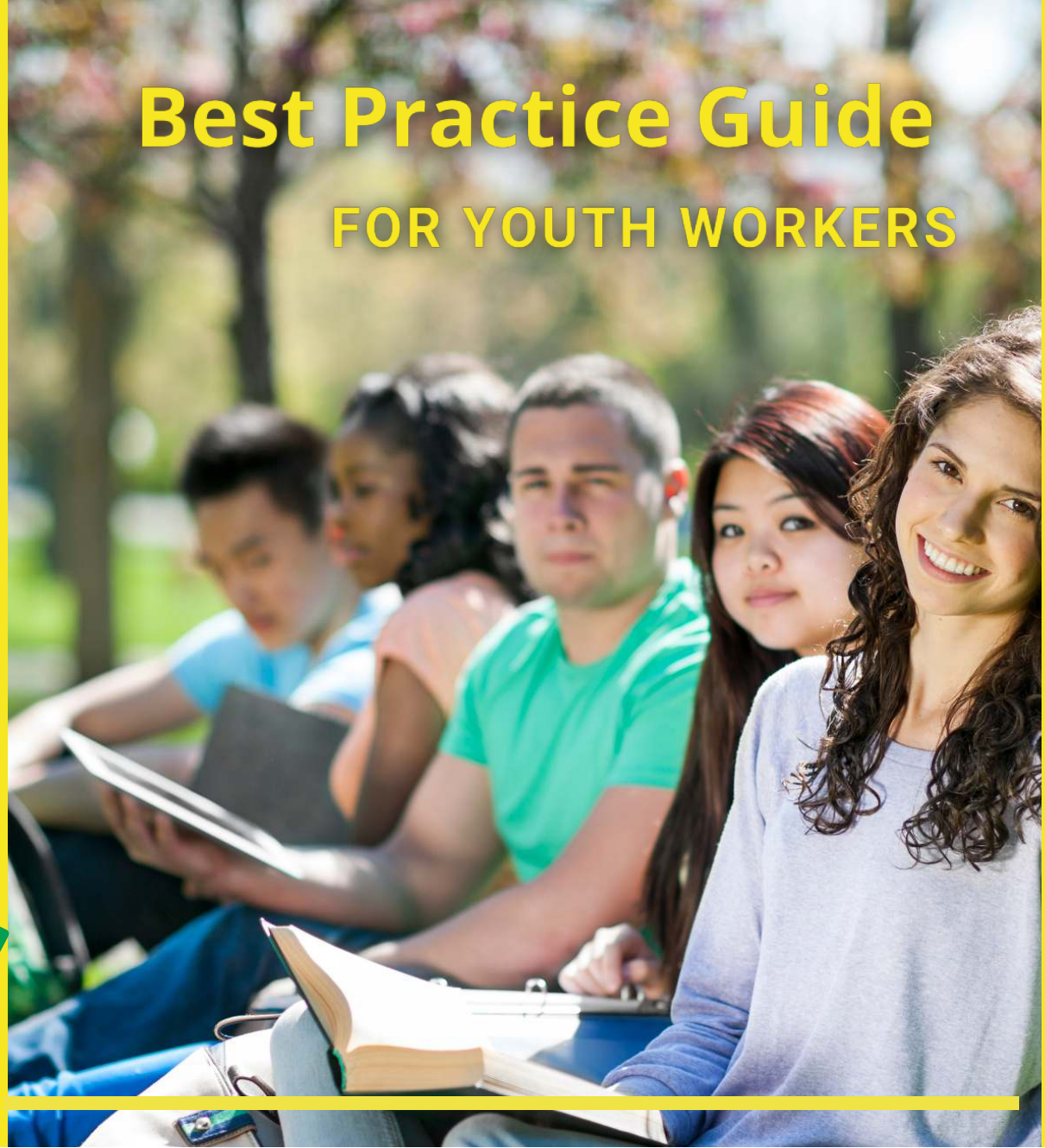
Best Practice Guide

FOR YOUTH WORKERS

Navigate
the intersection between
Science and Human Rights



FOR A BETTER FUTURE
SCIENCE & HUMAN RIGHTS EDUCATION

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Science & Human Rights

How can science be harnessed to promote and protect human rights?

Science & Human Rights

What is the role of international human rights frameworks in regulating scientific research and development?

Science & Human Rights

How can science contribute to the realisation of the right to education and the dissemination of knowledge?

Science & Human Rights

How do advancements in science impact the realisation of human rights?

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How can science help address emerging challenges in human rights?

What ethical guidelines should govern scientific research involving human subjects?

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How do emerging technologies impact privacy and data rights?

Science & Human Rights

How does access to scientific knowledge contribute to the realisation of human rights?

How does climate change intersect with human rights?

Science & Human Rights

How do human rights impact science development?

CONTENTS

	PAGE
Introduction	7
1. Understanding the Interconnection between science and human rights	10
2. Integrating Science and Human Rights in Youth Programs	21
3. Ethical Considerations and Human Rights Principles	27
4. Integrating Science Communication and Advocacy	30
5. Collaborating with Stakeholders and Partners	32
6. Evaluation and Impact Assessment	33
7. Case Studies and Inspirational Stories	35
8. Resources and Tools	65
Conclusions	66
Bibliography	69

What is the role of international human rights frameworks in regulating scientific research and development?
How do human
impact science
Science & Human Rights
SOMEONE OUT THERE FEELS BETTER BECAUSE YOU EXIST

Welcome on board!

Are you a youth worker, trainer or facilitator interested in a better future? Then this guide is for you! We are excited to offer some useful information and tools, that will help you navigate the intersection between Science and Human Rights in your work with young people.

Our goal is to increase civic engagement of young people and enable them to contribute to solving social problems through local civic actions by using science and human rights knowledge as tools. And we want to do this by improving the quality of youth work. Therefore, the rationale of the guide is to respond to the needs of the youth workers, so that they approach the interconnection between science and human rights education in an integrated manner.
This guide was made for people who conduct non-formal educational activities with youngsters and would like to work with them on issues related to science and human rights.

It can also be useful for youth workers and trainers who have no previous experience with these issues but are looking for opportunities to acquire competencies in this area. And, of course, it can easily be used by teachers and school educators who carry out extra-curricular activities with youth in their schools. We've developed this guide for activities with young people, ages 14-30. However, some of the tools we offered could be easily used and adapted for other age groups as well.

We hope that while searching for inspiration throughout the following pages, you will be convinced how useful and important it is to approach science and human rights education together!

Acknowledging the connections between these disciplines, as well as the subsequent responsibilities these connections generate, fosters youth's both personal and social growth in the long-term.

Why is it important to address the interconnection between science and human rights?

Protection of human rights and scientific knowledge are society's fundamental needs in order to progress to higher levels of development. Addressing public problems effectively depends on science, and the protection of human rights depends on scientific data in a number of fields. Furthermore, safeguarding democracy itself depends on citisens equipped with critical thinking and capable of informed self-government, skills for which science plays a vital role.

However, in reality we observe that the general public has a flawed understanding of science and a weak sense when it comes to critical thinking. These facts are reflected in multiple problems that plague our societies. One significant indicator is the popularity of pseudoscience in the public space, in a variety of forms, such as science denialism, anti-science ideologies, and conspiracy theories.

Despite technological and cultural advancements, poor scientific literacy and critical thinking causes people to become victims of misinformation, extreme political ideologies, fake news or manipulative techniques. All this are becoming potential risks for their health and safety. The consequences are not surprising and can be seen in events such as the recent Covid-19 pandemic, when a great number of people rather believed in pseudoscience and conspiracy theories than trusting science and its benefits. Even the public institutions sometimes fall victim to hoaxes, fake news or twisted scientific norms, thus corroding public trust in scientists and public institutions.

In light of these considerations, connecting science and human rights in an unified and easy to understand manner represents a creative approach and a forward-thinking strategy, that underlines the effectiveness of exact sciences in the social sciences and humanities, and vice versa. Because **in order to have a better future, it's imperative to align the evolution of human rights with the advancements of the scientific knowledge.**

A group of youth workers from Bulgaria, Malta and Romania discuss about the interconnection between science and human rights.
Sinaia, Romania, Nov. 2023

What is the distinction between science and human rights?

In order to understand the often-unexpected connections between these two disciplines, it's important to highlight the nature of the differences between them. While it's self-evident that science and humanities are separate orders of knowledge, at first glance **we can't always tell why.**

To begin with, we need to look into **what science is**. Natural sciences (such as mathematics, physics, biology, chemistry, but also the social sciences such as psychology, sociology and others) are a system of thought that people invented in their search to understand objective reality. This system of thought uses a particular way of studying reality, namely it studies objects and natural phenomena regardless of what we might think in terms of morality or ethical values.

In other words, sciences investigate the objects as such, being completely careless about our aspirations and seeking causal, deterministic relations.

The difficulties in the progress of science throughout history have resided precisely in the effort that people had to make to eliminate any subjectivity from their observations.

"The purpose of science is to develop, without prejudice or preconception of any kind, a knowledge of the facts, the laws, and the processes of nature."

Robert Andrews Millikan

Robert Andrews Millikan *(1868-1953)*

(Winner of the Nobel Prize in Physics in 1923, for his work on the elementary charge of electricity and on the photoelectric effect)

When we think of **human rights**, we refer to subjects or individuals. As the name suggests, human rights originate in the universal identity of the human person, meaning they are linked to the simple quality of being human. Moral values represent the binding force of human rights, and they constitute the result of the evolution of philosophical and legal thinking of people organised in a society.

In essence, human rights are a set of principles concerned with tolerance, equality and respect that people around the world have agreed are indispensable, and that recognise our freedom to make choices about our lives and to develop our potential as human beings.

As opposed to science, which can proceed only when emotions are excluded, human rights build around emotions which play a foundational role in their establishment.

Each of them has a deep and vital function in our society, and both are necessary for the prosperity of humankind.

While science is the tool,
the human rights ideal is the purpose.

The history of human rights dates back to ancient civilisations, having evolved over thousands of years with many ups and downs which were influenced by religious teachings, philosophies and social movements. However, the modern concept of human rights, as we know it today, is traced back to 1948, after World War II, when the United Nations adopted the **Universal Declaration of Human Rights.**

The primary goal of this document was to build a more peaceful world by ensuring that never again would anyone be unjustly denied life, freedom, food, shelter and nationality.

"Human rights are like armour: they protect you; they are like rules, because they tell you how you can behave; and they are like judges, because you can appeal to them. They are abstract – like emotions; and like emotions, they belong to everyone and they exist no matter what happens."[3]

Eleanor Roosevelt holding poster of the Universal Declaration of Human Rights, Lake Success, New York. Nov. 1949

As stated in the UDHR, *human rights are rights inherent to all human beings, regardless of race, sex, nationality, ethnicity, language, religion, or any other status. Human rights include the right to life and liberty, freedom from slavery and torture, freedom of opinion and expression, the right to work and education, and many more.* ***Everyone is entitled to these rights, without discrimination.***

Exploring the Interplay between Science and Human Rights

Science and human rights are linked in many ways. To explore the interplay between them we suggest looking at the following aspects:

1. how science impacts human rights
2. how human rights impacts science

How does science impact human rights?

When it comes to this question, unavoidably we have in mind both the positive and negative effects. In order to clarify misinterpretations that may arise, we will start by emphasising that science itself has never done harm. Science is nothing but a system of thought, representing the accumulation and consideration of knowledge about the world and the universe. **The positive and negative effects depend solely on what we, as society, are making with science.** In the course of time, people have used the knowledge of science to do things both good and harmful. And this is precisely why education about human rights and ethics is so important for our future.

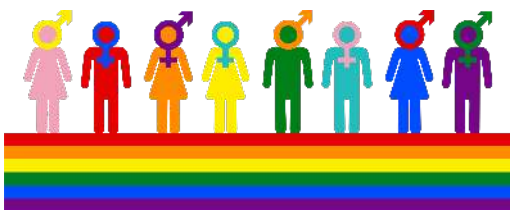
"It is our responsibility to ensure that science and its applications are in harmony with the full set of universal standards. A human-rights approach to science must be at the heart of what we want to be a sustainable future."
Nada Al-Nashif, UNESCO Assistant Director-General for Social and Human Sciences

How does science help the protection of human rights?

We can see examples of science promoting the protection of human rights all around us. Scientific developments have enabled humankind to ensure people's basic rights needed to make life itself possible, such as access to safe food, clean water, adequate health care, security, energy, transportation, telecommunications.
Developments in medicine and health-related fields led to longer lives, changing mortality expectations thanks to revolutionary inventions such as that of vaccines and antibiotics. The increased protection of the rights to life and health is evident particularly in the last 100 years thanks to numerous realisations: from the importance of hand washing to inventions of oxygen machines, artificial arteries, essential drugs; also thanks to discoveries in human genetics,, breakthroughs in psychology etc. Each medical discovery has brought humankind a major step closer to understanding the diseases, and thus to developing treatments that have been instrumental in saving millions of lives. The impact of science on human rights is tremendous, and we can only name a few other examples:

- **Protection of women's rights:** The development of the contraceptive pill allowed women and young women to continue their education, to pursue a career, to make a living by earning their own income; invention of women hygiene products;

- **Protection of children's rights**: The industrial revolution led to the emergence of children's rights, including the right to education, as they no longer had to work in factories, thus being able to go to school.
- **Protection of LGBTQ+ persons' rights**: Learning about scientific theories regarding sexual orientation and that homosexuality is not a disease (as opposed to religious dogma), helped them regain self-confidence and accept themselves. This also led to the decriminalisation of homosexuality and the adoption of anti-discrimination laws.



- **Protection of ethnic minority groups:** For example, the Uighur centers in China were discovered for the first time with the help of satellite images.

Medicine and technology can't be separated from human rights neither. For example, think of the importance of water pump invention and any progress in agriculture that allowed increasing protection of life and health.
Information technology has transformed human communication and freedom of expression forever. The progress of scientific technologies can be used to secure human rights through various means. Here are just a few examples:

- The invention of the radio allowed the spread of information related to human rights.
- The use of satellite data can monitor the flow of refugees or other displaced people.
- Artificial intelligence can assist with image recognition to gather data on rights abuses.
- The use of forensic technology can reconstruct crime scenes and hold perpetrators accountable.

Topic for discussion with the youngsters:
Please provide other examples of how current and emerging technologies can be used to secure human rights.

Some of these developments are so natural that we take their benefits for granted today. Think of the millions of migrants who can stay connected with their families and transfer money back home using online tools. **Technology allows people to show their distinct individualities. It further enables collective mobilizations, empowers minorities, enhances cultural connections, offers access to information to remote parts of the world, rural populations or socio-economically disadvantaged groups.**[5]

Human rights could be protected mainly as a result of scientific progress. A world without science is difficult, if not impossible, to imagine by most of us.

Everything that surrounds us is the result of the scientific work done by researchers. The computers, the phones, the internet, the electricity we're using, the Bluetooth headphones we use to listen to podcasts or music while driving.

The drinking water we have access to. The drugs we use to treat diseases and prevent infections. We can use robots to do certain jobs for us (cleaning, floor washing, cooking etc.). We can travel fast anywhere. We can get warm during the winter and cool during the summer.

We have the possibility to live in a healthy, unpolluted environment and to preserve natural resources for the future generations. We have a longer lifespan than our ancestors thanks to the development of vaccines and antibiotics, and many other discoveries made throughout the years. **All thanks to science!**

Science: friend or foe to human rights?

As mentioned, science itself is inherently neutral. Its impact is contingent upon how society chooses to wield it. Unfortunately, throughout history, people have used the advancements in science and technology to do harmful things as well, and military conflicts and wars are among the first examples that come to our minds. Other extreme examples: World Wars; the Manhattan Project and the atomic bomb; Mengele's deadly experiments on prisoners at the concentration camps; choice of offspring sex, cloning, manipulation of the DNA molecule.

The destructive potential lies not in science, but in our inner nature!

It's us, as a society, that appease our inner destructive impulsions and use science in the wrong way. This is why **education on human rights and ethics is crucial** for our existence. The negative effects are not always evident, but they undeniably occur when we have certain conflicts or clashes between human rights.

This also shows that human rights, although equal and indivisible, have their limits which should be analysed from case to case. Let's illustrate some **clashes that occur between human rights:**

- Although progress in the medical field is a continuous priority, this ultimately requires human testing, at which point difficulties arise in obtaining the necessary approvals. Think of how the development of new vaccines has been slowed down by human rights issues. Or, think of the tests on people in Africa: done without prior and informed consent, they were stopped after human rights forums intervened.
- The COVID-19 pandemic highlighted a major conflict between science and fake news/ conspiracy theories, with consequeces on collective health *(such as the low vaccination rates in some countries*); while, on the other hand, it brought attention to the conflict between the right to individual autonomy and collective rights to health and, ultimately, life. The pandemic led to the limitation of some rights, for medical reasons.

- With respect to the right to benefit from scientific progress and its applications: on one side, we're ensuring the rights to health and education; while on another side, certain social groups are affected by limitations of these rights because of lack of accessibility. Additionally, the obligation to provide universal and free primary education can't be fulfilled towards children/youth who lack access to technology, a fact that causes aggravated inequality.
- In the online world, the right to erasure ("right to be forgotten") can be limited when colliding with the right of freedom of expression and information.

According to the European Court of Human Rights (ECHR), most of the rights are not unlimited in a democratic society, but may be limited by: public safety, national security, the economic interest of the country, public health, morality, or the rights and freedoms of others.

The connection between human rights and technology holds a special place nowadays, particularly for youth, as it touches almost every aspect of our daily lives, both online and offline.

In the digital world, we now face the challenge to ensure that "the same rights that people have offline are also protected online".

When it comes to the freedom of expression, **technology has empowered individuals to use their freedom** to "seek, receive and impart information and ideas of all kinds, regardless of frontiers, either orally, in writing or in print, in the form of art, or through any other media of his choice" (art. 19 of ICCPR[8]).

From the use of social media to creating a crowdfunding campaign, people can now share and use information in multiple ways.

However, **information technology may sometimes be in conflict with the freedom of expression or with the right to privacy and personal data protection.** This can happen if companies and institutions are using computer algorithms that process information in ways that affect the people. One of the current challenges in this respect is to ensure that the use of algorithms is in accordance with human rights criteria (e.g. see GDPR regulation).[5]

How do human rights impact science?

Human rights are not always respected inside the scientific community: e.g. women discrimination and integration in science research (see the cases of Rosalind Franklin, Mileva Marić, Alice Augusta Ball and many others).

The need to protect the human rights of vulnerable categories dictates what scientific research is priority, and where the funds should be mostly invested. Examples:
a) In the medical field, the development of cures and medication is prioritised.
b) Limited access to drinking water in areas with limited infrastructure and limited resources for people has catalysed the invention of methods and tools by which water can be filtered and recirculated.
c) The statistical research on traffic accidents by sex-disaggregated data led to EU legislation requiring that vehicle tests be carried out with anthropomorphic mannequins corresponding not only to the male body, but also to the female body.

Sustainable development of technology is extremely important for a better society. The recognition of the human right to a clean, healthy, and sustainable environment is a powerful instrument to address the impact of climate change, pollution, loss of nature and biodiversity on human rights, and to ensure rights-based environmental action.

Scientific research or advancements are sometimes restricted due to human rights concerns. Examples:
a) Cloning (organ cloning included) raises many rights issues and was banned because of human rights. b) The fact that women didn't have the right to education for a long time restricted scientific progress.

Scientists and researchers are demanded to secure human rights by the knowledge they generate. Thus, they must be well informed regarding international human rights instruments such as laws, regulations, declarations and conventions.

As we learn more about the human condition and how certain things are right or wrong for us, new human rights can emerge. Because human rights can be influenced at any time by the complex dynamic changes of the world we live in.

Science as a Human Right

One thing that is often overlooked or less known by the general public, when it comes to human rights, is that UDHR recognises science as a cultural right. Thus, article 27 reads that *„Everyone has the right freely to participate in the cultural life of the community (…) and to share in scientific advancement and its benefits."*

With this article, the UDHR pays tribute to **science as an expression of human creativity**, and stresses that, as opposed to other forms of culture, science produces and offers us **benefits in the form of applied knowledge.** Let's take for example how the development of spectacles has improved visual impairment around the world, thus protecting the right to health.[2]

Science is more than cold data and numbers as most lay people perceive it. As part of culture, science represents the *concerted effort of the scientific community to use human creativity in order to make sense of the world.*[2]

The human right to science includes scientific freedom, and states are demanded to "respect the freedom indispensable for scientific research and creative activity."

"The recognition of scientific freedom as a human right casts science and scientists with a special status in society. They possess the power and responsibility to do good for humanity. These benefits, though, can materialise only if scientific creativity is unleashed and protected."[2]

Combining Science and Human Rights
Why it's the best option for a better future?

Plenty of young people lack a strong grasp of science and critical thinking skills. Without a strong understanding of science and critical thinking, they're vulnerable to misinformation and manipulation, impacting their ability to engage in informed civic discourse.

Moreover, the separation of science and human rights education exacerbates the problem. Traditional science education tends to focus on abstract concepts, leading to confusion and disinterest among youth. By integrating science and human rights, we can show young people how science impacts their daily lives and the issues they care about. This approach fosters a deeper understanding of both subjects and encourages practical applications. Combining science and human rights education is essential for cultivating a balanced and informed society.

Scientific literacy promotes critical thinking and innovation, while understanding of human rights fosters empathy, mutual understanding, and social justice. By integrating science and human rights education, we empower young people to become active citizens who understand their rights and responsibilities. This not only enhances their personal development but also contributes to the creation of a democratic, inclusive, and sustainable European society.

However, **it's crucial to maintain a balanced perspective.** While acknowledging the potential of science for progress, we must also recognize its potential for misuse. Youth should be educated about their responsibility, both at the individual and social level, to promote transparency in scientific practices and ensure that scientific discoveries serve the greater good of humanity.

As youth workers, it's our responsibility to equip young people with the knowledge and skills they need to navigate the complexities of the modern world and contribute positively to society.

Benefits and Opportunities for Youth

Learning about the impact that science has on human rights can **inspire young people** to become involved in their communities and to identify **how they can use their own skills to bring positive changes**. Therefore, the intersectional education between science and human rights will contribute to the formation of informed young citizens, equipped with critical thinking and actively involved in promoting human rights and combating inequality in society, in all its forms. On the next page, you can read about **more benefits and opportunities for the youth.**

Increases their responsibility and participation

It enhances their levels of responsibility and active participation in community and political life.

Boosts interest in science careers

Increases interest in pursuing careers in science.

Enhances scientific knowledge

Improves understanding of science and offers better insights into practical applications, helping youth become more competitive and efficient in school or academic performances.

Broadens understanding of scientific research

Enhances comprehension of the benefits of scientific research for both long-term community improvement and the development of critical thinking.

Promotes skepticism and vigilance

Strengthens a skeptical attitude towards unsubstantiated claims and heightens awareness of fake news, pseudo-scientific reports, and misinformation in media and public spaces.

Links science with human rights in thier minds

Teaching science within a human rights context ignites interest in STEM fields as avenues to address societal challenges (such as poverty, social inequity, climate change, conflicts, and lack of resources), thereby nurturing a generation of civic-minded scientists.

Facilitates critical examination

Provides youth with opportunities to engage in critical self-examination and societal analysis through discussions on issues of public concern

Encourages creativity

Fosters creativity by enabling young people to feel confident in discovering their scientific/technical skills, learning to innovate.

Develops Critical Thinking

Enhances critical thinking and the capacity for informed self-governance.

Boosts Self-Confidence

Improves confidence in one's ability to make the world a better place.

Case Studies
Illustrating Successful Integration

As youth workers, you can **use as a starting point the main science fields studied in school**, most familiar to young people (maths, biology, physics, chemistry etc).

- List other sciences that are related to each main field above (the young people can be asked to do that as an exercise).
- Show which social sciences/ humanities are connected to each science field and how.
- Emphasise how human rights developed from the interconnection of those fields.
- Take into account - where applicable - the science industries present in the geographical area of the young people, and create some activities based on them in order to facilitate youth connection and understanding, also to motivate them to pursue such careers. E.g., if the area is known for exploitation of petroleum/gas resources, you should give examples related to it.

Considering the need to correlate the development of human rights to the corresponding level of the contemporary knowledge society, as a youth worker, **it's essential to use straightforward tools and messages** to connect with a wide range of young people.

- Consider using various methods and platforms to engage them effectively, including physical and online events, non-formal activities like workshops, clubs, and debates, as well as interactive formats like role play, games, and Socratic dialogue. By embracing diverse approaches, you can ensure your message resonates with the youth audience and fosters meaningful engagement.

Next, we will show you how certain science fields can be correlated with key human rights issues.

Teaching of biology should help youth improve their understanding of the importance of biology in society such as **quality of life and health** through medicine, and for the **protection of the Earth's ecosystems** through ecology. In correlation with health, you can engage youth in discussions about:

✦the inventions of vaccines and antibiotics;
✦importance of understanding of bacteria vs. viruses;
✦prevention of diseases;
✦eliminating stigma surrounding adolescent access to sexual and reproductive health services.

Teaching of chemistry plays a vital role in healthcare in the pharmaceutical industry: synthesis, manufacture, design of treatments and drugs, of surgical materials, production of safe foods, clean water, antibacterial soaps and detergents, tools to detect disease earlier and to treat them, in order to have **healthier communities**.

Teaching of mathematics:

In relation with statistics, it can be correlated with the **right to participation in politics and public decision-making,** or with the **right of access to information** protected through transparency of public/youth policies.

Or, it can be connected with the **right to work**, **right to equal protection** and access to **social protection rights in the labour market** (*equal pay for work of equal value*).

✦Ask the young people to analyse wage distributions from different countries or regions of their country, and to create simple comparisons. This would require group work, use of computers and the internet, simple maths and understanding of their economical situation.

At the end, as youth workers, you can create a group discussion around their task and approach the subject through a social and human rights perspective.

Teaching of Information Technology:
You can make a correlation with the **right to respect for a private life** – it connects with use of technology, artificial intelligence (algorithms).
Topics for discussion:
✦AI protecting youth's security and helping them enjoy their fundamental rights (positive effect) vs. risks, use of AI with malicious purposes (negative effect);
✦The use of AI for reducing the gaps in decision-making (positive effect) vs. potential for strengthening prejudices in decision-making (negative effect)
You can also correlate with **the right of access to information** and the **right to freedom of expression**: technology in favour of vulnerable groups (positive effect) vs. dissemination of hate speech (negative effect)
✦Ask young people to make a list of benefits and disadvantages of AI use in their daily life.
✦Discuss about what measures of online self-protection they take, and what criteria they use to identify potential abusers online.

In addition to that, teaching of sciences should **help youth develop the ability to critically assess and distinguish between statements based on scientific and non-scientific claims.**
Young people's critical examination of public issues should not be limited to source critique that aims *to sift out „true" facts and uncontested science*.[9] That is, when teaching youth how to critically analyse the public information (e.g. fake news), our approach should also focus on developing their ability to understand and identify autonomously what is scientifically true is and what is scientifically false. In this way, even if they happen to omit that the source is wrong or manipulative, they should be able to identify the fake content - at a basic level - autonomously.

Ethical Dilemmas

Human rights and ethics are knitted together and can't be fulfilled without each other. As opposed to science that indicates what objective reality is, seeking causal relations between objects or natural phenomena, regardless of our aspirations, ethics guides us to know what is permitted, prohibited or imposed in our actions from the perspective of moral goodness.
Ethical considerations and the application of human rights principles are foundational in guiding the practice of science. This underscores the importance of not only advancing scientific knowledge but also ensuring that it's used ethically and for the betterment of humanity.

Ethical decision-making is based on core character values like trustworthiness, respect, responsibility, fairness, caring, kindness and good citizenship.

This approach can encourage youth to think about **the ethical dimension of technology and science** and what practices have a negative/positive impact on fundamental rights. Examples: the medical testing done in the past on persecuted or vulnerable groups, the internet censorship or restricted access to the online content in some countries the use of AI to suppress democratic uprisings, the surveillance that violates the right to private life, etc.

Tip! Discuss with the young people about their views on ethics, by offering hypothetical scenarios and asking them what the most ethical decision would be to solve the problems presented.

Amplifying Voices and Raising Awareness for Human Rights Issues

As evidenced through history, **human rights can't be taken for granted**. Societal changes have had a profound impact on the development of human rights. Technological advancements, key events, evolving social norms, and shifting political contexts have all contributed to the way human rights principles have evolved. Therefore, we must unite our forces and voices to ensure all governments protect, respect, and fulfil human rights!

Social movements and activism have played a crucial role in driving progress in human rights. These movements, often led by committed individuals and communities, have challenged established norms, raised awareness, and fought for the recognition and protection of various human rights.

These movements demonstrate the power of collective action and grassroots activism in shaping the development of human rights, pushing for change, and expanding the range of rights and freedoms recognised and protected worldwide. Next you can read about some of them.

"**Never doubt** that a small group of thoughtful, committed citizens can **change the world.** Indeed, it is the only thing that ever has."

Margaret Mead

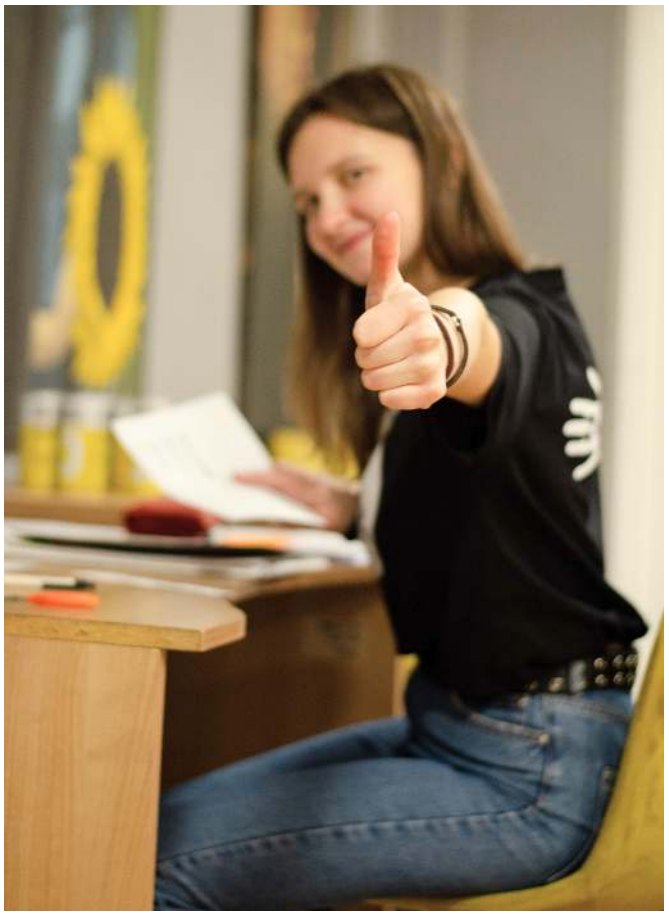
Examples of activism and social movements:

- ***Abolition movement*** - The movement to end the transatlantic slave trade and abolish slavery played a vital role in establishing the principle that all human beings are entitled to freedom and equality, regardless of race or origin.
- ***Women's suffrage movement*** - The struggle for women's right to vote and participate in political life was a significant milestone in the development of human rights, as it challenged traditional gender norms and led to important advances in gender equality.
- ***Civil rights movement*** - The campaign for racial equality and an end to segregation in the United States brought the issue of racial discrimination to the forefront of global human rights debates, leading to significant progress in the protection and promotion of racial equality around the world.
- ***MeToo movement*** - a social movement and awareness campaign against sexual abuse, sexual harassment and rape culture, in which people (particularly women) speak publicly about their experiences of sexual abuse or sexual harassment. The hashtag #MeToo was used since 2017 as a way to draw attention to the magnitude of the problem.
- ***Fridays For Future*** - a youth-led and -organised movement that began in 2018, after 15-year-old Greta Thunberg and other young activists sat in front of the Swedish parliament every school day for three weeks, to protest against the lack of action on the climate crisis.

Tip! Engage the young people by asking them what social movements they know, if they have ever participated in any marches or social protests, if they have anything to criticise or protest against that could be done through a public initiative.

Here are our **suggestions for effective science communication strategies**:

- Use science dissemination as a tool to increase citizen awareness of how scientific issues can be related to social issues and politics. See citizen science initiatives.
- Focus on real issues of your community that can be solved with the help of science. Ask young people what solutions they can think of, or invite a scientist to have a discussion with them on that topic.
- Make use of technology in order to access remote parts of the world. This is a powerful way of communicating science for advocacy, policy debates or litigation.
- Engage scientists, engineers and health professionals in discussions with youth on human rights issues, particularly those issues that involve scientists and engineers and the conduct of science.
- Put human rights practitioners in contact with members of the scientific community, and help them access the scientific information and knowledge;
- Improve human rights practitioners' access to scientific and technological information and knowledge



Human rights education must contain a final dimension: **helping youth achieve attitudinal change**. Therefore, as youth workers, you should empower young advocates for meaningful change by practising the following:

- Pushing the government and public authorities to take the necessary measures to fulfil commitments to human rights;
- Actively engaging in developing local and national frameworks to ensure the protection of human rights;
- Ensuring that the authorities and political leaders make science-based decisions. In this respect, young people should reach the potential next leaders in their community, and make them realise and understand the connection between science and human rights and the impact it can have on the members of their community.
- Making sure that human rights are at the centre of public policies whenever they regard domains of science (technology, covering housing, surveillance, energy production, climate change, access to fresh water, biological warfare, deforestation, public health, sustainable development etc.)

Human rights-based policies should consider not only economic but also social, scientific, and educational factors. Human rights-based approaches should not be used simply as a fancy moral aspect to policy or scientific/technological innovation. **They can form the very heart of a sustainable future.**

CHAPTER 5 - Collaborating with Stakeholders and Partners

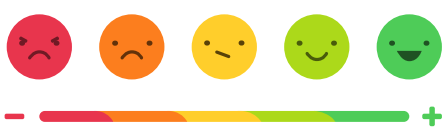
As youth workers, you should seek to build partnerships with science and human rights organisations. Here are our suggestions:

- Organise visits to local museums, research centres, educational institutions, private companies and other science and human rights-related entities;
- Invite scientists, human rights experts or activists to speak with the youth in your group;
- Organise conferences or public presentations where you can invite scientists, human rights experts or activists.
- Create local civic groups that include scientists. This will help youth learn how to ask questions like scientists, engage in problem solving, and co-create solutions for real issues of their community.
- Involve public institutions as partners or collaborators in your projects (public libraries, public schools/universities, local authorities);
- Organise youth visits to institutions of local authorities or invite representatives of public authorities to discussions with the young people on current problems affecting your community.

Evaluation and Impact Assessment it's not the most glamorous topic, but it's absolutely essential. This chapter will guide you through the process in a simple and straightforward way.

Objectives of Evaluation: Setting Clear Goals
First off, why are we evaluating? We need to determine whether our integrated approach to science and human rights education is hitting the mark. Are participants absorbing scientific knowledge? Do they grasp human rights principles? Are we seeing any shifts in attitudes or behaviours? These are the benchmarks we're aiming for, aiming to understand the real impact of our efforts.

Selection of Evaluation Methods: Choosing Wisely
Now, onto the methods. There's no shortage of options – surveys, interviews, observations, you name it. Pick the ones that suit your programme and your audience best. Keep it practical and efficient.



Data Collection and Analysis: Gathering Intel & Making Sense of the Numbers
Time to gather data. This means asking questions, conducting interviews, and yes, keeping an eye on things. But remember, respect people's privacy and rights every step of the way. Once you've got a pile of data, it's time to dig in and analyse. Look for trends, patterns, anything that sheds light on the impact of your learning sessions. And don't skimp on either quantitative or qualitative analysis.

Monitoring Progress: Stay on Track
Don't wait until the end to see how things are going. Keep tabs on your progress throughout the program. If something's not working, be ready to pivot. Flexibility is key.

Reporting and Communication: Sharing Results
Now it's time to share your findings. Put together a clear, concise report and spread the word. Let everyone know about the great work you're doing and the difference you're making.

Reflection and Learning: Continuous Improvement
Take a moment to reflect on the evaluation process. What worked? What didn't? Use what you've learned to refine your program for next time. It's all about getting better.

Ethical Considerations: Doing Things Right
Always operate ethically. Get consent, protect privacy, and minimize harm. We're here to make a positive impact, so let's do it the right way.

Sustainability and Long-Term Impact: Looking Ahead
Finally, think about the bigger picture. How can you use your evaluation findings to make a lasting impact? Keep the momentum going and leave a legacy. Evaluate not just for the sake of it, but to understand the true impact of your efforts and to ensure that they have a lasting effect on the lives of young people.

There you have it – Evaluation and Impact Assessment in a nutshell. Now go forth and show the world the incredible impact of your integrated approach to science and human rights education!

CHAPTER 7 - Case Studies and Inspirational Stories

In this chapter, we explore a series of **compelling case studies** and **inspirational stories** that highlight the practical applications and transformative impact of integrating science with human rights in youth work. We have also included valuable tips from the youth workers who participated in our training course, and who conducted post-training learning activities for the youth from their communities.

Each story was carefully selected to showcase the challenges faced and the victories achieved by youth workers from different countries. These stories not only serve as educational tools but also as beacons of motivation, demonstrating the power of innovative thinking and ethical consideration in fostering societal change.

Through real-world examples, **this chapter aims to inspire you**, the youth workers and educators, and to provide you with concrete examples of how science and human rights can be interwoven to create impactful and positive changes in communities. As you explore these stories, **we invite you to draw inspiration** and gather insights that can be applied in your own efforts to empower the youth and build a more equitable world.

Inspirational Story: Bridging Science and Human Rights for Roma youth

Overview:
Youth Worker: Venellin Stoychev
Date & Venue: January 2024, Kyustendil (Bulgaria)
Participants: 18-26 y.o. volunteers from a youth NGO that works with Roma youth from different communities

In January 2024, the youth worker led a two-day learning session, focusing on the integration of science and human rights. The participants, who were young Roma volunteers from the LARGO NGO, initially found the topics abstract and distant. To counter this, Venellin employed practical examples and interactive games, which gradually captivated their interest and facilitated dynamic discussions, particularly about future applications of science in addressing societal issues. This was useful to make the participants understand how the subject relates with issues they are facing or could face: the quality of healthcare, access to education, violence in local communities, drug distribution, human trafficking, etc.

The learning session successfully transformed initial skepticism into enthusiastic participation, illustrating the power of making science and human rights tangible and relevant in the lives of young people. Venellin plans to continue these impactful sessions, further exploring the practical intersections of science and human rights.

💡**Tips for Youth Workers:**

- **Facilitate Initial Connections:** Start with icebreakers that encourage introductions and personal sharing. For instance, pair up participants and have them introduce their partners to the group. This not only breaks the ice but also builds initial bonds among participants.
- **Incorporate Kinesthetic Activities:** Use movement-based games to keep energy levels high and improve focus. In the second session, you might have participants mimic the presenter's movements, which can lighten the mood and increase attentiveness.
- **Enhance Communication Skills:** Implement communication-focused games like the “broken phone” where participants whisper a message along a chain, demonstrating how easily information can be distorted and emphasizing the importance of clear communication.
- **Relate Activities to Daily Life:** Ensure all activities are tied to the everyday realities of the participants. This relevance helps transform abstract concepts like science and human rights into tangible and meaningful discussions.
- **Keep Content Relevant:** Tailor the content to directly address the interests and needs of your audience. Avoid broad, generic themes that might not resonate, focusing instead on specific issues that impact their lives directly.

Inspirational Story: Using Theater for Creative Learning

Overview:
Youth Worker: Daniela - Adriana Tanasă
Dates & Venue: February 2024, Students' House of Culture, Iași (Romania)
Participants: 16-20 y.o. youth including from disadvantaged backgrounds

Youth worker Adriana crafted an engaging learning session that brought together theater and education. She gathered fifteen young people for an innovative exploration of science and human rights through the ages.

The session's centerpiece was a "*Challenge of the Past*" where students researched and acted out the different experiences of men and women in science history. By writing and performing short plays, the participants vividly portrayed historical challenges and achievements, making the past relatable and insightful.

The young participants fully engaged in both discussion and performance, because Adriana's session was more than just educational; it was a transformative experience that encouraged them to think critically and creatively about the world around them. She plans to continue using this effective blend of theater and education to inspire even more young minds in the future.

Description of “Challenge of the Past” Exercise:

- Objective: The participants explore gender roles in science through history by creating and performing a theatrical piece.
- Setup: Split the participants into mixed teams. Assign each team the task of researching the historical journey of women and men in science, focusing on disparities and milestones.
- Execution: Teams spend 10 minutes researching, 5 minutes writing their scripts, and other 5 minutes preparing the stage and props. Each team then performs their 5-minute play.
- Discussion: After the performances, hold a debrief session to discuss the plays, the research process, and the insights gained. Finish the exercise by asking them to draw their conclusions and also offer your input.

💡Tips for youth workers:

- **Creativity in Education**: Use creative methods like theater to make complex subjects engaging. This approach helps participants connect emotionally with the material, fostering deeper understanding and retention.
- **Flexibility**: Be adaptable in your planning. When faced with challenges, whether logistical or technical, having backup plans and the ability to think on your feet will keep your session on track.
- **Engagement Through Feedback**: Regularly seek and incorporate feedback. Understanding participants' experiences can guide improvements in session design and execution.

Inspirational Story: Using Science to Help Advance Children's Rights

Overview:
Youth Worker: Antoine Farrugia
Dates & Venue: March 2024, St. Philip House, Senglea (Malta)
Participants: 14-29 y.o. from different communities

Antoine held a transformative learning session, aimed at participants primarily from underprivileged backgrounds. The goal was to demystify science and human rights, making these concepts accessible and relevant. Antoine employed a variety of interactive techniques, including mobile phone research activities, to engage participants actively. A standout feature was the use of Virtual Reality (VR) to expose participants to human rights issues in Africa, blending technology with empathy-building. Another effective tool was a hands-on lighting activity, which not only taught technical skills but also kept the participants engaged and interested.

The youth worker encountered some challenges, such as obtaining parental/guardian consent for young participants who were either refugees or lacking parental care, but he managed to overcome them by leveraging existing permissions from youth center activities, ensuring that no interested youth was excluded due to bureaucratic hurdles. He received positive feedback, particularly for the interactivity and the use of technology.

This learning session in Senglea exemplified how innovative educational approaches can significantly empower youth, turning abstract concepts into tools for advocacy and change. This story serves as an inspiring model for youth workers globally. Motivated by the success, Antoine plans to continue and expand these sessions, reinforcing the bridge between science and human rights education.

💡Tips for youth workers:

- **Leverage Technology to Engage:** Utilise the technology that young people are familiar with and enjoy. For example, incorporate mobile phone activities (*Mentimeter, Kahoot, internet research etc.*) into the session to maintain interest and encourage active participation. Virtual Reality (VR) can also be a powerful tool to create immersive learning experiences that bring complex issues to life.
- **Interactive Learning:** Break away from lengthy lectures, especially for audiences with short attention spans or those who have had negative experiences with formal education. Use a mix of short talks and interactive activities like group discussions, hands-on exercises, or technology-based tasks to keep the energy high and the participants engaged.
- **Use Simple, Practical Demonstrations:** Apply simple but effective demonstrations like the hands-on lighting setup to teach scientific principles. These activities not only explain complex ideas in an understandable way but also add an element of fun that can enhance learning.
- **Handle Bureaucratic Challenges Sensitively:** Be flexible and creative in dealing with bureaucratic or administrative hurdles such as obtaining parental/guardian consent. Antoine's strategy of using pre-existing consents for youth center activities is an example of how to simplify processes to ensure no participant is left out due to technicalities.

Case Study from Yambol, Bulgaria

Overview:
Youth Worker: Desislava Kalinova-Zueva
Date & Venue: February 2024, Yambol (Bulgaria)
Participants: 14-16 y.o. youth

The youth worker tailored a two-day learning session for a group of adolescents by linking science and human rights through interactive learning methods. The sessions included a mix of activities such as interactive presentations, videos and workshops which the participants found exceptionally valuable.
A notable highlight was an interactive presentation at a local observatory where the participants discussed the future implications of science projects on human rights.

Successful Strategies:
Interactive Icebreakers: The first session kicked off with an engaging activity where the participants guessed the meaning of absolute rights (as opposed to the non-absolute rights), and discussed the impact of scientific inventions on society and human rights.
Creative Expression: In the second session, they expressed their identities by writing their names on coloured paper and drawing three personal symbols (one of which should be a frequently used device), and creating a thematic poster.
Tree of Life Activity: Each participant wrote their name on a heart and placed it on a “Tree of Life”, fostering a sense of community and belonging.
Educational Gift: Participants received a personal alarm key holder, which they greatly appreciated as a meaningful and useful keepsake.

Conclusion:
The learning activities were well-received, with no significant obstacles. The successful integration of practical tasks and interactive education led the youth worker to plan for future sessions. Given the positive feedback and visible enthusiasm from the participants, there is a clear demand for continued education on the intersection of science and human rights.

The youth worker's approach to blending scientific education with human rights principles not only educated but also inspired the youth of Yambol. Her method of using creative and interactive elements to enhance learning proved effective, with plans to replicate and expand upon these successful strategies in future workshops.

Case Study: Fostering Dialogue on Science and Human Rights

Overview:
Youth Worker: Bogdan-Andrei Lungu
Date & Venue: March 2024, Faculty of Political, Administrative and Communication Sciences, Cluj-Napoca (Romania)
Participants: 18-26 y.o. youth members of the Roma, Turkish, Hungarian and Muslim minorities

Session Highlights: The learning session was structured as an open dialogue, allowing participants to share their perspectives and experiences freely. Discussions touched on scientific validity, the scientific method and their relationship to human rights. A standout moment was a role-playing exercise where participants enacted scenarios depicting the challenges women faced in science during the 18th and 19th centuries. This activity, along with discussions on the Universal Declaration of Human Rights, deeply engaged the young participants, sparking lively debates and insightful exchanges.

Challenges and Solutions: The success of this session underscored the value of combining educational discussions with interactive, participatory methods to explore complex topics.

Planning for the future: Encouraged by the positive feedback and the depth of discussion, the youth worker plans to conduct more sessions on this theme. Two participants have expressed interest in collaborating on future projects, potentially extending these discussions to other communities. Initiatives are also underway to adapt this model for learning activities in other cities, like Rădăuți, aiming to promote science and human rights awareness among younger people.

Effective Workshop Example: Juggling Ideas and Opinions

Objective: This workshop aims to create a dynamic dialogue where participants can freely express their initial reactions to and interpretations of various topics related to science and human rights.

Structure:

1. **Introduction:** The youth worker introduces a thought-provoking concept or statement related to the session's theme.
2. **Initial Reactions:** Participants are invited to share their first impressions and personal or professional connections to the topic.
3. **Guided Discussion:** The youth worker encourages a round-table discussion, ensuring that each participant has the opportunity to contribute. The discussion is kept balanced by gently guiding the conversation and making sure all voices are heard without dominating the discourse.

💡**Execution Tips:**

- **Encourage Openness:** Create a welcoming environment that respects all viewpoints. Encourage participants to speak openly without fear of judgment.
- **Facilitate Equitably:** Actively manage the discussion to ensure that quieter participants have the opportunity to speak and that more vocal participants do not overpower the conversation.
- **Connect to Personal Experience:** Encourage participants to relate the discussion to their personal experiences or academic studies, which can enrich the dialogue and make the abstract concepts more tangible.

Benefits: This approach not only breaks the ice among participants but also deepens their engagement with the topic by connecting it to their lives and studies. It fosters a sense of community and shared learning, which can lead to more meaningful and impactful discussions.

Case Study: An exploration of science and human rights in the field of social activism

Overview:
Youth Workers: Seana Vella and Mark Farrugia

Date & Venue: March 2024, Moviment Graffitti premises, Valletta (Malta)
Participants: 20-30 y.o., youth group of refugees living in Malta and young activists who organise protests for social issues

Session Highlights

In the heart of a vibrant community, this team of youth workers conducted a learning session which was a blend of lively discussions, quizzes, and brainstorming moments. Firstly, they focused on human rights and activism, then they delved into the critical role of science in these areas. A fast quiz right at the right moment made the transition into the science-themed segment seamlessly.

The session culminated in a creative exercise where participants, armed with cardboard and markers, planned out hypothetical protests, applying their newfound knowledge in a tangible way.

This approach not only filled the learning session, but also fostered a dynamic learning environment where each participant could voice their experiences and ideas, truly making the session a collaborative success.

Tips for youth workers:

- **Understand Community Context:** Spend time understanding the specific challenges and cultural dynamics of the community. This awareness can guide the development of content that resonates more deeply with participants, such as using examples and case studies relevant to their experiences.
- **Create a Safe Space**: Establish the session as a safe space where participants feel secure and respected. This is especially important in refugee communities where individuals may have experienced trauma. Emphasise confidentiality, respect for diverse opinions, and the importance of a supportive learning environment.
- **Facilitate Inclusive Discussions**: Use facilitation techniques that ensure all participants, including those who might be quieter or less confident, have the opportunity to share their thoughts and experiences. Techniques could include small group discussions or pairing participants for one-on-one conversations.
- **Use Accessible Materials**: Ensure that materials used, such as quizzes or educational handouts, are linguistically and culturally accessible. Consider the language abilities of participants and provide translations or interpretations if necessary.
- **Adapt Activities to Resource Availability**: Be mindful of the resources available within the community. For hands-on activities, use materials that are easily accessible or that can be sourced locally without significant cost.
- **Provide meals or snacks:** This is essential especially for youth from vulnerable backgrounds. Providing a meal not only encourages attendance and participation, but also shows concern for their needs. Look for local funds or partnerships to support this effort, ensuring that participants are well fed and able to fully take part in the activities.

Inspirational Story: Small Victories for young minds

Overview:
Youth Worker: Viktoria Svetlinova Urucheva
Dates & Venue: March 2024, Plovdiv (Bulgaria)
Participants: 18 y.o. youth selected due to their imminent transition into adulthood and their existing understanding of civil rights

Viktoria, who is 18 y.o., used her own age and familiarity to the subject to easily connect with other teenagers. She led learning sessions that built on what the teens already knew from their civil rights classes, diving deeper into how science and human rights relate. The highlight of the sessions was a moral dilemma exercise. In this activity, the teenagers worked in groups to solve ethical problems involving science and human rights. This exercise was fun and made everyone think hard, leading to lively discussions and teamwork.

Viktoria received positive feedback and plans to hold more of these sessions. Both her civil rights teacher and the Bulgarian Red Cross Youth (as a partner) are interested in continuing this educational approach, with plans for bigger sessions. Her learning activities not only taught important information but also inspired the teenagers to see the deep connection between science and human rights, which are essential for them as they grow into informed, responsible adults.

Replicating the Moral Dilemma Exercise:

- Materials Needed: A3 paper, pens, markers, and printed descriptions of moral dilemmas.
- Setup: Divide participants into small groups (3-5 members).
- Activity Duration: Allow 15 to 60 minutes for discussion and solution development.
- Presentation: If time permits, have each group present their solutions, fostering a sense of accomplishment
- and sharing diverse perspectives.

💡**Tips for Youth Workers:**

- Preparation is Key: Ensure all materials are prepared in advance to maximize session time.
- Use Assistants: Enlist help for logistical tasks to focus more on facilitation.
- Integrate Learning with Existing Curriculum: Collaborate with teachers to embed your session into related coursework, adapting the information to the young people's knowledge and enhancing relevance and depth.
- Time Management: Distribute materials early in the session and encourage note-taking during presentations to make the transition into interactive activities more efficient.

Ethical dilemmas examples:

Access to New Medicines: A company is testing a new medicine that might cure a serious illness, but this medicine is not yet proven safe and is not approved for everyone to use. Some sick people from a poor area want to try this medicine because they have no other options. Should the company give them the medicine knowing there are risks, or should they not give the medicine to protect the people from possible harm?

Factories and Clean Air: A big company wants to build a new factory close to where many poor people live. The factory will offer jobs and might help the local economy, but it could also pollute the air and make people sick. Should the company build the factory? Offer arguments for your answer.

Technology and Education: A few schools get money to use advanced computer programs to help young people learn better. This technology might make learning better for some, but it could also deepen the gap between rich and poor young people who might not have this technology at home. How should the schools use this technology so that all young people can benefit equally?

Genetic Testing and Keeping Secrets: A school offers to do genetic testing of the young people to see if they might get sick in the future. This could help them avoid or prepare for diseases, but it also could lead to their private health information being shared. Should young people and their families agree to this testing? And how should the school make sure no one else finds out about the results?

Using Social Media to Speak Out: Some teenagers start a campaign on social media to change the rules at their school, in order to make things better. The school leaders worry that the campaign might spread wrong information and cause trouble. Should the school stop these teenagers from using social media for their campaign to keep order, or should they allow them to speak freely?

Case Study: Bridging Technology and Human Rights in Education

Overview:
Youth Worker: Marina Marilena Vasilof
Date & Venue: April 2024, Youth Centre from Focșani (Romania)
Participants: 15-18 y.o. youth, including from rural areas and economically disadvantaged backgrounds

Session Highlights: The sessions thrived when discussing the intersections of science, technology, and human rights. A key moment was the ethical discussions on how decisions can impact human values and rights. Another impactful segment was the discussion on the right to information, which helped clarify issues related to discrimination.

Challenges and Solutions: The main challenge was to foster a deep understanding of complex issues like discrimination and technological impact on human rights within a diverse group of young people. By using real-world examples and facilitating open discussions, the participants were able to engage critically with the topics.

Planning for the future: Encouraged by the session's success and the participants' engagement, there are plans to replicate similar learning sessions, potentially including more interactive technologies to further explore the relationship between human rights and technology.

Effective Workshop Example:

- **Description**: Divide the participants into small groups (4-6 persons) and give them a photograph (depicting a controversial scene that involved some technology) to analyse. Encourage them to discuss the emotions evoked by the image and to speculate on which rights might have been violated in the scene depicted.
- **Procedure**:
  - Each group will spend 5 minutes discussing the image.
  - Groups will share their initial thoughts in a plenary session.
  - The facilitator will then reveal additional information about the image, prompting the participants to reconsider their initial analyses.
  - Back in their groups, participants will discuss how their opinions had changed and whether different rights seemed affected.
  - A final discussion will highlight how technological developments impact access to reliable information.

💡**Tips for Youth Workers:**

- **Use Real-World Examples:** Apply practical examples to complex theories to help the young people connect with the material.
- **Foster Critical Thinking:** Encourage the youngsters to reassess their views as new information is presented to develop critical thinking skills.
- **Emphasise Discussion:** Allow ample time for group discussions to enable them to express and refine their thoughts.

Case Study: Integrative Science and Human Rights Education at a Tech Museum

Overview:
Youth Worker: Raychin Rachev
Date & Venue: April 2024, Techno Magic Land Museum, Sofia (Bulgaria)
Participants: 14-29 y.o. underprivileged young people from Sofia, Plovdiv, Botevgrad and Velingrad

Session Highlights: The session employed interactive methods including games, individual and group research, and discussions which were instrumental in engaging participants. A key feature was the exploration of European Commission procedures on purchasing COVID vaccines, highlighting potential human rights issues. This topic, although complex, sparked significant interest and critical thinking among participants, as they learned to research and understand human rights in the context of informed choice and decision-making participation.

Challenges and Solutions: The main challenge was the abstract nature of the topic, which initially attracted a lot of interest online but resulted in only a few actual participants. To overcome this, the youth worker used personal networks and partnerships with NGOs, offering free entry to the museum as an additional incentive. Adapting the session format to allow more individualised engagement proved effective, turning the challenge into an opportunity for a more personalised learning experience.

Planning for the future: The session at the museum successfully demonstrated how interactive and well-planned educational efforts can significantly enhance young people's understanding of complex issues, paving the way for informed and active future citizens. Encouraged by the outcomes, the youth worker plans to conduct similar sessions, focusing on follow-up activities like the monitoring of national and EU institutions in regard to human rights issues.

Successful Strategies used during the sessions:

- Interactive Entry Games: To break the ice among unfamiliar participants, the youth worker started with entry games that facilitated introductions and set a collaborative tone for the day.
- Focused Research Activities: Participants researched assigned topics individually and then collectively explored specific cases like the EC's COVID vaccine procurement, encouraging a deeper understanding and engagement with real-world issues.
- Innovative Content Delivery: The session creatively integrated human rights with current global challenges, allowing participants to see the relevance of these rights in modern societal and scientific contexts.

💡**Tips for Youth Workers:**

- **Adapt to Participant Needs**: Be flexible in adjusting session content and activities based on the participants' familiarity and comfort with the topic.
- **Use Engaging Settings**: Leverage unique venues like museums to enhance the learning experience and attract a diverse audience.
- **Encourage Practical Application**: Design activities that connect theoretical knowledge to real-world scenarios, helping participants understand the practical implications of their learning.
- **Foster Follow-Up Engagement**: Plan for subsequent sessions or activities that allow participants to apply what they've learned in practical, real-world contexts.

Inspirational Story: Empowering Youth from Rural Areas

Overview:
Youth Worker: Luca Onică
Date & Venue: April 2024, Săbăreni (Romania)
Participants: 14-16 y.o. youth from a small village

In the small village, Luca embarked on a mission to enlighten and inspire. Aware of the challenging circumstances these young individuals faced in their community, Luca tailored a program that introduced them to critical thinking, the scientific method and human rights. He discovered that the young participants responded best to concrete information and practical applications of abstract concepts. He introduced them to critical thinking principles and historical contexts of human rights, sparking an eagerness to learn and ask questions. The most successful part of the session involved group activities that encouraged collaboration and practical application of their new knowledge.

Initially, the youth worker planned a debate on career formation. However, the format did not resonate with the students, who struggled with introspection and open discussion. Realising the need for a shift, he adapted by sharing stories from his own student days and explaining the session's goals in detail. This approach of providing concrete examples significantly helped the participants engage with the workshop's themes.

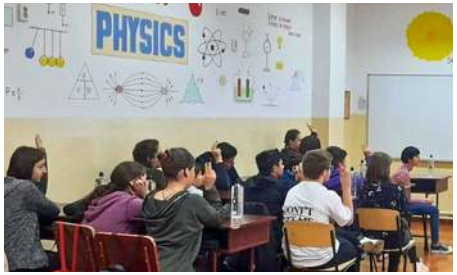
One particularly effective activity was the team mind map. Groups of 5-6 participants explored the relevance of curiosity in everyday life. Each group developed a mind map that they later presented to their peers, demonstrating their understanding and ability to work together effectively. This exercise not only fostered interaction but also allowed the young people to apply their learning creatively.

How to Conduct a Mind Map Exercise

A mind map exercise is an effective way to stimulate creativity and collaboration. Here's a concise guide on how to facilitate this activity:

- Define the Topic: Select a central theme relevant to your session's goals. For example, use "The Impact of Scientific Advancements on Society" for a session on science and human rights.
- Form Groups: Divide participants into small groups of 4-6 to ensure everyone can contribute.
- Prepare Materials: Provide each group with: large paper or whiteboards, colored markers, sticky notes (optional).
- Introduce the Mind Map: Briefly explain what a mind map is and show an example if possible. The central topic should be at the center with branches for related subtopics.
- Develop the Mind Map: Groups should expand their branches with specific issues or questions related to each subtopic. Encourage depth by asking probing questions to guide their expansion.
- Present and Discuss: Have each group present their mind map, discussing the key points and insights. Facilitate a group discussion to reflect on the process and the content uncovered.
- Wrap-Up: Conclude by summarizing key learnings and discussing how they can be applied in real-world contexts.

This streamlined approach to mind mapping encourages understanding and engagement, making complex topics accessible and engaging.



💡**Tip for youth workers:**

Adapt to Your Audience: Be ready to change your approach based on the participants' responses. If an activity isn't engaging them, don't hesitate to modify your plan.

Case Study: Mathematics as a Tool for Activists

Overview:
Youth Worker: Rafel Grima
Date & Venue: March 2024, Moviment Graffitti organisation, Valletta (Malta)
Participants: 20-30 y.o., members and volunteers of a NGO focused on activism and civic participation

This case study centres around an unique learning session, conducted by Rafel Grima, aimed to explore the intersection between mathematics and activism within the context of human rights education. The primary goal of the learning activities was to enhance the participants' ability to apply mathematical concepts to support human rights initiatives. By integrating these fields, the workshop sought to empower participants to use maths tools in their activism efforts effectively.

Session Highlights
The learning session featured interactive activities designed to deepen understanding and engagement:

- Introductory Discussions: Setting the stage by exploring the intersection of mathematics and human rights.
- Experience Sharing: Participants shared personal challenges related to learning maths, fostering comfort and openness.
- Case Study Analysis: Groups analysed case studies such as the Malta National Living Income Study (2022), applying mathematical data to human rights advocacy. This exercise demonstrated the practical application of mathematical data in advocating for human rights, allowing participants to engage in energetic and insightful discussions about the influence of numbers in public policy.

Planning for the future:
The workshop was highly successful, with 91% of participants finding it engaging and 82% reporting enhanced understanding of human rights and science. Inspired by positive feedback, Rafel will continue to replicate and expand this format to other Maltese NGOs, continuing to integrate mathematics with human rights activism.

💡Tips for youth workers:

- **Integrate Real-Life Examples:** Use current events and historical case studies where science and human rights intersect to make the subject matter more relevant and compelling. Examples like the use of forensic science in human rights investigations or the role of data science in tracking migration patterns can illustrate the practical applications of science in activism.
- **Promote Critical Thinking:** Encourage participants to analyse and question how scientific data is used in policy making and media. Workshops focusing on critical analysis of statistics and studies related to human rights issues can help participants understand the importance of scientific literacy in debunking misinformation and advocating for change.
- **Collaborate with Experts:** Bring in scientists, researchers, and activists as guest speakers or collaborators. These experts can provide firsthand insights into how they use science in their work for human rights, offering inspiring stories and practical advice.
- **Facilitate Ethical Discussions:** Organise discussions around the ethical implications of using science in human rights work, such as privacy concerns with surveillance technology or the moral considerations in biomedical research. These discussions can deepen participants' understanding of the complexities at the intersection of science and human rights.
- **Incorporate Project-Based Learning:** Encourage groups to undertake projects that require scientific methods to address a human rights issue. This could involve designing a survey to assess community needs, using GIS mapping to highlight areas lacking in resources, or creating informational campaigns that use scientific data to raise awareness.

Case Study: Enhancing Science and Human Rights Education Through Cultural Exploration

Overview:
Youth Worker: Elitsa Bozhkova
Date & Venue: April 2024, Ethnographic Museum of the Institute of Ethnology and Folkloric Studies, Sofia (Bulgaria)
Participants: 14-17 y.o.youth

Session Highlights: The two-day program featured engaging discussions in classroom settings and an interactive museum tour. The first day focused on group discussions where the participants developed solutions to hypothetical problems. The second day at the museum included a guided tour that sparked lively questions and discussions, linking historical context to current human rights issues.

Challenges and Solutions: Initially intended for refugees, logistical challenges led to targeting high school teenagers, which unexpectedly enriched the sessions as they brought a high level of engagement and diverse perspectives. To keep the topics engaging, interactive methods were essential.

Planning for the future: This approach showcased how dynamic settings and interactive learning can deeply engage young people in understanding the complexities of science and human rights, fostering a more profound appreciation and critical thinking skills. Elitsa plans to continue these sessions, possibly focusing on smaller groups from a broader age range, particularly emphasising the practical museum experiences.

Effective Strategies used during the sessions:

- Familiar Groupings: worked in pre-acquainted groups to enhance comfort and participation.
- Dialogue-Based Tours: The museum tour was structured as an interactive dialogue, keeping the learning dynamic and engaging.

💡**Tips for Youth Workers:**

- **Engage with Cultural Settings:** Use museums or cultural sites to make learning more tangible and engaging.
- **Focus on Interactivity:** Keep sessions interactive to maintain interest in complex topics like science and human rights.
- **Be Flexible:** Adapt your approach based on the audience's characteristics and needs to maximize learning impact.

Inspirational Story: Bridging Cultures through Science and Human Rights Education

Overview:
Youth Worker: Christian Schuster
Date & Venue: April 2024, Faculty of European Studies & local cinema, Cluj-Napoca (Romania)
Participants: 14-26 y.o. youth from Romanian, Hungarian, Roma and German ethnic groups, and coming from different social and educational backgrounds

Christian organised an enriching workshop, where which participants ranged from 8th-grade students to university graduates, all converging to discuss and dissect the intricate relationship between science and human rights. One of the most successful aspects of the workshop was the breakout sessions, where participants formed teams to tackle specific tasks and present their findings. These activities pushed them out of their comfort zones, encouraging them to navigate and bridge the knowledge gaps between them. The interactive sessions particularly resonated with the older participants, who took on leadership roles, facilitating discussions and aiding their younger counterparts. The workshop ended with the participants going to cinema together to watch a Sci-Fi movie that illustrated the topic, followed by group discussions.

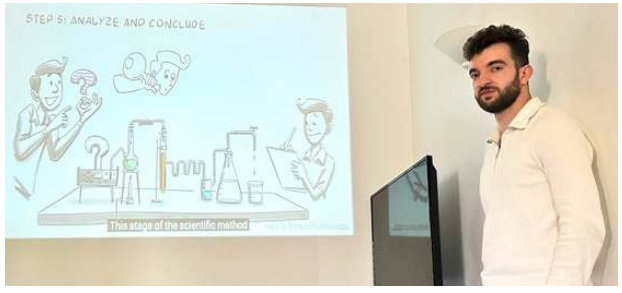
Managing the diverse group posed significant challenges, particularly in addressing the varying levels of education and understanding. Christian prepared by planning flexible and adaptable session content, ready to pivot as needed based on the direction of discussions and the participants' responses. Time management was a crucial issue and it was managed by prioritising interaction over dense informational delivery and having backup activities ready that could be quickly adapted or set aside depending on the flow of the workshop.

Inspired by the success of this session, Christian plans to incorporate similar topics into his future learning sessions. This workshop has not only enriched his teaching portfolio but also highlighted the effective strategies for engaging a diverse audience in meaningful discussions on complex topics.

💡Tips for youth workers:

- **Embrace Diversity:** Use the diverse backgrounds of participants to enrich discussions and learning experiences. Different perspectives can enhance understanding and engagement among the group.
- **Encourage Teamwork through Challenging Activities**: Use group activities that challenge participants to step out of their comfort zones and work collaboratively. Tasks that require solving problems or presenting findings as a team can help bridge knowledge gaps and encourage cooperative learning. Ensure everyone is involved and has a role in team activities.
- **Use Relatable and Engaging Content**: Activities like watching a relevant movie or integrating real-world examples or anecdotic stories, (*like the popularisation of the potato in Prussia through emperor Frederick the Great in the 18th century – a great breakthrough for food security*) can make learning more engaging and relatable. Choose content that resonates with the interests of the group but also challenges their understanding of the topic.
- **Incorporate Interactive Methods**: Engage participants with interactive elements such as making their own nametags or participating in debates. These activities not only break the ice but also enhance communication among participants and maintain their attention.
- **Be Adaptable**: Prepare for varying levels of knowledge and interest. Have flexible plans and materials ready to accommodate different learning paces and styles. Be prepared to adjust the agenda as needed to ensure all topics are covered without rushing.

Inspirational Story: Advancing Science and Human Rights through Social Entrepreneurship



Overview:
Youth Worker: Andrew Azzopardi
Dates & Venue: March 2024, Gozo island (Malta)
Participants: 19-30 y.o. from the small island community

In the quaint island of Gozo, a youth worker named Andrew set out to ignite a spark among the local youth with a transformative learning session that aimed to mold young individuals into agents of change through the lens of social entrepreneurship.

The session kicked off with vibrant discussions that bridged the concepts of science, human rights, and entrepreneurship. Andrew's goal was clear: to show how entrepreneurial actions could drive positive societal change. Participants were divided into groups, each group tasked with identifying a pressing social issue. Their challenge was to think creatively and collaboratively to devise a practical solution that could be implemented within their community. This exercise was not only about finding answers, but about learning the process of innovative problem-solving and teamwork.

Despite some initial challenges, Andrew noticed that a few participants were hesitant to share their ideas, likely feeling overshadowed by more vocal peers. To encourage a more inclusive atmosphere, he introduced a “Round Robin” brainstorming technique, allowing each person to speak without interruption. This method proved effective, engaging quieter members and enriching the discussion with a variety of perspectives. To maintain focus and ensure a sense of achievement, Andrew also made sure that the tasks within group activities were clear and manageable.

The session concluded with each group presenting their solutions, creatively using cardboard and markers to outline their community project plans. The energy was palpable as participants applied what they had learned, excited about the potential of their ideas. The feedback was overwhelmingly positive, with many expressing renewed enthusiasm for social entrepreneurship and appreciating the chance to put theory into practice. They left the workshop more confident and inspired to effect change in their community.

Building on Success

Energised by the success of the learning session, Andrew has since been running a monthly gathering where Gozo's youth can continue to explore and develop their entrepreneurial ideas. These meetings have become more than just educational sessions; they are a crucible for innovation, camaraderie, and actionable change. As he looks to the future, he remains committed to supporting the next generation of social entrepreneurs. His efforts are more than just an educational endeavor; they are a catalyst for societal transformation. This effort is a beacon of hope, illustrating that when young individuals are supported and believed in, they have the immense potential to enact meaningful, lasting change in the world.

💡**Tips for youth workers:**

- **Foster Inclusive Participation:** Utilise techniques like the "Round Robin" brainstorming method to ensure every participant feels comfortable and valued in sharing their ideas.
- **Implement Clear, Manageable Tasks:** Structure group activities with clear and manageable tasks to keep participants focused and to foster a sense of accomplishment.

Relevant Online Platforms, Organisations and Networks:

1. American Association for the Advancement of Science (AAAS) Science and Human Rights Coalition, Available from: https://www.aaas.org/program/science-human-rights-coalition
2. Council of Europe, *Council of Europe Symposium on Non-Formal Education: Report*, 2001, Available from: https://rm.coe.int/2012- compendium-non-formal-education/168077c10b
3. European Citizen Science Platform, https://eu-citizen.science/
4. European Convention of Human Rights, Available from: https://www.echr.coe.int/documents/d/echr/Convention_ENG
5. European Youth Forum, https://www.youthforum.org/
6. Human Rights Council Youth Forum Declaration, Available from: https://www.ohchr.org/en
7. UNESCO, *Global Citizenship Education. Preparing Learners for the Challenges of the Twenty-first Century*, Paris, 2014
8. Universal Declaration of Human Rights, Available from: https://www.un.org/en/about-us/universal-declaration-of-human-rights

Practical Toolkits for Integrating Science and Human Rights:

1. Amnesty International USA, Human Rights Educators' Network, *Human Rights Here & Now*, 1999, Available from: http://hrlibrary.umn.edu/edumat/hreduseries/hereandnow/Part-1/
2. Aspen Institute, *The Science & Civics Initiative*, Available from: https://www.aspeninstitute.org/
3. Council of Europe, Brander P, *COMPASS Manual for Human Rights Education with Young People*, Available from: https://www.coe.int/en/web/compass
4. Forum and Image Theatre Manual, Available from: https://www.salto-youth.net/tools/toolbox/tool/forum-and-image-theatre-manual.1503/
5. Guidebook for Youth Professionals and Workers *Empowering Our Communities*, Available from: https://www.salto-youth.net/tools/toolbox/tool/guidebook-for-youth-professionals-and-workers-empowering-our-communities.3776/
6. The Youth for Creative Identities Method | A Handbook for Youth Workers, Available from: https://www.salto-youth.net/tools/toolbox/tool/the-youth-for-creative-identities-method-a-handbook-for-youth-workers.3460/
7. Theatre as a Tool for Social Change: activities for leaders and facilitators, Available from: https://www.salto-youth.net/tools/toolbox/tool/theatre-as-a-tool-for-social-change-activities-for-leaders-and-facilitators.1933/
8. Youth Rights Advocacy Toolkit, Available from: https://www.ohchr.org/en/documents/tools/youth-rights-advocacy-toolkit

CONCLUSIONS

As we reach the conclusion of this guide, it's important to reflect on the journey we've undertaken to explore the dynamic intersection of science and human rights. Our goal has been to equip youth workers, educators, and trainers with the knowledge and tools necessary to empower young people to use scientific insights and human rights principles to address and solve societal challenges.

Key Takeaways

- **Integration is Essential**: Integrating science and human rights education enriches the learning experience and enhances the effectiveness of civic engagement efforts. This integrated approach allows young people to see how scientific advancements can have ethical implications and how human rights must guide scientific endeavors.
- **Empowerment Through Knowledge**: Providing young people with the tools to understand and apply science in the context of human rights empowers them to become proactive citizens who can make informed decisions and advocate for meaningful change.
- **Practical Application is Key**: The application of theoretical knowledge through hands-on activities, case studies, and real-world problem solving is crucial. This not only cements understanding but also shows the practical impact of their learning, motivating continued engagement and curiosity.

Best Practices Ideas:

- **Foster Inclusive and Engaging Learning Environments**: Use participatory techniques that encourage all young people to express their thoughts and ideas. Techniques such as "Round Robin" brainstorming can ensure that every participant feels heard and valued, fostering a more inclusive environment.
- **Encourage Critical Thinking and Ethical Reasoning**: Challenge young people to think critically about the ethical dimensions of scientific advancements. Discussions and debates on topics like data privacy, genetic engineering, and AI in surveillance can stimulate critical thinking and ethical reasoning.
- **Connect Theory with Community Action**: Help learners connect theoretical knowledge with community action. For instance, projects that involve collecting data to analyze local environmental issues or technology-driven solutions to enhance accessibility in public spaces can bridge the gap between learning and doing.
- **Focus on Continuous Learning and Adaptation**: The fields of science and human rights are continually evolving. Youth workers should stay informed of the latest developments and adapt their programs to include new information and technologies, ensuring that their teaching remains relevant and impactful.
- **Build Partnerships**: Collaborate with local universities/schools, research institutions, students associations, human rights organisations. These partnerships can provide additional resources, expertise, and opportunities for young people to engage with professionals and real-world projects.

This guide has aimed to inspire and inform those dedicated to educating young people at the intersection of science and human rights. By embracing the principles presented, youth workers can play a pivotal role in **shaping a generation of informed, engaged, and responsible citizens**.

Together, **let us continue to inspire, challenge, and empower young minds**. Armed with scientific insights and a deep commitment to human rights, they are poised to lead us into a brighter future, where innovation is harnessed for the good of all, and where every individual's rights and dignity are fervently protected and celebrated.

Let's cultivate this dynamic fusion of science and human rights, igniting **a powerful wave of positive change that transcends borders and echoes through generations**.

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For a Better Future

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