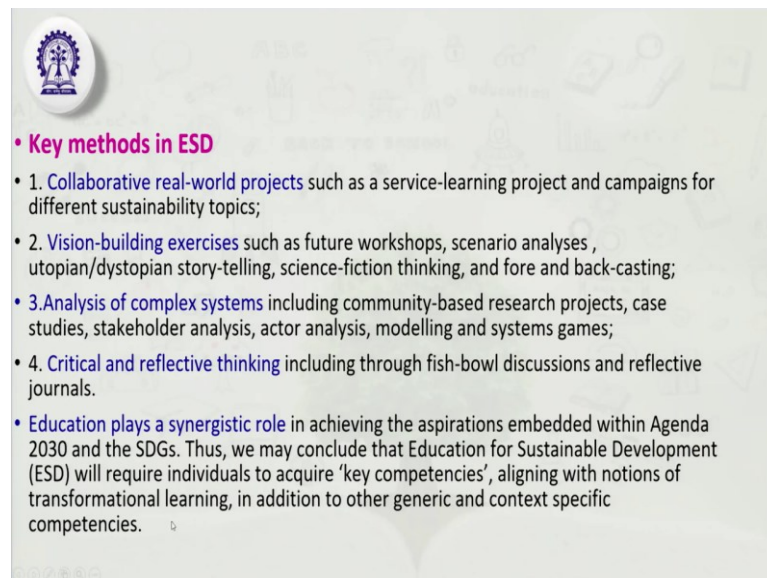**Education for Sustainable Development**
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Lecture - 41
Sustainable Education (Contd.)

Welcome viewers, welcome back to this NPTEL course on Education for Sustainable Development. So, in the last class, I think we are discussing, we are discussing about transformative learning and what should be the ESD, pedagogy of ESD for this transformative learning. So, let us continue with this concept.

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So, the key methods of ESD you know ESD for key methods of ESD that is collaborative real-world projects. So, as it is primarily based on experiential learning so, in service-learning, service-learning oriented projects so, for campaigning for the different sustainability topics so, collaborative real-world projects or experiential learnings focusing on the real-world problems, the crisis so, that would be one key aspect of ESD.

Then, 2nd is that vision building exercises. Vision building exercises like conducting different kinds of workshops, scenario analysis, any kind of you know story telling method of utopian, story-telling method, science fiction thinking, futuristic thinking or fore and back casting.

So, these are the different kinds of visual exercises, visual building vision building exercises, visual exercises that is to predict to predict the future to learn from the past and to focus on the present so, how to correlate, how we can link up with the past, with the present and the future, to have a futuristic thought and perspective. So, these kind of exercises can be given as an assignments.

So, then the 3rd component will be analysis of complex systems including the community-based research projects, action research projects, stakeholder analysis, data analytics, actor that means, who was the major actors and the players in the scenario their analysis, modelling, simulations then systems games so, brainstorming.

So, these kind of things can also be conducted from time-to-time for analysing the complex systems complex problems from a in a broad perspective, holistic perspective. So, these kind of exercises can also be given as an assignment project etcetera.

Then, yes of course, critical and the reflective thinking. As I have been saying again and again that critical thinking, reflective thinking are the key cognitive tools you can say, cognitive tools for enhancing our thought process, for enhancing our analytical skills and our sustainability competencies, our you know vision of the world so, that also includes the fish-bowl discussions or the reflective journals either from the journal topics, research topics or randomly we can discuss about any critical in event from the current scenario that can also be done.

So, with the debates, with the discussions, with the dialogues, with the trade bar discussions, brainstorming sessions that is to promote the critical and reflective thinking.

So, we should not be complacent about what is going on the status quo or we should not be you know overwhelmed with yes whatever we are having, we are having the resources, we are happy with we should not be complacent in that way, but rather we should critically evaluate everything and reflect on our own thought process, our behaviours, our habits, our resources and what could be the possible effect impact on the society, on the environment for the future, on our economy everything.

So, that is critical thinking and reflective thinking is not to judge others, not to develop the judgmental thinking or criticising the different policies etcetera that is not the true actually moral of critical and reflective thinking, but etcetera, but it always stimulates our

thought process towards more understanding, better understanding, more metacognitive knowledge.

And to have a you know proactive visualisation vision for visionary ideas and thoughts for the future planning; future planning, future cities, future education system, future infrastructure, future you know energy section, energy sector, future water resources all kinds of thing that is the future planning for the future planning. So, our reflective thinking and critical thinking are you know you can say the base of fundamental base of transformative learning as well as of the ESD.

So, here, education plays a synergistic role in achieving the aspirations embedded within the 2030 and the SDGs. So, education, definitely education, sustainable education and ESD especially plays a very vital role in synergizing all the aspects, all the aspects that are embedded in 2030 agenda within the 2030 agenda as well as across the SDGs, across the 17 SDGs.

So, thus we can say that ESD will require the individual to acquire the key competencies, sustainability competencies to align with the you know to the you know notion building of transformative learning. So, what are the key components, how to deal with the situation, how to you know develop this you know develop the different resolution strategies, hypotheses for the transformative learning, then again how to execute it, plan it.

So, in addition to other generic and contact specific competencies so, the key competencies on ESD, sustainability competencies should be developed to aligned with the notion of transformative learning and to develop the mastery and competency to deal with the emerging social problems, economical problem, environmental problem and to deal with it in a very strategic way.

So, education here is a catalyst, is a change agent and especially ESD is the tool within the framework of education to you know not only to embed all the objectives and targets of SDGs across the across 17 SDGs, but as well as the 2030 targets, 23030 targets of exclusive; that means, that is exclusive focus on quality, education and SDG 4. So, for that matter, we need to develop key competencies, sustainability competencies besides other context specific and the generic competencies.

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Table 2. Competencies proposed for assessment of ESD, including addressing Sustainable Development Goal (SDG) 4.7 (informed by Wiek et al. [13]) plus evaluation questions.

Key Competency Area	Example of Competencies	Example Evaluation Questions
Intrapersonal	Presencing, self awareness, stress management, meaning making, connection with self, capacity for inner peace, mental wellbeing, self-reflection	Are learners able to be present in themselves? Can learners hold (without having to resolve them or prejudice one or the other) contradictory feelings and or thoughts? Do learners practise self awareness? Are learners able to know when they or a group is stressed and take appropriate steps so that stress does not hinder action? Can learners find strategies to seek inner peace? Can learners make meaning in the work they do? Do learners practise love and compassion? Are learners aware of their mental and emotional health and do they have the abilities to maintain healthy mental and emotional states?
Interpersonal	Communication skills, empathy, compassion, leadership, teamwork, mediation, cooperation, collaboration, participation	Are communication skills taught? Are learners facilitated to work well with others? Can learners assist each other as peer to peer learning? Are learners, across gender, ethnicity and other groupings, able to explore their leadership skills? Is empathy valued and encouraged? Are learners able to address conflict and develop mediation skills? Are their barriers to full participation in learning projects?
Future thinking	Visioning, developing scenarios, backcasting, recognising heritage, intergenerational equity	Are learners encouraged to imagine and envision sustainable futures? Can learners effectively use backcasting and forecasting skills in planning strategic activities? Do learners connect with their heritage and culture when looking to the future? Can learners identify future scenarios and use them to inform decision making? Are learners able to apply an awareness of intergenerational fairness to decisions and planning?
Systems thinking	Systems thinking, working with complex problems, promoting resilience, understanding tipping points and feedback loops	Are learners able to work with interconnectedness and complexity in a systemic context? Do learners have a functional knowledge of tipping points, resilience and feedback loops? Can learners understand how to work with socio-ecological systems? Do learners have a working concept of resilience?
Disciplinary and interdisciplinary	Understand the links between knowledge and experience, critical thinking, discipline specific framing, interdisciplinarity, expressing multiple ways of knowing	Have learners acquired an epistemological intelligence? Have learners developed awareness of different ways of knowing? Have learners explored disciplinary integrity and understood the academic norms of a discipline? Can learners work with disciplines that are not their core approach? Have learners developed their capacity for critical thinking? Can learners critically reflect on their own experiences?
Normative and cultural	Ethical responsibility, development of world views and perspectives, awareness of values, understanding of justice, cosmopolitan perception, transcultural understanding, awareness of local context and global trends	Can learners identify ethical questions and evaluate ethical responses according to different frameworks? Are fairness and justice debated and explored? Are learners encouraged to engage with and understand different world views? Are different cultural contexts appreciated? Have learners engaged with questions of well being and happiness?
Strategic	Planning, decision making, implementing, addressing challenges, organisational development, use of Kolb's action reflection cycle.	Are learners able to practise decision making and analyse consequences? Can learners use planning and assessment tools? Can learners identify and address challenges with regard to strategies and their implementation? Have learners implemented a plan they have designed? Do learners know how to use the behavioural change cycle for effective action and reflection? Are learners aware of organisational development issues and practices?

So, here you can say it is a competencies proposed by the assessment of ESD including SDG 4.7 that is being introduced by Wiek et al. So, these are some of the key competencies that he and his associates have identified. Like you can see as we can say intrapersonal competency, interpersonal competency. Intrapersonal competency you know these are the examples given here you can go through it, but intrapersonal is that within the individual, how better we can understand ourself, our inner self our in.

So, like the metacognition gives us the ability capacity to understand our own thought process cognitive process similarly, intrapersonal is the how much we have established the rapport with our inner self, our individual self in the sense that we know our likings, disliking's, strengths, weaknesses, you know abilities, capabilities, efforts, values everything we know about you know we know about everything of our individual self that is intrapersonal.

And again, we have we are very much happy with, and we have established a good rapport and you know we have the right kind of self-identity because we have already known our self-understood, ourself and we have established a bonding a relationship with our inner self so, there is no gap of our real self and our ideal self or our outer self or our inner self.

Outer self in the sense the way we present ourself in the society or to the outer world that is our outer self, but the inner self actually what within our own self, what we are

actually, what are our characteristic strength our personality traits, our attributes, our attitudes, our values, our thoughts, our capabilities, our efficacy all these things.

So, intrapersonal relationship is that developing a right kind of self-awareness so that we can better understand ourself, we can it does it can help us it can help us in stress management and in interpreting the different kinds of situations that is in meaning making meaning making connections with the self-capacity for the inner peace and then, mental well-being, self-reflection so, definitely intrapersonal competency definitely helps us not only in understanding our own self.

But it enhances our self-efficacy, our adaptability, you know our ability to deal with the stress and meaning making for any kind of you know goals and objectives and activities, we can connect our self with not only our individual self inner self, but also, we have the capacity to establish a good healthy relationship with others so, mental well-being inner peace.

These are the outcomes of this intrapersonal because intrapersonal competency you know helps us in self not only in self-reflection and critical evaluation of our own ideas and thoughts more objectively, but it also enhances our ability, capabilities in terms of better self-awareness, self-efficacy, self-competency, self-esteem all these thing.

Then, comes to your interpersonal. So, once we are good in intrapersonal because we know our self-better, why we are doing something we have every justification and reason for what we are doing, what we are thinking, what we are behaving, acting and reacting so, that intrapersonal competency or you say intrapersonal intelligence, it helps us in establishing a healthy interpersonal relations that is between the individuals, between the individuals relationship there is a interpersonal relationship.

Like for example, communication skill, it enhances our communication skill, interpersonal skills includes empathy being empathetic towards others, compassions, leadership skills, teamwork, collaboration, cooperation and participation in social activities all these things are the; all these things are the result of this in interpersonal relationship which is the outcome of; outcome of also developed intrapersonal intelligence.

Once we have established the link a rapport with a bonding with our individual self, then we can definitely we can establish a relationship with others in the community, with other individuals in the community; community because understanding our inner self will help us in understanding others behaviour, others thoughts, others likings and disliking.

So, then again that comes again both these two you know intrapersonal, interpersonal competency helps us in future thinking. Future thinking like visualising the looking at the present, critically evaluating the scenario and then, having the assumptions and having the vision, the predictions about the future.

So, future visioning, then the developing the scenarios that is from our imagination from our broad outlook that we can imagine that like other countries like other developed countries, we should have these kind of facilities so and so etcetera.

So, developing scenarios, back casting, recognizing the heritage, inter general intergenerational equities so, not only the generational gap, but inter general equity that means always we can focus on the positive aspects of resources. Even if it appears in the outset, it appears to be you know very challenging, very very risky, very complex etcetera, but from looking within; from looking within into the system and the context etcetera, we can explore the resources.

So, that is the futuristic thing because having the visioning; that means, with the positive mindset so that we can also explore from the zero situation to we can also explore the positive outcomes in terms of exploring the resources, developing the capabilities, qualities, then training through training etcetera we can also and identifying, not only identifying our heritage also, but taking the advantage of traditional knowledge, then we can also create you can generate the resources, we can utilise those resources and mobilise those resources for future sustainability.

Then, systems thinking. Systems thinking as we have already discussed a holistic perspective. System thinking means working with the complex problems, having a holistic vision of the thing, promoting resilience definitely positive thinking along with the positive thinking, we have to develop the resilience that is the spirit to come back to fight and come back to the; come back to the normal situation that is the promoting resilience, understanding the tipping point, key points and feedback loops etcetera.

So, how to get the learning experience, how to get the learning experiences or tips from the feedbacks, how to work on the feedback, how to utilise the feedback and what are the critical points so, developing resilience all these things that is systemic thinking. Systems thinking is that having the holistic perspective to looking at the to look at the complex situations, the complex problems to identify its loops and to resolve the issues along with our enhancing the capability of optimism positive thinking, resilience and positive attitude.

So, then, disciplinary and interdisciplinary is definitely sustainability such a concept, sustainable development is such a concept, ESD is such a tool to establish all kinds of within the disciplinary and interdisciplinary; interdisciplinary linkage in the topics, interdisciplinary research, interdisciplinary you know implications so, interdisciplinary things that you understand the link between knowledge and the experience, critical thinking, discipline specific framing, interdisciplinary things, expressing multiple ways of knowing.

Like for example, we every discipline has its implications, but we can also by developing this interdisciplinary thinking, we can relate to where we can relate to our domain knowledge with other domains, other subject domains, knowledge based and can establish a linkage, can establish an implications and can make it relevant for the social benefit.

So, understanding not only our own knowledge across the discipline, but learning from the experience and learning critic with the critical thinking and in and expression of the multiple ways of knowing and your creative ideas, innovative ideas and thoughts so, that can also be that interdisciplinary and disciplinary competencies can also be developed.

Then, comes your normative and the cultural definition. Normative or cultural competency primarily is more of the universal learning about the universal values, ethical responsibilities ok, developing an worldview perspective so, awareness of the universal values undertaking, the justice; justice, then I mean the cosmopolitan perception, transcultural undertaking, transcultural perspective, then the again awareness of the local context as well as the global trains, how can we establish a bonding cooperation between local and context local requirements, local need of the people along with the global trained, global requirements so, these are thing.

Then, the strategic. Then, the strategic competencies that planning, decision-making like after critical you know analysis and evaluation, we can come to the conclusion and we can rightly identify the cause and effect relationship, we can address the critical issues, then take the decision accordingly, planning, decision-making, implementation of the policies and addressing the challenges and organizational development you know from the this experiential learning, they learning by doing, observation, then observation, then abstract conceptual formation, concept formation, then experimenting on this.
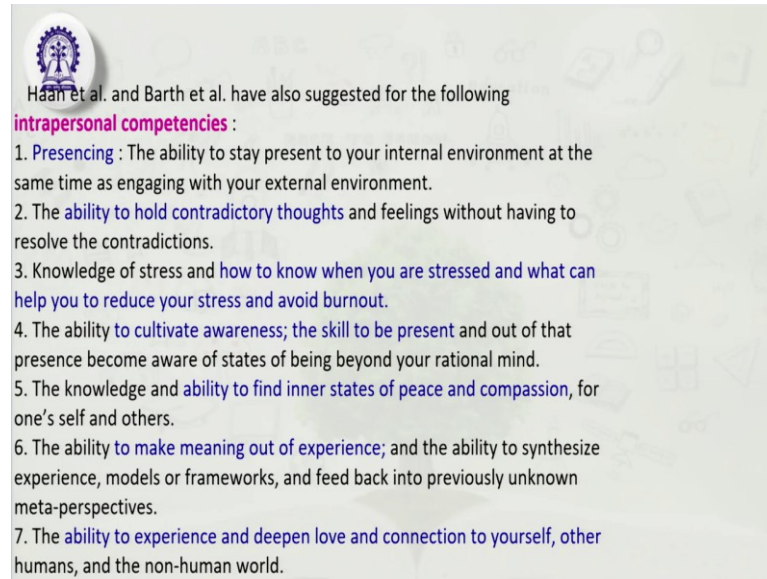
So, this learning cycle from concrete experience to observations, reflective analysis to planning to action to learning by doing to hypotheses, all these this learning cycle of the school of learning, experiential learning models that will help us in taking the strategic decision-making, planning and strategic decision-making.

So, these are we can say the key competency areas within the framework of ESD that is interpersonal, future thinking that is having the vision of developing the no developing the future developing the scenario, scenarios of the future, then recognizing the heritage and you know leveraging the cultural factors also so, intergenerational equity, cultural factors, how to leverage it.

Then, systems thinking having a holistic perspective, the disciplinary and interdisciplinary knowledge, translation of knowledge, implementation of this knowledge in terms of action and research, then yes, normative that is which are based on the universal laws, rules etcetera and the cultural perspective. So, both the normative and cultural competencies and the strategic competency to take the final decision making and planning the planning and execution of the action plans.

Haan et al. and Barth et al. have also suggested for the following **intrapersonal competencies** :
1. Presencing : The ability to stay present to your internal environment at the same time as engaging with your external environment.
2. The ability to hold contradictory thoughts and feelings without having to resolve the contradictions.
3. Knowledge of stress and how to know when you are stressed and what can help you to reduce your stress and avoid burnout.
4. The ability to cultivate awareness; the skill to be present and out of that presence become aware of states of being beyond your rational mind.
5. The knowledge and ability to find inner states of peace and compassion, for one's self and others.
6. The ability to make meaning out of experience; and the ability to synthesize experience, models or frameworks, and feed back into previously unknown meta-perspectives.
7. The ability to experience and deepen love and connection to yourself, other humans, and the non-human world.

So, here now again the Haan et al and Barth et al, they have again exclusively given the suggestion for the intrapersonal competency. Just now, that we have discussed now intrapersonal, but next within ourself, intrapersonal is that presencing, ability to stay present in our internal environment at the same time engaging with our external that means, how much do we understand our self-focus on simultaneously focusing with focusing on the external requirements as external demand or engaging our self in the external events so, that is presencing.

So, here, we can also said that being mindfulness ok. So, that means, we can better understand ourself, to present ourself, engage our self in the present current event along as with along with staying in touch with our internal environment ok so, to establish a linkage between internal environment and external environment by environment by engaging ourself.

2nd is the ability to hold contradictory thoughts and feelings without having to resolve the contradictions. Like suppose in our life very often we used to face contradictions so, the paradoxes, different kinds of paradoxes. We have to you know we should not be; we should not be in a dilemma, we should not get disturbed, there should not be we should not face any kind of dissonance, serious cognitive dissonance because of these contradictory thought because if these are the either these are the you can say facts of life

we can say, we can take with the facts of life, we need to we have to face sometimes we have to face the different paradoxes of life.

So, therefore, we how can we hold the contradictory thoughts and feelings at the same time and we can rationalise it, we can justify it, we can understand it, we can rationalise. So, without having the resolve to contradictions. So, there is how to live with these contradictions you can say.

There are dilemmas conflicts, there are dilemmas, there are contradictions in our thoughts, action, feelings etcetera so, which actually always are not in consonance with our a mind of the thought process, but however, we can how we can learn to live with these contradictions ok. So, that is the ability to hold the contradictory thoughts and feelings without having to resolve the contradictions.

So, knowledge of stress and how to know when you are stressed, how to understand ourself, our mental health, what can help, how can we resolve our conflicts, how can we reduce our strain, our stress, how to avoid the burn out worn, burn out like you know being the worker leak or over stressed with work or you know unable to maintain the work life balance or something because of this kind of work related or burden related some factors how.

That means, what teachers teacher burn out like teacher burn out means when they are over exhausted, over exhausted when they are; when they are you know actually they are whatever they are able to do that means, they are doing it that means, they are doing it beyond their capacity, beyond their you know ability so, that is called the that causes the burn out or the stress etcetera. So, but how to reduce that? With the strategic planning, mindfulness activities, regular exercise, meditation, deep breathing so, that kind of thing knowledge of stress management so, these are things.

Ability to cultivate awareness, the skills to be present and to be present to be aware of the state of being beyond our your rational mind yes. Like even that means, thought is there, mind is there rational mind is there, but how are the effective domain or the feeling are the emotional domain, how can we be at peace in the sense that we are very much aware of our present state of mind, we can take control of our emotions, our thoughts and feelings so that is to cultivate that kind of awareness, the skills to be present nowadays;

that means, through the practice of mindfulness, how to be present, how to be mindful, how to be focused in our present.

And which then you know in the rational mind, we often where we are we seek to get the you know the logics and thoughts, but how to practice these things. Being mindful means we are focusing on the present, being cool and calm and quiet and try to resolve all the present current issue. So, that is the how to cultivate that kind of awareness.

Then, again to knowledge ability to find the inner state of peace and compassion. To develop all these positive characteristics strengths like optimism, resilience, compassion, empathy, gratitude, then resilience, then helping others, then thinking for the society that is developing a service orientations, all and the peaceful you know making peace that means, peaceful learning, peaceful mindset, broad mindset and peaceful thought process.

So, that means, peace loving person that is to settle down all kinds of the conflicts, as not going for; not going for you know any kind of controversy or all kinds of any kind of scandal so, being argumentative being you know argument and the being you know a part of any kind of discussion that is ok, but purposeful you know purposeful you can say blaming and acquisition to create the chaos and conflict that is not the judicious process.

So, how the how to develop this kind of ability to draw the consensus to maintain the inner peace and how to draw the you know how to draw a peaceful conclusion or take the peaceful decision this with after having the dialogue or discussion with the democratic discussion with other peer's, colleagues and the friends.

So, the ability to make meaning out of experience yes, whatever experience we are facing, we are accumulating, we are gathering in our lifetime like for example, from this pandemic itself. So, 2020 to 2020 and 2021 has given us a lot of experiences and exposure to different kind of experiences, but again in general, when we view it in general, when we reflect on this experience, we can draw yes some plus points, some negative points as well so, but what is our overall view of our experiences, how do we value these two years' experience of pandemic experience.

We can say that yes and number these are the weaknesses, these are the setbacks and so and so, but at the same time, when we reflect on these advantages, its try to explore the positive aspects of the situations like yes, this is the these two years have been the

learning experiences from which we could learn about you know engaging ourself in a very more constructive way even if when we are alone, even if at home we are staying alone, then enhancing ourself sufficiency.

And yes, enhancing our technological skills, competencies, engaging our self in different kinds of creative activities, even within that individual space; individual space or the and like when we are you know staying alone at home, how can we also establish the rapport communication and contact with others in engaging ourself in doing something positive and constructive for not only for our self for the society.
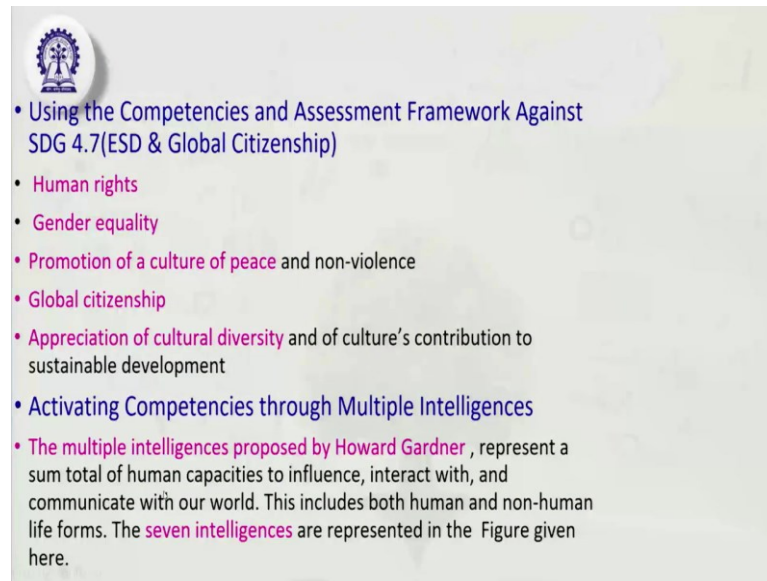
So, these kind of things we have to explore it from our experiences that what are the new things; new things learning opportunities and learning you know learning experiences that we have learning inputs that we have gathered from our experience ok. Then, the ability to experience and deepen the love and connection to yourself and other humans and non-human.

Yes of course, this during this pandemic time, we have spent most of the time with ourself, individual self. So, definitely it has given us an opportunity and time enough time to self-explore, to deeply contemplate on our likings, dislikings, setbacks, strengths, weaknesses etcetera.

When we analyse our experiences, when I we analyse our you know individual thoughts, loneliness, you know home environment all the challenges that we are facing. Not that it has developed a kind of competency of self-sufficiency that we can manage our own self, but at the same time, how can we relate ourself with others, we can also discharge our responsibility both in home front, both in academic front, in the business front, work front.

So and how to within that sphere of life, that phase of life, how can we also establish a healthy relationship bonding and emotional attachment with other humans with other friends, with even in the non-human world also, how can we connect ourselves to other external world both in the human and the non-human world.

So, then these are some of the things. So, again using the competencies and assessment framework, again SDG 4.7 that is the ESD and global citizenship so, these are also the extra, that these are also the highlighting points like human rights, what do we mean by human rights, how to ensure the human rights equal human rights among our citizens?

Gender equality, gender equality in terms of education, access to education, access to access an opportunities for higher education, the employment sources, work pay package, all kinds of thing, all kinds of you know access, privileges and incentives and opportunities so, that is the gender equality that we have to develop these aspects also in terms of education, information and dissemination.

Then, promotion of the culture of peace and non-violence. Yes, all any kind of complex critical issues or challenge, social conflict and dilemma etcetera that both individual dilemma as well as the social conflict, work related conflict, group conflict, everything can be settled down with a promotion by developing a culture of peace and non-violence. So, that kind of ethical values, standards and mindset and attitude should be incorporated in the system, education system and inculcated within the individual character.

So, developing culture of peace everything can be settled down, whatever may be the difficulty level or complexity of the situation so, by through peaceful negotiation, peaceful discussion, peaceful engagement and non-violence should be the approach so, through this, how to promote these two things.

Then, again yes, global citizenship that is the being Indian or being a you know resident of a particular state etcetera, even if we are having we have to look into the local needs, local context, local priorities etcetera, but at the same time, fulfilling all our local needs, requirements and individual needs etcetera.

But how can we take the responsibility of being a global citizen to behave responsibly, to take the responsibility of discharging you know discharging our service towards the planet earth, planet towards the global world in terms of you know economic growth, in terms of environment protection or in terms of conserving our resources, in terms of establishing a healthy relationship with the human resource that means, with the networking.

So, in all domains, social domain, economic domain and the ecological domain or environmental domain, how can we be we try we behave like a global citizen in taking the ownership and responsibility of taking care of all these three sphere, three bottom lines of our planet earth that is the global citizens.

So, being the first of all you are a global citizen the that the being the global citizen, you must abide by the that means, universal truth, universal laws, values, ethics, morals and act accordingly so that you should not, you would not damage, you would not hurt any segment of the population or any particular community.

So, then, again appreciation of the cultural diversity. Yes, cultural diversity is there India is the best example. So, then so, we have already from the very beginning, we have learned how to adopt in the different cultural background diversity along to live with the diversity that is the benefit of our country and our culture.

But again, when we are exposed to other countries and other culture also so, how to appreciate their cultural factors, how to appreciate their cultural diversity, how to understand their cultural nuances and how to how these cultural differences also contribute towards the sustainable development, how it can be like every culture has some kind, some specific characteristics and features, how to leverage it to understand it better and to how to leverage it for the common development for the community development, for the holistic development and sustainable development.

So, appreciation of cultural diversity, understanding the cultural nuances and unique features and to leverage it for the common development or holistic development of the planet or the sustainable development, common sustainable development. So, again activating competencies through multiple intelligences ok. So, multiple intelligence that is how to develop multiple intelligence that was proposed by Howard Gardner. So, there are different theories of intelligence and Howard Gardner as a psychologist, as a theorist, he has proposed that the individuals human beings are having the multiple intelligences.

Initially, he has said that seven intelligences are there and later on, other you know two more un types of intelligence have been added so, that we will discuss in the next class ok, multiple intelligence as proposed by Howard Gardner and how it is going to help us in enhancing a human capacity building and in our social interaction, in communication and how it helps us in to establish that kind of you know sustainable living, sustainable lifestyle etcetera, that we will discuss in the next class.

So, thank you.