# Project Result 2

## 2.3 Methodical – Didactical concept

**bye, Polarity**
Thinking beyond Polarity
for Europe united in diversity

SAY: „BYE, POLARITY"

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# 1 Introduction

The didactic concept is part of the second project result of the project "bye, Polarity - Thinking beyond Polarity for Europe united in diversity". This is a 24-month project co-funded by the Erasmus+ Programme of the European Union (EU), targeted for secondary education students (12-16 years old) and teachers. Overall, the project aims to sensitise pupils towards increasing polarisation in politics and society, train them in dealing with polarisation, and win pupils over as ambassadors for a united Europe.

The methodological concept has been previously provided, outlining the theories on which the learning will be founded on. In a similar manner, the didactical concept reflects the teacher-centered approach, outlining the elements related to the teaching of the content developed. Therefore, methodology refers to learning elements and processes while didactics refer to teaching elements and processes.

The teaching related to mitigating polarisation will be addressed on 3 levels:

Content: What is appropriate content?

Structure: How should this content be structured?

Communication: How should the content be communicated?

It is understood that the 3 elements overlap occasionally or rather reflect the different aspects of the same issues but are discussed as separate in order to highlight the full range they cover.

The didactic concept is addressed primarily to secondary school educators, educational leaders and policymakers/stakeholders, such as ministries of education. However, it can be used as a guideline for other types of educators in institutions as well, for ensuring their approach to polarity relates to educational curricula. It is anticipated that the bye, Polarity didactic concept could be employed by ministries across Europe, looking to integrate issues related to polarity in their compulsory secondary education curriculum. The didactic concept provides a guide to support links between polarity and learning theories. It supports an ecosystem approach towards interdisciplinary teaching and learning using different approaches. In this way, it promotes systematic synergies between schools and other educational institutions with stakeholders.

# 2    bye, Polarity Didactic concept

In the framework of Project Result 2 for bye, Polarity, a series of important teaching elements and approaches were deemed crucial, to inform the overarching framework to consider for developing the teaching and learning material. The basics of these concepts are addressed below.

## 2.1    Basic Philosophy of learning about complex social issues

There are three widely used learning theories which are appropriate when tackling complex social issues, such as polarity: constructivism, cognitivism, and behaviourism. These concepts work to create effective educational materials and investigate the psychology of learning. Since each of these theories has strengths of its own, instructors can use them to varying degrees, and combine them in order to achieve the desired result (Tritsch, 2021).

### 2.1.1    Behaviourism

The behavioural learning theory, also known as behaviourism, is a well-known concept that concentrates on how students learn. The central doctrine of behaviourism is that all actions are acquired through interactions with the students' environment. According to this learning theory, environmental circumstances have a much greater impact on behaviour than innate or inherited traits. Therefore, it could be used in the context of teaching.

Because it affects how students act and behave in the classroom and implies that teachers may directly affect how their pupils behave, behaviourism is important for educators. Additionally, it enables educators to view student behaviour objectively and work toward its development by assisting them in realizing that a kid's lifestyle and home environment may have an effect on it.(*What Is the Behavioral Learning Theory?*, 2020).

According to behaviourists, conditioning is crucial in the development of instructional behaviour inside the classroom. A good student could be praised (positive conditioning) whereas a student gets reprimanded or penalized (negative conditioning). Students are motivated to perform better by this stimulus, and conditioning turns into a stimulus-response. Behaviourism can also be used in the classroom through mastery learning, students learn and practice specific content in this way until they reach a certain degree of proficiency. They are then promoted to a higher quality as a result of this. Promotion is a form of constructive conditioning. Student learning can be aided by behaviourism, for instance through influencing lesson planning. Some instructors favour providing engaging environments to boost engagement (classical conditioning), while others employ constant reinforcement to assist pupils learn (operant conditioning).

Nevertheless, behaviourism has also been critisised and a matter of dispute. Some contend that the method ignores student identity and individuality, while other pedagogical theorists assert that it focuses on bodily rather than mental acts and is hence inadequate for evaluating true learning. (Greenwood, n.d.)

### 2.1.2  Cognitivism

Contrarily to behaviourism, cognitivism views people as mental entities capable of information analysis and evaluation. It thus clearly contradicts behaviourism's doctrines. Cognitivists disagreed with behaviourists because they believed that they overlooked the idea that thinking is a crucial factor in learning and instead believed that learning is merely a response to a stimuli (OLCreate: General Teaching Methods: Cognitivism, n.d.).

Learners consider the implications of their responses rather than merely reacting to stimuli and responding through conditioning. In order to comprehend a person's learning behaviour, cognitivism probes deeper than the surface level observation of that person. These processes are known as cognitive domains by cognitivists. Based on Bloom's taxonomy of learning objectives (Bloom et al., 1956), which are connected to the development of various types of learning skills, or ways of learning, the three prevalent domains of cognitivism in education are: cognitive (thinking), affective (feeling), and psycho-motor (doing). The "thinking" domain is the core emphasis of cognitivism. Bloom's taxonomy has been slightly changed in more recent years by Anderson and Krathwohl (2000), who included "generating" new knowledge in the learning objectives through cognitivism. There is a hierarchy of learning as well, which requires students to advance from remembering to assessing and creating at each level (see Figure 1).
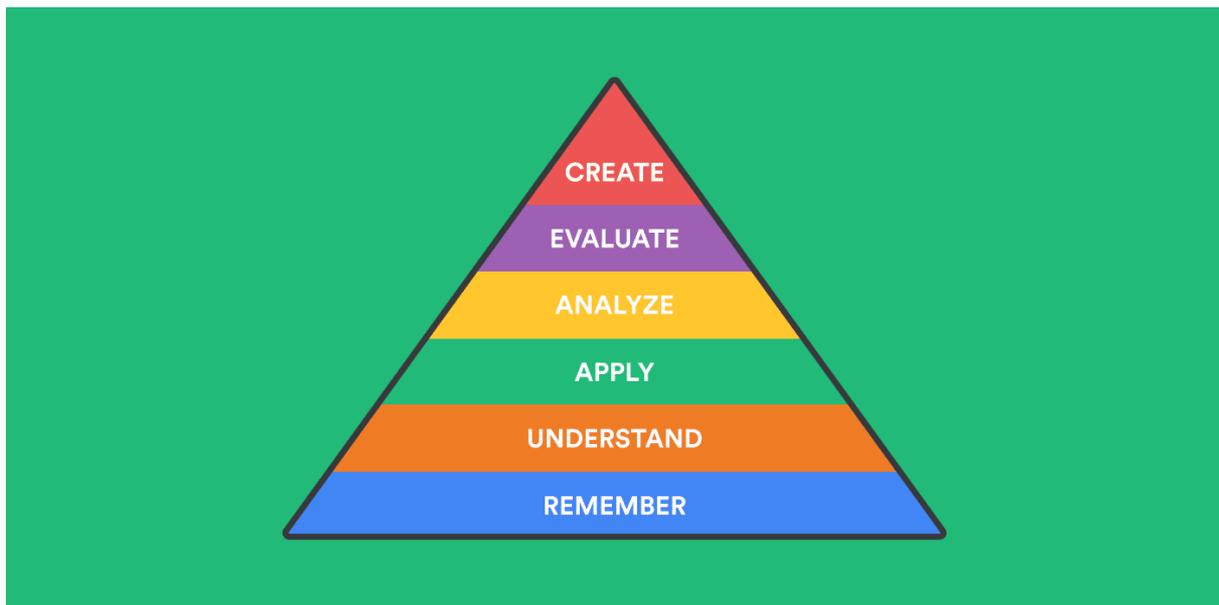


Figure 1. Bloom's taxonomy revised (Okanovic, 2021)

Cognitivists believe that knowledge is stored in symbolic mental constructs, or schemata. When a learners' schemata are changed, learning takes place. Schemata represents a mental framework that organises categories of information, such as concepts, objects, situations, or events and their relationships. Therefore, in cognitivism, learning occurs in the process of rebuilding or reshaping the schemata, (*Cognitivism - the Peak Performance Center*, n.d.)

In cognitivist theories, activities that help a learner build on what they already know are the main focus of teaching. Both the process and the outcome of learning are equally significant. Recognising that knowledge is dynamic, cognitivism takes into account social and cultural

variety and is thus useful when tackling complex social issues, such as polarisation. Cognitivism is introduced in the classroom through interactive exercises that encourage pupils to think critically (Tritsch, 2021). For instance, when students are given challenging questions, it encourages their minds to dig deeper into their existing knowledge to find answers. Self-reflection and memorization exercises can both enhance students' learning potential. Some strategies for promoting cognitive learning in the classroom include asking students to demonstrate a concept, having them memorize poems, giving them practical challenges to solve, and engaging them in interactive dialogues (Tritsch, 2021).

We now have a greater understanding of how humans obtain, interpret, integrate, process, organise, and manage knowledge as well as how they process and make sense of new information. Cognitivists have also improved our awareness of the factors that influence learners' mental states (Tritsch, 2021).

### 2.1.3 Constructivism philosophy of learning (relating to the topic of Polarisation)

Constructivism is 'an approach to learning that holds that people actively construct or make their own knowledge and that reality is determined by the experiences of the learner' (Elliott et al., 2000, p. 256). In essence, students build on their prior knowledge with new information by using it as a foundation. An individual's ability to generate new or modified information from fresh learning experiences is influenced by their prior knowledge (Phillips, 1995). Thus, each person's learning is unique to their own experiences (*What Is Constructivism?*, 2020). According to Woolfolk (1993) "learning is active mental work, not passive reception of teaching".

The success of a constructivist classroom depends on four main factors, as quoted from D.S Kurt (2021):

- The instructor takes on the role of a facilitator instead of a director.
- There are equal authority and responsibility between the students and the instructor.
- Learning occurs in small groups.
- Knowledge is shared between both the students and the instructor.

Constructivism teaching is quite different from a typical classroom. The learning in constructivist classrooms is mainly focused on the students' interests and inquiries. By adopting group activities, fostering collaborative conversation, and facilitating interactive experiences, teachers direct learning. Based on the lessons provided, the students build upon their past knowledge and create new understanding. Negotiation and dialogue are also essential elements of good learning. This method is also helpful when dealing with social issues since it promotes dialogue and interaction. In this way, students might become much more aware of the social challenges and use their experience for comprehending complex matters, such as polarisation.

Many researchers have sparked debates and arguments among educators over the value of social studies education and the best ways to teach it. The issues were not solved by a single solution. But many academics contend that a constructivist approach could help students' social studies abilities (McCray, 2017). There are many benefits from the constructivism

learning method, yet it seems that it is particularly useful in relation to the concept of polarisation. In a social-historical context, the concept of "polarity" refers to the opposition of two ideas, viewpoints, things, etc. in international relations. The term "polarity," which denotes a duality that considers the development of events in opposing directions, but which are interdependent, is used in many different domains. In this sense, polarity can be seen as a social process that is affected by social policies as well as by individuals in society, either negatively or favourably.

Constructivism concentrates on learning how to think and understand. Constructivism also motivates and engages students by placing learning activities in an actual, realistic setting. Students learn to challenge ideas and use their inherent curiosity to explore the world in constructivist classrooms. By encouraging group work and the exchange of ideas in the classroom, constructivism fosters social and communication skills. Through participation in group projects, students must develop the ability to communicate their ideas clearly as well as work successfully as a team. As a result, students must learn how to "negotiate" with others and assess their contributions in a way that is acceptable to society. This is crucial for success in the real world because it exposes them to a range of situations where they must collaborate and negotiate other people's perspectives and therefore makes it an appropriate approach towards the complex matter of polarisation.
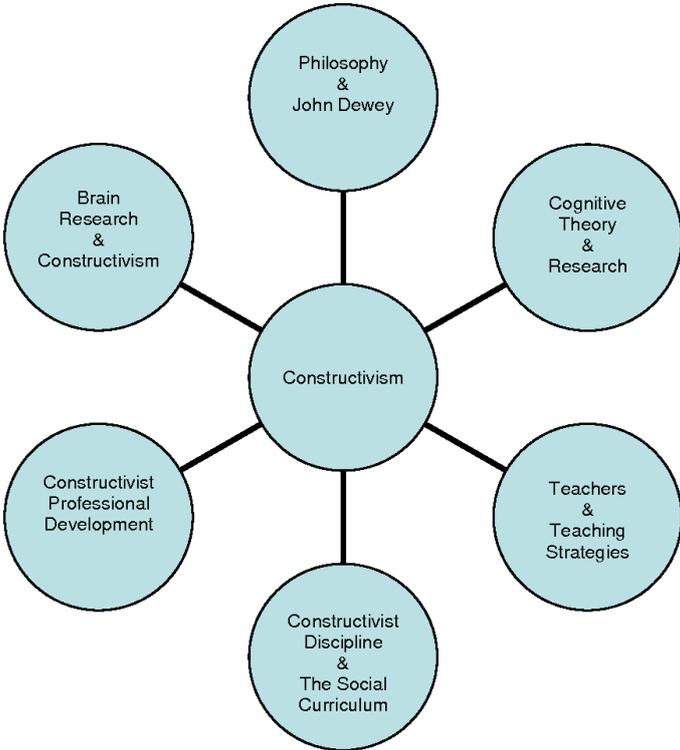
Figure 2. Constructivism Theory of Learning, (Kurt, 2021).

## 2.2 Learning Climate & Feedback that refers to the prevailing moods, attitudes, standards and tone in a classroom environment

### 2.2.1 Creating a climate for learning

A general definition for classroom or learning climate given by Ambrose et al is the 'intellectual, social, emotional, and physical environments in which our students learn' (Ambrose et al. ,2010, p.170). In other words, learning climate describes the general tone, norms, and attitude at an educational setting. A bad atmosphere can seem unfriendly, disorderly, and uncontrollable. A favourable environment fosters feelings of safety, respect, hospitality, and support for learning. The positive aspect is that we can influence the classroom climate ourselves. There are steps teachers and preceptors can follow to create a conducive learning environment consciously. Effective teachers consciously create a climate in which all students feel included. Effective teachers believe that there is potential in each learner and commit to finding the key that will unlock that potential (Gregory & Chapman, 2013).

There are methods you can employ to assess the environment of your classroom in addition to being introspective about the routine events that occur there. Directly ask your students for feedback about their experiences in your course. Students' knowledge of their own study habits is increased because of this. To achieve this, a variety of classroom assessment methods have been developed (Angelo & Cross, 1993). Below, we enlist some techniques to create or manage the classroom climate, as quoted from the Centre for Teaching Innovation (*Classroom Climate,* n.d.):

- Incorporate diversity into your course and use inclusive teaching practices.

- Use icebreakers and collaborative learning to give students the opportunity to get to know one another.

- Include diversity and disability statements in your syllabus.

- Address incivilities right away.

- Establish ground rules.

- Check in on classroom climate periodically.

- Make efforts to connect with students.

### 2.2.2 Improving the learning climate

Responsive teachers who address behavioural and attention issues as well as the social and emotional needs of students are a defining characteristic of positive classroom environments.

Techniques for fostering a good environment, as suggested by *Creating a Positive Climate* (2016):

- Use language that encourages conduct more often than language that discourages it.
- Remove harmful types of redirections (e.g., threats, shaming, and sarcasm)
- Praise and approve individually
- When interacting with children, keep a positive attitude and tone.

### 2.2.3 Establishing a positive learning climate

Students that feel comfortable speaking out, taking risks, asking questions, and tackling problems in their study are in a pleasant learning environment. By setting clear objectives for the classroom, allowing opportunities for social skill development, developing relationships with the students, and providing pertinent content, a teacher can foster this kind of learning environment. Students feel that teachers value their opinions in this kind of classroom environment. From this point on, students can take a more active role in their education, which enhances the learning environment (Ma and Willms, 2004).

According to Kamb (2012), in order create a positive climate for your classroom, the focus needs to shift on the following three elements of the classroom climate:

1. Create and enforce rules and norms in the classroom that unambiguously encourage safe and polite behaviour. Setting up guidelines for your classroom will help you provide your pupils with a safe and predictable learning environment. Rules provide your students with definite boundaries as well as chances to learn self-control and make wise decisions. Students are better able to concentrate on their studies when they feel emotionally and physically safe and respected.
2. Encourage good peer relationships. You want to foster an atmosphere where your pupils are helpful to one another and kind to one another.
3. Develop a good rapport with each pupil. You must communicate to your pupils that you care about them as people in addition to their academic performance.

### 2.2.4 Assessment tools (brief presentation)

The formative Assessment Tool of the Classroom Climate was created in the context of the report 'A formative, inclusive, whole school approach to the assessment of social and emotional education in the EU', with the intention of providing a thorough and comprehensive evaluation of the classroom climate and directing teachers and students to jointly make improvements to the classroom (*A Formative Assessment Tool of the Classroom Climate*, n.d.).

The tool created uses nine indicators to measure how well the classroom climate is doing, including, as quoted from School Education Gateway (*A Formative Assessment Tool of the Classroom Climate*, n.d.).

:

- Cultural responsiveness and inclusion,
- Sense of safety, including prevention and protection from bullying,
- Positive classroom management,
- Caring teacher-students relationship,
- Supportive peer relationships,
- Collaboration, including collaborative learning,
- Active student engagement in meaningful learning activities,

- Challenge and high expectations for all learners in the classroom,
- Student voice, including student participation in classroom decisions.



Figure 3. Positive classroom climate (Remick, 2016)

## 2.3 Key Teaching / Learning Methods

The principles and techniques teachers employ to promote student learning are referred to as teaching or learning methods. These tactics are influenced both by the subject matter to be taught and the learner in different ways. A teaching strategy must consider the learner, the nature of the subject matter, and the kind of learning it is intended to foster in order to be effective. In the following section, the most appropriate methods in relation to the subject of polarisation are discussed.

### 2.3.1 Student-centered learning

The most straightforward definition of student-centered learning is an educational strategy in which students decide not just what to study but also how and why that subject might interest them (Rogers, 1983). In other words, the learning environment places a strong emphasis on student responsibility and activity, as opposed to the emphasis on teacher control and the thoroughness with which academic material is covered in many conventional, didactic teaching methods (Cannon, 2000). The learner participates in decisions regarding what they learn, how learning is assessed, and how the learning occurs. Student-centered instructors also respect and consider the unique backgrounds, interests, skills, and experiences of each learner.

The teacher's responsibility in a student-centered classroom is to support learning rather than to impart knowledge. In other words, students are encouraged to think critically, work through issues, and form conclusions, while actively participating in the learning process. On the other hand, in a teacher-centered classroom, the instructor is the subject matter expert, and the students are the obedient recipients of the knowledge. Since ancient times, this conventional method of instruction has prevailed, but the student-centered method is now challenging it.

The student-centered model demands that teachers view every learner as an individual who should be treated as such. This entails considering the fact that students in any given classroom learn at varying rates and in a variety of learning styles, as well as having a range of skills and talents, levels of efficacy, and developmental stages. According to this paradigm, learning is a positive process that is connected to the learner's prior knowledge and experience, relevant and meaningful to them. The learning environment fosters constructive relationships between students and offers a safe enviroment where they can feel valued, recognized, respected, and affirmed. (*Student-Centered Learning*, 2010)

The advantages of student-centered learning are numerous. Students are more likely to remember the material if they participate actively in their schooling. According to Lynch, there are other advantages of this kind of education, including: higher engagement, enhanced critical thinking capabilities, good relationship with the teacher, creation of passion for learning, improved readiness for the real world (Lynch, 2022).

The student-centered method is becoming more common, even while the teacher-centered approach is still prevalent in many classrooms. It is more successful in encouraging in-depth comprehension and long-term memory of knowledge. In the context of the bye, Polarity project this method seems appropriate since it is crucial to master the challenges of the future

with cohesion, ability to discourse, empathy, and diversity as an opportunity for holistic solutions.

### 2.3.2   Blended learning

Blended learning has emerged as a buzzword in the education community worldwide in the last two decades. The concept involves the combination of face-to-face and technology-mediated instruction (Porter et al., 2014). Garrison & Kanuka (2004) define blended learning as 'a thoughtful integration of classroom face-to-face learning experiences with online experiences'.

It is widely regarded as an approach that combines the benefits afforded by face-to-face and online learning components. Teaching within a blended learning environment implies that there are elements of student control over time, place, path and/or pace, also identified as affordances of digital learning. Blended learning can take different forms and styles; commonly referred to as blended, hybrid, and flipped or inverted - which are categorized based on the sequence of integrating face-to-face and online sessions.

When conducted in an optimum way, blended learning leads to several benefits, according to research findings. For example, Jusoff and Khodabandelou (2009), have identified that blended learning increases the interaction between teachers and their students; blended learning offers flexibility, pedagogical richness and is deemed cost-effective (Graham, 2006, pp. 3-21). Blended learning facilitates value interaction and learner engagement (Dziuban, Moskal, & Hartman, 2005, pp. 88–89), whereas it is thought of as valuable to engage different type of learners in a personalised way (Heinze & Procter, 2004).
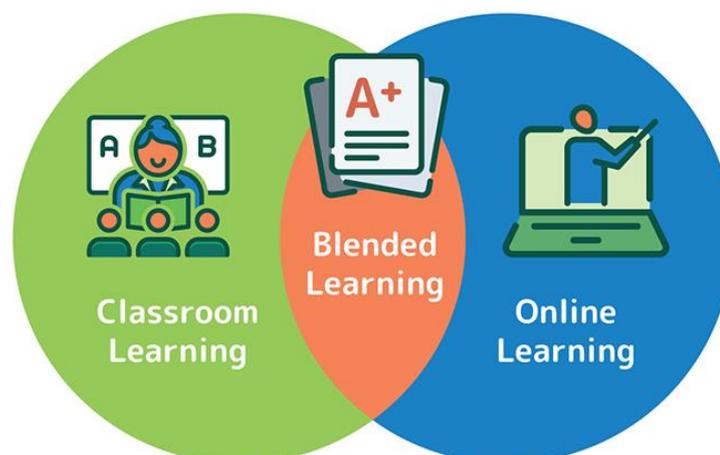


Figure 4. What is blended learning (Best, 2020)

### 2.3.3 Experiential Learning

A renowned approach in formal and informal educational settings, experiential learning can be described as "Learning by Doing". It is a theory coined and defined by David Kolb (2005), as the process whereby knowledge is created through the transformation of experience. What prevails is the belief in the power of engaging learners in hands-on experiences and reflection, so as to be better equipped to understand both theoretical and practical knowledge, and transfer their classroom experience into the real world.

Experiential learning adds a component that other learning theories do not; that of learning about the individual's learning process in addition to the actual learning content. Experiential learning promotes the learner's awareness about their own needs and it allows room for reflection that is recognised within a methodological framework for addressing polarisation as imperative, to gain in depth understanding of issues, create resilience and reverse stereotypes.

The Experiential learning process is based on 4 distinct components (Norwich University Online, 2017):

Experiencing: novel or familiar concrete experiences, whether they occur in professional, personal or educational settings.

Reflecting: reflective observation, which naturally occurs after exposure to new experiences and it is vital to adjust and adapt so as to solve new challenges and make critical decisions.

Thinking: it entails abstract conceptualisation which takes the reflective process a step further, by focusing on channeling those reflective observations into a set game plan or theoretical approach.

Acting: active experimentation to deal with the process of testing existing ideas by creating new experiences.

The above elements form a cycle of learning that allows for the acquisition of new skills, new knowledge and also a shift of attitudes towards empowerment and motivation.
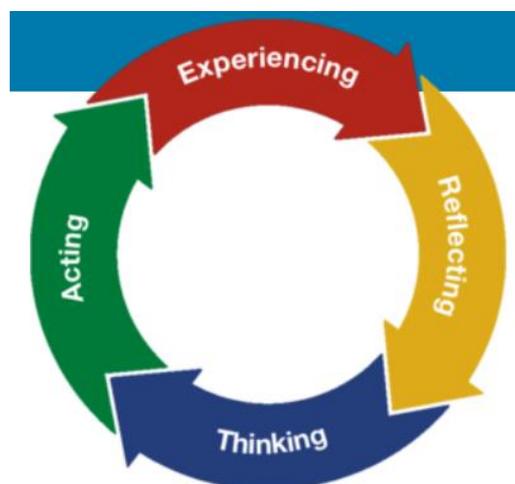


Figure 5. The experiential learning cycle, distilled by Kolb, developed by Lewin (Kolb, 2005)

### 2.3.4   Flipped classrooms

The term is consistently used as a type of blended learning, where students are introduced to content at home and practice working through it at school. It is a popular trend in education, and the unique elements of it, have made it a favourite approach to use in the last decade.

The concept behind the flipped classroom, is to rethink when students have access to the resources they need most. If the problem is that students need help doing the work rather than being introduced to the new thinking behind the work, then the solution flipped classroom takes is to reverse that pattern.

This type of blended learning approach offers some of the perks of blended learning in general, like flexibility and cost-effectiveness, while it also saves time to prepare for class, stimulates interest and motivates students to engage in the learning process beyond the school environment. It is especially relevant to address polarisation, as it can enable a level of deeper understanding, critical thinking and facilitate self-directed learning. (Nouri, 2016)

To summarise this section, holistic education can be seen as a learning ecosystem approach to learning, where for instance experiential learning and digital learning could fall. Blended learning is a type of digital learning, and the flipped classroom concept, is a form of blended learning, ascribing to a particular sequence of delivering a combination of online and face to face instruction. All the above are considered to facilitate learner interaction, enable critical thinking and a deeper level of understanding for the learner. Finally, these concepts facilitate a process known as self-directed learning that will be discussed below, in relation to the concept of polarisation.

### 2.3.5   Differentiated instruction and personalized learning

Our world is increasingly characterised by volatility, uncertainty, complexity, and ambiguity, which all lead to polarisation. In this context, the idea of differentiated instruction seems to be appropriate to tackle these complex matters. At its most fundamental level, differentiation refers to teachers' attempts to address differences among students in the classroom. Differentiating instruction occurs whenever a teacher interacts with a student one-on-one or in a small group in order to tailor the learning experience for that student (*What Is Differentiated Instruction?*, 2015). Differentiated instruction, according to Carol Ann Tomlinson (2010) is the process of 'ensuring that what a student learns, how he or she learns it, and how the student demonstrates what he or she has learned is a match for that student's readiness level, interests, and preferred mode of learning.'

Depending on students' readiness, interest, or learning profile, teachers can differentiate at least four aspects of the classroom, according to Tomlinson (2010):

1. **Content** (the information, ideas, and abilities that students should study in accordance with the curriculum): Depending on the knowledge that pupils have, the topic of lessons may be differentiated. Lesson plans should address the district or state learning standards as their core subject matter. A lesson's principles may be completely new to certain pupils in a class, they may only have a passing familiarity with them, they may have misconceptions about them, or they may already be fully

adept at the material. By creating exercises for distinct student groups that address various Bloom's taxonomy domains, the instructor can diversify the content. For instance, it may be necessary to assign knowledge, comprehension, and application tasks to students who are not familiar with the ideas. It is possible to assign activities that involve memorizing and understanding at the lower levels to students who are not familiar with a lesson. Students with a certain amount of competence might be requested to apply and evaluate the material, whereas students with a high level of mastery might be given tasks involving evaluating and developing. (*Differentiated Instruction: Examples & Classroom Strategies | Resilient Educator*, 2014).

2. **Process** (The exercises that the learner completes to comprehend and make sense of the material). Pre-assessment and continuous evaluation are crucial for determining how pupils learn and what they know. In order to ultimately enhance student learning, this gives feedback to both teachers and students. (Ministry of Education, 2007). In the past, teaching was frequently delivered in a 'one size fits all' manner. While focusing on suitable instructional and evaluation tools that are fair, flexible, and demanding, differentiation is individually student-centered and engages students in the curriculum in meaningful ways. Using activities with varying levels of support, difficulty, or complexity, in which all students engage with the same crucial concepts and abilities. It also seeks to establish interest centres to entice students to investigate portions of the class's subject that particularly pique their interest. Another technique used is the creation of personal agendas (task lists created by the teacher that include both group projects for the entire class and individual projects to satisfy student needs), which should be finished either during designated agenda time or as students finish other work early. Instructors can also vary the amount of time a student may spend on an activity to either encourage or give additional support for a struggling learner. (*What Is Differentiated Instruction?*, 2015)

3. **Products** (the way in which pupils show what they have learned, understood, and can do): The end-of-lesson product is what the student produces to show that they have mastered the material. This may take the shape of assignments like tests, projects, reports, or other tasks. Based on learning styles, you could assign students to complete tasks that demonstrate mastery of a theoretical subject in a manner they find appealing. Some examples of products in this type of learning include (*Differentiated Instruction: Examples & Classroom Strategies | Resilient Educator*, 2014):
   - Learners who can read and write produce a book report.
   - Visual learners structure the story using a visual organizer.
   - Oral reports are given by auditory learners.
   - Kinesthetic learners create a diorama to depict the narrative.

4. **Learning environment** (the climate, or the look and feel of a classroom — the physical space as well as the tone set by the teacher to establish an atmosphere of mutually supportive learning):

As quoted from Joseph Lathan (2019), a classroom with a learning environment optimised for differentiated instruction is one that:

- Establishes a safe and positive environment for learning
- Allows for individual work preferences
- Includes spaces to work quietly and without distraction as well as spaces that invite student collaboration
- Provides materials that reflect a variety of cultures and home settings
- Establishes clear guidelines for independent work that matches individual needs
- Helps students understand that some learners need to move around to learn while others do better if sitting quietly

### 2.3.6 Universal design for learning

Universal Design for Learning (UDL) is the educational framework, which guides the construction of adaptable learning settings and spaces that can consider individual learning differences, and is founded on research in the learning sciences, including cognitive neuroscience. (Rose and Meyer, 2022). This body of knowledge can be used to design courses that make sure all students have access to, can use, and are included in all lectures, discussions, visual aids, videos, printed materials, labs, and fieldwork (Burgstahler, n.d.).

Using a variety of instructional strategies, UDL aims at breaking down learning barriers and provide all students with an equal chance to achieve. It involves incorporating flexibility that may be altered to fit the requirements and strengths of each learner. UDL helps all students because of this.

As a framework for creating lesson plans and assessments, UDL is founded on three key elements (Morin, 2018):

1. **Representation**: The UDL advises providing information in many formats. For instance, textbooks rely heavily on images. However, by offering text, audio, video, and hands-on learning, all children have the opportunity to acquire the material in a manner that is most conducive to their individual learning styles.
2. **Action and expression**: UDL advise providing children with a variety of ways to engage with the subject matter and demonstrate what they have learnt. For instance, students might be given the option to select between a test with pen and paper, an oral presentation, or a group project.
3. **Engagement:** UDL urges educators to consider several approaches of inspiring pupils. Teachers can maintain students' interest by offering them tasks that feel relevant to their life and letting them make choices. Making learning skills feel like a game and providing opportunities for pupils to stand up and walk around the classroom are two other typical techniques.

### 2.3.7 Project-based learning

The goal of project-based learning (PBL), also known as project-based education, is to provide students with the chance to acquire knowledge and skills through engaging projects that are based on issues and obstacles they may encounter in the real world. It is an inquiry-based, active learning approach. PBL substitutes questions, problems, or situations for teacher-led

instruction that offers known facts or presents a clear path to knowledge in contrast to paper-based, rote memorization or training that portrays these things (Yasseri et al, 2018.)

Project-based learning entails more than merely 'doing a project', as you might recall doing in school. According to the Buck Institute for Education (BIE), PBL requires students to pay 'deep and continuous attention to an authentic, engaging, and complicated topic or task'.

PBL works encourages a 'Gold Standard PBL' methodology that is based on research to assist you make sure your students are learning the main course and participating in high-quality project-based learning. Two guides that are beneficial for teachers are included in the Gold Standard PBL model:

1) Seven Essential Project Design Elements provides an outline for the creation of high quality projects

2) Seven Project-Based Teaching Practices support educators in their efforts to calibrate, evaluate, and improve their profession.

### 2.3.8 Collaborative learning

According to Smith and MacGregor (1992), 'Collaborative learning is an umbrella term for a variety of educational approaches involving joint intellectual effort by students, or students and teachers together. Usually, students are working in groups of two or more, mutually searching for understanding, solutions, or meanings, or creating a product. Collaborative learning activities vary widely, but most centre on students' exploration or application of the course material, not simply the teacher's presentation or explication of it.'

Collaborative learning takes on a variety of forms and is practiced by teachers of different disciplinary backgrounds and teaching traditions, and some approaches of this type of learning are discussed below. These approaches are well suited for the humanities in general and particularly the issue of polarity.

#### 2.3.8.1 Debates
Students get the opportunity to work in a collaborative and cooperative group setting when debates are used in the classroom. Students can learn new material and apply knowledge by organising and discussing their points of view on one side of an argument. Students have the chance to investigate topics and concerns from the real world by participating in debates in the classroom. Students are encouraged to learn from their peers and engage in self-reflection during debates. Finally, debates help students develop the confidence they need to discuss their opinions and subject-matter expertise in public (*Classroom Debates*, n.d.).

#### 2.3.8.2 Class discussions
Discussion groups and seminars provide a wide range of instructional strategies. In school settings, debates are typically viewed as processes that motivate students to communicate with their professors and one another. These conversations can be official or informal. The general format includes open-ended discussion, which typically places the responsibility on the instructor to ask questions and simply allow the students to develop a conversation and offer objections within the context of the subject at hand (Smith and MacGregor, 1992).

### 2.3.8.3   Peer partner learning

Within the Share to Know: Furthering peer-to-peer and collaborative learning methods (2017) peer partner learning was defined as 'An interactive exchange that takes place at 'eye level' (or 'eye-to-eye'), which is based on trust in the knowledge and experiences of all involved parties. It is a connotative type of learning that consciously uses the social process to increase learning success, and is based on the needs of the learner.' Peer teaching, in essence, happens when students intentionally teach other students. Peer teaching is based on the idea that 'to teach is to learn twice', and involves one or more students instructing other students in a certain subject area.

Peer learning is a closely related concept, where students learning from and with each other in both formal and informal ways. The emphasis is on the learning process, including the emotional support that learners offer each other, as much as the learning task itself. In peer teaching the roles of teacher and learner are fixed, whereas in peer learning they are either undefined or may shift during the learning experience. Staff may be actively involved as group facilitators, or they may simply initiate student-directed activities such as workshops or learning partnerships. (Staff, 2019)

### 2.3.8.4   Team-building exercises

Part of collaborative learning is the concept of team-building activities. These and many other collaborative learning activities are thoroughly described, and step-by-step instructions are provided for implementing them, and examples for various disciplines are provided in Collaborative Learning Techniques: A Handbook for College Faculty (Barkley, Major, and Cross, 2014). Some team building exercises mentioned, which could be used in the context of the bye, Polarity project include:

- Discussion (e.g. think-pair-share, round-robin, etc.)
- Reciprocal instruction (e.g. fishbowl, jigsaw, test-taking teams, etc.)
- Problem-solving (e.g. send-a-problem, case studies, etc.)
- Writing (e.g. peer editing, conversation journals, etc.)
- Games (e.g. jeopardy, friendly feud, etc.)

## 2.4   Learning as a Social Process

According to Laura Fitzgibbons 'Social learning theory is the philosophy that people can learn from each other through observation, imitation and modelling. The concept was theorised by psychologist Albert Bandura and combined ideas behind behaviourist and cognitive learning approaches. Social learning theory endeavours to study socialisation and how it affects human behaviour' (Fitzgibbons, 2019). The idea considers how environmental and cognitive factors interact to influence how people learn. The premise of the social learning theory is that people model their own actions after observing the behaviour, attitudes, and outcomes of others.  Bandura defined three categories of modelling stimuli:

1. Live models, in which someone exhibits the desired behaviour,

2. Verbal instruction is when someone explains the intended behaviour in detail and gives the participant instructions on how to carry it out, and

3. Symbolic, in which media like movies, television, the internet, literature, and radio are used to model behaviour. Characters from literature or real life can serve as stimuli. Polarisation as an effect of polarity, which is present everywhere, can be dealt with positive modelling, observation, and imitation, and thus we consider it a positive tool for the purposes of this project.

The four fundamental learning criteria that are discussed below are the primary concepts underpinning this technique and is based on the theories of Albert bandura (1972).

### 2.4.1 Principle 1: Attention

You need to be paying attention to learn. Anything that diverts your focus will have a detrimental impact on learning through observation. You are much more likely to focus entirely on learning if the model is engaging or the situation includes a fresh element.

### 2.4.2 Principle 2: Retention

If we cannot recall the activity, we cannot conduct the behaviour. Therefore, even though a behaviour may be observed, the observer will not engage in it unless a memory is created. Retention is crucial to behavior modelling because social learning takes time.

### 2.4.3 Principle 3: Reproduction

Reproduction refers to the ability to duplicate a behaviour that we see. It affects whether we decide to try out the habit or not. Even when we want to mimic a behaviour we see, we are constrained by our physical capabilities.

### 2.4.4 Principle 4: Motivation.

Finally, you must be motivated to mimic the behaviour that has been modelled for observational learning to be effective. Punishment and reinforcement are significant factors in motivation.

## 2.5 Self-Directed Learning

In its broad sense, self-directed learning (SDL), also known as learning by oneself, refers to a person's ability to take the initiative to identify their own learning needs, their ability to decide what they want to learn, their ability to specify the sources they need to learn from, their ability to select or use the proper learning strategies, and their ability to assess learning outcomes with or without assistance from a third party (Tekkol and Demirel, 2018, Knowles, 1975). In self-directed learning, the obligation of learning is transferred from an external source—a teacher, for example—to the learner. The learner's ability to direct and actively participate in the learning process is essential to its success (Boyer and Usinger, 2015; Grover, 2015). Learning that is conceptualized, designed, implemented, and evaluated by learners themselves is referred to as self-directed learning (Brookfield, 2009). It may be described as an instructional strategy where students are in charge of the learning process.

Self-directed learning is vital in today's world, as individuals must know how to take charge of their learning—to plan, develop, adapt, and change in a digital, interactive and global society. Self-directed learning can be defined as the outcome of creating an experience that empowers learners to make decisions about the information they want to become proficient in (Knowles, 1975).

While self-directed learning usually takes place in the experiential or co-curricular setting, it is necessary to introduce and develop the skills required for SDL in the didactic portion of the curriculum. This approach of gradually developing skills over time, is called scaffolding. The primary intention in SDL is for learners to take ownership of their learning, well beyond the curriculum and what a teacher might have to suggest.

Shifting away from content knowledge, learners are encouraged to acquire skill-based competencies such as problem-solving, curiosity and reflection, creativity, written and verbal communication, collaboration, accepting and applying critical feedback, applying knowledge to real-life problems, and managing and supporting constant change (Toit-Brits, 2019).

Most of the research on self-directed learning as a holistic concept, stems from the fields of adult education and studying informal and experiential learning. Research undertaken in the fields of K-12 education and psychology, focuses much less on self-direction per se. The bye, Polarity project seeks to promote self-directed learners, as they are able to adapt to changing social and contextual conditions (Jossberger et al, 2010; Morris, 2019), feel more empowered to take action when oppressed (Bagnall and Hodge, 2018), and are more likely to reach self-actualisation (Arnold, 2017).

Within the bye, Polarity project, self-directed learning is imperative, as it represents a process of learning that is individual, purposeful, and developmental. The emphasis on autonomy, choice, and self-actualisation, leads learners to take personal responsibility, choosing how they use information in the construction of meaning. Individuals initiate self-directed learning to find solutions to concrete goals or real-world problems. The learner assumes responsibility for setting their learning objectives, managing tasks, and controlling the methods and resources used to achieve personal goals, solve problems or meet perceived demands (Morris, 2019). Finally, self-directed learning is a vehicle for personal growth (Groen and Kawalilak, 2014). Individuals develop deep conceptual understanding, solve problems, and achieve goals by cyclically testing their ideas in real-world contexts, and applying personal reflection and external feedback to develop and further refine these ideas (Morris, 2019).

Self-directed learning gives learners the freedom and autonomy to choose what, why, how, and where of their learning. The research literature reveals four dimensions of self-directed learning, namely self-regulation, motivation, personal responsibility, and autonomy.

Within the bye, Polarity project, we suggest that we approach polarisation through the self-directed learning cycle (Figure 4 below), developed by Summit Learning. Summit Learning is a research–based approach to education designed to drive student engagement, meaningful learning, and strong student–teacher relationships that prepare students for life beyond the classroom.

Figure 6. The Self-Directed Learning Cycle (Jenner, 2017)

In the Self-Directed Learning Cycle, teachers work with students to:

- reflect on what they've learned
- set goals for what they want to learn
- plan for how they will reach their goals
- learn new facts, skills, or ideas
- show or demonstrate their learning, then reflect

Eventually — with support — students internalise the Self-Directed Learning Cycle, giving them a foundation for success that is long term, targeting sustainability in education. According to Moore (2005), sustainability education must include multiple disciplines, collaborative, experiential, and potentially transformative. Sustainability often starts with problem solving and involves a need for interdisciplinary information and expertise. How will we make the intellectual, educational, social, and behavioural changes to move toward more sustainable living? It is important to address two fundamental needs, the first being a need for information and the second a need for transformations of thinking and behavior (Lander, 2010). Self-directed learning (SDL) is a key component of fulfilling both needs.

Throughout the design of the bye Polarity Pedagogical Framework, we aim at addressing the needs highlighted through our research for an approach that encompasses a technological component, a methodological component and a cultural component. Below we explore the main points of the proposed framework:

- **Connect with the learner's experiences** (get to know your learners, assess their technology familiarity level, be aware of the cultural context of learning, identify previous experiences that may hinder a learning experience)

- **Personalise** (making use of digital learning and blended learning, the experience can be adapted to the needs of each individual learner. The educator / facilitator can tailor important aspects of the learning experience so that each learner's voice is heard and is empowered to contribute more actively)
- **Support/scaffold the learning experience** (make sure appropriate and interactive resources are available to support the learning experience in terms of equipment and cultural context)
- **Be flexible and adaptable** (maintain some flexibility to accommodate for the diversity and varying levels of competency / experience that learners might be experiencing)
- **Be versatile in the tools and methods used, employ digital means** (it might be necessary to introduce the flipped learning classroom approach in a step-by-step induction process, utilising more conventional or familiar tools in the beginning of the learning process)
- **Bridge formal and informal learning experiences, through a holistic educational approach** (combine the training content with the lived experiences of participants and their existing background knowledge)
- **Promote transversal/soft skills** (make sure to address the knowledge and skills requirements set in the beginning of learning and fulfill the learning outcomes; the component should not overshadow the core of the learning focus)
- **Active knowledge construction** (recognize the learners as co-creators of the learning experience and motivate them to create the knowledge rather than just receiving it)
- **Participation & Involvement** (the learning experience might be unfamiliar or daunting at first, make sure to engage and involve all learners, and take corrective or support measures for learners that are struggling)
- **Collaborative learning** (peer to peer learning might be an excellent option for learners that are less familiar or comfortable with the power structure of a conventional classroom)
- **Learning through experiences** (utilise hands on learning to enable connection to reference to real life and encourage memorable learning process)
- **Experiment and inquiry** (empower learners to explore innovative ways or methods or think outside the box, applying skills, knowledge, or techniques)
- **Reflective learning** (motivate learners to reflect not only on the didactic content, but also the overall learning experience).
- **Reinstall the joy of learning** (utilize the learning experience as a way to re-introduce the joy of learning to students)
- **Define general and specific curricular learning outcomes and goals**, including learning scenarios relevant to polarisation.

For the purposes of teaching in secondary education and in relation to the subject –in this case polarization- there are some basic steps that need to be followed to successfully complete independent study. The main steps are discussed in the following sections.

### 2.5.1 Assessing the readiness to learn

In this step, students evaluate their past experiences with autonomous learning as well as their current situation, study habits, family situation, and support system at school and at home. Readiness to Learn Teaching Tip provides a thorough description of a learning skills assessment tool. Some include being independent, organized, self-disciplined, able to speak clearly, able to accept constructive criticism, and able to engage in self-evaluation and self-reflection are all indications that a person is ready for self-directed learning (*Self-Directed Learning: A Four-Step Process*, 2012).

### 2.5.2 Setting learning goals

Setting goals is a crucial part of self-directed learning. The Self Determined Learning Model of Instruction is a useful tool for adopting goal setting that is directly related to self-directed learning (SDLMI). The SDLMI guides students through three stages: goal setting, action-plan creation, and goal or plan revision (Garrels & Palmer, 2020). Students gain knowledge about how to recognize problems, come up with solutions to them, spot any obstacles in their way, and weigh the pros and cons of each approach (Garrels et al., 2019). There are several advantages for learners in setting and achieving goals. By offering minor milestones that lead to bigger goals, it encourages positive behaviour, helps them strive toward self-mastery, directs their concentration, and provides them a sense of success. To set effective goals, it is essential to comprehend the so-called learningg contracts. Below we enlist the most important one, taken from the page of University of Waterloo Centre for Teaching Excellence (*Self-Directed Learning: A Four-Step Process | Centre for Teaching Excellence*, 2012):

- Goals for the unit of study
- Structure and sequence of activities
- Timeline for completion of activities
- Details about resource materials for each goal
- Details about grading procedures
- Feedback and evaluation as each goal is completed
- Meeting plan with the advising instructor
- Agreement of unit policies, such as a policy on late assignment

### 2.5.3 Engaging in the learning process

According to *Centre for Teaching Excellence* (2012), to understand their needs as self-directed learning students, students need to understand themselves as learners; directing students to our resource on learning preferences may be beneficial. Additionally, students should think about responding to the following questions (*Self-Directed Learning: A Four-Step Process,* 2012):

What do I need in terms of teaching techniques?

Which teacher was my favourite? Why?

What did they do that made them unique among educators?

Equally important is to understand the approach of studying. There are numerous tools available to assist students to figure out their preferred learning style. As students engage in self-directed learning, they should take some time to consider the format and medium of their learning strategy and adjust it sometimes. Most people are adept of a variety of learning styles, and they can frequently improve their weaker ones. Students might have to try different things to discover what will last over time. However, it is recommended to use the so-called deep approach to studying to generate their own connections and motivators. This method emphasizes grasping concepts on your own, employing knowledge in fresh contexts and creative examples to illuminate ideas, as well as learning more than is necessary to complete a unit.

### 2.5.4  Evaluating learning

Students' use of self-directed learning skills can be assessed using methods including teacher logs and checklists, student self-reflections and evaluations, and student self-report questionnaires. Examples of behaviours that could serve as proof of self-directed learning abilities include setting objectives, remaining on task, evaluating and rewriting work, coming up with workarounds when stuck, and editing carefully, take advise with their instructors, and ask for feedback. Teachers may compile this list themselves or invite students to do so. The checklists can be used by teachers to provide students feedback or by students to utilise as a self-assessment tool. Additionally, teachers can provide weekly or daily suggestions for student responses and a lot time for purposeful student reflection. Students might be asked to think back on their ability to make difficult goals, create an action plan, and manage their time. As an alternative, they could be asked to think about any unexpected difficulties that arose while completing the work and how they handled them (Vicinus, 2020).

## 2.6 Learning Transfer including understanding your learning transfer ecosystem

The taking of skills and behaviour learned in a training/teaching environment and transferring them to one's setting or situation is called Learning Transfer (Kaiser et al., 2013, p. 1). Learning transfer is the goal of all instruction yet, it is surprisingly rare. Some estimates put the successful transfer rate of training between 10-22%. (Connolly, 2020). For students all over the world, this lack of transfer is like a weight around their neck, holding them back, slowing their progress, and suppressing their future growth.
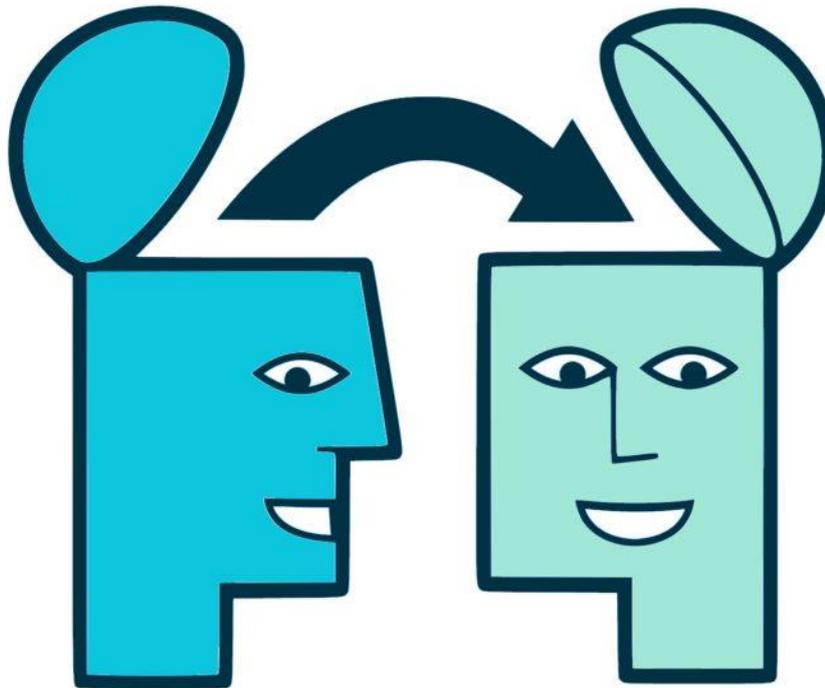


Figure 7. Learning Transfer (Sharma, 2021)

### 2.6.1 Training design

According to Fauth and González-Martínez (2021), well-designed training activity guarantees the effectiveness of the training, the transfer of knowledge, and the satisfaction of the identified needs. Baldwin and Ford (1988) mention three instructional design issues as having an impact on training transfer. They assert that training transfer is maximised 'when there are identical stimulus and response elements in the training and transfer settings; when a variety of relevant training stimuli are employed in the training content; when trainees are taught the general rules and theoretical principles that underlie the training content.' (Baldwin & Ford, 1988).

### 2.6.2   Environmental factors

In this hierarchical arrangement, the learner's qualities, the training program, and the environment would all have a direct impact on learning outcomes and retention, just as retention and learning would have a direct impact on the creation and maintenance of transfer. No matter how well a student learns and retains the training material during their training stage, personal and work environment elements will still have a direct impact on the conditions for transfer. On the other hand, design elements have a direct impact on learning, which in turn has an impact on transfer.

### 2.6.3   Learner characteristics

Because learning is a process rather than an event, learners should be involved in how their learning experience is designed (Knowles, 1975). Additionally, learners must be evaluated, and facilitators must set objectives and reflect on the process to evaluate it (Knowles, 1980). Transfer is further hindered by the dearth of opportunity for students to immediately apply their new knowledge to situations. Illeris (2009) made the argument that it is crucial to construct learning activities for all learning styles and that some students learn better visually than others do kinaesthetically. Accordingly, certain learning is better accomplished through outdoor activities, while others can be completed in a classroom setting. (Brion and Crodeiro, 2018). Therefore, it is imperative that the learner's characteristics and ways of learning are evaluated and considered before and during trainings.

### 2.6.4   Before training

The four elements to be considered before the training are (*Training Best Practices: Learning Transfer*, n.d.):

1. Needs
2. Preparation
3. Goals
4. Motivation.

Designers of learning produce large amounts of content. To reinforce interest in training, consider which parts of the subject can be broken up into manageable chunks and provided to learners beforehand. The learning can then be improved by using this material again during the training. (Connolly, 2020)

Teachers should strive to create a culture that values cooperation, teamwork, and experience sharing. Teachers should also create a transfer strategy or action plan with the assistance of their peers, before the training, and they should implement it in the school under the regular supervision and monitoring of the school's head teachers. In this way the goals and motivation would become clear to the students before the training (*Training Best Practices: Learning Transfer*, n.d.).

### 2.6.5 During training

The most important elements defining the training itself are, planning, instruction, exercises, materials, instructors, and location (*Training Best Practices: Learning Transfer*, n.d.). The transfer of training skills into the classroom needs to be reinforced by consistent demonstration, discussion, and practice for the internalisation of some concepts and practical application of some skills. During the training collaborative culture among teachers, educational material support to the children of disadvantaged groups, and monitoring and supervision system should be applied. As a result, during training, teachers should have ample chance to show, discuss, and put various teaching techniques into practice under the direction and supervision of trainers.Teachers should make sure their content is pertinent, aligns with students' responsibilities, and advances a community objective. Teachers need to ensure that the connections between what students are learning in class and their daily activities are clear to them. Instructors should also seek to make it simple for learners to understand what they should change and in which scenarios they should change it, keeping in mind that your goal is for them to act differently following the training (Connolly, 2020).

### 2.6.6 After training

Quantifying the results of any training is the first step in maintaining the improvements. Consider utilising the following techniques to assess learning transfer at the end of training sessions, then asking the same questions again at regular intervals. Discuss results with your students:

• Permit the student to evaluate themselves, either orally or with the aid of a standardised feedback form.
• Permit learners to evaluate the training session in private. Their anonymous feedback is particularly valuable.
• To provide the new trainers consistent and unbiased comments, use a standardized feedback form. (*Training Best Practices: Learning Transfer*, n.d.).

## *2.7 Evaluation of Learning Outcomes*

Learning outcomes are precise, quantifiable claims that outline what successful students will understand, be able to perform, and value after completing a learning experience. Determining the effectiveness of the learning and if performance objectives were attained is the overarching goal of evaluating learning.

### 2.7.1   Assessment and evaluation

From the definition of Surbhi (2016), we realise that assessment and evaluation are two different concepts, even though they are sometimes used interchangeably. According to Surbhi 'Assessment is defined as a process of appraising something or someone, i.e. the act of gauging the quality, value or importance. As against, evaluation focuses on making a judgment about values, numbers or performance of someone or something. Assessment is made to identify the level of performance of an individual, whereas evaluation is performed to determine the degree to which goals are attained. The basic difference between assessment and evaluation lies in the orientation, i.e. while the assessment is process oriented, evaluation is product oriented'. (Surbhi, 2016).

In the context of the bye, Polarity project a more modern approach to evaluation is necessary since it is a complex social matter. Therefore, there is a need for humanistic evaluation techniques, where the emphasis is primarily on the learners and their unique needs, feelings, and interests. The assessment and evaluation need to emphasise the significance of a child's worldview and to place a focus on the child's behaviour, creativity, and divergent thought. In the modern perspective, learners set their own goals, allowing them flexibility and a chance to express their uniqueness. The responsibility of the instructor shifts more toward that of a facilitator or motivator who does not push his or her beliefs on the students. The initiative for learning is taken by the learners themselves through involvement in real practices.

### 2.7.2   Identifying purpose

The purpose of evaluation is a complicated matter and there is no single answer to the question, depending on the topic, environment, and other socio-cultural contexts. However, it is commonly accepted that an educational program can be built, its successes may be evaluated, and its efficacy can be increased via evaluation processes. It acts as a built-in monitor within the software to periodically check learning progress. Additionally, it offers insightful input on the plan and execution of the program. Therefore, evaluation is crucial to any educational program. (*Evaluation in Teaching and Learning Process*, 2016)

Evaluation supports educators and students in enhancing instruction and learning. It is worth noting that evaluation is both a continuous procedure and an ongoing practice. It aids in developing the student's judgmental, academic, or achievement values. Teaching and learning require evaluation in some capacity since decisions must be made in all areas of educational endeavour. (*Evaluation in Teaching and Learning Process*, 2016).

For the purposes of bye, Polarity project it is worth discussing the role of evaluation in social sciences. Evaluation in social science aims at giving the students feedback based on their

learning needs so that they can learn more effectively. Additionally, it supports numerous decision-making processes. The evaluation of social science students' ideas, values, experiences, and beliefs regarding the creation of a humane society is required. It assessed the students' knowledge of the bond between an individual and a community as well. Additionally, it seeks to assess the temperament of social science, which is distinct from science. Evaluations of students' knowledge of diversity, citizenship, and other social issues are also necessary. (*Teaching Pedagogy Evaluation in Social Science*, n.d.).

### 2.7.3   Choice of strategy

Professor David Coleman initially used the phrase 'assessment for learning' in his influential 1995 book Assessment for Learning (AFL) : A Framework for Understanding. The two basic methods used by AFL are direct observation and inquiry.

The most common type of evaluation is direct observation, although doing so in a classroom might take a lot of time. Teachers can test pupils' understanding more swiftly with the help of questions than they could with just direct observation. Instead, than just asking questions, this kind of examination probes deeper. Children demonstrate their genuine grasp of the lesson's material when they add to what they already know. The use of mental models reveals their intricate knowledge or schema structure, much like concept maps do. What purposes do questions serve? Questions reveal knowledge and understanding among students. They enable us to assess the knowledge and abilities of our students. We can spot potential gaps between students' present knowledge and desired standards by asking questions. This aids in lesson planning so that we may properly cover every topic in the curriculum in the upcoming lessons. It also enables us to determine whether our students require further assistance when learning new subjects. Teachers might be interested in looking at the universal thinking framework if they are also interested in creating open-ended questions as a useful feedback tool. The framework presents crucial questions pertaining to various forms of student learning in addition to highlighting crucial steps involved in learning. These can serve as the foundation of a truly powerful assessment tool because they are made to delve deeper than multiple choice questions.

### 2.7.4   Procedures and processes

There are many methods a teacher might use to assess students' learning. It is crucial to realise that there are no hard-and-fast rules when it comes to strategy; instead, it might change depending on the circumstances. A teacher can assess students' grasp of learning in a variety of ways. The following are a few examples: There are many choices when developing assessment activities. The choice of method should be determined by the purpose of the assessment and should be designed to reveal underpinning attributes of achievement, these may include cognitive, psychomotor, and affective skills. In evaluation for learning, there are five main processes that happen, quoted from the Cambridge Assessment International Education website:

1. Questioning enables a student, with the help of their teacher, to find out what level they are at.
2. The teacher provides feedback to each student about how to improve their learning.
3. Students understand what successful work looks like for each task they are doing.
4. Students become more independent in their learning, taking part in *peer assessment and self-assessment.*
5. Summative assessments (e.g. the student's exam or portfolio submission) are also used formatively to help them improve).

## 2.7.5 Validity and reliability.

When assessing topics such as polarisation, it should be considered that it is part of what it is generally referred to as social sciences. Social science is a subjective field of study. It is concerned with human existence, human relationships, and relationships with various other social institutions. However, assessing one's comprehension in all these areas is not particularly simple. As a result, social science evaluation faces numerous difficulties and problems. Subjectivity is indeed a feature of social science as a discipline, and depending on how it is employed, it can either be a strength or a weakness for social scientific evaluation. The social science evaluation process may encounter complications and difficulties due to teacher biases about various concepts, theories, and contentious topics. It is also critical to realise that a test based on culture is not a very good choice for a subject like social science. Therefore, a teacher must be impartial, yet there is only so far one can guarantee that the instructor will discard his or her opinions. As a result, in social science, an individual's prejudice affects not only the curriculum and instruction but also the evaluation. (*Teaching Pedagogy Evaluation in Social Science*, n.d.)

Explicit performance criteria improve the validity and reliability of the evaluation process. Clear, actionable assessment criteria help to make the entire process transparent and accountable. So that the evaluation can be repeated and applied to different people, the setting, tasks, and desirable behaviours are specified. Explicit standards also respond to subjectivity objections.

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