to provide ecosystem services that safeguard and enhance health and well-being.

The One Health approach generally focuses on infectious diseases, but animals are also associated with human health as they cause several non-communicable diseases. These diseases occur through the consumption of animals and animal products that are contaminated with pollutants. Meat and other animal products (seafood, dairy, and eggs) are the main causes that make people vulnerable to toxic chemicals.

Accumulation in animals' fatty tissues can concentrate toxins to dangerous levels, causing serious health problems, including cancer, endocrine disruption, and damage to immune and neurological function.

On the positive side, people's closer contact with nature and animals – both wild and domestic animals – has been suggested as a possible approach to mitigating the rise in mental health disorders. For example, one study found that bird species richness (as a representative indicator of environmental quality) positively affects human health. Bird songs have been associated with uplifting and stress-reducing effects. Biodiversity is associated with mental health benefits, physical activities, and cultural services that can reduce stress and increase immune competence.

In the human body, microbiome diversity on the skin and intestines plays an important role in health functions and is affected by the environment and animals with which people interact. The microbiome can be obtained from animal products and contact animals (farm animals and pets). Therefore, applying the One Health approach to the microbiome facilitates assessing pathogenic and non-pathogenic microbial transfer between humans, animals, and the environment.

The internal microbiome plays a role in non-infectious health functions (such as metabolism, immunity, and even mood and brain function) and protection against pathogenic microorganisms and toxins. The intestinal microbiota can eliminate the toxic effects by metabolizing carcinogenic and mutagenic environmental pollutants. This includes the biodegradation of polycyclic aromatic hydrocarbons, nitro- and nitrated polycyclic aromatic hydrocarbons, some pesticides, and polychlorinated biphenyls. The external microbiome plays an important role in the internal microbiome. Human degradation of natural environments, transgenic plants, antibiotic dissemination into soil and water, and agricultural activities affect the microbiome composition in the human environment and food and may, therefore, compromise the diversity and function of the internal microbiome.

2. One Health and Climate Change

The negative impacts of climate change on health, one of the critical issues of the twenty-first century, are becoming increasingly evident. Its effects on the emergence, transmission, and manifestation of diseases, as well as on the components of the pathogen-host-vector cycle, are being better understood. Modeling has predicted that global warming may change certain water- and vector-borne factors and epidemic patterns. While systems like diagnosis, treatment, vector control, vaccine production, and applications developed for infectious disease control are crucial tools in public health, incorporating the potential health impacts of climate change and other environmental factors into these systems is expected to yield more effective results.

Climate change and rising temperatures are causing zoonotic hosts and vectors to expand to higher altitudes and latitudes, thereby increasing the human population at risk of vector-borne diseases. Higher temperatures also accelerate the reproduction rates of both pathogens and vectors. Additionally, foodborne infections are on the rise due to increasing temperatures. Floods contribute to the overflow of wastewater, leading to waterborne diseases.

Climate change harms ecology, biodiversity, the environment, individual health, and public health. The health of fundamental components such as air, water, soil, and all living and non-living systems is under threat. The magnitude, frequency, and extent of impact in the health impact chain vary depending on the affected population's structure, sensitivities, and response capacity to change, thereby determining the actual health risk. A unified health language and literacy are essential to accurately assess the real risk.

3. One Health and Other Application Areas

The One Health approach is extensively applied in the realms of zoonotic disease control, antimicrobial resistance, and food safety.

Zoonotic diseases are those transmitted to humans from vertebrate animals, whether wild or domesticated. Over the past few decades, there has been a surge in Emerging Infectious Diseases (EIDs) and re-emerging infectious diseases due to the interconnectedness between animals and humans. EIDs are infections that are newly discovered, previously unknown, or previously limited to local occurrences. Some of these have led to devastating pandemics, such as HIV/AIDS in the early 1980s and COVID-19 today. The majority (60%) of zoonotic diseases originate from animals, with 71% coming from wild animals. Examples include Lyme disease, hantavirus, dengue fever, West Nile virus, and Nipah virus. There is a risk that environmental degradation and other factors, such as increasing human population density, global trade, and international travel, will contribute to the emergence of new zoonoses. It is estimated that there are still 1.7 million undiscovered viruses in mammalian and avian hosts, and nearly half of these have the potential to infect humans. Just since the beginning of the 21st century, several zoonotic epidemics have emerged, including Severe Acute Respiratory Syndrome (SARS) coronavirus (2003), Ebola virus (2005 and again in 2017), swine flu (2009), H1N1 flu (2009), Zika fever (2015), Middle East Respiratory Syndrome coronavirus (2015), and COVID-19 (2019).

Zoonotic pathogens can be transmitted through various pathways, including direct contact with living or dead animals, consumption of animals or animal products, vectors, or indirectly through the environment (soil, water, and air). Environmental degradation impacts all of these transmission pathways.

Another group of diseases that could benefit from a One Health approach are neglected tropical diseases. These diseases affect over 1 billion people globally and are more prevalent among impoverished populations in remote areas or urban slums. While neglected tropical diseases are predominantly found in developing countries, migration and international travel from low-income countries have led to their prevalence in Europe as well. Some of these diseases are zoonotic, such as rabies, echinococcosis, and tapeworm/cysticercosis, while others are food-borne, such as trematodiasis.

WHO has declared antimicrobial resistance (AMR) as one of the most significant global public health threats facing humanity, and AMR has been labeled as "the One Health issue itself." Each year, there are 700,000 deaths worldwide attributable to infections caused by drug-resistant pathogens, imposing substantial economic costs. AMR occurs when pathogens like bacteria, viruses, and parasites develop defense mechanisms that render them unresponsive to medication. This increases the risk of diseases spreading, becoming more severe, and resulting in fatalities. AMR is primarily caused by the misuse and overuse of antimicrobials, inadequate sanitation, and insufficient disinfection of microbes in human medicine, livestock, poultry, aquaculture, and plant agriculture. In many countries, antimicrobials are used in livestock at subtherapeutic doses for prolonged periods under conditions conducive to the development of resistance genes. These genes can be transferred to humans from other individuals, contaminated food, and the environment. Drug resistance to antivirals and antiparasites, such as antimalarials, is also becoming a growing health concern.

Food safety is another crucial One Health concern, with an estimated one in ten people worldwide falling ill from contaminated food every year, resulting in 430,000 deaths annually, including 125,000 children under five years of age. Foodborne diseases stem from microorganisms (bacteria, viruses, and parasites) or chemical hazards. Many of these pathogens, such as Salmonella spp., Campylobacter spp., Shiga toxin-producing Escherichia coli, Toxoplasma gondii, and Echinococcus multilocularis, originate from animals. Antibiotic residues in food may lead to bacteria becoming resistant to antimicrobials and can have direct adverse health effects on humans, such as immunopathological effects, allergies, mutagenicity, nephropathy, hepatotoxicity, reproductive disorders, bone marrow toxicity, and carcinogenicity. Food safety is closely linked to animals, as one of the primary ways individuals are affected by foodborne diseases is through contact with domestic or wild animals and the consumption of animals and animal products.

4. Looking Forward

Environmental and natural degradation, including climate change, has significant impacts on human and animal health. Additionally, the health of the environment influences, shapes, and exacerbates animal-related human diseases. Emerging zoonotic diseases and bacterial resistance are of particular concern. A vicious cycle occurs where the environment is degraded as a result of unprecedented pressures imposed by humans. This disruption affects animal health, leading to the evolution and spread of new disease agents, and animals carry these diseases back to humans. This report proposes breaking this cycle by focusing on the environment as the focal point for the emergence and transmission of animal-associated disease agents, using three primary approaches: nature conservation, surveillance, and human capacity.

4.1. Nature Conservation

Protecting and restoring ecosystems and biodiversity is already valuable, but it should be planned to include the role of protecting human health. Framing ecosystem restoration from a human health perspective can include concrete implementation and adaptation measures. For example, NTAT (Convention on International Trade in Endangered Species of Wild Fauna and Flora) prohibits trade in endangered species of wild animals and restricts trade in wild animals. However, an international agreement restricting the consumption and trade of wild animals in the context of zoonotic transmission would be more comprehensive in protecting human health. Similarly, although there are many agreements that work to prevent deforestation as per action plans, a legally binding agreement that will prevent deforestation can be planned in order to protect local communities from being affected by the zoonotic spread of wild animal origin.

Many laudable initiatives, policies, and action plans call for protecting biodiversity and restoring the ecosystem. The re-emergence of new zoonotic epidemics – including the widespread consequences of the ongoing COVID-19 pandemic – and numerous pieces of evidence linking emerging zoonoses to the degradation of nature highlights the restoration of nature as a matter of global emergency.

4.2. Surveillance

Surveillance is an important component of the One Health approach. Environmental degradation and other pressures, such as increasing human population density, global trade, and international public transportation, will exacerbate the emergence of new zoonotic diseases. As mentioned earlier, it is estimated that there are 1.7 million undiscovered viruses in mammalian and avian hosts, with almost half of them capable of infecting humans. Although efforts to promote surveillance of new pathogens in wild animals are increasing, surveillance of the environment itself is lacking. Quantitative real-time PCR and metagenomic sequencing tools continue to be used within the One Health approach to detect viral and other types of pathogens that can be transmitted from animals to humans. Genomic sequencing can help understand range shifts in vectors and pathogens due to environmental change. Surveillance should be expanded to include environmental genetics by sampling soil and water to discover pathogenic and antimicrobial resistance genes. The spatial distribution of these genes relative to the source of pollution and environmental degradation may provide clearer insights into the relationships between these factors.

Organic pollutants, due to their persistent and pervasive nature, can pose a threat to human health even after their use has been discontinued. Joint efforts by the environmental and food health sectors to examine contaminants in the environment and animal products will also advance efforts to clean up the environment and safeguard human and animal health.

4.3. Human Capacity

The One Health approach encourages collaborative, cross-border, interdisciplinary, and international action to improve human health. Understanding the numerous complex mechanisms through which environmental degradation caused by human activities affects diseases of animal origin requires going beyond the silo effect in addressing human health problems. Developing this understanding will be possible by involving environmental scientists and ecologists in addition to health experts, toxicologists, and veterinary experts at the One Health table. Evolutionary biologists can also play an important role in One Health, as the evolution of emerging pathogens and new antimicrobial resistance genes in the environment poses a growing threat to human health. WHO plays a crucial role in local and international capacity building. WHO's expertise can help expand the role of environmental science within the One Health framework, especially where animal-related human health problems are magnified by environmental issues. Cross-sector approaches, strong collaboration with local communities, and cross-border collaboration with industry, transport, and urban planning can further promote new solutions. Close cooperation between health and environmental organizations at all levels, including local and international levels, can significantly contribute to restoring the environment by continuing to identify the effects of the environment on human health. Such collaboration facilitates the recognition of the clear role that environmental degradation plays in animal-borne diseases, investment in interdisciplinary research, and dissemination of evidence-based actions. Additionally, new scientific tools and technologies can shed light on connections across many scales, from the genetic evolution of new pathogens to the global ecological processes that spread these pathogens.

5. Resources

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6. Test Questions

1. Which of the following is the most effective method of using the One Health approach to limit the spread of zoonotic diseases?
A) Increasing the use of antibiotics
B) Protecting natural habitats and reducing habitat loss
C) Fighting air pollution
D) Banning vaccines for infectious diseases

2. Which of the following is an effective strategy to combat antibiotic resistance?
A) Increasing the use of antibiotics
B) Limiting the use of antibiotics and encouraging proper use
C) Lowering the price of antibiotics
D) Encouraging everyone to use antibiotics

3. What precautions can be taken on animal farms to prevent the spread of zoonotic diseases?
A) Not vaccinating animals
B) Frequently changing the living spaces of animals
C) Regularly checking the health status of animals and ensuring hygienic conditions
D) Allowing the use of antibiotics in animals

II. ENVIRONMENTAL LITERACY

Aim: To raise awareness of environmental issues and the importance of environmental literacy

Learning Objectives:

At the end of this training, the participant should be able to

1. To be able to define environment and related concepts
2. To be able to recognize environmental problems
3. To be able to list the main types of environmental problems
4. To be able to explain how environmentally literate people contribute to environmental problems
5. To be able to define health literacy and classify health literacy
6. To be able to tell the difference between environmental literacy and environmental health literacy
7. To be able to explain the importance of environmental health literacy

Recommended Minimum Time: 45 Minutes

Methods and Techniques:

- Lecture
- Question -Answer

Tools and Materials:

- Board, paper, pencils
- Computer
- Projector

Impressive Entrance

Tell the aim and the learning objectives of the session.

Ask the group what they understand from environmental problems and environmental literacy.

Discuss why environmental literacy could be important.

1. Environment

“Environment” encompasses everything outside of humans; it includes the entities in the environment, the interactive relationships between these entities, and the power to sustain these relationships.

The environment is examined in three groups: the physicochemical environment, the biological environment, and the socio-cultural environment. The physicochemical environment consists of factors such as air, water, soil, sound, housing, climate, heat, light, radiation, and organic or inorganic chemicals. The biological environment includes components such as people, plants, animals, microorganisms, insects, and rodents, while factors such as social or cultural values, attitudes, beliefs, and lifestyles constitute the sociocultural environment.

2. Definitions Related to The Environment

Ecology is a combination of the Greek words "oikos" (house) and "logos" (science). It was defined by Ernest Haeckel in 1869 as "the science that describes the relationship between an organism and its environment." Contemporary ecology is the branch of science that studies the relationships of living things with each other and their environment. It can also be said that it examines the relationship between humans and nature.

The ecosystem is a dynamic and interconnected integration of plant and animal living communities and their inanimate environments. An ecosystem is a whole formed by living things and their non-living environments that live in a certain area and constantly interact with each other, and it is the basic unit of ecology.

Ecosystems vary greatly in size. It is possible to consider the world as a whole ecosystem. Oceans, lakes, forests, and cities are ecosystems.

Some sources divide ecosystems into natural and artificial ecosystems. Natural ecosystems can be divided into terrestrial and aquatic ecosystems. Aquatic ecosystems can be divided into lakes, ponds, swamp ecosystems, and ecosystems formed by rivers, streams, and springs. Artificial ecosystems are ecosystems created by humans.

Environmental health is the determination and control of physical, chemical, biological, social, and psychological factors that directly or indirectly affect the health of humans and other living things and communities, including future generations. The last emphasizes the human environment and states that "health is a state of harmony between humans and other creatures that share ecosystems." By correcting the conditions in the environment in which people live that have or have the ability to have harmful effects on their health, people can live in a healthy environment.

3. Environmental Problems

Environmental problems are disruptions of the harmonious relationships of living and non-living factors that make up the environment as a result of human actions. Accordingly, environmental problems pose the risk of not meeting life-related needs. Environmental problems can have many causes.

3.1. Environmental Pollution

Environmental pollution started with the emergence of humans. The smoke released when people lit a fire was one of the first examples of environmental pollution. Pollution has increased dramatically in recent years and has negatively affected all living organisms in the world.

Air pollution, water pollution, soil pollution, food pollution, and noise pollution are defined as the main types of environmental pollution.

3.2. Air Pollution

Air pollution is a significant environmental threat. The World Health Organization estimates that air pollution is responsible for approximately 7 million premature deaths annually globally from ischemic heart disease, stroke, chronic obstructive pulmonary disease, and lung cancer, as well as acute respiratory infections such as pneumonia, which mostly affect children in low- and middle-income countries. Air pollution is also known to cause significant global health costs, accounting for 6.1% of global gross domestic product (more than $8 trillion in 2019).

3.3. Water Pollution

Healthy and clean water is water that does not contain microorganisms and toxic chemicals and contains the necessary minerals in a balanced manner. Domestic water must have the same characteristics as drinking water. Having easy access to healthy and clean water is very important for health. Contaminated water and inadequate sanitation pose many health risks.

Water pollution is the damage to underground and surface water resources by chemical, physical, or biological means. The most common water pollutants include industrial waste, agricultural activities, natural disasters, and human activities. Additionally, pharmaceutical waste, nuclear waste, and chemical substances can also cause water pollution.

The World Health Organization states that by 2022, at least 1.7 billion people globally will be using a drinking water source contaminated with feces. Microbial diseases caused by contamination of drinking water with feces pose the greatest risk to drinking water safety. Microbiologically contaminated drinking water plays a role in the transmission of diseases such as diarrhea, cholera, dysentery, typhoid, and polio and causes approximately 505,000 diarrheal deaths every year.

3.4. Soil Pollution

Soil is the main reservoir of resources from which vegetation is nourished. The top layer of the soil constitutes the main source of nutrition for humans and other living things. There are millions of living things in a gram of soil, and all of them are of special importance to the continuation of the ecosystem.

With the transition to modern agriculture and the acceleration of industrialization from the beginning of the twentieth century, soil pollution began to emerge as an environmental problem. In previous centuries, due to the insufficient power and energy resources used, the small population, and the fact that the industry was not yet developed, there was no pollution in the soil, as in other environmental factors. With the rapid population growth, especially towards the middle of the twentieth century, and in parallel with the rapid development of industry and technology in agriculture and other fields, soil pollution began to increase. Soil pollution constitutes one of the important environmental problems that are becoming more serious day by day.

Soil pollution has many negative consequences, such as the deterioration of natural ecosystems, posing a risk to living things, causing water and nutrient pollution, decreased productivity in sectors such as agriculture and tourism, and economic losses.

3.5. Nutrient Pollution

Access to safe and sufficient food is one of the keys to sustaining life and improving health. Safe food has not lost its nutritional value and is free of potentially harmful bacteria, parasites, viruses, toxins, chemicals, or radionuclides. The presence of these harmful substances in foods is called food pollution.

According to the World Health Organization, an estimated 600 million people – almost 1 in 10 people in the world – become ill after eating contaminated food, and 420,000 people die each year, resulting in a loss of 33 million healthy life years (DALYs). Children under five years of age carry 40% of the burden of foodborne diseases, with 125,000 deaths each year. Foodborne diseases put a strain on healthcare systems; they pose a significant obstacle to socioeconomic development by damaging national economies, tourism, and trade.

3.6. Noise Pollution

Noise is sound that causes high sound levels in the environment and harms human health and peace. Important sources of environmental noise are road, rail, and air traffic or construction sites. You may also be exposed to noise through activities such as concerts, entertainment venues, and computer game competitions. Research shows that noise is associated with health risks such as intravascular heart diseases, hypertension, sleep disorders, hearing disorders, and cognitive disorders.

According to the World Health Organization, noise is one of the most important environmental risks to health. It negatively affects human health and well-being. At least 100 million people in the European Union are exposed to road traffic noise levels that are classed as unacceptable by scientists and health experts. At least 1.6 million healthy life years are lost each year due to road traffic noise in Western Europe alone. Noise pollution can also have significant effects on indicators related to quality of life and mental health.

3.7. Climate Change

Weather is the state of the atmosphere at any given place and time. Weather patterns vary from year to year and region to region. Climate is the average weather conditions that persist for ten years or more. Although weather can change within minutes or hours, identifying a change in climate requires observations over decades or longer.

Climate change directly contributes to humanitarian emergencies such as heat waves, wildfires, floods, tropical storms, and hurricanes, and their frequency and intensity are increasing. According to the World Health Organization, 3.6 billion people currently live in areas highly sensitive to climate change. Between 2030 and 2050, climate change is expected to cause approximately 250,000 additional deaths per year from malnutrition, malaria, diarrhea, and heat waves alone. Direct costs to health (excluding costs in health-determining sectors such as agriculture, water, and sanitation) are estimated to be between US $ 2-4 billion per year by 2030.

4. Environmental Education

The concept of environmental education was first defined by a commission led by William B. Stapp in 1969, and this definition laid the groundwork for subsequent defining efforts. According to this definition, environmental education is "a process aimed at creating citizens who are knowledgeable about the biophysical environment and environmental issues, aware of how to contribute to the solution of existing problems, and willing to work in this direction." Since then, environmental education has been defined many times by various researchers. The most widely accepted definition of environmental education was established at the first intergovernmental conference on environmental education held in Tbilisi in 1977. At the Tbilisi Conference, environmental education was defined as "a learning process that increases individuals' knowledge and awareness of environmental issues, develops the skills necessary to assess problems, and encourages attitudes, motivations, and responsibilities towards taking responsible actions and making informed decisions related to the environment."

After the work done at the Tbilisi Conference, the objectives of environmental education were stated as follows:

- Developing a clear awareness and sensitivity in urban and rural areas regarding the economic, social, political, and ecological mutual interactions.
- Providing opportunities for every individual to acquire the knowledge, values, attitudes, and skills necessary to protect and enhance the environment.

• Individuals, groups, and society as a whole are stated to create new behavioral patterns towards the environment and to achieve these goals:

•**Awareness** (Raising awareness and sensitivity to environmental issues)

•**Knowledge** (Providing a basic understanding of the environment and environmental issues)

• **Attitude** (Instilling motivation to actively participate in improving and protecting the environment with certain values and feelings)

• **Skills** (Developing skills to identify and solve environmental problems)

• **Participation** (Providing opportunities for active participation at all levels in efforts to address environmental issues) are identified as five fundamental educational objectives.

The increasing awareness of environmental issues and their reaching dimensions threatening life has focused researchers in the field of environmental education on the cultivation of environmentally literate individuals.

5. Environmental Literacy

Environmental literacy, encompassing human interactions with the environment, involves perceiving, interpreting, and addressing environmental systems' healthy functioning and restoring, improving, and taking appropriate measures for their sustainability. In addition to environmental perceptions, environmental literacy should be explained through observable behaviors.

The aim of enhancing the level of environmental literacy is to encourage productive and responsible individuals in society to solve the environmental problems faced by the planet. In this context, strengthening beliefs in individuals' abilities to contribute to solving environmental problems either independently or as part of a group is essential.

5.1. Characteristics of Environmentally Literate Individuals:

Environmental literacy is important for all individuals because they make decisions in their daily lives that can affect their environment based on their personal lifestyle choices. According to Roth, the ability to make choices that will allow for a sustainable society depends on each individual's level of environmental literacy. There needs to be an improvement in environmental literacy to reverse current destructive trends resulting from choices in personal lifestyles, which pose a threat to the quality of the environment and the sustainability of life. Environmental literacy meets the need for people to learn how to live in harmony with the environment. This learning involves understanding natural systems, the relationship between humans and these systems, and acquiring basic skills to effectively address environmental issues. It is important to emphasize that sustainable development depends on the environmental literacy level of every citizen.

An environmentally literate individual can be identified as someone who:

- Recognizes environmental issues as they arise, indicating a fundamental understanding of the relationships between humans and the biogeochemical environment.

- Thinks critically before taking action, thoroughly examining the environmental issue from multiple perspectives before adopting a course of action.
- Rejects short-term gains when they threaten long-term benefits, acknowledging that preventing or mitigating environmental issues is often more challenging than addressing them later.
- Continues to gather knowledge about environmental issues throughout life, understanding that solutions from the past may not apply to present-day problems in our rapidly changing world.
- They Are conscious of the responsibility to pass on their environment to future generations with as little harm and as much improvement as possible.
- Demonstrates willingness to limit some individual priorities and even rights over specific resources for the long-term public good.
- Works to preserve diversity in both natural and artificial environments.
- Constantly questions and reevaluates their cultural values in light of new knowledge about human and natural resources. The individual then seeks to change values and assumptions that create human-environment interactions detrimental to ecosystem integrity.

5.2. Levels of Environmental Literacy

Environmental literacy is fundamentally divided into three levels, and individuals at each level possess different characteristics. These levels are identified as nominal, functional, and operational.

- Nominal environmental literacy demonstrates the ability to recognize and explain the meanings of most of the basic terms used in communication about the environment.

- Functional environmental literacy signifies a broader knowledge and understanding of interactions between social systems and other natural systems. Individuals at this level have developed skills in analysis, synthesis, and evaluation and share the information they gather with other members of society.

- Operational environmental literacy indicates progress beyond functional literacy in both the breadth and depth of understanding and skills. It represents the highest level of environmental literacy. Individuals at the operational level exhibit a strong and continuous sense of responsibility to prevent or remedy environmental degradation and may take actions extending to global dimensions to do so.

5.3. Measurement of Environmental Literacy Levels

In the literature, environmental literacy scales are generally developed for specific populations such as teacher candidates, university students, and elementary, middle, and high school students. Some of these scales include:

- ELI: Environmental Literacy Instrument
- ESELI: Elementary School Environmental Literacy Instrument
- ELI-A: Environmental Literacy Instrument for Adolescents
- ELSA: Environmental Literacy Scale for Adults

6. Health Literacy (HL)

6.1. Definition of Health Literacy

The World Health Organization (WHO) defines health literacy as the cognitive and social skills that determine the motivation and ability of individuals to gain access to, understand, and use information in ways that promote and maintain good health. It refers to the degree to which individuals have the capacity to obtain, process, and understand basic health information and services needed to make appropriate health decisions.

According to the American Medical Association, health literacy involves individuals' ability to read health-related messages, understand prescription labels, and comprehend and act on the instructions given by healthcare providers.

Sorensen et al. analyzed all definitions of health literacy and defined it as the knowledge, motivation, and competence to access, understand, appraise, and apply health information in everyday decisions concerning healthcare, disease prevention, and health promotion, aiming to enhance and maintain their quality of life.

6.2. Classification of Health Literacy

As with its definition, researchers have proposed different classifications of health literacy, considering various criteria. In 2000, Nutbeam proposed a health literacy model widely referenced in the current health literacy literature, which was found helpful in analyzing the skills needed for health literacy in various health situations. According to Nutbeam, health literacy comprises three different levels progressing towards more advanced cognitive skills that can be applied with social skills to critically analyze information and implement policy and organizational changes:

- Functional health literacy: Basic literacy skills in reading and writing.
- Interactive health literacy: The ability to derive meaning from different communication forms and apply new information to changing circumstances.
- Critical health literacy: More advanced cognitive skills applied with social skills to critically analyze information and implement policy and organizational changes.

6.3. Measurement of Health Literacy Levels

Developing methods to measure the level of health literacy, a significant determinant of health is critical and necessary. Although many scales have been developed to measure health literacy, assessing health literacy is challenging. Existing health literacy measurement tools vary in their focus on specific directions, such as the style of application, recognition, and pronunciation of medical terms, arithmetic, comprehension, and decision-making abilities. Nguyen et al. stated in their study that there are over 100 health literacy measurement tools when including disease or condition-specific scales.

Some of the developed scales are as follows:

- TOFHLA: Test of Functional Health Literacy in Adults
- REALM: Rapid Estimate of Adult Literacy in Medicine
- HLS-EU-Q: European Health Literacy Survey Questionnaire

6.4. Importance of Health Literacy

Health is an indispensable part of daily life. Every individual, at some point in their life, feels the need to find, understand, and use health-related information and services. Therefore, health literacy is crucial for everyone. Health literacy enables individuals to make more effective use of health services, better manage health issues, make healthy decisions for themselves and their communities, and play a more active role in healthcare systems.

Studies have shown that individuals with low health literacy levels tend to have longer hospital stays, more emergency room visits, medication errors, difficulties in managing chronic illnesses, and inadequate access to or application of preventive services. Similarly, low health literacy impedes the accurate understanding of health information, leading to misunderstandings of treatment, incorrect medication use, and attempts at self-medication, which can worsen the course of the disease and lead to new health problems. Furthermore, inadequate health literacy has been shown to increase healthcare costs, yet societies do not see sufficient improvements in health outcomes despite these expenditures.

The level of health literacy directly and significantly affects individuals' health outcomes and the resulting expenditure costs in society. Adequate health literacy has vast potential to improve health and reduce health inequalities. Therefore, health literacy should be regarded as an important societal policy and should be developed through a multidisciplinary approach. Progress in health literacy ultimately means healthier individuals, healthier communities, and a healthier world.

7. Environmental Health Literacy (Ehl)

7.1. Definition and Conceptual Framework of Environmental Health Literacy

Environmental health literacy begins with understanding the relationship between environmental exposures and health. It is a concept that combines disciplines such as health literacy, risk communication, environmental health sciences, and social sciences. It involves understanding information related to environmental issues and health and acting accordingly.

Environmental health literacy is a multidisciplinary field that seeks to better understand how individuals and communities interpret information about environmental hazards and how they act upon it. It derives principles and practices to convert scientific and contextual knowledge into health-protective actions. It promotes individual behaviors and community actions to understand scientific evidence, prevent unnecessary environmental exposures, or minimize adverse health outcomes related to unavoidable exposures. Since environmental exposures are often beyond individual control, community-level actions are required to significantly reduce or eliminate exposure.

The proposed conceptual framework for environmental health literacy is based on Bloom's Taxonomy. This revised classification consists of six levels:

1. Remembering: Retrieving information related to significant environmental health issues from long-term memory.

2. Understanding: Determining the meaning of instructional messages, including verbal, written, and graphic communication.
3. Applying: Implementing a procedure in a specific situation.
4. Analyzing: Breaking down acquired data into components and determining the relationship between parts with the whole or the purpose.
5. Evaluating: Making a judgment based on criteria and standards.
6. Creating: Bringing together components to create a new and coherent whole or to create an original product.

Accordingly, individuals recognize and understand significant environmental health problems, apply this basic knowledge to their own situation, and consequently develop intervention strategies and behavior changes that reduce environmental hazards. The systematic progression of Bloom's taxonomy through its six levels is also a suitable approach for developing targeted interventions at different stages of environmental health literacy. As the model suggests, the goal of environmental health literacy is to increase the level of understanding, develop individuals' potential to anticipate potential environmental risks and promote action based on risk perception. Additionally, the stages in the taxonomy indicate the types of actions individuals and communities can take based on their levels of environmental health literacy. An example representing all stages of this model could involve a movement from recognizing the risk of environmental exposure threatening health to creating policies to address the risk.

Gray's 2018 review provides an overview of environmental health literacy and examines literacy at both individual and societal levels. He examined literacy as a three-dimensional structure. While awareness and knowledge serve as important starting points for environmental health literacy, when combined with information-seeking and decision-making skills, along with specific self-efficacies for certain behaviors, the foundations for collective action and societal change can be laid. In this light, environmental health literacy can be seen as a three-dimensional structure, with each dimension encompassing the next.

1. Awareness and Knowledge: This dimension acknowledges the impact of environmental exposures and sociocultural dynamics on health. Individuals may have varying levels of awareness regarding different exposures. This dimension refers to individuals'

capacity to acquire knowledge about environmental health issues and to develop awareness of them.

2. Self-Efficacy and Skills: This dimension focuses on individuals' beliefs in their ability to influence a specific outcome and their self-efficacies to reduce harmful environmental exposures. These skills can be general (ability to access scientific knowledge, comprehension) or specific to exposures (ability to take action to reduce environmental factors at home, for example).

3. Social Change: In this dimension, individuals and groups apply their knowledge and skills with the aim of reducing harmful environmental exposures and improving health. This leads to behavior change. This dimension refers to individuals' and communities' abilities to translate their knowledge and awareness of environmental health issues into action.

These three dimensions provide a framework for understanding how individuals and communities approach and act upon environmental health issues. Similar to health literacy, environmental health literacy can vary from topic to topic, meaning that individuals may have different levels of knowledge and abilities in different areas. Therefore, it is important to employ personalized and community-based strategies to enhance environmental health literacy.

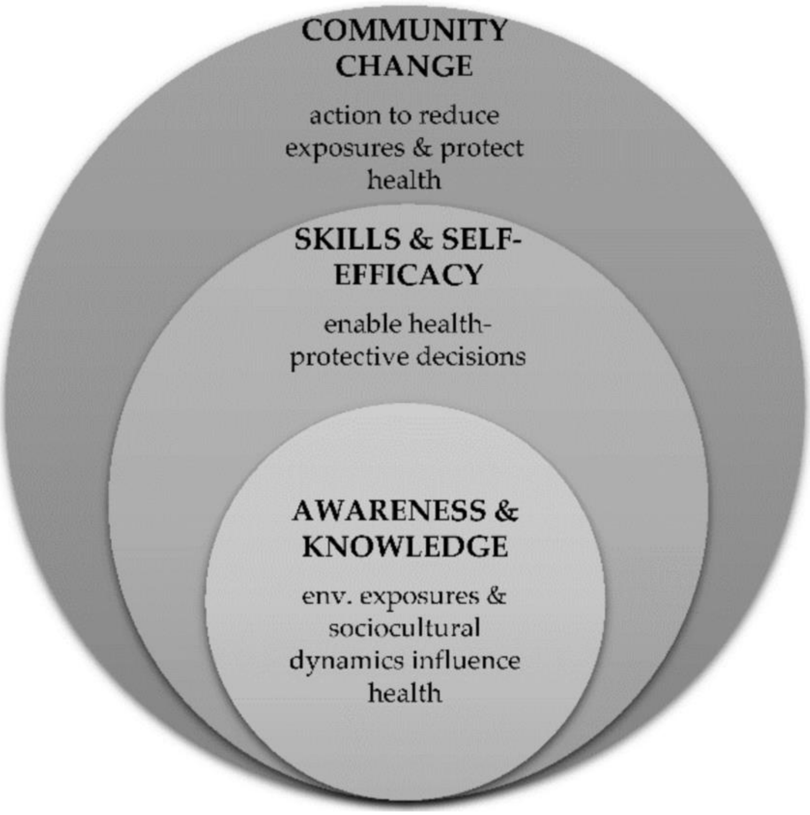

Figure 1. Three dimensions of environmental health literacy (Gray, 2018)

7.2. Environmental Health Literacy: Historical Development

The development of environmental health literacy began in the late 20th century with the realization that a variety of environmental sources posed risks to human health. This understanding of complex risks was further clarified with the publication of "Silent Spring" and Rachel Carson's statements at a pesticide conference. While her statements were known within the scientific community, Carson was the first to publicly articulate the broad implications of agricultural chemicals to policymakers and the public.

As a result of societal awareness of environmental risks, the National Institute of Environmental Health Sciences (NIEHS) was established in 1966, followed by the United States Environmental Protection Agency (U.S. EPA) in 1970. The mission of these organizations is to protect human health and the environment by conducting research based on scientific knowledge to reduce environmental risks.

Environmental health literacy has gained importance as a means of educating the public about the complex relationships between the environment and human health. As new environmental health issues emerge, this field will continue to evolve, encompassing a broad area of study.

7.3. Assessment of Environmental Health Literacy Levels

Understanding the elements of environmental health literacy and how they can be measured involves passing through a series of literacies such as scientific literacy, health literacy, and environmental literacy. The expected mastery of knowledge and skills in environmental health literacy parallels the widely accepted representation of adult literacy.

Measuring environmental health literacy levels is important to monitor the adoption of environmental health knowledge within societies. Some methods developed to assess environmental health literacy levels include:

- Short Assessment of Environmental Health Literacy (SA-EHL): Developed by Rohlman et al., it is an adaptation of the Short Assessment of Health Literacy (SAHL) scale to environmental health. It consists of 17 items, with one point given for each correct answer. Higher scores indicate higher levels of environmental health literacy.

- Environmental Health Literacy Survey Instrument: Developed by Lichtveld et al. in 2019, it consists of 4 subscales and 42 items, using a 5-point Likert scale to measure general, air, water, and food literacy.

- The Environmental Health Engagement Profile (EHEP): Designed by Dixon et al. in 2009, it measures multiple dimensions of how individuals think and behave regarding environmental health issues, consisting of 5 subscales.

- The Water Environmental Literacy Level Scale (WELLS): Specifically developed for the water environment, it measures understanding, calculation, and application of information related to arsenic in water, consisting of 6 questions.

7.4. Importance of Environmental Health Literacy

Without taking necessary measures towards the environment, environmental health problems and associated health risks are likely to persist. However, it is also true that this trend can be reversed, and environmental health problems can be reduced. This requires increasing individual awareness, promoting more sustainable and eco-friendly practices, and strengthening legal regulations. This can only be achieved through the empowerment of strong individuals with environmental health literacy. Environmental health literacy helps individuals understand the effects of environmental factors on health and provides them with the knowledge and skills to make informed decisions and take appropriate measures to protect themselves and their communities from environmental health risks and hazards. It empowers individuals and communities to advocate for policies and practices that support environmental health and sustainability. By implementing effective methods to strengthen environmental health literacy levels and promoting eco-friendly practices, we can leave a cleaner, healthier, and more sustainable environment for future generations.

8. Resources

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9. Test questions

1. According to the World Health Organization, which of the following statements about air pollution is TRUE

a) Air pollution primarily affects high-income countries due to industrial emissions.

b) Air pollution is responsible for a negligible number of deaths globally.

c) The main health impacts of air pollution include gastrointestinal diseases.

d) Children are the least affected demographic group by the health effects of air pollution.

e) Air pollution contributes to significant global health costs and millions of premature deaths annually.

2. According to the conceptual framework proposed for environmental health literacy, what is the primary objective of individuals at the highest level of literacy?

a) Recognizing environmental hazards in daily surroundings

b) Advocating for environmental policy changes

c) Gaining insights into global environmental issues

d) Applying knowledge to mitigate environmental risks

e) Collaborating with communities to address environmental challenges

3. What is emphasized as a fundamental aspect of an environmentally literate individual's understanding?

a) Ignorance of natural systems

b) Disregard for the relationship between humans and natural systems

c) Understanding of natural systems and the relationship between humans and these systems

d) Lack of basic skills to address environmental issues

e) Absence of critical thinking skills

4. What is a key aspect of an environmentally literate individual's behavior towards resources?

a) Exploiting resources for immediate personal gain

b) Demonstrating a willingness to pass on resources to future generations without concern

c) Limiting individual priorities and rights over specific resources for the long-term public good

d) Ignoring the need to preserve diversity in environments

e) Refusing to gather knowledge about environmental issues

III. CREATING POSITIVE LEARNING ATMOSPHERE

Aim: To learn about the value of group dynamics and how to create a positive learning environment for adults.

Learning Objectives:

Upon completion of this training, the participant ought to be able to:

1. Identify a positive learning environment.
2. Describe the steps taken in advance of the training to create a positive learning environment.
3. Describe how to foster a positive learning environment during the instruction.
4. Describe how to maintain a positive learning environment after the training.
5. Recognize how critical it is to foster a positive learning environment during adult training.

Recommended Minimum Time: 45 Minutes

Methods and Techniques:

- Lecture
- Question -Answer

Tools and Materials:

- Board, paper, pencils
- Computer
- Projector

Impressive Entrance for Course

Share the aim and the learning objectives of the session.
Find out from the group what they took away from the positive learning environment.
Talk about the potential significance of a positive learning environment.

1. A Positive Learning Atmosphere

A positive learning environment is one that is designed in accordance with the fundamentals of adult education, promotes learning, and is established in a mutually beneficial setting among the instructor and students. Proper planning of this setting facilitates learning. The trainees and the trainers may both accomplish their aims with the aid of this interactive framework that has been built. A positive learning environment cannot be produced by accident or on its own. It can only be produced by meticulously organizing every aspect of the training before it begins. Establishing and maintaining a good learning environment is of utmost importance during the training process.

Therefore, we can discuss the following three steps to reach the goal:

1st STEP: Before the training
2nd STEP: During the training
3rd STEP: After the training

2. The Steps for a Positive Learning Environment

2.1. 1st Step: The Preparations Before the Training

The training program should be designed with the needs of participants in mind. This implies that training needs to be adaptable so that everyone should have access to it. For the training to succeed, careful planning is therefore essential. The following actions should be taken in advance of the training to foster a favorable learning environment:

Getting a basic overview of the attendees,

Revising training materials,

Setting up the venue's physical aspects for the instruction,

Planning based on the participants’ needs,

Getting ready for the instruction.

Gathering general information about participants is crucial. This includes their number, sociocultural characteristics, the reason(s) and objectives behind their decision to attend the training, their prior experiences and training, and tasks they have held during their former employment. Note that for interactive learning environments, it is crucial to have 14–18 participants for each session.

The training materials should be revised, the offered training package should be customized to the local environment, and careful preparation is required to determine the best time, location, and techniques for the training activities. It is also crucial to have adequate resources and to take preventative measures in case of misfortune (i.e., printing presentation slides).

To set the physical circumstances, it is also necessary to check the room's size, the rooms designated for small group activities, the availability of enough tables and chairs, and the seating arrangements (circle, rectangle, or U-shaped). We also need to get ready in case there could be a potential power outage, or a computer/projector breaks down.

Arranging name tags for the attendees is also suggested. Controlling the room's temperature, ventilation, lighting, and the applicability of the content and audiovisual tools, if any, are also crucial. Another important point to note at this point is to assume the participants' needs (food, lodging, phone, accident, illness, and other emergency scenarios) and make plans accordingly.

It is recommended that the trainer prepare footnotes, important questions, and appropriate examples for trainees. To get ready for the training, the trainer should also review the most recent information on the subject, lecture notes, and the training schedule. Furthermore, the trainer needs to be mentally ready. Like trainees, trainers are not immune to worry. Though it should be maintained at a reasonable level, it is acceptable to experience some stress because it serves as a warning to be cautious when planning the training.

2.2. 2nd Step: The Preparations During the Training

An environment of learning can be created by careful planning prior to the training. However, there are several points to bear in mind to create a more favorable and productive learning environment during the training, which starts as soon as the participants walk into the room. A list of those points is as follows:

- Providing an overview of the training,
- Getting to know one another,
- Answering participant inquiries,
- Clarifying activities that will be used during the training,
- Clarifying goals and learning objectives of the training,
- Expressing expectations from this training,

- Establishing group’s rules

It is crucial to clarify who oversees the training and why adults are present for it. Adults could be curious about circumstances surrounding their presence and the nature of events they are attending. Thus, it is important to explain the purpose of the training program in advance and arrange for participants to meet and discuss expectations and training goals. Making the rules with the group is also essential, as it is a crucial component that enables their participation.

***Note to the trainer: Giving a description of vector-borne diseases could be a good opening phrase that can give us a good understanding of the participants and why they are participating in this training.

Exercises for Warming Up

These activities help people participate effectively, communicate with one another, and let go of their anxieties. These could be completed both at the start of the program and in the days that followed. For example, a daily warm-up could be an excellent place to start. When trainers engage in this activity, the group feels more united, and communication is facilitated. One way to warm up on the first day could be to have the participants meet each other. On the days that follow, you can play other games.

It's critical that trainees get to know one another and the instructor. Even if they already know one another, it still matters. The purpose of this meeting activity is to break the ice and create a pleasant and pleasurable experience for everyone involved rather than turning it into a tedious task or “responsibility.”

***Note to the trainer: Play a game that lasts for a minimum of 15 minutes to give a proper example.

The Participants' Expectations and Concerns

One of the main tasks of adult training is finding out what learners expect from the program beforehand. It is important to review learning goals and objectives.

It is crucial to revise content beforehand, outline the course, and explain exercises that will be performed throughout the training. In this way, we may provide the participants with a broader perspective, assist them in finding some answers to the problems they may have, and help them determine whether their expectations are met. One action that has an impact on the training is meeting the participants' expectations. If this does not work, the training will merely be a way to pass the time. When an adult takes part in training, it indicates that they were only able to complete the training by delaying their regular errands. For this reason, it is important that they ultimately benefit in some way. All of the beneficial lessons that participants expect and the instructor will impart are seen from this angle.

***Note to the trainer: For instance, it is reminded that at the beginning of the training, this was done. Ask if they remember and/or relate to this chapter and what they think about it (whether they find it efficient and/or relevant)

Small-mini games can be added to the warm-up activities to help participants relax, engage with one another, and participate effectively.

Moreover, evaluating the knowledge gap between the beginning and the end is essential for determining the effectiveness of the training. Pre-training assessments could serve to ascertain the group's readiness. It does not require participants to put their names on a certificate if one is not given at the end of the training; instead, a nickname should be recorded so that any knowledge gained can be compared between before and after.

Another important point is to show locations of the bathrooms where they can eat during the training and to answer any questions related to them beforehand. Creating group norms is essential because it encourages group engagement and reduces the likelihood of interpersonal disagreements. Since all adults participated in the creation of the regulations, those who created them can be held accountable.

***Note to the trainer: Remind the group how they Set the tales at the beginning of the training. For instance, the break times, the flexibility of t h e l e ar n in g a t m o s p h e r e, etc.

Aside from all of these, the trainer's facial expressions and tone of voice matter greatly. It matters how it is expressed just as much as what is stated. The emphasis, frequency, and tone of voice all play a role in verbal communication. Every topic should have a strong introduction that highlights its key points. Both the tempo and the presentation style need to be carefully calibrated. It is best to transition between subjects in a reasonable and tactful manner.

Clear instructions should be provided for all training activities. The participants should be addressed by name, and the communications should remain personal. Utilizing and making references to examples that participants previously utilized is also crucial. Certain words and phrases should not be repeated when speaking. It's crucial to utilize terms and expressions that the participants can understand. Both verbal and nonverbal forms of communication are crucial. The key elements to establishing and preserving a happy learning environment are eye contact, body language, and moving around the room while presenting.

When it comes to nonverbal communication, the initial impression matters. In addition to facing participants when responding to a question, positive facial expressions, excitement, eagerness when presenting it, and their energy are all significant factors. To prevent creating an artificial barrier between themselves and participants, the trainer should refrain from repeating the same motions.

When employed in the right context, humor can be used to the right extent. Humor during training can contribute to a productive learning environment. One could employ parodies, jokes, and humorous anecdotes. However, abusive language should be nevehumorsed, and aggressive humor is strictly forbidden (i.e., ethnicity since gender identity) since learning can be something that even grown-ups find difficult to handle. Fears that date back to early school years can occasionally resurface.

The requirements for “Adult Educational Training” are divided into five categories. They resemble steps that follow one another on a stairway. Meeting one need can facilitate meeting the others, and they follow a step-by-step hierarchy.

1. **The need for understanding:** It is the primary need and the foundational element. It is crucial to comprehend both the participants’ words and examples, as well as the larger idea of the training program’s logic, including the topics’ relationships, the order of the sessions, the program’s flow, the training’s objectives, and the anticipated outcomes. In general, the trainers usually discover very late that some participants may not understand them.
2. **The need for trust:** Participants may experience anxiety during training, which is similar to what happens when they are pulled to a place they have never been before.
3. **The need to move:** Many participants find it difficult to remain still for longer than an hour. They can express this emotion by asking strange or confrontational questions to the trainers or by making offensive jokes about stereotypes that could divert the group’s attention.
4. **The need to be a part of a group:** A participant who feels excluded from the group may express their emotions to the trainer in an aggressive manner. She/he could, for example, attempt to focus all attention on herself/himself.
5. **The need to be recognized: Most of the problems that the trainers face are mostly derived from the** dissatisfaction of the participants.

It may not always be easy to meet participants halfway. Individuals may harbor negative feelings about the group. Should this occur, the trainer ought to maintain composure and a constructive demeanor when addressing her/him.

2.3. 3rd Step: After the Training

The social interactions that take place outside of the training room—such as talks, lunch, outings, and so on – help to establish and preserve a supportive learning environment. Maintaining a positive learning environment is aided by following up with participants to find out what issues they are facing. Furthermore, keeping them informed of all the developments in the field is also a crucial action. Now, do we maintain a positive learning environment? Follow-up visits will be made o follow-up visits with participants to provide support at the

EnvirONE Health education site.

- Assessing the challenges and issues associated with work and assisting them in coming up with a solution while preserving the supportive learning environment.
- Giving constructive and motivatingThesements is essential.

These follow-up visits will help maintain the established positive learning environment. It should be mentioned that if we do not do the follow-up visits, the participants may behave just as they did prior to the training.

The follow-up can be conducted using these techniques:

- Setting up a meeting to talk about common issues and exchange experiences with the training group.
- Sending articles related to the training topic.
- Keeping in communication about their issues and achievements.
- Assisting participants in creating a support system and network.
- Providinmaterialsient resources and materials.
- Setting up in-person meetings to discuss issues revitalizing training to update and broaden the understanding.

***Note to those who have had difficulty creating a positive learning atmosphere before. Let them explain how they dealt with this, with the help of giving examples.

Summary Activity

Considering the characteristics that create a positive learning atmosphere, everyone could give examples of potential issues and problems.

IV. INTERACTIVE EDUCATION METHODS AND TECHNIQUES

Aim:

At the end of this session, the participants can use interactive education methods and techniques that will be used during the environmental literacy program.

Learning Objectives:

The participants will be able to:

1. Determine the interactive education method suitable for the learning goal.

2. Use methods and tools explained in the following pages to ensure interaction in the lesson.

Methods and Techniques:

Lesson

Questions

Tools and Materials:

Whiteboard

Papers and pencils

Computer

Projector

1. The Importance of Interactive Education

Interactive educational activities are essential for fostering engagement and comprehension in environmental education. These activities involve collaborative learning experiences where learners actively interact to achieve specific goals. Utilizing interactive education methods and techniques empowers learners to transcend the role of passive recipients and instead become proactive, self-directed participants in their own learning journey. In this guide, we'll explore various interactive methods and techniques tailored for sustainability and environment question-answer programs.

2. Methods and Techniques

- Question-answer
- Case study
- Brainstorming
- Discussion
- Project work
- Flipped classroom

2.1. Question-answer

Questioning serves as a potent tool in environmental education, fostering critical thinking and deepening understanding among learners. However, a common pitfall lies in merely presenting information without engaging in meaningful discussion.

By posing thought-provoking questions, educators can prompt learners to contemplate new concepts and integrate them within the framework of their existing knowledge. Questions should aim to elicit explanations and encourage learners to apply, analyze, and evaluate their understanding, particularly in the context of environmental issues and sustainability.

It's crucial to consider several factors when employing questioning techniques:

1. **Assessment of Prior Knowledge**: prior to introducing new concepts, assess learners' existing knowledge through targeted questions.
2. **Clarity**: ensure that questions are formulated clearly, facilitating deep comprehension for all participants.
3. **Reflection and think time**: allow ample time for reflection. Fosterposing a question.
4. **Supportive Environment**: Foster a supportive learning environment where incorrect

answers or difficulties in response are met with encouragement rather than humiliation.

5. **Group Engagement**: engage the entire group by posing questions collectively, promoting simultaneous thought and participation. Alternatively, if individual responses are required, employ random selection to maintain engagement.
6. **Summarizing Key Takeaways**: regularly assess learning progress by prompting learners to summarize key takeaways.
7. **Real-World Relevance**: ground discussions in real-world scenarios and cases relevant to environmental contexts.
8. **Hypothetical Scenarios**: expand discussions with hypothetical scenarios to encourage critical thinking.
9. **Higher-Level Analysis**: incorporate high-level questions to promote analysis and evaluation of environmental issues.
10. **Encouraging Exploration**: encourage learners to refrain from providing overly detailed or direct answers, fostering deeper exploration and reflection.
11. **Ownership and Shared Learning**: relate questions back to the individual or group, fostering a sense of ownership and shared learning.
12. **Connecting Field Observations to Environmental Challenges:** establish connections between environmental phenomena observed in the field and broader environmental challenges.
13. **Reflection and Application**: employ reflective strategies, comprehension checks, repetition, and strategic use of silence to enhance learning outcomes.

Example of Question-Answer: Exploring Transportation and Pollution

1. **Assessment of Prior Knowledge:**

Before discussing transportation and pollution, assess students' existing knowledge through targeted questions.

"What modes of transportation do you commonly use, and how do you think they impact the environment?"

2. **Clarity:**

Formulate questions clearly to facilitate deep comprehension for all participants.

"How would you define pollution caused by transportation, and what are its primary sources?"

3. Reflection and Think Time:

Allow ample time for reflection after posing a question.

"Take a moment to reflect on how transportation choices affect air quality in urban areas."

4. Supportive Environment:

Foster a supportive learning environment where all responses are met with encouragement.

"Every contribution is valuable. Let's explore together how we can address transportation-related pollution."

5. Group Engagement:

Engage the entire group by posing questions collectively to promote simultaneous thought and participation.

"Let's brainstorm as a group: What are some innovative solutions to reduce pollution from transportation?"

6. Summarizing Key Takeaways:

Regularly prompt students to summarize key takeaways to assess learning progress.

"Before we conclude, can someone summarize the main sources of pollution from transportation we've discussed?"

7. Real-World Relevance:

Ground discussions in real-world scenarios relevant to environmental contexts.

"How do emissions from vehicles contribute to air pollution levels in our city, and what are the health implications?"

8. Hypothetical Scenarios:

Expand discussions with hypothetical scenarios to encourage critical thinking.

"Imagine if public transportation systems were widely accessible and affordable for everyone. How might this impact pollution levels?"

9. Higher-Level Analysis:

Incorporate high-level questions to promote analysis and evaluation of environmental issues.

"What economic and policy factors influence the adoption of sustainable transportation alternatives?"

10. Encouraging Exploration:

Encourage exploration by refraining from providing overly detailed or direct answers.

"Let's explore various factors influencing transportation choices and their environmental

consequences together."

11. Ownership and Shared Learning:

Relate questions back to individual or group experiences to foster shared learning.

"*How do your transportation habits align with principles of environmental sustainability, and what changes could you make?"*

12. Connecting Field Observations to Environmental Challenges:

Establish connections between environmental phenomena observed in the field and broader environmental challenges.

"*Based on our observations of traffic congestion and vehicle emissions, what steps can we take to address pollution in our community?"*

13. Reflection and Application:

Employ reflective strategies, comprehension checks, repetition, and strategic use of silence to enhance learning outcomes.

"*Take a moment to reflect on how you can apply what we've learned about transportation and pollution to advocate for sustainable transportation policies in your community*."

2.2. Case Study

Problem-based learning is a highly effective approach in environmental education, enabling learners to tackle real-life environmental challenges within the learning environment. Just as clinical cases are analyzed in medical education, environmental scenarios can be examined through case studies, fostering critical thinking and problem-solving skills among learners.

Considerations when employing problem-based learning in environmental education include:

- Clearly defining the fundamental aspects of the case study.
- Selecting cases that align with the learners' level of understanding and expertise.
- Evaluating goals, relationships, and values embedded within the case.
- Providing learners with preliminary information to facilitate comprehension.
- Formulating discussions to guide the exploration of the case.
- Discussing how to utilize findings and outcomes derived from the case study.

The application of problem-based learning involves the following steps:

- Case preparation: Develop the case study along with pertinent points and discussion questions.
- Case presentation: Utilize slides or written materials to present the case to learners.
- Analysis of case data: Engage learners in discussions about the presented case data, either through periodic interruptions or structured reading sessions.
- Facilitating interaction through question-answer techniques to encourage active participation.
- Managing small group dynamics to ensure all learners are engaged.
- Encouraging exploration of options and decision-making processes within the group.
- Debriefing and discussing the outcomes of the case study, with additional studies provided to address any unresolved questions or issues. It is learning through solving real-life problems in the learning environment.

Example of Case Study: Sustainable Water Management in a Growing Urban Area

Provide a Background:

In an expanding urban community, concerns have arisen regarding the sustainability of water resources due to population growth, increased demand for freshwater, and the impacts of climate change. The city relies heavily on freshwater sources for drinking water, irrigation, industrial processes, and recreational activities. However, mounting pressures on water availability and quality necessitate innovative solutions for sustainable water management.

Case Presentation:

Students are presented with data depicting the current state of water resources in the urban area, including water consumption rates, groundwater levels, surface water quality, and the presence of pollutants. The presentation emphasizes the importance of safeguarding water resources for ecological health, public health, and socio-economic development.

Discussion Points:

What are the primary sources of water for the urban community, and how are they being impacted by human activities and environmental factors?

What are the potential consequences of water scarcity and contamination on public health, ecosystems, and economic sectors such as agriculture and industry?

What regulatory frameworks and policies govern water management and conservation at the local, regional, and national levels?

What sustainable strategies can be implemented to enhance water conservation, reduce pollution, and promote equitable access to clean water?

How can community engagement and education initiatives be leveraged to foster water stewardship and behavioral change among residents?

Interaction:

Students engage in group discussions, drawing upon their knowledge of hydrology, ecology, environmental science, and public policy to analyze the complexities of water resource management. They explore interdisciplinary approaches and consider the interconnectedness of water-related issues with broader environmental and societal challenges.

Management of Small Group Process:

The facilitator ensures that all group members actively contribute to the discussion, encouraging diverse perspectives and constructive dialogue. Group dynamics are managed to foster collaboration and respect for differing viewpoints.

Decision Making:

Groups evaluate various water management strategies, weighing factors such as water efficiency, ecosystem protection, social equity, and economic feasibility. They collaborate to prioritize interventions and develop action plans for implementation, considering short-term and long-term goals.

Discussing Results:

Groups present their proposed solutions to the class, articulating the rationale behind their recommendations and highlighting potential benefits and challenges. The class engages in a collective review of the proposals, providing feedback and brainstorming additional ideas for consideration.

Follow-Up:

Students may conduct further research or field investigations to assess the feasibility of proposed water management strategies, analyze case studies of successful initiatives in other regions, or collaborate with local stakeholders to pilot innovative projects.

Through this problem-based learning approach focused on water resources, students develop critical thinking skills, deepen their understanding of environmental sustainability, and cultivate practical solutions to address pressing water challenges in urban settings.

2.3. Brainstorming

Brainstorming serves as a dynamic method in environmental education, fostering collaboration, creativity, and problem-solving skills among participants. It provides a platform for individuals to explore and generate innovative ideas related to application mental challenges and sustainability.

The application of brainstorming in environmental education involves the following steps:

- **Define the problem** or topic to be brainstormed, focusing on an environmental issue or concept.
- **Set a time limit**, typically 5-10 minutes, to encourage focused and efficient idea generation.
- **Encourage active participation** by inviting all participants to contribute their thoughts and ideas without constraints.
- **Provide positive feedback** to participants to cultivate a supportive and inclusive environment.
- Facilitate a **discussion at the conclusion** of the brainstorming session to explore and evaluate the ideas generated, identifying potential solutions or perspectives on the environmental issue at hand.

An example of brainstorming

<u>De, everyone, in the next 10 minutes, it:</u>

Moderator: All right, everyone; in the next 10 minutes, we're brainstorming ideas to reduce our energy consumption at home. Let's start by sharing any thoughts or suggestions you have.

<u>Receiving Everyone's Opinion:</u>

Tom: Well, I've been reading about solar panels lately. Maybe we could look into installing them on our roof to generate our own renewable energy.

Educator: That's a great idea, Tom! Solar panels could definitely help us reduce our reliance on traditional energy sources. Does anyone else have solarughts on renewable energy solutions?

Sara: I agree; solar panels sound promising. But what about making small changes inside the house, too? Like switching to energy-efficient appliances and LED light bulbs?

Educator: Excellent point, Sara! Upgrading our appliances and lighting could significantly lower our electricity usage in the long run. Any other ideas for energy-efficient upgrades?

James: What about using smart home technology? We could install smart thermostats and light switches that automatically adjust based on our habits and preferences.

Educator: That's a fantastic suggestion, James! Smart home devices could definitely help us optimize our energy usage without sacrificing comfort. Does anyone else have thoughts on integrating technology into our energy-saving efforts?

Emma: Another thing we could do is improve our home's insulation. By sealing drafts and adding insulation to walls and windows, we can reduce the need for heating and cooling.

Educator: That's a great idea, Emma! Proper insulation is crucial for maintaining a comfortable indoor environment while minimizing energy waste. Any other suggestions for improving our home's energy efficiency?

David: How about encouraging everyone to adopt energy-saving habits? Simple things like turning off lights when leaving a room or unplugging electronics when they're not in use can add up over time.

Educator: Absolutely, David! Conserving energy through daily habits is key to reducing our overall consumption. Let's make sure to emphasize the importance of these practices to everyone in the household.

<u>Discussing Opinions:</u>

Moderator: Now that we have a range of ideas on the table, let's dive into discussing their feasibility and benefits. Solar panels sound promising, but what are the upfront costs, and how long would it take to see a return on investment?

Participant 1: Good point. We'll need to research the cost and potential savings over time to see if it's worth it for our household.

Moderator: Exactly. And what about energy-efficient appliances and lighting? How much energy could we save by making these upgrades, and what would be the initial investment?

Participant 2: We should also consider the lifespan of these appliances and whether any rebates or incentives are available to offset the cost.

Moderator: Agreed. Now, let's discuss potential challenges and barriers to implementation. For example, what obstacles might we face when trying to educate our family members about energy conservation practices?

Participant 3: Resistance to change could be a challenge, especially if some family members are used to certain habits or routines.

Moderator: Excellent point. And finally, let's evaluate the impact of each idea on energy consumption and cost savings. How much could we realistically reduce our energy bills by implementing these measures?

Participant 4: It would be helpful to calculate potential savings for each idea so we can prioritize the most cost-effective options.

Moderator: Agreed. Let's crunch some numbers and identify actionable steps to incorporate these energy-saving practices into our household routines. We'll need to create a plan and assign responsibilities to ensure we follow through on our goals.

2.4. Discussion

Through various discussion techniques, participants engage in active dialogue, exchange perspectives, and explore complex environmental topics.

Discussion techniques commonly employed in environmental education include large group discussions, circle discussions, and opposite panels.

The application of discussion in environmental education involves several key steps:

- Determine the topic and objectives of the discussion, aligning them with the learning goals.
- Assess students' readiness and engagement levels to ensure fruitful participation.
- Define the duration of the discussion session.
- Select the appropriate discussion method or technique based on the nature of the topic and desired outcomes.
- Establish ground rules to facilitate respectful and productive discourse.
- Determine how the outcomes of the discussion will be documented or communicated.
- Create a conducive environment that encourages active participation and open exchange of ideas.
- Encourage all participants to contribute to the discussion, fostering inclusivity and diverse perspectives.
- Summarize the main discussion points at the conclusion of the session, highlighting their relevance to the learning objectives.

Example of Discussion through Opposite Panels

<u>Topic:</u>

The impact of transportation choices on air pollution

<u>Opposite Panels:</u>

Panel A: Proponents of Sustainable Transportation

Panel B: Advocates for Conventional Transportation Practices

<u>Discussion Format:</u>

1. Introductionpaneleducator introduces the topic and explains the opposite opening statements outlining its Each panel presents their opening statements outlining their stance on transportation choices and their impact on air pollution.

- Panel A: Advocates for Sustainable Transportation emphasize the benefits of walking, cycling, public transportation, and electric vehicles in reducing greenhouse gas emissions and improving air quality.

- Panel B: Advocates for Conventional Transportation Practices argue for the importance of personal vehicle ownership, citing convenience, freedom of mobility, and economic factors.

3. Rebuttal: Each panel responds to the arguments presented by the opposing side, addressing key points and providing evidence to support their stance.

4. Deeper Exploration: The discussion delves into specific aspects such as:

- The role of government policies and incentives in promoting sustainable transportation options.

- Challenges and barriers to adopting sustainable transportation practices.

- The potential impact of emerging technologies (e.g., autonomous vehicles, electric cars) on air pollution levels.

- Equity considerations in access to transportation options and environmental benefits.

5. Audience Participation: Audience members are invited to ask questions and contribute to the discussion, fostering engagement and diverse pests key arguments and reiterate its panel, summarizing their key arguments and reiterating their stance on the issue.

7. Reflection: The educator facilitates a brief reflection period where participants can share their insights gained from the discussion.

Outcome: The discussion highlights the complexities surrounding transportation choices and their impact on air pollution, providing participants with an understanding of the issue and potential pathways toward sustainable solutions.

2.5. Project Work

Project work is a dynamic and hands-on method employed in environmental education, allowing learners to delve deeply into real-world environmental issues and solutions. Through project-based learning, participants engage in collaborative and experiential activities, enabling them to apply theoretical knowledge to practical situations and make meaningful contributions to environmental conservation efforts.

Key aspects of project work assignment include:

- Identify Learning Objectives: Determine the specific environmental concepts, skills, and competencies you want learners to develop through the project work. Consider aligning these objectives with broader educational goals and environmental priorities.
- Select a Relevant Topic: Choose a topic or environmental issue that is meaningful, timely, and aligned with the interests and abilities of the learners. Consider factors such as local environmental concerns, global sustainability challenges, or emerging trends in environmental science.
- Define Project Scope: Clearly outline the scope and parameters of the project, including the expected deliverables, timeline, and resources available. Ensure that the scope is manageable and achievable within the given timeframe and constraints.
- Form Project Teams: If applicable, form project teams or groups of learners based on factors such as interests, expertise, and complementary skills. Consider diversity and inclusivity when forming teams to encourage collaboration and perspective-sharing.
- Provide Guidance and Resources: Offer guidance, support, and resources to help learners understand the project requirements and conduct effective research. Provide access to relevant literature, databases, tools, and experts who can assist with project development and implementation.
- Clarify Roles and Responsibilities: Clearly define the roles and responsibilities of each team member, outlining specific tasks, deadlines, and expectations. Encourage collaboration and division of labor to maximize efficiency and productivity.
- Outline Project Deliverables: Clearly articulate the expected project deliverables, which may include research reports, presentations, prototypes, action plans, or multimedia products. Specify the format, content, and evaluation criteria for each deliverable to ensure consistency and alignment with learning objectives.

- Establish Checkpoints and Milestones: Set up checkpoints and milestones throughout the project timeline to monitor progress, provide feedback, and address any challenges or obstacles encountered by learners. Encourage regular communication and collaboration among team members to stay on track.
- Encourage Creativity and Innovation: Foster creativity and innovation by encouraging learners to explore diverse perspectives, think critically, and propose novel solutions to environmental challenges. Encourage experimentation, risk-taking, and reflection as integral parts of the learning process.
- Facilitate Reflection and Evaluation: At the conclusion of the project, facilitate opportunities for learners to reflect on their experiences, assess their achievements, and identify lessons learned. Evaluate project outcomes based on predefined criteria, providing constructive feedback and recognition for exemplary work.

Example of assigning a project work in environmental education focused on addressing plastic pollution in local waterways:

Identify Learning Objectives:

- Understand the environmental impacts of plastic pollution on aquatic ecosystems.
- Develop strategies for mitigating plastic pollution and promoting sustainable waste management practices.
- Enhance critical thinking, research, and communication skills.

Select a Relevant Topic:

Plastic Pollution in Local Waterways: Analyzing the sources, impacts, and solutions to plastic pollution in rivers and streams within the community.

Define Project Scope:

- Research the sources and pathways of plastic pollution in local water bodies.
- Assess the ecological, social, and economic impacts of plastic pollution on aquatic ecosystems and communities.
- Develop and propose practical solutions and interventions to reduce plastic pollution and promote responsible waste management practices.

Form Project Teams:

Students are divided into interdisciplinary teams based on interests and skills, such as research, data analysis, community outreach, and advocacy.

Provide Guidance and Resources:

- Educators provide access to scientific literature, data sets, mapping tools, and expert consultations to support research and analysis.
- Workshops and tutorials are offered to enhance research, presentation, and communication skills.

Clarify Roles and Responsibilities:

Each team member is assigned specific tasks, such as conducting literature reviews, collecting field data, creating visualizations, or drafting policy recommendations.

Outline Project Deliverables:

- Research Report: Analyzing the findings on plastic pollution sources, impacts, and solutions.
- Presentation: Communicating key findings and recommendations to peers, educators, and community stakeholders.
- Action Plan: Proposing tangible actions and initiatives to address plastic pollution at the local level.

Establish Checkpoints and Milestones:

- Weekly progress meetings are scheduled to review research findings, discuss challenges, and set goals.
- Draft presentations and reports are submitted for peer review and feedback.

Encourage Creativity and Innovation:

Teams are encouraged to explore innovative solutions, such as community clean-up events, plastic recycling initiatives, or educational campaigns to raise awareness about plastic pollution.

Facilitate Reflection and Evaluation:

Upon project completion, teams reflect on their experiences, evaluate the effectiveness of their interventions, and identify lessons learned.
Peer and educator evaluations are conducted based on criteria such as research quality, presentation skills, and impact on the community.

2.6. Flipped Classroom

In a flipped classroom, students learn new concepts on their own before coming to class, usually by watching videos or reading materials at home. Then, during class time, they work on teachers and projects with their classmates and teachers to deepen their understanding of the material.

Key features of the flipped classroom method include:

- Pre-Class Preparation: Students are assigned instructional materials to review before coming to class. These materials may include video lectures, readings, interactive simulations, or online quizzes.

- In-Class Activities: Class time is devoted to interactive discussions, problem-solving exercises, group projects, and hands-on activities that reinforce and apply the pre-class content. The educator serves as a facilitator, providing guidance, feedback, and support as students engage in active learning experiences.
- Individualized Learning: The flipped classroom allows students to progress through instructional materials at their own pace and revisit concepts as needed. This personalized approach accommodates diverse learning styles and promotes self-directed learning.
- Collaborative Learning: Class time is maximized for peer interaction, collaboration, and knowledge sharing. Students work together in groups to solve problems, discuss concepts, and apply their understanding in real-world contexts, fostering teamwork and communication skills.
- Immediate Feedback: In-class activities provide opportunities for immediate feedback from the educator and peers, helping students identify misconceptions, real-time understanding, and deepening their learning in real-time.

Example of a flipped classroom on the topic of food waste management at the household level:

Pre-Class:

1. Students are assigned a series of online articles, videos, and infographics related to food waste, including information on its environmental impact, causes, and strategies for reduction and management.
2. Students are tasked with keeping a food waste diary for a week, recording the types of food being wasted, reasons for waste, and potential solutions they can identify.

Class Time:

1. Introduction: The class begins with a brief review of the key concepts covered in the pre-class materials, including the environmental consequences of food waste and the importance of individual action in reducing waste.

2. Group Discussion: Students break into small groups to share their findings from their food waste diaries and discuss common patterns and challenges observed. The teacher facilitates the discussion, encouraging students to brainstorm strategies for reducing food waste in their households.

3. Case Study Analysis: Students are presented with case studies of households that have successfully implemented food waste reduction strategies, such as meal planning, proper storage techniques, and composting. They analyze these case studies, identifying effective practices and potential barriers to implementation.

4. Hands-On Activity: Students participate in a hands-on cooking workshop or meal planning exercise, where they apply the principles of reducing food waste by using leftovers creatively, planning meals based on available ingredients, and minimizing over-purchasing at the grocery store.

5. Reflection and Synthesis: The class reconvenes for a whole-group discussion to reflect on their experiences and insights gained from the pre-class materials and in-class activities. Students share their action plans for implementing food waste reduction strategies in their households and discuss the broader implications for sustainability and environmental stewardship.

Note: flipped classrooms can involve some of the methods previously discussed, such as group discussion or case study. Education never has fixed boundaries.

3. Education tools

Education tools are diverse resources and techniques utilized to enrich learning experiences and foster engagement with educational content. From digital platforms to hands-on materials, these tools facilitate active participation, critical thinking, and collaboration among learners. Case studies are interactive methods like questioning, case studies, brainstorming, and discussion; educators create dynamic environments that cater to diverse learning styles and promote deeper understanding. Education tools empower learners to take ownership of their learning journey, develop essential skills, and become proactive stewards of knowledge.

The DigComp framework underscores the importance of digital competence in today's world. As technology becomes increasingly pervasive, individuals need critical skills to navigate it effectively. By utilizing digital tools, educators can significantly enhance the learning experience for students and improve communication with parents or other stakeholders. Digital technologies offer a wide array of resources and information that can be easily accessed and shared, enriching the educational process. From organizing events and appointments to providing updates on student progress, digital platforms streamline communication both within and outside the educational institution. Additionally, educators can collaborate with colleagues and contribute to the development of communication strategies, ensuring effective engagement with students and the broader community. Embracing digital communication not only facilitates smoother operations but also fosters a more dynamic and collaborative learning environment for all involved.

In the field of environmental education, the tools can be:

a) All the classic ones, such as recommended boards nowadays:

- Although digital tools are recommended nowadays, their absence should not be a barrier to teaching. Use all the tools you have!

Visual Aids:

- Infographics: Visual representations of information, data, or concepts related to environmental topics, facilitating comprehension and retention.

- Charts and Graphs: Visual tools for presenting data, trends, and patterns in environmental phenomena, aiding analysis and capturing environmental scenes, species, and processes, stimulating interest and providing species and processes, stimulating interest, and providing real-world context.

Interactive Technology:

- Projectors+computers or Interactive Whiteboards: Digital displays enable educators to engage learners through interactive lessons, multimedia presentations, and real-time collaboration.
    - You can use Prezi, Canva, Haiku Deck, Edocr, Google Slides, and many others for your presentations
- Educational Apps and Games: Digital applications and games revolutionize environmental education by offering engaging and interactive learning experiences.
    - Quizz Apps such as Kahoot will help to keep the students' attention high

b) Digital resources:

- Digital resources play a crucial role in enriching teaching and learning. Educators must skillfully search for and select resources tailored to their teaching goals and students' needs. They should critically evaluate the credibility, accessibility, and potential effectiveness of digital resources, considering factors like copyright restrictions and technical requirements. By leveraging digital tools thoughtfully, educators can enhance the learning experience and meet diverse learning objectives effectively.

c) Shared clouds:

- Cloud is defined as the storage and access to data over the internet. It's like a digital space where you can share your national material with your students. The best thing about it is the possibility of having access from any device just by having the cloud credentials.
    - The most famous clouds include Google Drive, Dropbox, One Drive, but there are many more

4. Resources

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5. Test Questions

I. Assessment of Prior Knowledge, Summarizing Key Takeaways, Hypothetical Scenarios, Connecting Field Observations to Environmental Challenges

II. Define the problem, set a time limit, encourage active participation, provide positive feedback, and Facilitate a discussion at the conclusion

III. Identify Learning Objectives, select a Relevant Topic, Form Project Teams, Provide Guidance and Resources, Establish Checkpoints and Milestones

1. What are the main characteristics of Brainstorming?

   A) I

) II

   C) I, II

   D) II, III

   E) I, II, III

2. Answer true if the sentence is correct: In a flipped classroom, students learn new concepts on their own before coming to class, usually by watching videos or reading materials at home. Then, during class time, they work on the teacher's activities and projects with their classmates and teachers to deepen their understanding of the material.

A. True

B. False

I. Projectors

II. Interactive Whiteboards

III. Charts and Graphs

IV. Photographs and Videos

3. What are Visual Aids?

   A. I, II

   B. II, III

   C. I, II, III

   D. II, III, IV

   E. I, II, III, IV

4. Answer true if the sentence is correct: Cloud is defined as the storage and access to data over the internet. It’s like a digital space where you can share your educational material with your students. The best thing about it is the possibility of having access from any device, just having the questions, “What could the factors affecting environmental health? “what could be the factors affecting environmental health?” and writing the ideas from the students on the board for 10 minutes. Then, s/he encouraged the methods or techniques to create ideas.

Which of the following methods or techniques was used in the case above?

A) Simulation

B) Question and answer

C) Demonstration and Coaching

D) Discussion

E) Brainstorming

V. HOW TO USE AND DEVELOP AUDIOVISUAL

Aim

Improve the skills of the health care professionals who are supposed to serve in developing different audiovisual educational materials and general principles of using these materials effectively.

Learning Objectives

At the end of this session, participants should be able to:

- Explain the importance of using audiovisual material related to vector-borne diseases
- Tell the audiovisual materials
- Tell the rules of using audiovisual materials
- State the advantages of audiovisual materials
- State the disadvantages of audiovisual materials
- Tell the points to pay attention while preparing audiovisual materials

HOW TO USE AND DEVELOP AUDIOVISUAL MATERIALS

Audiovisual materials have emerged as fundamental elements in the contemporary communication scenario, playing a preponderant role in the effective transmission of information. This chapter aims to explore in depth the use and development of these visual and sound aids, outlining their growing importance in various spheres of modern society.

The digital age has brought with it a significant shift in the way people consume and share information. In this context, audiovisual materials have stood out as powerful tools to captivate audiences, convey complex concepts, and generate a lasting emotional impact. Whether in education, advertising, online content production, or corporate presentations, the presence of audiovisual elements has become practically indispensable.

The fusion of visual and sound elements provides a richer and more engaging experience for the audience, allowing for a deeper and more memorable understanding of the content presented. The ability to convey information in an effective and attractive way makes audiovisual materials a versatile tool capable of transcending language and cultural barriers.

Additionally, the rapid evolution of production and distribution technologies has made these resources more accessible than ever before. From home production to major film productions, the variety of options available allows individuals and organizations of all sizes to incorporate audiovisual elements into their communication.

The importance of audiovisual materials is not just limited to the realm of entertainment; They play a crucial role in disseminating knowledge, building brands, and, therefore, audiences and artistic expression. This chapter will, therefore, explore how an in-depth understanding of the definition and application of these materials can open doors to enhance communication in a variety of contexts.

By addressing the intersection between the visual and the auditory, this writing aims not only to offer a comprehensive overview of the topic but also to highlight the growing need for skills in the creation and use of audiovisual materials in the digital age. After all, understanding and mastering these elements has become a strategic differentiator for those who seek to stand out in a world increasingly focused on visual and sound communication.

1. The Importance of Audiovisual Materials

In today's world, many may confuse the words "film" and "video" as having the same meaning, which is not entirely true. According to Oxford's online dictionary, "film" means "a series of moving images, accompanied by sound, thus telling a story (...)". The definition of the word "video" is very close to the word "film"; however, they are not the same.

The innovative and mainly practical aspect of a video is that it can be displayed in a classroom, as long as there is a screen and a device to transmit it, which makes the video a unique and creative tool that the teacher can integrate into their pedagogical practice and by that certainly improve the learning process of their students, by streamlining the activities of the classroom context.

As mentioned in the previous paragraph, video ("video" as the exposure of a sequence of moving images) has the ability to make the classroom environment more dynamic. Many of the activities and components of reading, writing, and classes focus mainly on the components of reading, writing, and oral production, among many others present in essential learning. However, the use of video has the advantage of making lessons more engaging, as well as sometimes changing their pace.

We can see that not only are students already familiar with this audiovisual material, but it can also be associated with important pedagogical messages that can bring a new theme to the classroom or emphasize a pre-existing theme in students' teaching material, such as in works or textbooks. The video also has the ability, through its narratives and complex themes, to move the viewer and make him feel emotions that bring him closer to the content of the video. If this aspect were translated to the student in the classroom environment, the student would be more connected with the theme of the video and, therefore, would get closer to key aspects to be taught in class.

Audio-visual aids can be used in the classroom in the following ways:

- **Audio-visual as motivation**: The use of audio-visual material can be effective when introducing a new topic, stimulating curiosity and motivating students to explore new subjects. This method facilitates students' interest in conducting research and delving into both the content presented in the audiovisual resource and the topic in general;

- **Audiovisual as an illustration:** The use of audiovisual resources often helps in the visual representation of the topics discussed, presenting scenarios that may be unknown to students. For example, a documentary that illustrates the lives of Romans in the time of Julius Caesar can contextualize students historically. Similarly, Geography, a documentary about wildlife in Africa, brings to the classroom realities far removed from most students;
- **Audiovisual with teaching context:** The audiovisual resource has the ability to present a subject both explicitly and implicitly. The direct approach occurs when it provides specific information, guiding the interpretation of the topic. On the other hand, the indirect approach happens when the audiovisual material shows a theme, enabling diverse interpretations and allowing interdisciplinary approaches;
- **Audiovisual as production:** As a form of documentation, audiovisual resources are used to record events, classes, field studies, experiments, interviews, and testimonies. This simplifies the work for both teachers and students. In addition, the students themselves can be the producers of the video, exploring the theme in question. Generally, students enjoy creating videos, as audiovisual production has a playful dimension. This playfulness is perceived in the miniaturization of the camera, which allows for a more relaxed approach to reality, making it possible to take the camera anywhere. Filming is considered one of the most engaging experiences, both for children and adults. Students may be encouraged to create videos within specific themes or as part of interdisciplinary work;
- **Audiovisual integrating the evaluation process:** Of the students, of the teacher, of the process;
- **Audiovisual "mirror":** Be and explore our body and gestures, which allows us to understand ourselves better and explore our body, gestures, and mannerisms.

There are a few ways to exploit these resources, which are as follows:

- Joint analysis;
- Globalizing analysis;
- Concentrated reading;
- Functional analysis;
- Language analysis;

How do audiovisual materials motivate students?

The aim of motivating students focuses not only on increasing the student's capacity for schoolwork within the classroom but also on increasing their commitment and interest in it.

Audio-visual materials, such as videos, can help to start the lesson, especially language lessons such as English, by captivating students' attention to the subject being covered in class. The use of these materials helps students to focus on the topic that is being taught in class and to internalize all the aspects that accompany it, freeing themselves from the environment that is outside the class that motivation through audiovisual material is based on capturing students' curiosity and attention with elements that relate to the theme of the lesson, the audiovisual material, elements that relate the theme of the lesson, the audiovisual material and a third provocative element (questions, interesting facts) that relate and are contextualized according to the lesson of the class.

Why do students prefer to watch a video in the classroom?

There is a consensus that watching videos is more enjoyable than reading a textbook or listening to the teacher's explanation in a classroom. Audiovisual content conveys emotions, expresses feelings, and helps you relax, escape from the real world, fantasize, and, of course, inform.

That is why audiovisuals capture the attention of children and young people, offering a more complete and pleasurable learning experience as long as the teacher approaches the subject in a healthy and productive way.

Table1. Some practical techniques for video implication in the classroom

TECHNIQUE	CLASSROOM IMPLICATION
ACTIVE VIEWING	Active viewing increases the students' enjoyment and satisfaction and focuses their attention on the main idea of the video presentation. So, it is necessary for students to take an active part in video teaching presentations. Before starting the presentation, the teacher writes some key Questions on the board about the presentation so that the students get an overview of the content of it. After viewing the questions, the students answer the questions orally; students are provided a cue sheet or viewing guides, which let them watch and listen for specific details or viewing guides and let them watch and listen for specific details or specific features of the language. However, it should be kept in mind that the level of the students should be taken into account, and adapt the technique according to their levels.
FREEZE FRAMING AND REDUCTION	Freeze framing means stopping the picture on the screen by pressing the still or pause button. Video gives us an additional dimension of information about the characters' body language, facial expressions, emotions, reactions, and responses. The teacher freezes the picture when he or she wants to teach words and expressions regarding mood and emotions, to ask questions about a particular scene, or to call students' attention to some points. By freezing the scene, the students can be asked what is going to happen next. So, they speculate on what will happen in the next act. Freeze framing is excellent for speculation. This activity also fires the imagination of the students by leading them to predict and deduce further information about the characters.
SILENT VIEWING	As video is an audiovisual medium, the sound and the vision are separate components. Silent viewing arouses student interests, stimulates thought, and develops skills of anticipation. In silent viewing, the video segment is played with the sound of using only the picture. This activity can also be a prediction technique when students are watching the video for the first time. One way of doing this is to play the video segment without the sound and tell students to observe the behavior of the characters and to use their power of deduction. Then, press the pause button at intervals to stop the picture on the screen and get students to guess what is happening and what the characters might be saying. Ask students what has happened up to that point. Finally, the video segment is replayed with the sound on so that learners can compare their impressions with what actually happens in the video.
REPRODUCTION ACTIVITY	After students have seen a section, students are asked to reproduce either what is being said, to describe what is happening, or to write or retell what has happened. This activity encourages students to try out their knowledge. Students will benefit from experimenting in English, even though it is challenging and mistakes are made. As it seems a bit difficult to perform, guidance, help, and reassurance may be needed.
DUBBING ACTIVITY	This activity can be done when students have the necessary language competence. In this activity, students are asked to fill in the missing dialogues after watching a sound-off video episode. It is interesting and enjoyable for the students to complete a scene from the video by dubbing.
FOLLOW-UP ACTIVITY	It is important that a video presentation should lead to follow-up activity as the basis for further extended oral practice. Discussion stimulates communication among students, and it helps to achieve communicative practice. With this activity, students have an opportunity to develop sharing and cooperative skills.

Table2. Audiovisual Materials

DIFFERENTIATION OF AUDIOVISUAL MATERIALS	
SENSORY NATURE	They incorporate visual and auditory stimuli, exploiting the synergy between images, videos, music, narration, and sound effects to create a complete sensory experience.
INTERACTION AND PARTICIPATION	They tend to facilitate more active and immersive audience participation, especially in interactive formats or live broadcasts.
COMPREHENSION AND RETENTION	Combining visual and auditory elements can make it easier to understand and retain information, making content more memorable.
EMOTIONAL APPEAL	They have the unique ability to evoke emotions in powerful ways, using soundtracks, facial expressions, and other devices to create an emotional connection with the audience.
NARRATIVE COMPLEXITY	They allow for complex and multifaceted storytelling, with the ability to tell stories in a visually engaging way.
ACCESSIBILITY AND DISTRIBUTION	With the proliferation of streaming and video-sharing platforms, audiovisual materials are easily accessible and distributable.

2. Tools and Software for the Creation of Audiovisual Materials

Creating audiovisual materials is made easy by a range of innovative tools and software, each offering unique features that cater to the needs of creators from beginners to professionals. Below, we present some of these tools, highlighting their main features:

1. Adobe Creative Cloud
2. Canva
3. Final Cut Pro X
4. DaVinci Resolve
5. Powtoon
6. Audacity
7. iMovie
8. Camtasia
9. HitFilm Express
10. Blender

Table 3: Tool Features

Tools & Software	Key features	Prominence
Final Cut Pro X	Advanced video editing, support for 4K resolution, integration with other Apple products	Editing tool preferred by many professionals, especially on Mac
DaVinci Resolve	Video editing, color correction, audio post-production	It offers a powerful suite of tools, including its free version, making it a popular choice for film productions
Powtoon	Animation and explainer video creation	It allows you to create dynamic and visually appealing animations, which are especially useful for presentations and educational content.
Audacity	Audio Editing, Mixing, and Recording	A free and open-source tool widely used for the production and editing of soundtracks and sound effects.
iMovie	Simple video editing, soundtracks, basic visual effects	Affordable and easy-to-use tool, especially suitable for beginners or users of the Apple ecosystem
Camtasia	Screen recording, video editing, adding interactive elements	Ideal for creators of educational content, tutorials, and training videos
HitFilm Express	Video Editing, Visual Effects, Compositing	Offers a wide range of features, including advanced visual effects, with no upfront cost
Blender	3D Modeling, Animation, Composition	Versatile open-source software suitable for creating 3D animations and visual effects

Table 4: Tool Characteristics

Tools & Software	Main tools	Prominence

Adobe Creative Cloud	Adobe Premiere Pro (video editing), After Effects (animation), Photoshop (image editing), Audition (audio editing)	All-in-one suite for professional audiovisual production, widely used in the film and advertising industry.
Canva	Creation of presentations, graphics, videos, and animations	Intuitive interface, ideal for creators who want to produce compelling visual content without advanced technical expertise

3. Design and Aesthetics: Their Importance in the Creation of Audiovisual Materials

Design plays a crucial role in the creation of audiovisual materials, directly influencing how the message is perceived, understood, and retained by the audience. Visual aesthetics and the organization of elements play a central role in effectively conveying information and creating an engaging experience. In this context, it is essential to discuss the importance of design, the basic principles that guide this practice, and examples of good practice.

Design is very important and consists of 4 elements:

- **Visual Attraction**: The eye-catching design captures the viewer's attention from the first moments, establishing an immediate connection;
- **Effective Comprehension**: Good aesthetics make it easier to understand the content, organizing information in a clear and logical way;
- **Message Transmission**: Appropriate design reinforces the core message, aiding in the effective communication of ideas and concepts;
- **Emotional Impact**: Well-designed visuals have the power to evoke emotions, creating a lasting emotional connection.

Basic Design Principles:

1. **Balance**: Harmonious distribution of visual elements to avoid the feeling of disorder or lack of cohesion;
2. **Contrast**: Highlight important elements through the difference in color, size, or shape, providing greater readability;
3. **Hierarchy**: Visual organization that guides the viewer through a logical sequence, highlighting the most relevant information;
4. **Repetition**: Consistent use of visual elements throughout the material to create a cohesive visual identity;
5. **Simplicity**: Minimize unnecessary elements to maintain clarity and make it easier to understand;
6. **Negative space:** Proper use of white space to avoid overwhelming the viewer and highlight key elements.

Examples of Good Practices:

1. **Set Design in Videos**: When creating videos, carefully consider the setting and arrangement of visual elements to reinforce the narrative.
2. **Effective Use of Color**: Choose a color palette that complements the message and creates the desired atmosphere.
3. **Subtle Animations:** Integrate smooth animations to add dynamism without being overly distracting to the viewer.
4. **Legible Fonts**: Selection of fonts that ensure readability, especially in videos or presentations.
5. **Brand Consistency**: Maintain a consistent visual identity to reinforce the brand's presence across different materials.
6. **Image Compositing**: Explore visual compositing techniques, such as the rule of thirds, to create a visually appealing layout.
7. **Accessibility**: Ensure that the design is accessible by considering contrasts for visually impaired users and captioning in videos.

By integrating these design principles and techniques into the production of audiovisual materials, creators have the opportunity to considerably enhance the aesthetics and communicative effectiveness of their projects, ensuring a remarkable experience for their target audience.

Generation Z

Generation Z encompasses individuals born approximately between the mid-1990s and the year 2010. Because they came into the world during this period, these people are already fully familiar with the technology, have followed its evolution, and have mastery over all its facets.

4. How to Use Audiovisual Resources

There are several ways to use audiovisual resources, such as:

- Subject-related films;
- E-books;
- Virtual handouts;
- Classroom work through videos;
- Web platforms.

The integration of technology into education is crucial to meeting the demands of Gen Z. Using e-books and virtual handouts provides flexibility, allowing students to access study materials on personal devices. Not only does this lighten the weight of backpacks, but it also taps into this generation's natural taste for technology, making learning more engaging.

Educational institutions are adopting platforms with explainer videos to reinforce learning. This is not just limited to physical classrooms but extends to online courses, which are gaining popularity among those who prefer to study remotely.

To maintain students' interest, it is effective to incorporate assignments that involve audio-visual aids, such as creating group explainer videos. This approach not only encourages active student participation but also makes the presentation of work more attractive to a generation that values creativity and innovation.

In short, technology is not just a tool in the hands of educators; it is a necessity to provide a relevant and effective learning experience to Gen Z, preparing them for the challenges of the professional future.

In an era where communication and learning evolve rapidly, audiovisual materials emerge as protagonists in the educational scenario. The unique ability to fuse visual and auditory elements offers not only a diverse approach to knowledge dissemination but also creates engaging experiences that transcend the traditional barriers of one-dimensional communication.

Design and aesthetics, which are the guiding principles in the creation of these materials, not only elevate visual quality but also play a key role in understanding and retaining information. By incorporating these elements, educators have the opportunity to not only impart knowledge but also to stimulate student curiosity, motivation, and engagement.

In addition, audiovisual materials are not only tools for the passive transmission of information. They encourage active student participation by promoting content production and the development of creative skills. The production of videos by the students themselves not only reinforces learning but also provides a playful experience, transforming the classroom into a dynamic and participatory environment.

By contextualizing themes and transporting us to historical times or distant geographical locations, audiovisual materials become bridges that connect theory to reality. They allow students to explore and understand the world in a way that transcends words and textbooks.

Thus, we conclude that audiovisual materials are key elements in a contemporary educational approach. Integrating creativity, design, and active student participation not only facilitates the learning process but also opens doors to discovery, exploration, and deeper understanding. At the intersection of technology and education, audiovisual materials shape the future of teaching, empowering educators and inspiring students to reach higher levels of knowledge and creativity.

5. Resources

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6. Test Questions

"This activity can be done when students have the necessary language competence. In this activity, students are asked to fill in the missing dialogues after watching a sound-off video episode."

1. Which activity is described above?

A. Freeze Framing and Reduction
B. Silent Viewing
C. Reproduction Activity
D. Dubbing Activity
E. Follow-Up Activity

2. Which is not one of the factors of design?

A. Visual appeal
B. Effective Comprehension
C. Message Transmission
D. Technological Application
E. Emotional Impact

I. Adobe Creative Cloud
II. Canva
III. DaVinci Resolve
IV. Powtoon

3. Which of the following is/are among the tools and software for the creation of audiovisual materials?

A. I, II
B. I, III
C. II, III
D. II, III, IV
E. I, II, III, IV

VI. COMMUNICATION SKILLS

Aim:

In this training, you will learn how to provide information in an effective way. You will learn to make use of appropriate communication skills so that the person understands, interprets, and remembers information.

Learning goals

The participant:

1. Describes what is meant by person-centered communication, indicates, holds, and brings the structure to a conversation.
2. Indicates the difference between an everyday conversation and a professional conversation.
3. Applies verbal and non-verbal communication in a conversation.
4. Name the influence of verbal and non-verbal communication and its effect on a conversation.
5. Names skills in structuring a conversation, relationship building, and information gathering.
6. Identify the skills needed to enter into a relationship with the person based on equality: be beside the person, respect his/her autonomy, and approach him/her as an expert.
7. Conducts a conversation with a person according to his/her plan, applies communication principles, and reflects according to professional values and norms.
8. Explain and apply the distinction between counseling and informing.
9. Establishes a relationship between the informational interview and the behavior change process sequence.
10. Recognizes the signals/cues that show the caregiver is open to receiving information and can apply interventions that contribute to this.
11. Provides information that is understandable and engaging.
12. Make a distinction between a monologue and interactive explanations/dialogue.
13. Gives information in an interactive and understandable way to a person.
14. Identifies his/her own strengths and learning points (weaknesses) and knows (where to find) the guidelines for giving information to a person.
15. Recognizes resistance and lists the interventions he/she can apply if the person is not open to receiving the information.
16. Formulates questions that provide insight into the person's willingness for behavior change. In doing so, he/she distinguishes between the factors of attitude, social influence, and self-efficacy.

<u>Recommended minimum time</u>: 45 Minutes

Methods and Techniques

Lecture
Interactive discussions
Feedback
Q & A

Tools and Materials

Laptop/desktop, (white) board, projector, digital screen, (video) recorder. Paper & pen for taking notes.

1. Introduction

This communicative skills training may involve new things for the trainees: the subject of communicative skills, making and substantiating a plan of action, drafting learning questions, working with simulation patients, making a conversation analysis, reflecting on development, and giving (peer) feedback.

During practising, ask what the trainees are doing, how they are doing it, why it is important to do it, what effect they expect this to have, and possibly where they can find useful information (the source).

Types of Communication;

1. Verbal
2. Non-verbal
3. Visual
4. Written

Effective Communication Skills;

1. Active listening
2. Communication method: the right way to communicate
3. Positive attitude
4. Confident communication
5. Providing and accepting feedback
6. Adjusting your speaking voice: be clear and audible
7. Empathy: understand other people's emotions and choose an appropriate response
8. Communicate respectfully
9. Non-verbal communication (cues and signals)
10. Responsiveness and acknowledgment

The Basic Skills Are;

1. Asking open questions
2. Identifying keywords
3. Summarizing and paraphrasing
4. Giving emotional reflections, recognizing non-verbal signals
5. Making (eye) contact and giving recognition

2. Effective Feedback

Feedback is 1) observation-based, 2) information-specific, 3) issue-focused. According to Hattie & Timperley (2007), effective feedback involves answering the following three questions:

1. Feed-up: Where am I going? What is the end goal, and what are the assessment criteria?

2. Feedback: Wow did I perform(ed)? How did the trainee perform the task? What progress has been made with respect to the assessment criteria (to be defined)?

3. Feed-forward: What is the next step? What approach is needed to reach the goal?

Feedback Rules

1. Content
2. Manner
3. Timing
4. Frequency

Person-Cantered Care

What do you understand about it? Pay attention to possibilities tailored to the person and his/her values, lifestyles, needs, and preferences. Treat people as individuals, respect their rights as a person, respect their values and norms, and mutual trust and understanding.

Definition: "...an approach to care that arises in the formation and promotion of healthy relationships between all caregivers, care recipients, and other important people in their lives. It is based on the values of respect for people, individual right to self-determination, and mutual respect and understanding. It is promoted in workplace cultures focused on empowerment and the continuous support of practice development" McCormack and McCance (2017)

3. Verbal and Non-Verbal Communication

- Describe how you are sitting/standing there right now.
- What do you think you project with that posture?
- What would you like to project?
- What do you think is the first impression people get of you when, for example, you first walk into a room (in a hospital)?
- What do you think the trainer thought when he/she saw you sitting in the room just now?
- Have you ever thought about that question?
- What is the meaning of non-verbal communication for you?
- What do you pay attention to in (non-verbal) communication with people?
- Name something you like and something you find unpleasant in people's non-verbal communication. (Give examples)
- What are you satisfied about in terms of the appearance you think you have? And what would you like to work on?

- If you look at your posture, what should you pay attention to make sure people don't see any things you are not satisfied with?
- How do you feel about your voice? (And why?)

Aspects for A Good Conversation or Dialogue;

- Listen, Summarize, ask Questions.
- NO Judgments & Opinions
- Always Ask, Never Assume
- Think in terms of Qualities
- DO NOT Fill in for Someone Else

Asking Questions: Open - Closed - Facts

It is important to recognize the types of questions and their effects.

1. The inventory of previous knowledge and experiences in the field of asking questions and its possible effects.

2. Intro trainer: each of you has experiences with illness, health, limitations, and contacts with care providers. These can be your own experiences or the experiences of people you know personally. Choose an experience you want to tell.

3. The trainer invites the trainee to tell about (a part of) his/her experience (short, 2-3 minutes). Another trainee asks a question. Any questions are welcome and good! We learn from them.

Brief response: type of question? Effects of the question? Another question someone wants to ask... Open up closed questions?

4. Working in turns (4 to 5 situations if possible) and practice in trios, and make sure to practise encouraging behavior, active listening, summarizing, and asking questions (open and closed questions). Observing other trainees and giving feedback.

4. ASE Model

With the Intention to change behavior, the ASE determinants are decisive for the willingness to actually do something.

A = Attitude and refers to views and considerations of:

1. The current situation and experiences what is valuable in it, and you (or the caregiver) would like to keep it that way

2. Possible improvements and solutions. Views may refer to:

- What do you (or the caregiver) see as the cause of the symptoms?
- What is of great value to you (or the person in need of care), and would you (or the person in need of care) like to keep in your (his/her) life?
- What can solutions/changes bring (results?)? Can I carry this out? (Personal effectiveness)

3. Considerations involve weighing the pros and cons of possible solutions. Personal needs, preferences, and interests play major roles. They determine the weight of the pros and cons. Values and interests play a major role here, which is expressed in feeling attached to something and emotions such as loss in decisions. What does the person have to give up as well?

S social norms (or influence). What does the person experience as support and pressure with different solutions?

E= self-efficacy. What does the person himself believe he will succeed in doing? Past experiences play an important role here.

ASE Group Exercise

What would you like to do differently, or how do you take care of your health? What intentions do you have, and what are your experiences and habits?

Task: Discuss everyone's own experiences and resolutions in subgroups. Make sure that everyone's own experiences are discussed: listen and ask questions! What can you recognize in each person's story separately?

- **Attitude**: views and considerations?
- **Social norm**: experienced support and pressure from others?
- **Self-efficacy:** degree of confidence that you will or will not succeed.

Plenary: what do you learn from this for this training?

Explanation Based on The Theory

With good intentions that are not carried out, the ASE factors often play a role (disadvantages, pressure from the environment, believing that it will not succeed in putting the intention into practice). In the case of advice received (or information is given), factors relating to the steps “being open to” and “understanding” more often play a role in non-implementation. Personal factors such as “way of doing” things (coping) also play a role.

The total exercise should not take much longer than 20 minutes. Keep the speed up. Do not talk too long on some parts. This will not help. It is mainly about becoming aware of a wide variety of factors in the process of behavioral change.

What helps? Try this one: a person experiences a dilemma. For example: "*Do I stop taking the medication or not?"* What conversation skills are needed to discuss this with him?

- Thinking out loud
- Discussing pros and cons
- Listening
- Determining what the user's preferences are
- Asking questions
- Reflecting on feelings

In pairs: discuss the dilemma. Try to support each other.

Evaluation: How does this sharing of one's own situation benefit one's communication skills? What helped and what didn't? How do you deal with someone who has a very different approach and perhaps an inappropriate approach (according to you)? What do you do with the insights that the ASE model provides?

Learn to distinguish between:

1. Technical information: What can reduce constipation is the following.... (factors). How much you drink affects the bowels, and it works like this… Fiber in the diet makes that in the bowels… Fiber is in… there is a correlation between exercise and constipation because exercise activates the bowels, etc.

2. Experiential information: You feel tension in your abdomen and experience bloating and pain while walking...

3. Procedure information (about the steps to follow in treatment or a concrete examination) in case of an attempt can first be made to achieve improvement with adjustment of food and drink. Suppose it is severe and very burdensome or serious. This gives much faster relief. This is done by the family doctor or in the hospital.

Exercise in converting advising to informing:

- You should not drive through a red light.
- I advise you to lock the door when you leave.
- It is important to eat and drink enough before you start the ½ marathon.
- Before you turn off your computer, you should close all programs.
- It is better not to smoke.
- It is better not to feed the deer.
- You have to do your homework / do the preparation assignments.
- You have to be sober for the operation.
- It is better to keep moving slowly than to spare the affected joints completely.

- Try to lose weight if you are overweight.
- If you are easily tired, make use of your good days and spare yourself on the days when you suffer a lot.
- Brown bread is better than white bread.
- You really need to drink more.
- Try to go for a walk outside every day.
- It is better to go swimming when you have a lot of pain when exercising.

What To Do If the Person Is Not "Open" To Receive/Hear The Information?

- Give feeling-reflections instead of extra information.
- Ask if the person recognizes the symptoms (e.g., experiential information).
- What effects does the illness have on the person (what things is the person not able to do anymore?)
- Ask how the person is currently coping with the symptoms.
- What does the caregiver already know about the subject?
- What are you afraid of?
- What do you think now after hearing all this information?
- Allow the person to choose which "chapter" of the information they want to know.
- Name non-verbal behaviors of the person seeking care ("you look sad/surprised/angry")
- Be honest if you don't know something. Say you will find out and come back to it in the next conversation; say this again at the conclusion.
- Think out loud
- Say what you are doing in the conversation ("I am going to wrap up/summarize now")

Attachment 1
Evaluation criteria list:

Item/criteria	Sufficient / non-sufficient	Notes
1. You engage (properly) with the person and reach a common goal in accordance with shared decision-making aspects.		
2. You show a connection with the individual's needs, emotions, views, and his/her prior knowledge.		
3. You stimulate interaction.		
4. You can provide the information in an effective manner.		
5. You check (even in between) whether the person understands and can process the information.		

Attachment 2

Conversation Analysis

The purpose of making a conversation analysis is that you learn from your (practice) conversation. Things went well, and when you look back, you will undoubtedly also see things that you would do differently next time. That is not a problem; you will learn from it.

How do you make an analysis?

For a conversation analysis, you first type out the conversation verbatim. You also describe what you or the (simulation) patient have shown nonverbally. Then, you reflect on what you did/answered. The idea is that you become aware of the skills that you apply, how you do it, how it might be done differently, and what that would additionally bring (added value).

The elaboration and analysis of your conversation contains three columns:

1. The 1st column is a record of the conversation - verbatim. Also, accurately depict exactly what happens in the interaction between yourself and the simulation patient, for example, non-verbally. In the layout, make a clear distinction between the reactions. Use, for example, different fonts or colors.

2. The 2nd column is the analysis. For each of your actions, you indicate the conversation techniques (skills) involved. Also, show the phasing of your conversation. Indicate which part or which phase this part of the conversation falls under; for example, the opening or core evaluation phase.

3. The 3rd column is meant for your critical reaction, your critical reflection. Integrate the feedback you have received from the simulation patient, your fellow students, and the teacher in this column, as well as what you think of it. Explain or comment on your skills and your methodical approach. If you are not satisfied, describe why and make a suggestion as to what you could have said better (e.g., make a closed question an open one). Be critical; only then will you learn from your conversation!

Conversation (verbatim)	Analysis	Critical reflection
…………….	?!?	+++

5. Test Questions

Multiple choice questions:

1) effective feedback incorporates several components; one of those components is:

a. information-focused

b. observation-based

c. subjective

d. keywords-based

e. positive

The right answer is B.

2) The ASE model focuses on changing people’s behavior. The letter S stands for:

a. social integration

b. social efficacy

c. social norm

d. social experience

e., societal perspective

The right answer is C

3) Aspects for a good conversation or dialogue are:

a. Assume and give your opinion

b. Listen and fill in missing information

c. Think in terms of assumptions

d. Summarise and ask questions

e. Always give feedback

The right answer is D.

Communication in Environmental Literacy

Aim

In this training, you will learn how to provide information in an effective way. You will learn to make use of appropriate communication in environmental literacy. This training aims to equip participants with essential skills and knowledge to effectively communicate environmental issues and promote One Health principles globally. By exploring interconnected solutions, key communication principles, and innovative tools, participants will learn to engage diverse audiences and drive behavior change toward sustainability. Emphasizing cultural competence, inclusivity, and ethical communication, this program seeks to foster collaborations and ensure fair access to environmental information. The goal is to nurture adept communicators who can adapt to changing landscapes, evaluate strategies, and contribute to improved environmental literacy and societal well-being.

Learning Objectives For The Applicant

- Understanding Environmental Concepts
- Communication Skills Development
- Audience Analysis and Engagement
- Message Crafting and Storytelling
- Utilizing Multimedia Tools
- Facilitation and Engagement Techniques
- Understanding Interconnected Solutions
- Overcoming Communication Barriers
- Raising Awareness and Policy Influence
- Behavior Change and Community Engagement
- Key Principles of Effective Communication
- Tools and Technologies for Enhancing Environmental Communication
- Tips for Improving Communication Skills in the Context of Environmental Literacy
- The Role of Storytelling in Environmental Communication
- Building Partnerships and Collaborations
- Monitoring and Evaluation of Communication Strategies
- Adaptation to Changing Communication Landscapes
- Evaluation and Feedback
- Action Planning and Implementation
- Reflective Practice and Professional Development

These expanded learning goals provide a more comprehensive framework for trainers to develop expertise in promoting environmental awareness, influencing policy, fostering behavior change, and engaging communities through effective communication strategies.

Recommended minimum training or presentation time: **50 Minutes**

METHODS AND TECHNIQUES

Lectures: Traditional method involving verbal presentation of information by an expert, supplemented with visual aids and examples.
Interactive Discussions: Facilitated group discussions to encourage active participation, exchange of ideas, and deeper understanding of key concepts.
Multimedia Presentations: Utilization of various digital tools and visual aids, such as slideshows, videos, and infographics, to enhance engagement and facilitate comprehension.
Reflection and Feedback: Structured opportunities for participants to reflect on their learning, provide feedback on the training content and delivery, and identify areas for improvement.
Q&A Section: Dedicated time for participants to ask questions, seek clarification, and engage in discussion with the trainer. Encourages active participation, addresses concerns, and promotes a deeper understanding of the content. Facilitated by the trainer to ensure that all questions are effectively addressed and contribute to the overall learning experience.

TOOLS AND MATERIALS

Presentation Software: Tools like Microsoft PowerPoint, Google Slides, or Prezi for creating visually engaging presentations to supplement lectures and multimedia presentations.
Multimedia Resources: Access to a variety of multimedia resources such as videos, images, infographics, and interactive maps to enhance presentations and engage participants.
Workshop Materials: Handouts, worksheets, and templates for workshop activities, group discussions, and brainstorming sessions.
Evaluation Tools: Surveys, questionnaires, or assessment rubrics are used to evaluate participant learning, engagement, and satisfaction with the training program.

In delivering environmental literacy training programs, trainers can optimize their impact by utilizing a range of essential tools and materials. These include laptops or desktop computers for creating dynamic presentations and accessing digital resources, whiteboards for visualizing concepts and facilitating group discussions, projectors and digital screens for enhancing the visibility of multimedia content, and video recorders for capturing sessions for review and documentation. Additionally, providing participants with paper and pens allows them to take notes and engage actively during sessions. By effectively leveraging these tools and materials, trainers can foster an environment conducive to learning, engagement, and active participation, ultimately enhancing the effectiveness of their training programs in promoting environmental literacy.

Introduction

This communicative skills training introduces participants to the dynamic subject of Communication in Environmental Literacy. For many trainees, this may represent a departure into new territory as they delve into the intersection of effective communication and environmental awareness. Through this training, participants will embark on a journey to develop the skills and knowledge necessary to effectively convey the importance of sustainability, conservation, and ecological stewardship to diverse audiences. By embracing the principles of environmental literacy and mastering innovative communication strategies, participants will be empowered to inspire meaningful action and drive positive change in a rapidly evolving global landscape.

Introduction to One Health and Environmental Literacy

One Health highlights the interconnections among humans, animals, and the environment, promoting cooperative endeavors to ensure the welfare of all. Environmental literacy involves grasping the workings of Earth's systems and making knowledgeable choices about environmental matters. Both are pivotal in our swiftly evolving world. The rapid shifts in our environment present substantial hurdles. From climate change to biodiversity loss, we encounter intricate issues necessitating inventive and cooperative resolutions.

Importance of Effective Communication for Promoting Environmental Awareness

Raising Awareness
Behavior Change
Policy Influence
Community Engagement

Enhancing One Health and Environmental Literacy Through Effectıve Communication Strategies in A Dynamic Global Landscape

Role of Effective Communication
Challenges in Global Communication
Innovative Communication Strategies
Empowering Through Education
Community Engagement
Policy Implications

How to deal with Interconnected Solutions:

Communication Strategies
Harnessing Technology
Empowering Through Education
Collaborative Partnerships

What Are the Key Principles of Effective Communication?

- Effective communication involves active listening and clear, concise messaging.
- It also requires empathy, understanding the audience, and using appropriate channels.

Some Strategies for Engaging Different Audiences in Environmental Communication

- Understanding Audience Needs
- Utilizing Varied Channels
- Customizing Message Delivery

Tools and Technologies for Enhancing Environmental Communication

- Visual Storytelling
- Interactive Maps
- Social Media Platforms

Challenges and Barriers to Effective Environmental Communication

Lack of Awareness
Language Barriers
Complexity of Topics
Misinformation

Tips for Improving Communication Skills in the Context of Environmental Literacy

Active Listening
Clear Messaging
Empathy and Understanding

Types of communication

- Verbal
- Non-verbal
- Visual
- Written

Effective communication skills

- Active listening
- Communication method: the right way to communicate
- Positive attitude
- Confident communication
- Providing and accepting feedback
- Adjusting your speaking voice: be clear and audible
- Empathy: understand other people's emotions and choose an appropriate response
- Communicate respectfully

- Non-verbal communication (cues and signals)
- Responsiveness and acknowledgment

The basic skills are

- Asking open questions
- Identifying keywords
- Summarizing and paraphrasing
- Giving emotional reflections, recognizing non-verbal signals
- Making (eye) contact and giving recognition

Effective Delivery Techniques

- ➢ Pitch variation
- ➢ Tone inflection
- ➢ Volume control
- ➢ Meaningful eye contact
- ➢ Purposeful gestures
- ➢ Maintain good posture
- ➢ Control your expressions
- ➢ The Role of Storytelling in Environmental Communication
    - Captivating Narratives
    - Building Empathy
    - Creating Lasting Impact

Overcoming Barriers to Communication in One Health

- ➢ Educational Outreach
- ➢ Interdisciplinary Training
- ➢ Technology Integration

Tools and Technologies for Enhancing Communication in One Health

- ➢ Mobile Apps
- ➢ Networking Tools
- ➢ Video Conferencing
- ➢ Data Management Systems

The Impact of Communication on Behavior Change and Conclusion

An image of a diverse group engaged in a meaningful conversation, conveying an atmosphere of trust and understanding. The lighting is warm, and the mood is motivating, with expressions reflecting empathy and determination toward positive change. As we conclude, it is imperative to recognize the pivotal role of effective communication in advancing One Health and environmental literacy. Taking action to enhance communication strategies across diverse stakeholders is key to addressing global challenges and spurring meaningful behavior change.

Aims (Second)

The purpose of this presentation on Environmental Literacy is to raise awareness, promote engagement, and empower action towards environmental stewardship. By highlighting the interconnectedness of environmental, social, and economic systems, we aim to inspire individuals to make informed decisions and take meaningful actions to address pressing environmental challenges. Through collaboration and partnerships among diverse stakeholders, we strive to drive positive change in attitudes, behaviors, and policies, ultimately working towards a sustainable future for current and future generations.

What will this presentation bring to the participants?

This presentation will bring participants increased awareness and enhanced knowledge about environmental issues and sustainability practices. Additionally, This presentation will offer participants insights into the interconnected nature of One Health and effective communication in environmental conservation. Furthermore, participants will learn how effective communication plays a crucial role in promoting One Health principles and driving action toward environmental sustainability. Through this presentation, participants will gain the knowledge and motivation to engage in meaningful dialogue, foster partnerships, and advocate for holistic approaches to address environmental challenges.

What will participants be able to do after this presentation?

- Understand the Interconnections
- Communicate Effectively
- Take Informed Action
- Engage in Collaboration
- Advocate for Change
- Educate Others
- Utilize Resources Effectively
- Adapt to Changing Contexts
- Engage in Dialogue
- Tailor Messages to Different Audiences
- Leverage Technology

- Facilitate Collaborative Action

What are the participants expected to achieve after this presentation?
After this presentation, participants are expected to achieve the following:

- Enhanced Understanding
- Improved Communication Skills
- Increased Awareness
- Empowerment
- Inspiration
- Networking Opportunities
- Application of Learning
- Continued Learning

In summary, participants are expected to emerge from the presentation with a heightened sense of awareness, empowerment, and commitment to promoting environmental literacy and One Health principles in their personal and professional lives.

Who is the target audience of the presentation?

The target audience for the presentation on "Training of Trainers" would typically include individuals who have a role in educating or training others on environmental literacy and One Health principles. This may include:

- Educators: Teachers, professors, and educational professionals who deliver environmental science, biology, public health, or related courses.
- Trainers: Professionals who conduct workshops, seminars, or training sessions On environmental topics within organizations, NGOs, or government agencies.
- Environmental Specialists: Individuals with expertise in environmental science, ecology, conservation biology, or related fields who train others on specific environmental issues or conservation practices.
- Public Health Practitioners: Professionals working in public health, epidemiology, or veterinary medicine who educate others on the connections between human and animal health and the environment.
- Community Leaders: Individuals involved in community organizing, advocacy, or grassroots initiatives related to environmental conservation and public health.
- Policy Makers: Government officials, policymakers, and decision-makers are involved in developing and implementing environmental policies and regulations.

Overall, the target audience comprises individuals who have a role in disseminating knowledge, building capacity, and fostering action in the realms of environmental literacy and One Health, with the aim of multiplying The impact of the training through their respective spheres of influence.

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Q1: How does effective communication contribute to raising awareness about environmental issues?

A1:

1. Raising Awareness
2. Policy Influence
3. Behavior Change
4. Community Engagement

Q2: How can effective communication strategies be utilized to enhance environmental literacy in today's rapidly changing world?

A2:

1. Communication Strategies
2. Empowering Through Education
3. Harnessing Technology
4. Collaborative Partnerships

Q3: Can you explain the significance of selecting appropriate communication channels in ensuring that messages reach the intended audience effectively?

A3:

Effective communication encompasses active listening and delivering messages clearly and concisely. It also necessitates empathy, understanding the audience, and selecting appropriate channels. Furthermore, it involves tailoring message delivery to suit the audience and utilizing a variety of channels.

Q4: In what ways do digital platforms and online networks enhance communication and information sharing among stakeholders involved in One Health initiatives?

A4:

1. Mobile Apps
2. Networking Tools
3. Video Conferencing
4. Data Management Systems

VII. EFFECTIVE PRESENTATION SKILLS

Aim:

Gain knowledge and attitude about effective presentation by using educational methods and techniques.

Learning Objectives

- To be able to tell the characteristics of an effective trainer
- To be able to tell the methods of coping with the stress of presenting
- To be able to say ways to cope with difficult participants
- To be able to explain the preparations before the presentation
- To be able to create a draft presentation plan
- To be able to explain the importance of effective input
- To be able to tell the considerations in the presentation
- To be able to tell the rules of making an abstract presentation

Recommended Minimum Time: 45 Minutes

Methods and Techniques

- Lecture
- Questions
- Answers

Tools and Materials

- Whiteboard
- Papers and pens
- Computer
- Projector

Effective Introduction

The main aim and learning objectives of the session are read. The trainer asked the participants whether they had been trained in any subject and asked them to share their experiences with the group. Then, by explaining the aims and objectives of the session, the trainer begins to explain the subject.

NOTE TO TRAINER:

At the beginning of the session, you should inform the participants about making a presentation at the end of the session by using effective presentation techniques.

EFFECTIVE PRESENTATION SKILLS

We live in a dynamic and interconnected world where the effective dissemination of knowledge is an invaluable skill, transcending barriers between the professional and the academic. In this scenario, effective presentations emerge as an essential catalyst for success, shaping the course of careers, contributing to the advancement of science, and strengthening organizations.

In the professional sphere, the ability to communicate persuasively and clearly is a valuable differentiator. An effective presentation not only conveys information but also influences decisions, builds credibility, and drives progress on projects and collaborations. In the academic context, presentations transcend the mere exposition of discoveries; They are the voice that elevates knowledge and discussions and paves the way for new frontiers of understanding.

Thus, in this dialogue on "Effective Presentation Skills," we will delve into the critical importance of these skills in the ever-changing universe of environmental literacy and the holistic approach to health, exploring how the ability to present ideas in an engaging and clear way becomes an essential pillar in achieving professional goals and promoting academic advancement. Get ready to embark on this journey, where words are not just expressed but shaped to create lasting impact in a world that demands, more than ever, the mastery of presentation skills.

Effective presentations play a crucial role in both the professional and academic landscape, unfolding as a cross-functional tool for individual and organizational success. In the professional context, the ability to communicate ideas clearly and persuasively not only drives personal progress but also contributes to the growth of the company. In academic settings, the ability to present complex research and concepts is essential for the advancement of knowledge and recognition in the scientific community.

Effective communication is a key building block for professional success. In a corporate environment, the ability to present information in a clear and compelling manner is a significant differentiator. Professionals who can articulate their ideas effectively are more likely to influence colleagues, superiors, and clients, thereby building their credibility and positively impacting project development and decision-making.

In the academic field, the importance of effective presentations is evident on several fronts. From academic conferences to classroom presentations, the ability to communicate research and findings in an engaging way is essential for sharing knowledge and advancing one's academic career. Additionally, effective presentations can open doors to collaborations, partnerships, and research opportunities.

1. Clarity in Communication: Unlocking the Power of Words

In the vast horizon of effective presentation skills, clarity in communication emerges as a guiding light, paving the way for mutual understanding and connection between speaker and audience. This competence transcends mere word choice; it lies in the ability to translate complex thoughts into accessible messages, allowing the audience to not only hear but understand and internalize.

In the information age, where data overload is a constant, the ability to communicate clearly becomes an invaluable asset. By structuring ideas logically and coherently, the presenter not only conveys information but also guides their audience on a cognitive journey. Every word chosen, every sentence articulated, works in harmony to build a bridge of understanding, transforming complexity into accessibility.

Clarity in communication is not just restricted to the use of simple language; It also embraces the ability to adapt the discourse to the knowledge and expectations of the audience. Whether articulating scientific concepts to a lay audience or presenting complex findings to experts, the speaker skilled in clear communication shapes his or her language to engage and clarify.

In the context of effective presentation skills, clarity in communication is the compass that guides the narrative, ensuring that the message is not only heard but understood and retained. Join us in this exploration of the facets of this core competency, where words become bridges of understanding, and the power of clarity reveals itself as a shining beacon amidst the complexity of human communication.

Types of Communication:

- **Verbal Communication**

- More frequent and habitual

- Use oral or written language

- Preferred instrument of communication

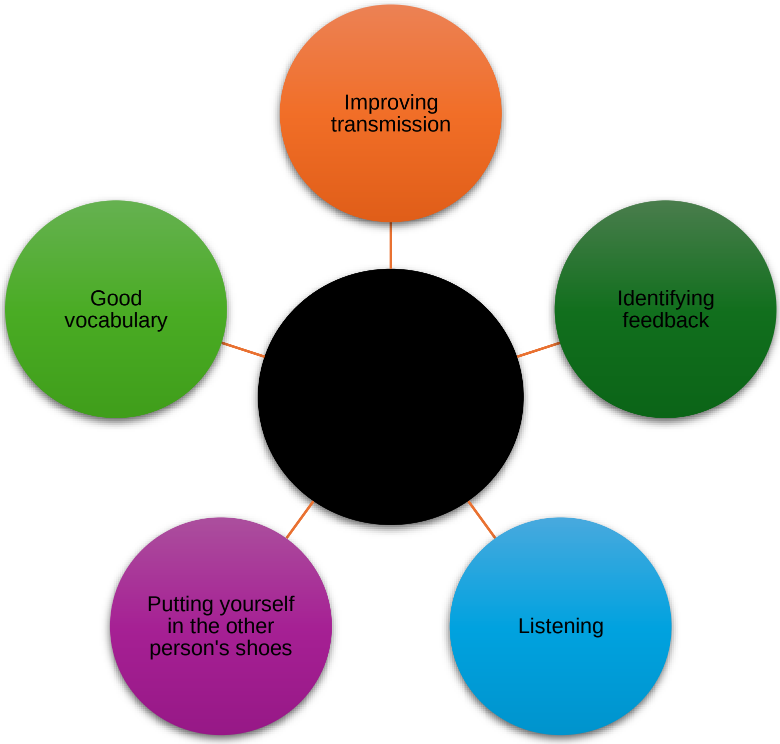
- Involves rhythm, pitch, and intonation of the voice

- **Non-Verbal Communication**

- Casts, facial expressions and postures

- Brings meaningful messages, more than words

How to improve communication?



Graphic 1: Good Communication

Effective Communication:

- Impose one's voice;
- Be relaxed;
- Know the subject and the space of the presentation;
- Move naturally while talking;
- Give another intonation or emotion when highlighting a piece of content;
- Adjust the pace.

2. Planning Script for Making a Presentation

- Determine the objectives of the presentation (Why/For what);
- Identify the audience and location (For whom);
- Determine the content (What);
- Determine the method (How);
- Determine the length of the speech/presentation;
- Select the required resources (Projector, computer, whiteboard, etc.);
- Practise the presentation until you feel confident.

3. Essential Parts of a Presentation

1st) Introduction – Say what you are going to say:

- State the purpose and purpose of the presentation

2nd) Content – speak to the audience.

Develop and strengthen your idea with selected material.

a) Follow the main ideas of the presentation;

b) Dealing with questions and discussions from the audience. However, you have to be very careful when choosing the moment and the way it will be done.

3rd) Conclusion – Talk about what was addressed to the audience. This should be the most consistent part of the presentation, and it is necessary to:

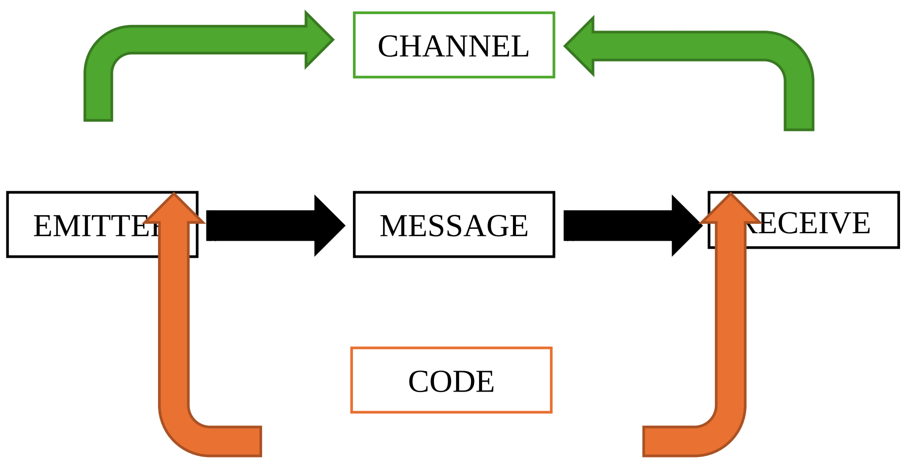
a) Summarise the main ideas and objectives;

(b) Reach a conclusion;

Communication Scheme

The sender is the one (or who) emits the message; It can be either an individual or a group (company, broadcaster, etc.). The receiver is the one (or who) receives the message; It can be an individual or group, or even an animal or machine (computer). The message is the object of communication.

Graphic 2: Communication Scheme



4. Body Expression

In the atmosphere of the classroom, body language is more than just a reflection of emotions; It is a language that transcends words. In this brief introduction, we will embark on the fascinating journey of body language during classroom presentations, exploring how gestures, postures, and movements become powerful instruments in orchestrating the dialogue between teacher and students.

The classroom is a stage where knowledge is shared, and body language is the choreography that brings this exchange to life. Carefully planned gestures can illuminate complex concepts, making them more accessible and stimulating. A confident posture can create a welcoming environment, inviting students to actively participate in the educational narrative.

In addition to communicating information, body language is a means of establishing emotional connections. A genuine smile and assertive eye contact are all elements that transcend the barriers of spoken speech, building a bridge of empathy between the teacher and the students. The classroom becomes a space not only for the transmission of knowledge but also for building meaningful educational relationships.

Throughout this exploration, we will explore the importance of body language as a pedagogical tool, understanding how it can enhance message clarity, promote active student participation, and transform the classroom into a vibrant learning landscape.

Some tips that allow you to communicate during the presentation in an efficient way:

Table 1: Efficient communication during the presentation

Dress appropriately	People need to pay attention to the content you're exposing themselves to, not your clothes. Avoid vibrant colors, flashy accessories, and too much skin exposure. Do not allow for misinterpretation.
Voice intonation	Speak loud and clear. Make yourself audible. Speaking softly, in addition to hindering the understanding of your message, conveys a fragile and insecure image. It's important that you alternate the speed and volume of your voice so that people don't scatter during the presentation.
Maintain eye contact with the audience.	People like to be looked in the eye when someone talks to them. Maintaining eye contact with an audience demonstrates that you are attentive and focused on what they say and do. Look at the entire audience and interact visually. It will captivate people.
Avoid dangerous gestures	Do not point your finger at people, fiddle with your hair, or make repetitive and frequent gestures. Any annoyance your audience feels will divert their attention, as well as create a possible dislike.
Watch your posture	Talking with your hands in your pockets, arms crossed, legs wide open, holding one arm, and with your hands behind your back, for example, sends the wrong message to the people who are watching you. These postures can communicate defensiveness, withdrawal, sloppiness, lack of discipline, and lack of preparation.
Direct the audience's attention.	Gesture, but sparingly. No movements that are too sudden or exaggerated. Reach out toward the projection screen when you're going to show something, make open gestures, and lead your presentation. The movement also helps retain attention.
Avoid being near objects.	Prefer a clean environment, at least while you're still getting to grips with presentations. You may unconsciously keep squeezing a chair, for example.
Facial expression	Maintain consistency. If you're talking about something serious, don't smile. If you're talking about something comical, don't keep your expression closed. Also, note that widening your eyes and biting your lips shows nervousness. Prepare well before the presentation so that these "involuntary" movements don't harm you.
Maintain control over yourself.	If you make a mistake, apologize and move on. If you start stuttering, snapping your fingers, and running your hands over your face, you'll make it explicit that you've lost control.

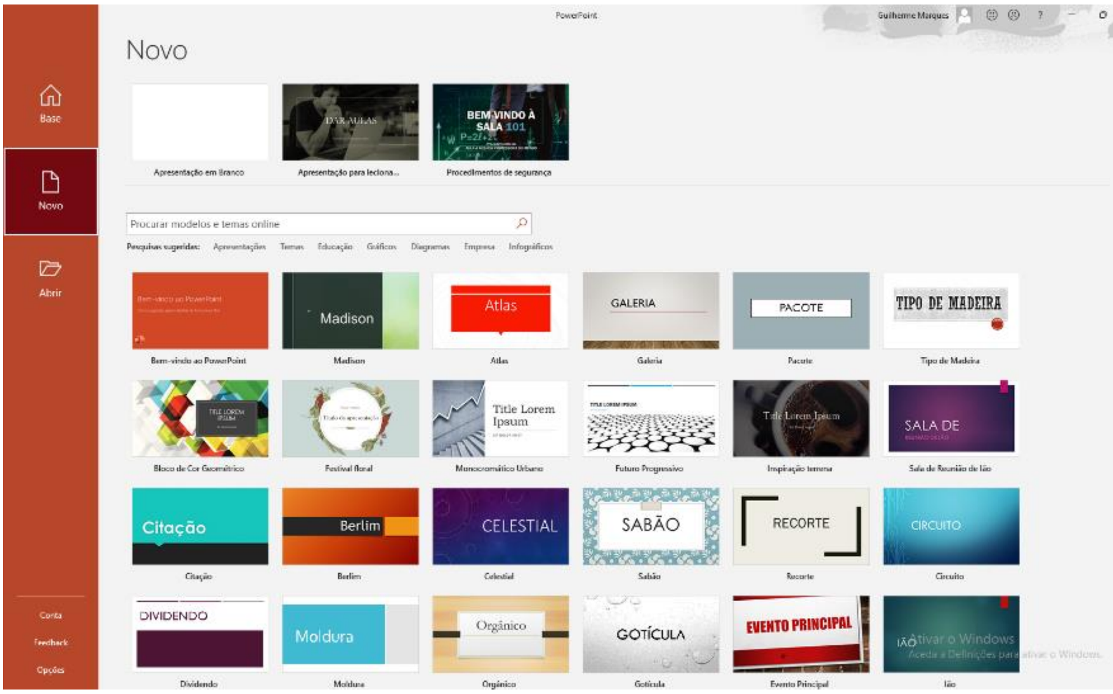
5. Visuals

In a world where information is plentiful, and attention is a precious resource, the effectiveness of a presentation often depends on more than spoken words. Visuals stand as powerful allies, transforming abstract concepts into tangible images and creating a visual symphony that echoes in the minds of the audience. In this introduction, we'll embark on a journey through the paths of visuals in presentations, exploring how these tools can increase clarity, retention, and impactful visual storytelling.

Choose a template

The simplest and quickest way to start creating your presentation is to use customizable templates. These models make it easier to organize ideas and structure information coherently. With the right design tools, you can choose from various template styles without worrying about design consistency. The templates already include all the elements and features you need to create something attractive and engaging. Thus, they can serve as inspiration to unleash your creativity and help you develop your own ideas.

Figure 1: Template

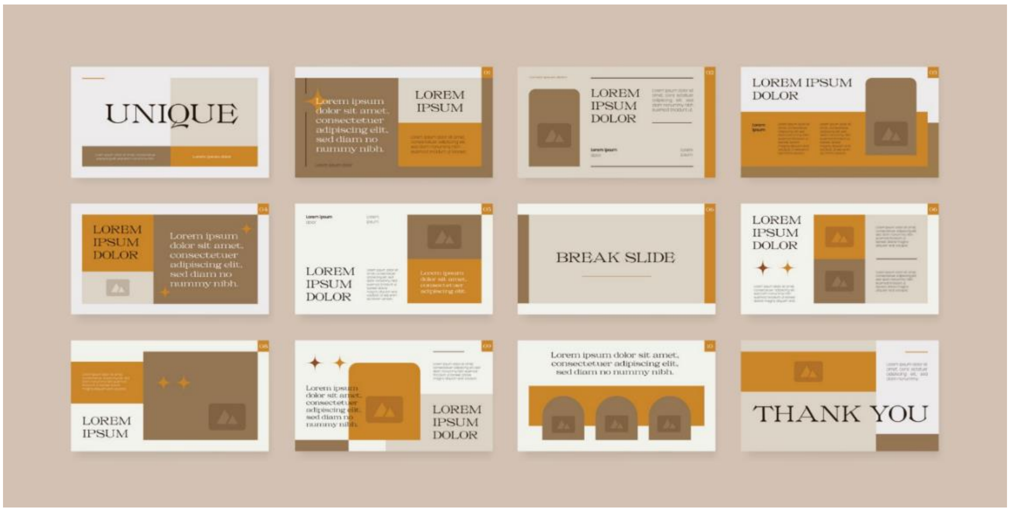


Switch slide layouts

In longer online presentations, it is necessary for the audience to maintain attention for longer periods. A simple strategy to keep the audience engaged is to vary the design of the slides.

You can experiment with switching between different layout styles on your slides. This can be done easily, and here's an example of a presentation with varying layouts that you can customize by adjusting colors, fonts, illustrations, and icons as desired:

Figure 2: Layout

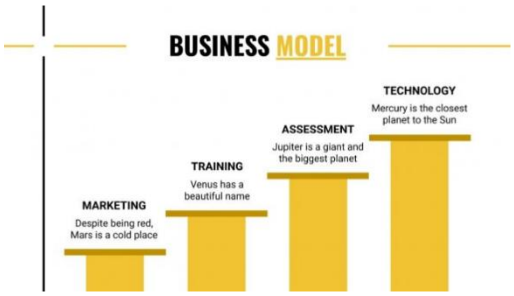


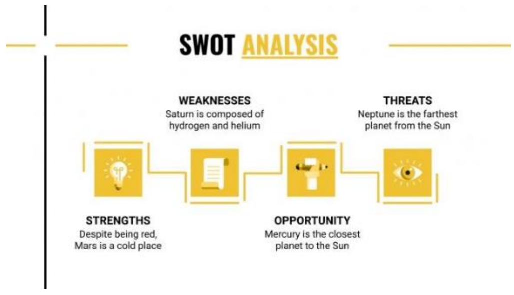
Be minimalist

Sometimes, less is more effective. Having a presentation with too many visuals and text can make it difficult for the audience to understand the message. Instead, choose to include only the key elements of each topic in your slides, maintaining a simple design with more sober colors.

Contrasting colors are excellent for highlighting crucial points and capturing the audience's attention. It is recommended to use them to emphasize your message and make the presentation more engaging. Here's an example to inspire you:

Figure 3: Key elements





Use icons

When you're creating a presentation, make sure that the design helps unify and make sense of the information. An effective way to do this is to incorporate icons to represent complex ideas, list information, and share facts.

The icons vary according to the different sections or themes, thus highlighting the content and giving cohesion to the presentation. This way, you can maintain unity without making the presentation monotonous, making each theme easily distinguishable. Here's an example of a presentation that uses icons efficiently:

Figure 4: Use Icons

Improve readability with proper font size.

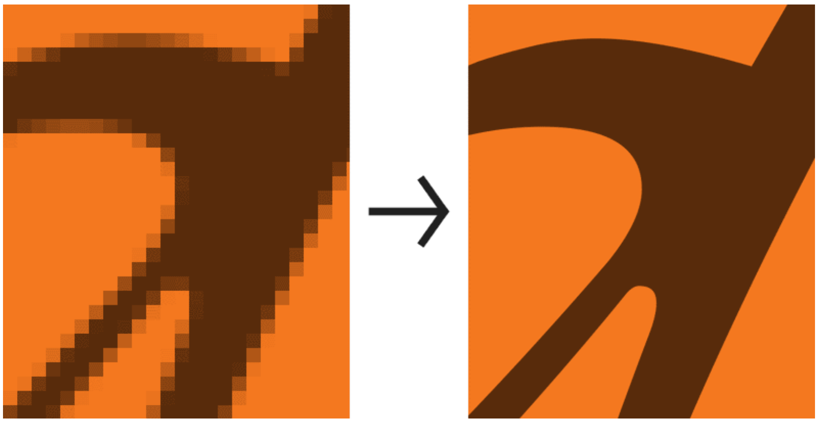
Titles should be at least 20, while body text should be at least 18.

Figure 5: Readability

<u>Choose relevant and suitable images.</u>

Do not use low-quality visuals. It is important to make sure that the images selected are of good quality and that they convey knowledge and professionalism.

Figure 6: Suitable Images



<u>Design</u>

When creating slides, it is important to find balance and remember that less is more. It is always better to use 3, at most, four colors that are guaranteed to match well, rather than an entire palette, without forgetting to align the objects to establish symmetry.

6. Resources

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7. Test Questions

Which of the following ensures effective communication during a presentation?
I.Dressing appropriately
II. Speaking loud and clear
III.Make eye contact with the audience
IV.Smiling all the time during the presentation

a)	I
b)	I, II
c)	II, III
d)	II, IV
e)	**I, II, III**

In the concluding part of the presentation, it is necessary to summarize the main ideas and objectives of the audience and bring the topic to a clear conclusion.

True
False