



Understanding Climate Change - What the Evidence Says

Learning and Teaching Package 5

Overview of LTP 5

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Contents

Overview 2

 Pedagogical Approach..... 2

 The value of understanding information and dis/misinformation..... 3

 Piloting of the materials within TAP-TS 3

 ECTS Distribution..... 3

 UNIT 1 Information and Disinformation 4

 UNIT 2 Distinguishing between Disinformation & Misinformation..... 5

 UNIT 3. Dangers of Disinformation..... 6

 UNIT 4. How Can We Challenge Climate Disinformation?..... 8



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Overview

The LTP introduces the topic of climate disinformation and brings an understanding of the “Media Landscape” in which Disinformation can emerge. It brings into discussion the roles of the media, and which activities of the media make traditional/social media more susceptible to mis-/disinformation. It also presents a range of material and associated pedagogies that explore secondary teaching and learning related to climate and climate information.

Unit 1 Information and Disinformation deals with teaching learners how to evaluate the credibility of sources and understand the nature of climate information and disinformation. It introduces sources to use to develop skills to identify disinformation and respond critically. The unit also explores tools and sources to engage with accurate, science-based climate information. Through this unit, hands-on activities and learning opportunities are emphasised.

Unit 2 Distinguishing between Disinformation & Misinformation addresses the challenge of distinguishing between climate misinformation and disinformation, and opens up a better understanding of the media landscape in which dis-/misinformation can emerge. It discusses the roles of social media in this, and considers what makes social media more susceptible to inaccurate information. Learners are presented with distinguishing terminology and gain the ability to identify inaccurate information. Within this unit, learners engage with examples of inaccurate information through knowledge based, active learning tasks. Investigation and teamwork activities allow for discussion of the role of media in relation to inaccurate information.

Unit 3 The Dangers of Disinformation looks at the dangers of disinformation. It deals with identifying the detrimental effects that misinformation can have on a society. This unit offers content that helps teachers present the knowledge that students require to identify the dangers of disinformation. Through this unit activities and learning opportunities are offered to aid educators in teaching this area.

Unit 4 What Can We do to Challenge Climate Disinformation deals with guiding learners to describe disinformation threats globally and to consider these in terms of understanding of how they can impact environment, society and economy aspects of our lives. The unit explores a range of climate change events across Europe and their effects on people and places. Within this unit learners develop their critical thinking skills and move towards an activism-based approach to countering and mitigating inaccurate information.

Pedagogical Approach

This Learning and Teaching package encourages teachers to explore areas of social media and news resources that young individuals have access to. LTP 5 Units allow for educators and students to engage with active learning pedagogy and support knowledge-based understanding of climate information and how it can be misrepresented. The main pedagogical approaches include reflection, collaboration and technology assisted problem solving.

Unit 1 emphasises how having a better understanding of correct information provided via scientific sources and trusted media can help engage and challenge mis/disinformation. The pedagogical approach is focused on active and participatory learning.

Unit 2 attempts to enable students to have a better understanding of the information that is provided via news agents and social media. The pedagogical approach is focused on active learning for not just educators but also for the secondary school students that will be utilizing these activities.

Unit 3 attempts to enable students to have a better understanding of the information that is provided via scientific sources and media. The pedagogical approach is focused on active learning for not just educators but also for the secondary school students that will be utilizing these activities.

Unit 4 emphasises how having a better understanding of correct information provided via scientific sources and trusted media can help engage and challenge mis/disinformation. This is addressed through active and participatory learning.



The value of understanding information and dis/misinformation

Reliable information is essential for young people to address climate change and sustainability. It fosters awareness, inspires action, and supports informed decision-making. It also enables us to advocate for solutions and adopt sustainable practices. Accurate information builds critical thinking, promotes trust in science, and empowers long-term efforts to tackle environmental challenges. In contrast, incorrect/flawed information poses significant dangers. It creates confusion, undermines trust in science, and leads to poor decisions. Mis- / disinformation also spreads cynicism, diverts attention from urgent issues, and amplifies polarization. The news-reliance of many young people on social media opens up challenges in relation to political agendas and pseudo-experts who exploit these issues, making it crucial to combat false narratives. To counter misinformation, young people need better media literacy, fact-checking skills, and access to trustworthy information sources. By encouraging young people to counter misinformation by emphasising accurate information flows through social media, peer education, and advocacy, we can encourage the fight against fake news and help promote a more sustainable future for themselves and the planet.

Piloting of the materials within TAP-TS

Materials piloted in draft form with UCD Professional Masters of Education programme, UCD Dublin, IRELAND, participants in spring 2023 and autumn 2024 and subsequently verified for value at the TAP-TS Autumn School, Pirna, GERMANY, 27-28 Sept 2024.

ECTS Distribution

| UNITS | Hours | ECTS |
|--|-------|------|
| UNIT 1. INFORMATION AND DISINFORMATION | 10 | 0,5 |
| UNIT 2. DISTINGUISHING BETWEEN DISINFORMATION AND MISINFORMATION | 10 | 0,5 |
| UNIT 3. THE DANGERS OF DISINFORMATION | 10 | 0,5 |
| UNIT 4. HOW CAN WE CHALLENGE CLIMATE DISINFORMATION (with project work) | 20 | 1 |
| Total ECTS Value | | 2,5 |

*Taught plus personal learning follow-up



UNIT 1 Information and Disinformation

| Main Topic | Target Group | Duration | Knowledge Area/ Subjects in School | Activities | Possible assessment |
|---|--|---|---|---|--|
| Overview of LTP 5 Introduction to key concepts | Secondary school teachers and student teachers via activities for secondary level students | 80 Minutes | Information and disinformation and Climate Change | Start Up <u>Activity 1</u> Information types and uses. Development <u>Activity 2</u> Exploring the nature of disinformation Consolidation <u>Activity 3</u> Identifying climate Disinformation Follow-Up <u>Activity 4</u> Learner reflection & action on disinformation. Reflection <u>Activity 5</u> Teacher Reflection. | Self-reflection and targeted assignment. |
| Intended Learning Outcomes | Having worked through the activities and materials, students will be able to: ✓ differentiate between information, misinformation and disinformation; ✓ better evaluate the credibility of online sources; ✓ exercise skill in identifying disinformation and responding critically; ✓ name tools and sources that engage with accurate, science-based climate information. | | | | |
| Prior Competencies | <ul style="list-style-type: none"> Digitally literate to a level that allows to engage meaningfully with the materials provided in this unit. No basic content competencies needed; basic level of understanding embedded in Unit Ability to collaborate and be cooperated to support group activities and have autonomy to participate. | | | | |
| Required material | <ul style="list-style-type: none"> Access to internet Paper and writing materials Resources as referenced | | | | |
| Cooperation/ Networking | Exploring and connecting to accurate and science-based sources of information on climate change and just transition. | | | | |
| Practical Notes for Teachers | Make copies of the supporting Resources available for both group activities and individual future reference. Check availability of online sites /sources ahead of class activities. | | | | |
| Addressing GreenComp | Embodying sustainability values | | | | |
| | x | 1.1 Valuing sustainability | To reflect on personal values; identify and explain how values vary among people and over time, while critically evaluating how they align with sustainability values. | | |
| | x | 1.2 Supporting fairness | To support equity and justice for current and future generations and learn from previous generations for sustainability. | | |
| | | 1.3 Promoting nature | To acknowledge that humans are part of nature; and to respect the needs and rights of other species and of nature itself in order to restore and regenerate healthy and resilient ecosystems. | | |
| | Embracing complexity in sustainability | | | | |
| | x | 2.1 Systems thinking | To approach a sustainability problem from all sides; to consider time, space and context in order to understand how elements interact within and between systems. | | |
| x | 2.2 Critical thinking | To assess information and arguments*, identify assumptions, challenge the status quo, and reflect on how personal, social and cultural backgrounds influence thinking and conclusions. | | | |
| | 2.3 Problem framing | To formulate current or potential challenges as a sustainability problem in terms of difficulty, people involved, time and geographical scope, in order to identify suitable approaches to anticipating and preventing problems, and to mitigating and adapting to already existing problems. | | | |



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|--|---------------------------|--|
| Envisioning sustainable futures | | |
| X | 3.1 Futures literacy | To envision alternative sustainable futures by imagining and developing alternative scenarios and identifying the steps needed to achieve a preferred sustainable future |
| X | 3.2 Adaptability | To manage transitions and challenges in complex sustainability situations and make decisions related to the future in the face of uncertainty, ambiguity and risk. |
| X | 3.3 Exploratory thinking | To adopt a relational way of thinking by exploring and linking different disciplines, using creativity and experimentation with novel ideas or methods. |
| Acting for sustainability | | |
| X | 4.1 Political agency | To navigate the political system, identify political responsibility and accountability for unsustainable behaviour, and demand effective policies for sustainability. |
| X | 4.2 Collective action | To act for change in collaboration with others. |
| X | 4.3 Individual initiative | To identify own potential for sustainability and to actively contribute to improving prospects for the community and the planet. |

UNIT 2 Distinguishing between Disinformation & Misinformation

| Main Topic | Target Group | Duration | Knowledge Area/ Subjects in School | Activities | Possible assessment |
|--|---|-------------------|---------------------------------------|--|---|
| Distinguishing between disinformation and misinformation | Secondary school teachers and student teachers with activities for secondary level students | 110 – 130 Minutes | Social media Climate change | <p>Start Up Activity 1. Definitions and misunderstanding</p> <p>Development Activity 2. How the media present climate disaster</p> <p>Consolidation Activity 3. Case Study on social media Disinformation</p> <p>Follow-Up Activity 4. Identifying patterns in inaccurate climate information; disinformation Tweets</p> <p>Activity 5. Reflection on teacher practice</p> | Self reflection questions, Teacher determined |
| Intended Learning Outcomes | <p>Having worked through the activities and materials, students will be able to:</p> <ul style="list-style-type: none"> ✓ Describe some climate misinformation & disinformation threats. ✓ Describe their understanding of inaccurate information in relation to environment, society and economy. ✓ Describe the impacts that disinformation spread in the aftermath of the climate-related disaster can have. | | | | |
| Prior Competencies | <ul style="list-style-type: none"> • No basic competencies needed, Basic level of understanding preferred: • Ability to collaborate and be cooperated to support group activities and have autonomy to participate. Digitally literate to a level that allows to engage meaningfully with the materials provided in this unit. | | | | |



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| Required materials | • Laptop and access to internet • Paper and writing materials | |
| Cooperation/ Networking | Exploring and connecting to victims of climate disaster and community organizations related to climate disasters | |
| Practical Notes for Teachers | Educators should be aware that different groups of people may cause activities to be longer or shorter. Materials can vary depending on if the event is online or in person. | |
| Addressing GreenComp | Embodying sustainability values | |
| | x | 1.1 Valuing sustainability To reflect on personal values; identify and explain how values vary among people and over time, while critically evaluating how they align with sustainability values. |
| | x | 1.2 Supporting fairness To support equity and justice for current and future generations and learn from previous generations for sustainability. |
| | | 1.3 Promoting nature To acknowledge that humans are part of nature; and to respect the needs and rights of other species and of nature itself in order to restore and regenerate healthy and resilient ecosystems. |
| | Embracing complexity in sustainability | |
| | x | 2.1 Systems thinking To approach a sustainability problem from all sides; to consider time, space and context in order to understand how elements interact within and between systems. |
| | x | 2.2 Critical thinking To assess information and arguments*, identify assumptions, challenge the status quo, and reflect on how personal, social and cultural backgrounds influence thinking and conclusions. |
| | x | 2.3 Problem framing To formulate current or potential challenges as a sustainability problem in terms of difficulty, people involved, time and geographical scope, in order to identify suitable approaches to anticipating and preventing problems, and to mitigating and adapting to already existing problems. |
| | Envisioning sustainable futures | |
| | | 3.1 Futures literacy To envision alternative sustainable futures by imagining and developing alternative scenarios and identifying the steps needed to achieve a preferred sustainable future |
| | | 3.2 Adaptability To manage transitions and challenges in complex sustainability situations and make decisions related to the future in the face of uncertainty, ambiguity and risk. |
| | x | 3.3 Exploratory thinking To adopt a relational way of thinking by exploring and linking different disciplines, using creativity and experimentation with novel ideas or methods. |
| | Acting for sustainability | |
| | x | 4.1 Political agency To navigate the political system, identify political responsibility and accountability for unsustainable behaviour, and demand effective policies for sustainability. |
| | x | 4.2 Collective action To act for change in collaboration with others. |
| x | 4.3 Individual initiative To identify own potential for sustainability and to actively contribute to improving prospects for the community and the planet. | |

UNIT 3. Dangers of Disinformation

| Main Topic | Target Group | Duration | Knowledge Area/ Subjects in School | Activities | Possible assessment |
|-------------------------------------|--|-------------------|------------------------------------|---|---|
| Dangers and Risks of Disinformation | Secondary school teachers and student teachers via activities for secondary level students | 130 – 150 Minutes | Climate Change | <p>Start Up <u>Activity 1</u> What is the difference between Weather and Climate? Development <u>Activity 2</u> Possible effects of climate change Consolidation <u>Activity 3</u> Spread of Disinformation Follow-Up <u>Activity 4</u></p> | Self-reflection questions, Cloze tests & Assessment Quiz. |



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|-------------------------------------|---|--|---|---|
| | | | | Learner reflection & carbon usage. Reflection Activity 5 Teacher Reflection. |
| Intended Learning Outcomes | <p>Having worked through the activities and materials, students will be able to:</p> <ul style="list-style-type: none"> ✓ Differentiate between weather and climate. ✓ Explain why climate change is happening. ✓ Describe how climate change is affecting our world. ✓ Describe a range of climate change events across Europe and their effects on the people who live there e.g. Valentia Spain 2024. | | | |
| Prior Competencies | <ul style="list-style-type: none"> • Digitally literate to a level that allows to engage meaningfully with the materials provided in this unit • No basic content competencies needed, basic level of understanding proffered • Ability to collaborate and be cooperated to support group activities and have autonomy to participate. | | | |
| Required materials | <ul style="list-style-type: none"> • Laptop and access to internet • Paper and writing materials | | | |
| Cooperation/ Networking | Exploring and connecting to victims of climate disaster and community organizations related to climate disasters and sustainability education. | | | |
| Practical Notes for Teachers | <p>Grouping participants differently may cause activities to become longer or shorter. Materials can vary depending on whether the activities are online or in person.</p> <p>The materials on Carbon Footprint can be further explored in LTP 2 Digitality and Sustainability Unit 3.</p> | | | |
| Addressing GreenComp | Embodying sustainability values | | | |
| | x | 1.1 Valuing sustainability | To reflect on personal values; identify and explain how values vary among people and over time, while critically evaluating how they align with sustainability values. | |
| | x | 1.2 Supporting fairness | To support equity and justice for current and future generations and learn from previous generations for sustainability. | |
| | x | 1.3 Promoting nature | To acknowledge that humans are part of nature; and to respect the needs and rights of other species and of nature itself in order to restore and regenerate healthy and resilient ecosystems. | |
| | Embracing complexity in sustainability | | | |
| | x | 2.1 Systems thinking | To approach a sustainability problem from all sides; to consider time, space and context in order to understand how elements interact within and between systems. | |
| | x | 2.2 Critical thinking | To assess information and arguments*, identify assumptions, challenge the status quo, and reflect on how personal, social and cultural backgrounds influence thinking and conclusions. | |
| | x | 2.3 Problem framing | To formulate current or potential challenges as a sustainability problem in terms of difficulty, people involved, time and geographical scope, in order to identify suitable approaches to anticipating and preventing problems, and to mitigating and adapting to already existing problems. | |
| | Envisioning sustainable futures | | | |
| | x | 3.1 Futures literacy | To envision alternative sustainable futures by imagining and developing alternative scenarios and identifying the steps needed to achieve a preferred sustainable future | |
| | | 3.2 Adaptability | To manage transitions and challenges in complex sustainability situations and make decisions related to the future in the face of uncertainty, ambiguity and risk. | |
| | x | 3.3 Exploratory thinking | To adopt a relational way of thinking by exploring and linking different disciplines, using creativity and experimentation with novel ideas or methods. | |
| | Acting for sustainability | | | |
| | | 4.1 Political agency | To navigate the political system, identify political responsibility and accountability for unsustainable behaviour, and demand effective policies for sustainability. | |
| | x | 4.2 Collective action | To act for change in collaboration with others. | |
| x | 4.3 Individual initiative | To identify own potential for sustainability and to actively contribute to improving prospects for the community and the planet. | | |



UNIT 4. How Can We Challenge Climate Disinformation?

| Main Topic | Target Group | Duration | Knowledge Area/ Subjects in School | Activities | Possible assessment |
|--|--|-----------------|--|--|--------------------------------------|
| Overview of LTP 5 to challenge climate disinformation | Secondary school teachers and student teachers with activities for secondary level students | 200-220 Minutes | Social media Climate change Sustainability | <p>Start Up <u>Activity 1.</u> Using Social Media to combat climate disinformation</p> <p>Development <u>Activity 2.</u> Creating a storyboard for an educational short video</p> <p>Consolidation <u>Activity 3a.</u> Creating a short video <u>Activity 3b</u> Creating a poster</p> <p>Follow-Up <u>Activity 4</u> Poster Activism <u>Activity 5</u> Reflection on Teacher Practice</p> | Peer assessed; Teacher determined |
| Intended Learning Outcomes | <p>Having worked through the activities and materials, students will be able to:</p> <ul style="list-style-type: none"> ✓ better understand disinformation threats in relation to people worldwide. ✓ envision a more hopeful future regarding information flows concerning climate, environment, society and economy. ✓. more competently engage in navigating and mitigating inaccurate information. | | | | |
| Prior Competencies | <ul style="list-style-type: none"> • Basic understanding of climate crisis information / disinformation required (ideally acquired through previous Units in this LTP). • Digitally literate to a level that allows to engage meaningfully with the materials provided in this unit. • Ability to collaborate and be cooperated to support group activities and exercise autonomy to participate. | | | | |
| Required materials | <ul style="list-style-type: none"> • Laptop and access to internet • Paper and writing materials • Resources as referenced | | | | |
| Cooperation/ Networking | Exploring and connecting to victims of climate disaster and community organizations related to climate disasters. | | | | |
| Practical Notes for Teachers | <p>Grouping participants differently may cause activities to become longer or shorter. Outcomes and outputs can vary depending on whether the activities are online or in person and the capabilities / interest of the learners.</p> <p>NB: Activities relating to learning with these materials / resources need to considered in light of school-level policies / practices on the use of technology in learning settings.</p> | | | | |



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|---------------------------------|---|----------------------------|---|
| Addressing GreenComp | Embodying sustainability values | | |
| | x | 1.1 Valuing sustainability | To reflect on personal values; identify and explain how values vary among people and over time, while critically evaluating how they align with sustainability values. |
| | X | 1.2 Supporting fairness | To support equity and justice for current and future generations and learn from previous generations for sustainability. |
| | X | 1.3 Promoting nature | To acknowledge that humans are part of nature; and to respect the needs and rights of other species and of nature itself in order to restore and regenerate healthy and resilient ecosystems. |
| | Embracing complexity in sustainability | | |
| | X | 2.1 Systems thinking | To approach a sustainability problem from all sides; to consider time, space and context in order to understand how elements interact within and between systems. |
| | X | 2.2 Critical thinking | To assess information and arguments*, identify assumptions, challenge the status quo, and reflect on how personal, social and cultural backgrounds influence thinking and conclusions. |
| | X | 2.3 Problem framing | To formulate current or potential challenges as a sustainability problem in terms of difficulty, people involved, time and geographical scope, in order to identify suitable approaches to anticipating and preventing problems, and to mitigating and adapting to already existing problems. |
| | Envisioning sustainable futures | | |
| | x | 3.1 Futures literacy | To envision alternative sustainable futures by imagining and developing alternative scenarios and identifying the steps needed to achieve a preferred sustainable future |
| | x | 3.2 Adaptability | To manage transitions and challenges in complex sustainability situations and make decisions related to the future in the face of uncertainty, ambiguity and risk. |
| | x | 3.3 Exploratory thinking | To adopt a relational way of thinking by exploring and linking different disciplines, using creativity and experimentation with novel ideas or methods. |
| | Acting for sustainability | | |
| | x | 4.1 Political agency | To navigate the political system, identify political responsibility and accountability for unsustainable behaviour, and demand effective policies for sustainability. |
| | x | 4.2 Collective action | To act for change in collaboration with others. |
| | x | 4.3 Individual initiative | To identify own potential for sustainability and to actively contribute to improving prospects for the community and the planet. |

Project partners



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