

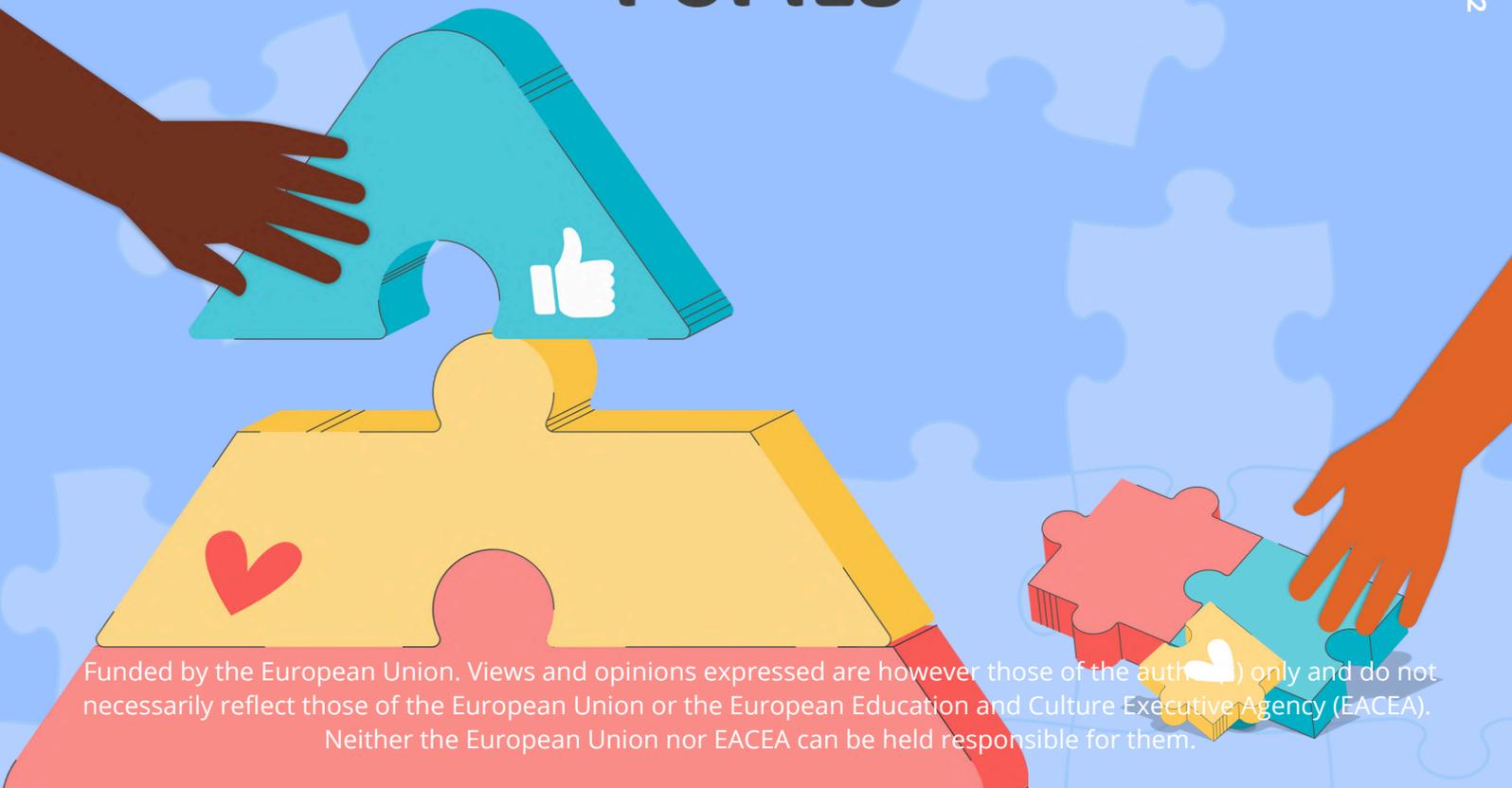


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the European Union



# Bull3D

**3D PRINTABLE PUZZLES  
TO PREVENT  
BULLYING AMONG  
PUPILS**



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## About the project



### Our Goals?

- Develop a cutting-edge methodology for bullying prevention grounded in recent educational theories.
- Provide hands-on, printable 3D puzzles as effective tools for teachers and students to address bullying in a positive and inclusive way.



### What We're Doing?

- Creating a methodological guide for educators and professionals.
- Offering an online course in 3D modeling.
- Holding a co-creation session to design the core puzzles used in bullying prevention sessions.
- Producing and testing 3D printable puzzles across three partner schools.
- Training educators and reaching out to additional schools in each partner country to demonstrate the methodology in action.



### Our Partnership

- Led by ASPAYM CYL, Spain

#### **Bull3D brings together a passionate team with partners from:**

- Portugal: Rosto Solidário & Agrupamento de Escolas de Arrifana
- Romania: Gamma Institute & Lorelay Scoala Primaria
- Spain: Centro Don Bosco

Together, we're rethinking bullying prevention—one puzzle at a time.

## About the partners

### 1. ASPAYM CYL

ASPAYM Castilla y León Foundation started working in 2004, twelve years after the establishment of ASPAYM in the region of Castilla y León. Its main aims are to promote autonomy, equal rights and opportunities and to increase quality of life of people with physical disabilities, allowing them a significant integration among the society. In addition, ASPAYM CyL seeks to be a leading association, providing its target users with the tools to achieve that mission. That goal is reached thanks to the quality of its programs and activities, the research and the proper use of new technologies. ASPAYM CyL has a youth department focused on activities with young people. This department is an active member of the Regional Youth Council of Castilla and Leon, and also part of the Permanent Youth Council of the Province of Valladolid, where ASPAYM is a member of the board. We are also part of the network of youth information points in the province of Valladolid, which makes it the only entity of young people with diversity that meets everything above. The organization, and also the youth department, has headquarters in different cities in Castilla y León, with a special emphasis on rural areas. It includes Ávila, Burgos, Camponaraya (León), Cubillos del Sil (León), León, Matapozuelos (Valladolid) Palencia, Paredes de Nava (Palencia), Segovia, Valladolid y Villadiago (Burgos). The youth department of ASPAYM Castilla y León develops many activities for advocacy, non-formal education, employment, leisure inclusive, etc. One of the most prominent examples is the inclusive camp developed by the entity and which has 18 years of experience and multiple awards, as well as the awareness project "Ponte en mis zapatos" (Put yourself in my shoes), whose main objective is the standardization of disabilities in schools, community centres, youth organizations, etc.



During the last few years, the organization has bet for the use of gamification as a methodology in non-formal education activities. In that sense, ASPAYM CyL has developed board games, video games, escape rooms, escape boxes and manuals based on this technique to work with youngsters, always from an inclusive perspective in order to guarantee equal access to youngsters with disabilities to all the resources available. Furthermore, the aim is to provide tailored and low-cost support in terms of orthoprosthesis products, assistive devices, educational resources, and all kinds of materials aimed at the comprehensive rehabilitation of people with disabilities. Through Bull3d, we want to offer a new methodology to support education based on the use of 3d printable puzzles with narrative as a psycho-pedagogical tool.

## **2. DON BOSCO**

Don Bosco Centre in Villamuriel de Cerrato is a subsidised centre for Vocational Training and Compulsory econdary Education (ESO) with a total of 26 teachers and 200 pupils. Our identity is Salesian, following the educational methods of Don Bosco. We are a Vocational Training Centre linked to the Professional Families of the automotive, IT and telecommunications sectors.

With more than 40 years of experience, we are characterised by our focus on vocational training in rural areas and our constant concern for the future professional integration of our students. Over the last few years, we have made a significant effort to implement ICT resources and new methodologies in the classroom. We complete our services with occupational training courses for the unemployed in collaboration with official bodies such as the ECYL.

As a Salesian educational centre, we look to the future with the responsibility of continuing the pedagogical and charismatic legacy of Don Bosco and with the hope of providing an adequate response to the children and young people of today.



We aim to be an inclusive school that welcomes each and every one of our students, with a spirit based on closeness and the creation of an educational environment rich in values in the style of the Preventive System of Don Bosco.

We seek an integral education that helps to grow as a person in a better world.

We favour a full-time school: educational free time and family reconciliation.

We are also committed to pedagogical innovation: new methodologies, multilingualism and technologies as pedagogical tools. We also support the protagonism of the students in the teaching-learning process, and we aspire from a critical sense to the construction of a better world.

We are immersed in processes of educational innovation, as well as in educational projects framed within various programmes (Erasmus+, educational excellence...) which help to achieve the academic objectives and the educational project of the centre.

A multidisciplinary and motivated team drives the centre's actions. All of them follow the educational line set out, seeking an education / training focused on the subject that learns, that experiences, that grows.

We have the experience of the GreEn Project (2023- 2024) and both the search for innovation and new forms of entrepreneurship are relevant aspects of innovation for us.

Our school is developing another project called BULL 3D with other professionals from Romania, Portugal and Spain, to prevent bullying among pupils.

Moreover, our school has a level 5 in ICT.



### 3. GAMMA INSTITUTE

Gamma Institute, officially known as the Institute for Research and Study of Quantum Consciousness (AICSCC), is a distinguished non-governmental organization dedicated to advancing the fields of psychology, psychotherapy, and mental health. Our mission encompasses promoting best practices, conducting cutting-edge research, and facilitating both national and international collaborations among specialists.

Our organization is structured into three dynamic departments, each contributing uniquely to our overarching goals:

#### 1. Gamma Training

As the educational department of Gamma Institute, Gamma Training has two schools:

- **Systemic Training School:** Established in 2011 and accredited by the Romanian College of Psychologists, this school offers a comprehensive four-year postgraduate curriculum in Systemic Family and Couple Psychotherapy. Integrating the latest clinical research, we have proudly graduated more than 180 practitioners. Our alumni are equipped to engage in private practice and contribute to our research initiatives in systemic psychotherapy.
- **Self-Activation School:** Focused on personal development, this school provides transformative workshops and non-formal education tailored for adults and professionals, with the base of the newest research in neuroscience and psychology.

## 2. Gamma Clinic

Dedicated to delivering exceptional psychological services, Gamma Clinic comprises:

- **Gamma Clinic Psychology:** Serving adolescents, young adults, and adults, our accredited clinical psychologists and psychotherapists offer individualized, couple, family, and group sessions addressing a spectrum of mental health concerns. Also, is providing workshops and psychoeducation for the population, regarding interest topics in mental health and wellbeing.
- **Gamma Kids:** Specializing in child and family therapy, this department addresses issues such as anxiety, depression, learning disorders, speech difficulties, and social challenges. Our multidisciplinary team includes child psychotherapists, clinical psychologists, speech therapists, art therapists, and specialists in special educational needs. Integrating a systemic approach, we collaborate closely with families, educators, and other professionals to ensure holistic care.

## 3. Gamma Projects & Research

Our research division is committed to pioneering studies in neuroscience, consciousness, psychotherapy, personal development and non-formal education. By developing innovative training curricula and therapeutic methodologies, Gamma Projects & Research aims to elevate intervention standards. Our collaborative platform brings together experts in psychology, cognitive sciences, genetics, and human sciences, with a significant focus on child psychology.

In addition to our core departments, Gamma Institute actively engages in European projects to enhance adult education and personal development.

Through these multifaceted initiatives, Gamma Institute strives to be a beacon of excellence in mental health services, professional training, and groundbreaking research, fostering a community of well-being and continuous growth.

#### 4. LORELAY

Lorelay Primary School is an accredited private institution in Iași, Romania, founded in 2009. We serve 45 pre-primary and 80 primary students, guided by 18 teachers, dedicated to innovation in education. Our mission is to provide high-quality learning experiences that help children reach their full potential, fostering values that support a healthy lifestyle—physically, cognitively, and socio-emotionally.

Our educational approach emphasizes proactive community involvement and the creation of national and international networks as resources for students, parents, and teachers. Our key concepts, learning to live together, learning for knowledge, learning to act, and learning to be, form the foundation of our educational strategy.

We focus on active teaching methods to engage students and ensure they achieve curriculum goals. In recent years, we have participated in Erasmus+ projects to enhance teaching strategies and integrate non-formal education. As a result, we have successfully implemented:

- Board Game-Based Learning to develop key competencies and soft skills.
- Outdoor Education for experiential learning.
- Gamification in primary subjects such as Mathematics, Grammar and History.

Beyond academics, we promote inclusive education, ensuring that all children feel valued and engaged. We integrate inclusive games during break times, fostering collaboration and social inclusion. We are also interested in developing healthy behaviors, for example using non formal activities to raise awareness and prevent cyber addiction

We place great emphasis on foreign language learning from an early age. Students study English intensively from age 3, using CLIL (Content and Language Integrated Learning) for class routines, Arts, Science, and Social Studies. We are a Cambridge Evaluation Sub-Center, organizing Cambridge Exams for primary school pupils. German as the 2nd foreign language is introduced from the second grade (age 8).

Our school embraces the Multiple Intelligences Theory, integrating arts, movement, sensory learning, and ICT to develop children holistically. We are committed to becoming a more European school, giving students and teachers opportunities to engage in international collaboration. Our objectives include:

- Encouraging European values, civic engagement, and intercultural competencies.
- Participating in Erasmus projects since 2018, exploring innovative teaching methods.
- Hosting European teachers for job shadowing, teaching assignments, and teacher training.
- Using our Erasmus Accreditation for student mobility and teacher development.

Additionally, we maintain strong partnerships with families and collaborate with local schools to share best practices. We organize educational camps in Romania and abroad, providing enriching experiences beyond the classroom.

Through Erasmus+, we seek to expand international connections, exchange knowledge, and refine our educational methodologies. We are eager to collaborate with European schools and educators who share our vision of inclusive and innovative learning.

## **5. ROSTO SOLIDARIO**

Rosto Solidário's work aims to foster global citizenship and solidarity by enhancing local communities' human and social development. The organization's core principles are civic participation, social integration, solidarity, networking and partnership.

Rosto Solidário scope of work includes 4 main areas: International Development Cooperation, Global Citizenship Education, Volunteering and Family-based Social Support. Gender Equity, Human Rights and Social Inclusion are addressed as cross-cutting issues. Also, a methodological approach the organization consider Non-Formal Education as a vehicle for lifelong learning opportunities within the Global Citizenship Framework.

At the local level, Rosto Solidário is a member of Rede Social do concelho de Santa Maria da Feira (local network of 115 organizations with social intervention programmes). Within this network, the organization has been awarded 4 times as recognition of its work in volunteering and supporting local communities' development.

Rosto Solidário promotes mobility and learning opportunities for youth since 2011 under the Erasmus Plus programme. The organization also promotes and is partner in European voluntary service / European Solidarity Corps, partnership building activities, training courses and youth exchanges. It is also a Eurodesk multiplier.

Overall, Rosto Solidário initiatives within Global Citizenship Education aims to raise awareness and training young people for global citizenship and diversity, European values, civic participation, intercultural dialogue as well as fostering solidarity and action on common wealth behalf.

## **6. AGRUPAMENTO DE ESCOLAS DE ARRIFANA, SANTA MARIA DA FEIRA**

Agrupamento de Escolas de Arrifana, Santa Maria da Feira (Public School) is a group of schools (15 establishments belonging to 5 parishes of the municipality of Santa Maria da Feira, Portugal), with students from preschool to the 12th grade, with 940 students from 3 to 19 years old. 85 students (7.81%) have Special Needs. We have 130 foreign students from 11 different ethnics and nacionalities, from Roma to Ucrainians. The Agrupamento works with 90 teachers and 54 are staff. Our families have low socioeconomic level (54%) and benefit from financial support by the School Social services.

This group of schools is taking into account different motivations of the students and in order to give more opportunities to students at risk, since 2007, has extended the vocational program with Vocational Courses (ICT Technician, Commercial, Electrician, Plumber, Beauty Care) and from 2013/2014 the Vocational Courses (Pastry, Craft, Gardening, ICT and Performative Arts).

Now we have two vocational courses (Youth Technician and Comunication and Digital Service).



We offer ICT in our curriculum ICT for all students, from 1st grade till 10th grade (National Curriculum). We offer also (school decision) Technologies subject for all students from 7th, 8th and 9th grades as an option of our school (2h every 2 weeks). Students create solar boats, participate on contest of IoT, F1-Schools and we have a partnership with a Technological Center of Cork to promote high quality activities and digital and technological competences in students.

We have European projects since 2009 - Comenius, Leonardo and Erasmus+ and we developed this projects with more than 200 mobilities around Europe and share good practices that we could disseminate after the end of each project. The school since then, became more aware of the European citizenship working subjects like culture, water, special needs, history, geography, arts, drama, astronomy, bullying, sustainability and improved our network with schools from all Europe.

## **Part 2 – Theory – Bullying**

### **2.1. Introduction and context**

The general perception of the community, particularly in schools, is one of increased violence and bullying, alongside a significant rise in the severity of these issues. However, the lack of previous data or public attention makes it difficult to determine whether this is a contemporary phenomenon or something that has always existed. Research and interventions aimed at preventing bullying and violence in schools can be considered relatively recent<sup>1</sup>. Over the past three decades, bullying has gained attention due to studies highlighting its prevalence and the risks it poses to the personal and social development of youth, as well as to the functioning of educational institutions as a whole.

While bullying has always been present, it is now seen as a warning sign of aggressive and destructive behavior among students. The phenomenon was first formally studied in Norway in the early 1980s by Dan Olweus and has since been recognized as a major issue requiring urgent and special measures for prevention. Its visibility has increased with the rise of electronic media, such as the internet and television, and due to its severe consequences for the physical and emotional well-being of those involved.

Cross-cultural research suggests that bullying has likely existed throughout history, with similar characteristics being identified in various countries, giving it a universal nature. In-depth studies on the subject began in the 1990s by various researchers<sup>2</sup>. The majority of research in the field of school violence primarily focuses on bullying<sup>3</sup>. Bullying is understood from a socio-ecological perspective, considering that it:

- Always occurs in a specific context;
- Is related to the characteristics of those involved;
- As a dynamic and group-based phenomenon, it is reinforced or weakened by a complex network of interactions among young people, families, and schools, influenced by the broader sociocultural context.

Studies show that at least 10% of children in any given school are involved in bullying situations, either as perpetrators or victims. However, there are still significant challenges in reducing this phenomenon, including:

- Beliefs that trivialize or minimize the effects of bullying.
- Insufficient funding, limiting training for teachers, students, families, and professionals.
- Some schools continue to deny the existence of bullying and avoid confronting the reality.
- Schools with anti-bullying programs that fail to implement them in a coordinated, ongoing, and consistent manner.
- Schools that do not engage with or support families, nor encourage students to intervene.

## 2.2. Concepts

### 2.2.1. BULLYING

The term *bullying* originally appeared in international scientific literature, with different names in various countries: "mobbing" in Norway and Denmark, and "mobbing" in Sweden and Finland. Dan Olweus initiated research in Norway in the 1970s, focusing on the dynamic relationship between the aggressor (bully) and the victim<sup>4</sup>.

The term *bullying* comes from the English word "bully," meaning a "tyrant" or "thug," and as a verb, it means "to tyrannize" or "to oppress."

Bullying can be defined as the repeated and deliberate use of physical or psychological means to make another child or adolescent suffer, without provocation, and knowing that the victim cannot effectively retaliate.

In November 2009, the Committee of Ministers of the Council of Europe defined bullying as:

*"Repeated aggressive behavior intended to harm someone physically or mentally. It involves behaviors meant to dominate another person, such as insults, verbal or written abuse, social exclusion, physical aggression, or coercion. Bullies may act to appear popular, strong, or to attract attention. They may be motivated by envy or may themselves be victims of bullying."*

### *Key Characteristics of Bullying*

Although bullying is difficult to define in a universally agreed-upon way, its key characteristics are widely accepted<sup>5</sup>:

1. **Aggression:** Bullying involves deliberate, aggressive behaviors directed at a specific individual, either by one person or a group, with the intention of causing harm.
2. **Repetition:** Bullying occurs repeatedly over time, and this persistence increases the risk to the victim.
3. **Ongoing Impact:** The harm caused by bullying is not limited to the moment of the attack; it creates a lasting sense of insecurity, as victims expect future attacks.
4. **Power Imbalance:** Bullying is based on a clear power imbalance, with the aggressor in control and the victim feeling defenseless. The typical peer interaction disappears in favor of a hierarchical dynamic of dominance and submission.

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5. Almeida et al., 2007; Bronfenbrenner, 1996 [1979]; Olweus, 1993; Salmivalli et al., 1998

### *Criteria for Defining Bullying*

Bullying can be characterized by the following features:

- Intentional aggressive behavior directed at a specific individual
- Repetitive and systematic actions
- Physical or emotional suffering caused to the victim
- Power imbalance between the aggressor and the victim
- Involves at least two roles: the aggressor (who exerts control) and the victim (who is submissive).

The phenomenon of bullying also involves a power imbalance, where:

- The aggressor desires to intimidate and dominate
- The victim has few or no resources to avoid or defend against the aggression

### 2.2.2.SIMILAR EPISODES: Criteria for Distinction

It is important to distinguish between peer conflicts and the phenomenon of bullying. While it is crucial to address other harmful behaviors, which can develop into larger violence problems if not corrected, it is important not to confuse them with *bullying*. Some examples include:

1. **Lack of Power Imbalance:** Aggression/fights between students of equal strength, size, or status.
2. **Voluntary Participation:** Playful fighting with positive facial expressions and role-switching.
3. **Non-repetitive Behavior:** The absence of a repetitive pattern, and the behavior is not perceived as harmful by the target student.

These elements distinguish bullying from other types of conflict or misbehavior. While a one-time argument or isolated act of aggression can be problematic, it only qualifies as bullying when these three criteria are consistently met<sup>6</sup>.

Clarifying misconceptions is essential. Common myths, such as "bullying is just part of growing up" or "children should deal with it themselves," only serve to normalize harmful behavior and inhibit intervention<sup>7</sup>. Recognizing the systemic nature of bullying is the first step in addressing it.

### **2.3. The Bullying Triangle and Social Roles**

Bullying involves repeated negative actions over time, where one or more students target a victim. This leads to victimization, which can be physical or psychological. Victims often feel trapped in situations where they cannot easily escape on their own<sup>8</sup>.

Understanding bullying as a group process rather than an individual one sheds light on the different roles young people may play:

#### **a. Aggressors (Perpetrators):**

- **Active Aggressors:** These are the primary instigators, directly engaging with their victims in a personal manner. They are the least numerous, but the most studied.
- **Indirect Social Aggressors:** These individuals manipulate others, encouraging violent behaviors without directly engaging in aggression themselves. They are harder to identify due to the subtleness of their actions.
- **Passive Aggressors:** While they don't actively engage in bullying, they support the aggressors, either by reinforcing their actions or by not intervening when they should. This group plays a significant role in perpetuating the bullying cycle.

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6. Smith et al., 2004

7. Berger & Lisboa, 2009; McLaughlin & Miller, 2008

8. Olweus, 1993

### **b. Victims:**

- Victims of bullying are consistently targeted, experiencing physical, verbal, and emotional harm. There are two main types of victims:
- **Passive Victims:** These students tend to be introverted, inhibited, and non-assertive. They are easy targets, as they don't retaliate and often react emotionally, which only reinforces the bullying and increases its frequency.
- **Aggressive Victims:** These victims often exhibit poor impulse control and may react aggressively. While they may engage in violent behavior, they lack the necessary skills to defend themselves effectively.

### **c. Bystanders:**

- Bystanders are those who witness bullying but do not engage directly in the aggression. They can either support the aggressors, sympathize with the victims, or remain indifferent:
- **Assistants:** Actively participate in the aggression.
- **Reinforcers:** Encourage the aggressor's behavior.
- **Observers:** Simply watch without intervening.
- **Defenders:** Stand up for the victim or call for help, often involving an adult.

Bystanders can also influence the bullying dynamic, with some contributing to the isolation of the victim, while others can be key in breaking the cycle of violence<sup>9</sup>.

Christina Salmivalli, a Finnish researcher, identified five key groups involved in bullying:

1. **Aggressors (Perpetrators):** The leaders who actively engage in bullying behavior to gain power or popularity. They are usually supported by others who assist or encourage their actions.
2. **Victims:** Individuals who are repeatedly targeted by bullying, either physically, verbally, or psychologically. They can be passive victims, who are withdrawn and easily manipulated, or aggressive victims, who may react with aggression due to poor impulse control.
3. **Defenders:** Those who actively oppose bullying by standing up for victims or alerting authorities. They are crucial in breaking the cycle of bullying and providing support to the victim.
4. **Supporters (Reinforcers):** These individuals do not actively participate in bullying but support the aggressor either by cheering them on or not intervening. Their passive support can reinforce the bullying.

**Bystanders:** Those who observe bullying but do not take sides. Some are passive, some may feel sympathy for the victim but do not intervene, and others may be indifferent.

## 2.4. Types and Modalities of Bullying

At its core, bullying is a systematic abuse of power. It involves repeated, intentional acts of aggression—physical, verbal, psychological, social or sexual—directed at a person unable to defend themselves effectively<sup>10</sup>.

Several authors<sup>11</sup> identified manifestations of Bullying, namely:

- Insulting the victim; systematically accusing the victim of being worthless
- Repeated physical attacks against a person, either on their body or property
- Spreading negative rumors about the victim

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10. Olweus, 1993

11. Olweus, 1993; Salmivalli et al., 1998; Smith et al., 2004

- Demeaning the victim without reason
- Coercing the victim into doing something they don't want to do through threats
- Placing the victim in a problematic situation with an authority figure, or triggering disciplinary action against the victim for something they didn't do or that was exaggerated by the bully
- Making derogatory comments about the victim's family (especially the mother), home, appearance, sexual orientation, ethnicity, religion, nationality, or any other perceived inferiority
- Social isolation of the victim
- Using information technology to engage in cyberbullying (creating fake pages about the victim on social networking sites, publishing photos, etc.)
- Blackmail
- Threatening expressions
- Interfering with the victim's personal property, such as books, school materials, clothing, etc., by damaging them

There are several categorizations of bullying in the literature, which can be grouped as follows:

### **PHYSICAL**

This includes punches, shoves, kicks, elbowing, spitting, and assaults with objects. It may also involve cornering the victim or abusing them to steal personal belongings. In more severe cases, weapons may be involved.

### **VERBAL**

This is the most common type. It includes insulting, belittling in public, highlighting physical defects, slander, and offensive remarks. Verbal violence is the quickest way an aggressor tests their ability to destabilize the victim, making them believe they have no will of their own.

### **PSYCHOLOGICAL**

This type is present in all forms of bullying. It involves actions meant to undermine the victim's self-esteem and foster feelings of insecurity and fear. Examples include emotional manipulation, blackmail, and threats.

## **SOCIAL**

This form seeks to isolate the victim from the rest of the group, usually through abusive comments, insults, or cruel behavior. It may include ignoring the victim, following them, or treating them as inferior.

## **SEXUAL**

This encompasses any behavior that involves physical contact without consent, obscene gestures, requests for sexual favors, harassment, or sexually charged comments.

## **CYBERBULLYING<sup>12</sup>**

Cyberbullying occurs when aggression and intimidation are carried out through technology or the internet. It involves deliberate, repeated, and hostile behavior aimed at harming others via platforms like emails, chats, social media, virtual games, or mobile phones (calls, photos). This form of bullying may be an extension of traditional bullying or occur solely through digital means. Unlike face-to-face bullying, the aggressor does not need to be physically stronger than the victim. Cyberbullying is often more severe because the aggressor can remain anonymous, making them more cruel. The victim's safe space is also invaded, as they may seek refuge from offline bullying. Cyberbullying is particularly insidious due to its reach, permanence, and potential for anonymity. Research highlights its deep emotional impact and growing prevalence among adolescents.

Forms of cyberbullying include:

- Cruel or abusive messages on text, email, or social media
- Posting embarrassing videos (including the use of AI for creating embarrassing content) or bullying through blogs, social media and private channels
- Creating fake profiles or websites to mock someone

We can also distinguish between direct and indirect forms of bullying<sup>13</sup>.

**Direct Bullying** includes:

- Physical aggression (e.g., hitting, kicking, pulling, pinching)
- Verbal aggression (e.g., pestering, bothering)

**Indirect Bullying** involves more subtle forms of victimization, such as:

- Indifference, isolation, exclusion, defamation, provocations related to a disability, racist or sexual attitudes, etc.

Often, several types of bullying occur simultaneously, depending on the aggressor. Regardless of the form of bullying, we must not ignore or underestimate the fear that a child or adolescent may feel.

## **2.5.Characteristics and Psychosocial Profiles of Participants in the Bullying Process**

Studies on bullies (perpetrators), victims, and typologies of victims have helped clarify that the power imbalance related to bullying can be explained by several factors<sup>14</sup>:

- **Physical differences** (height, weight, race, among others), emotional and social disparities between bullies and victims.
- **Economic and cultural factors.**
- **Personality traits and temperament.**

### **2.5.1. The Bully's Profile**

When it comes to the profile of aggressors<sup>15</sup>, we can state that:

- The majority are boys, generally stronger and older than the average in their group.
- They tend to have low academic performance and a negative attitude towards school and engagement in educational activities.
- They show poor self-control and are often involved in conflicts.
- However, they typically have a higher self-esteem and a wider network of interpersonal relationships compared to the victims.

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13. Olweus, 1993; Smith & Sharp, 1994; Tattum, 1997; Smith, 2002; Smith et al., 2004

14. Hodges et al., 1997; Salmivalli et al., 1998; Neto, 2005; Fante, 2005

15. Bjorkqvist et al., 1992; Olweus, 1993; Smith & Sharp, 1994; Dawkins, 1995; Pearce & Thompson, 1998; Sutton et al., 1999; Chesson, 1999; Eslea & Rees, 2001; Derbardieux, 2002; Smith et al., 2003; Bertao, 2004

Olweus (1997) defines three predominant characteristics of aggressors:

- A strong need for power.
- Hostility and satisfaction in causing harm and suffering to others.
- Coercing victims to obtain material goods, such as money, cigarettes, etc.

Other characteristics of bullies include:

- Manipulative behavior towards others.
- They tend to be popular and dominant over their targets.
- Desire for control, power, and intimidation, often exhibiting tyrannical attitudes.
- Involvement in antisocial behaviors and delinquent attitudes.
- Low self-criticism, rarely taking responsibility for their actions.
- A positive self-view, showing concern for their self-image — they have high self-esteem.
- Lack of empathy towards the suffering they cause in others.
- They use their distinct physical, psychological, or social characteristics to exert power over victims.
- They are physically strong, with aggressive tendencies toward both adults and peers — demonstrating a "warrior" attitude toward their peers.
- Quickly angered, using force and often interpreting others' actions as hostile, leading to obsessive or rigid behavior.
- Poor academic involvement/low academic performance.
- Hyperactivity, impulsivity, poor behavior control, concentration issues, nervousness, anxiety, lack of intelligence, and a low cultural level can also be associated with aggressive behaviors.
- Adverse family conditions, maltreatment, or overly permissive parenting may explain the violent behaviors of perpetrators.

### 2.5.2. Cyberbully Profile

Often, a cyberbully is also a bully in other contexts, exhibiting the same characteristics as described above. They derive satisfaction from the violent act itself and from imagining the harm they cause. Cyberbullies typically have poor social skills and general difficulties in learning.

The dominant characteristics of cyberbullies are:

- Extroversion.
- Desire for control, power, and intimidation.
- Tyrannical attitude.
- Delinquent behaviors.
- Disrespect for norms/others' rights.
- Low academic involvement and poor academic performance.
- High self-esteem.

### 2.5.3. The Victim's Profile

Victims generally display the following characteristics:

- Low self-esteem.
- Anxiety, fears, and phobias.
- Physical symptoms (e.g., stomachaches).
- Psychological symptoms (e.g., sadness).
- Social isolation/shyness.
- Distress/stress.
- Difficulty concentrating, paying attention, and learning.
- Low involvement in school or even school abandonment.
- Suicidal tendencies.
- Single-parent families.

### *Passive Victim Profile*<sup>16</sup>

- Passive victims tend to be more anxious and insecure than others.
- They are cautious, sensitive, and calm, not responding to attacks or insults.
- Characterized by a submissive reaction model combined (in boys) with physical weakness.
- They are more likely to have behavioral and emotional problems, such as depression, anxiety, and suicidal tendencies.
- When attacked, they typically react by crying (in younger ages) and withdrawing.
- It is common for them to have no good friends in their class.
- Low self-esteem, with a negative view of themselves and their situation. They often consider themselves failures and feel stupid, embarrassed, or unattractive.
- They tend to have non-aggressive behaviors and are generally against violence and violent strategies.
- They are often overprotected by their parents until an older age, which contributes to their difficulty in asserting themselves in group situations.

### *Provocative Victim Profile*<sup>17</sup>

- These victims show deficient involvement with peers and parents compared to other groups of children (in terms of bullying roles).
- They are characterized by a combination of anxiety and aggressive reactions.
- They are insecure, unhappy, and depressed, with a negative self-view.
- They present concentration problems, and their behavior generates irritation and tension among peers.
- They exhibit more depressive symptoms, along with physical and psychological complaints, than any other group.
- Some may be characterized as hyperactive.
- This group is generally composed of more boys than girls.
- They have higher levels of drug and tobacco use than non-provocative victims, aggressors, followers, or bystanders.

### *Bully-Victim Profile*<sup>18</sup>

- Individuals in this group can use moral values to self-protect and avoid attacks from aggressors.
- When they act as bullies, they disregard the moral values they once used for self-defense, showing no concern for the safety or well-being of their victims.
- They demonstrate social skills and are able to dominate peer groups, often exploiting the vulnerabilities of potential victims.
- They show little empathy for others and use bullying as a tool to maintain power in the group.
- They are among the least popular peers.
- Anxious, impulsive, easily provoked, and often provoke others.
- They tend to be physically strong and assertive, which allows them to often fend for themselves, rather than seeking help.
- Their dual role as victim and aggressor can be explained by the combination of aggressive attitudes and low self-esteem.
- They mostly come from lower socio-economic levels, where they are exposed to more explicit forms of aggression and violence, alongside other social deprivations.

## **2.6.Risk and Protective Factors**

*“Both bullies and victims are products of our society and reflect the quality of our families, schools, and communities.”*

(Beane, 2011)

Risk and protective factors are essentially the same variables, differing only in their configuration (positive or negative) or intensity (higher or lower). For example:

- A welcoming, safe, and positive school climate functions as a protective factor.
- An unsafe and negative school climate acts as a risk factor.

This duality allows a more nuanced understanding of bullying by focusing on both what needs to be promoted and what should be altered or prevented.

It is important, however, to avoid oversimplifying the causal role of these factors. Human behavior is influenced by a complex interplay of multiple dimensions, and the cumulative effect of combined risk or protective factors can be particularly significant.

### 2.6.1. Protective Factors (against involvement in violent or bullying behaviors)<sup>19</sup>

- Biological Factors: Genetic disposition toward emotional regulation and intolerance of violent behavior.
- Close and affectionate family relationships: Reduce vulnerability to both perpetration and victimization.
- Supportive School Environment:
  - Availability of teachers, doctors, nurses, psychologists, and social workers.
  - Opportunities for participation in decision-making.
- High prosocial involvement in school and community life.
- Clear, fair, and consistent discipline practices in the classroom.
- Positive peer group dynamics.
- Respect for authority and a strong school ethos.

### 2.6.2. Risk Factors (for involvement in violent or bullying behaviors)

#### *Biological and Psychological Factors*<sup>20</sup>

- Early signs of aggression.
- Substance use before age 12.
- High impulsivity and risk-taking.
- Low cognitive ability or poor academic achievement.
- Predispositions toward personality disorders marked by:
  - Lack of empathy
  - Impulsiveness
  - Relationship difficulties
  - Disregard for others

### *Family and Social Environment<sup>21</sup>*

- Insufficient parental supervision.
- Emotional blackmail: Parents reinforcing aggressive behavior by giving in.
- Domestic aggression as a modeled behavior.
- Harsh physical punishment.
- Abusive peer groups: Children mimic aggressive peers to gain acceptance.
- Constant negative feedback and low emotional support.
- Expectation of hostility: “The best defense is attack” mindset.
- Parental criminality or family disruption (e.g., divorce).
- Neglect or abuse at home.
- Low socio-economic status, poor infrastructure.

### *School Environment*

- Larger schools tend to report more bullying.
- Schools with:
  - Clear behavioral rules show less violence.
  - Fair discipline, as perceived by students, report less aggression.
  - Smaller class sizes report fewer incidents.
  - Respected disciplinary staff report less violence.
  - Student and teacher involvement in decision-making processes show reduced conflict.
  - Strong cohesion among teaching and disciplinary staff correlates with lower violence.

## 2.7. Developmental Contexts of Bullying<sup>22</sup>

Bullying evolves in form and intensity across developmental stages, influenced by the child's cognitive, emotional, and social maturation, as well as by the surrounding relational and institutional environments. A developmental approach allows for the identification of age-specific risks and protective factors, and it underscores the importance of early and continuous intervention.

### Early Childhood (Kindergarten)

In early childhood, aggressive behaviors may emerge as part of normal social exploration. Young children often imitate behaviors observed in family or media without fully understanding their implications. While such behaviors are not always intentional bullying, they may set a foundation for later patterns if not redirected. According to Monks and Smith (2006), early peer aggression is predictive of continued bullying involvement in later years. Early education settings that foster empathy, emotional regulation, and positive peer interaction are key in disrupting this trajectory.

### Primary School (Elementary Education)

This stage is marked by increased group cohesion and the formation of social hierarchies, which often correlate with a peak in overt bullying, including physical and verbal forms. Children begin to compare themselves with peers, and those who differ due to disabilities, cultural background, or social skills may become marginalized. Studies by Pellegrini and Long (2002) show that bullying in this period can be a strategy to gain dominance in newly forming peer groups. Strong school policies, adult responsiveness, and classroom norms can significantly influence the prevalence of bullying

### Middle School (Gymnasium / Lower Secondary Education)

As cognitive and emotional sophistication grows, bullying shifts toward indirect and relational aggression. Social exclusion, manipulation, and rumor-spreading become more prominent, particularly among girls. This is also a stage marked by heightened self-awareness and peer conformity. Salmivalli et al. (1996) highlight that group roles—such as reinforcers, bystanders, or defenders—are solidified in this phase. Preventive programs that target group norms and empower bystanders have proven effective.

### High School (Upper Secondary Education)

With widespread access to technology, cyberbullying becomes more frequent and complex in high school. Adolescents use digital platforms to engage in subtle and often anonymous forms of aggression. The persistence and visibility of online harassment amplify its psychological effects. At this stage, bullying is closely tied to peer pressure, identity development, and status-seeking behaviors. School responses must integrate digital citizenship education and provide students with tools to safely navigate online interactions.

### Family Environment

The home environment has a profound influence on children's behavior. Authoritarian or neglectful parenting styles, exposure to domestic violence, sibling bullying, or inconsistent discipline are linked with higher risks of bullying perpetration or victimization. Conversely, supportive parenting characterized by warmth, structure, and open communication fosters resilience and prosocial behavior. Children model the behaviors they observe, making parental involvement a key factor in anti-bullying strategies.

## **2.8. Recognizing Bullying: Warning Signs in Victims and Aggressors<sup>23</sup>**

Identifying bullying can be challenging, as many victims suffer in silence due to fear, shame, or uncertainty about how to react. Understanding the warning signs is crucial for timely intervention. Both victims and aggressors display specific behavioral, emotional, and physical indicators that can be observed at school or at home.

### **2.8.1. Warning Signs in Victims**

#### **a) Observable at School**

- Frequent damage or loss of school supplies or personal belongings.
- Unexplained injuries such as bruises, scratches, or torn clothing.
- Regularly the target of mean-spirited jokes or mockery.
- Tends to isolate themselves during breaks or seeks the company of adults.
- Often the last one chosen for team games.
- Appears anxious, fearful, or irritable.
- Quiet and passive demeanor.
- Does not respond to acts of aggression.
- Cries frequently and without clear reason.
- Frequent physical complaints (headaches, stomachaches, dizziness).
- Hypersensitive to criticism.
- Sudden drop in academic performance.

#### **b) Reported or Noticed by Parents**

- Recurring physical complaints without medical cause.
- Arrives home unusually hungry.
- Appears consistently sad or distressed.
- Sudden behavioral changes (e.g., bedwetting, loss of appetite, sleep disturbances, nightmares).

- Returns from school with visible marks or damaged clothing/belongings.
- Increased sensitivity to criticism.
- Becomes preoccupied with body image, weight, height, or appearance.
- Avoids social interactions.
- Experiences frequent emotional outbursts or anger.
- Loses interest in hobbies or leisure activities.
- Exhibits destructive or self-destructive behaviors.
- Decreased motivation or performance at school.

#### c) Questions for Parents When Bullying is Suspected

- Does the child hesitate or refuse to go to school, or insist on being accompanied?
- Does the child try to take protective items to school?
- Has the child begun to bully others, including siblings?
- Does the child have any personal or physical traits that could make them a perceived “easy target”?

### 2.8.2.Warning Signs in Aggressors

#### a) Observable at School

- May be popular among peers or enjoy social dominance.
- Shows a strong need to control and feel powerful.
- Has difficulty accepting loss or failure (poor sportsmanship).
- Expresses violent themes in writing or drawings.
- Appears to have uncontrollable anger.
- Is physically stronger than peers.
- Justifies aggressive actions (e.g., “they deserved it”).
- Lacks empathy or perspective-taking.
- Uses others for personal gain.

- Demonstrates consistent patterns of intimidation or aggression.
- Takes items (money, snacks, school supplies) without permission.
- Poor academic performance.
- History of disciplinary issues.
- Shows little or no remorse.
- Low frustration tolerance.
- Impulsive and easily angered.
- Seems to enjoy instilling fear in others.
- Intolerant of differences; displays prejudiced attitudes.
- Disregards or breaks rules frequently.
- Misinterprets innocent acts as hostile or provocative.
- Possible involvement with alcohol, drugs, or gang activity.

b) Questions for Parents When Bullying is Suspected

- Does the child lie to avoid consequences?
- Frequently challenges or disrespects parental authority?
- Refuses to take responsibility for their actions?
- Acts aggressively toward siblings?
- Shows intolerance or holds prejudiced views?
- Misinterprets innocent gestures as offensive?
- Returns home with torn or dirty clothes but behaves smugly?
- Has money or new possessions with unclear origin?
- Claims items were “gifts” from classmates?
- Frequently defies adult authority?
- Is exposed to violence at home or in their environment?

### 2.8.3. The Silence Barrier

Many victims choose not to report bullying due to fear of retaliation or a belief that no one will take them seriously. This silence allows bullying to persist unnoticed. Research estimates that only one-third of bullying cases are reported to adults, making it difficult to understand the true scope of the problem.

#### *Common Reasons for Victim Silence*

- Fear of retaliation: Bullies often threaten their victims to ensure silence.
- Fear of escalation: Victims worry they'll be labeled as "snitches."
- Lack of awareness: Some children may not recognize they are being bullied.
- Internalized blame: Victims may believe the abuse is their fault or deserved.
- Denial: Hoping that by ignoring it, the bullying will eventually stop.
- Distrust in adults: Fear that adults won't listen, won't act, or will make things worse.
- Fear of adult reactions: Anxiety about how parents or teachers might respond.

### 2.9. Effects on the Personality: Self-Image as Cause and Consequence of Bullying<sup>24</sup>

Bullying has profound effects on a student's personality development, especially in how they perceive themselves and their place in the social world.

#### 2.9.1. Effects on the victims

The victim's self-image is not only a *predictor* of vulnerability to bullying but also one of the most damaged aspects in its aftermath.

*"Children who are repeatedly victimized may come to see themselves as weak, powerless, and socially incompetent — identities that can follow them into adulthood"*

(Arseneault et al., 010)

### *Physical and Psychosomatic Well-being*

Victimized students frequently exhibit a range of physical symptoms such as headaches, stomachaches, sore throats, and general fatigue. These ailments often lack a medical explanation and are considered psychosomatic responses to stress and trauma. Additional signs include:

- Irritability and nervousness
- Loss of appetite
- Sleep disturbances or nightmares
- Constant exhaustion

These issues compromise not only health but also the basic sense of safety and stability, foundational for healthy personality development.

### *Psychological Well-being and Self-Concept*

Victimization is strongly correlated with low self-esteem and negative self-concept, especially in physical, social, and athletic domains. Students often internalize the aggressor's behavior, developing a distorted belief that they deserve mistreatment or that there is something inherently wrong with them. Common consequences include:

- Heightened feelings of loneliness, sadness, and helplessness
- High levels of anxiety and depression
- Increased suicidal ideation and risk of self-harm
- Social withdrawal and feelings of inferiority

These emotional scars shape the victim's developing personality, often leading to chronic insecurity, distrust, and fear of interpersonal relationships.

### *Social Adjustment and School Functioning*

Socially, victims often find it difficult to build or maintain friendships, resulting in:

- Increased social isolation
- Low popularity and peer rejection
- Reluctance to participate in group activities or school events

- Frequent school avoidance and negative attitudes toward education
- Academic decline due to impaired concentration and motivation

In severe cases, victims may transfer schools frequently or abandon education entirely, believing school to be an unsafe or hostile environment.

### *Identity Crisis and Role Reversal*

Some victims may, over time, adopt aggressive behaviors themselves, either as a defense mechanism or an internalization of the model of interpersonal power they've experienced. This shift can result in:

- The learning of aggression as a relational strategy
- Reinforcement of the belief that dominance ensures safety or respect
- Long-term identity confusion, alternating between roles of victim and aggressor

Such developments hinder the victim's ability to form a coherent and positive sense of self.

### 2.9.2.Repercussions for the Aggressor's Personality.

Aggressors are also affected by the roles they play:

- They may develop a persistent aggressive behavioral pattern
- Show low empathy and high impulsivity
- Exhibit disregard for social rules and authority
- Often view violence as a legitimate means of achieving goals or status
- Are at greater risk of delinquency, substance abuse, and antisocial personality traits in adulthood

The short-term social rewards of bullying — such as group status or peer admiration — reinforce harmful behavior and mask the deeper maladaptive development of character.

## 2.10. Statistical Overview and Trends

Bullying remains a significant global issue, affecting children and adolescents across various cultures and socioeconomic contexts. Recent data reveals the persistence and evolution of this phenomenon:

- **Global Prevalence:** Around 30% of young people aged 11 to 15 report involvement in bullying, either as victims or perpetrators. This data comes from the *Health Behaviour in School-aged Children (HBSC)* study, conducted in 44 countries and regions, including Europe, Central Asia, and North America.
- **Cyberbullying:** Online bullying has increased significantly. According to World Health Organization (WHO) data, 15% of adolescents have experienced cyberbullying, with a growing trend since 2018, particularly among girls.
- **Gender Differences:** Boys are more likely to be involved in physical bullying, while girls tend to engage in indirect forms of bullying, such as verbal aggression and social exclusion. However, in countries with high bullying rates, girls are equally affected.
- **Socioeconomic Factors:** Youth from lower socioeconomic backgrounds are at greater risk of being bullied. Additionally, immigrant children in developed countries experience higher bullying rates compared to their native peers.
- **Mental Health Impact:** Victims of bullying are more likely to experience severe loneliness, insomnia, and suicidal thoughts. These negative effects are more pronounced in girls and LGBTQIA+ youth.
- **Temporal Trends:** Although the overall prevalence of bullying has remained stable since 2018, cyberbullying has significantly increased, reflecting the growing digitalization of youth interactions.

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## Part 3 – Prevention methodology

### The bullying triangle: aggressor - victim - witness

Bullying is not simply an interaction between a bully and a victim; it is a social problem that most often unfolds in front of others. Young people may find themselves in the role of victim, aggressor, or both, while bystanders—those who witness but do not act—play a critical, indirect role. Even those “just watching” can send the message that they approve of what is happening, simply by doing nothing. In most cases, bystanders outnumber those directly involved, yet very few intervene. Bullies count on this silence and passivity to reinforce their behavior.

Bullying is a learned behavior, often rooted in early moral lessons—or the lack thereof—at home. While much is known about its emotional toll on victims, it also has negative consequences for aggressors and witnesses. Allowing bullying to continue unchallenged can entrench harmful patterns, making it harder to address later.

In order to prevent and intervene when necessary, it is important to know what works and what does not work. The authors of *Why School Antibullying Programs Don't Work*<sup>1</sup> argue that many well-intentioned efforts fail because they are built on universal false assumptions. These “fallacies” appear in every type of school, regardless of size, location, or reputation, and they create serious barriers to meaningful, lasting change:

- **Judging a school's safety by its image** – Well-resourced, high-achieving schools are not automatically safe, and struggling schools are not hopeless. Serious social aggression can exist in elite schools (e.g., Columbine)<sup>2</sup>, while dedicated teachers in disadvantaged areas can create safe, supportive environments.
- **Thinking school violence is “someone else's problem”** – Many parents, whether wealthy or working-class, see their responsibility end at the school door, expecting teachers to handle all issues. Community leaders and businesses often act the same, stepping in only to assign blame after a crisis. This isolation leaves schools without essential community support.

- **Believing zero tolerance policies solve the problem** – These rules often produce punitive, rigid responses that push problems underground. Ignoring bullying entirely is equally harmful, discouraging reporting and fostering inaction. Both extremes fail to address the complex social dynamics behind aggression.
- **Assuming size determines safety** – Smaller schools are not automatically more peaceful, and larger schools are not necessarily more dangerous. What matters is the quality of relationships and communication, as shown by New Trier High School<sup>3</sup>, which fosters connection despite its large size.
- **Believing today’s students are no different from past generations** – Modern students live in a digital world that extends social aggression beyond school into their homes. Technology offers opportunities but also facilitates harassment, exploitation, and exposure to harmful ideologies.
- **Thinking removing bullies ends bullying** – Unless the school culture that rewards meanness changes, others will step into the bully role. The peer status associated with cruelty must be dismantled, and bystanders encouraged to withdraw their support.
- **Equating the absence of physical violence with safety** – Social exclusion, humiliation, and verbal attacks can be as damaging as physical violence, contributing to addiction, mental health crises, and even school shootings. These behaviors require proactive, preventive approaches.
- **Dismissing bullying as “just a kid thing”** – Bullying often mirrors adult behavior and is amplified by online platforms. Treating it as harmless ignores the serious and lasting harm it can cause.
- **Focusing only on “problem kids”** – While some students need special support, their struggles often reflect a climate that tolerates aggression. Removing them leaves the bully–victim–bystander cycle intact.

- **Relying on quick-fix or one-size-fits-all programs** – Externally imposed solutions are often resisted, and no single program fits every school. Sustainable change must be tailored to each school's unique culture and challenges.
- **Viewing violence as a “disease” to be eliminated** – Removing individuals without long-term prevention will not solve the problem. Sustained measures, ideally over five or more years, are needed, with a focus on improving the overall school climate.

## **Conclusion**

Lasting solutions require rejecting these simplistic assumptions and engaging the whole community in building a safe, respectful environment. Bullying persists when bystanders remain silent, when schools are isolated, and when programs ignore deeper cultural issues. Real change comes from sustained, collaborative efforts that transform the school climate for all its members.

## **What can parents do?**

Research suggests<sup>4</sup> that parenting practices may make a difference in whether children become aggressive, bullied, and victimized, or not. Your family relationships help to build children's expectations about how relationships should feel, what helps relationships to work well, and how to constructively manage the problems that arise in relationships.

### **Use an authoritative parenting style.**

An authoritative style of parenting offers a high degree of warmth, love, and closeness, and at the same time provides clear limits and high expectations with the support necessary to meet those expectations. Children who are raised with authoritative parenting (compared to other styles) fare the best, with better mental health, stronger relationship skills, and higher achievement. In contrast, children who experience harsh parenting practices fare worse, and they're more likely to become a bully or become the focus of bullying.

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4. What can parents do about bullying? (2020). Greater Good Magazine. University of California, Berkeley.

### **Nurture a positive family climate.**

The family climate is the “felt sense” of being in relationship with other family members and working together in the home environment. Does family life feel chaotic and erratic, or organized and predictable? Do adults model the kind of relationships they hope their children will have? Does everyone feel respected and have healthy personal boundaries? Are expectations appropriate to children’s stage of development, or are they too high or too low?

Everyone in a family needs a sense of power, but is that need supported in developmentally appropriate ways? Do family members express a healthy agency through rational, age-appropriate negotiations and problem solving—for example, providing preschoolers a limited set of choices, but helping teenagers think through possible consequences of their actions ahead of time—or do family members exert power by dominating and manipulating? Is consent a family value, for example, even in the giving and receiving of hugs?

Researchers have increasingly realized that siblings exert enormous influence on one other<sup>5</sup>. Children who are involved in sibling bullying (in any role) are more likely to be involved in bullying outside the home—as the bully, an enabler, or the recipient of bullying.

### **Teach emotional and interpersonal skills.**

Research suggests that children who grow up in an emotion-rich language environment—where parents talk about feelings and how feelings are managed in themselves and others—have higher emotional intelligence, navigate peer groups better, and are more likely to stand up for people who are targeted by others<sup>6</sup>. If talking about emotional life is normalized in a family, children will be more likely to bring up difficult issues so they don’t fester and become harmful.

### **Make learning about relationships a high priority.**

Parents can incorporate conversations about interpersonal relationships while reading storybooks or observing everyday interactions, even with very young children. For example, in a relationship conflict, naming the various feelings and perspectives that different people might hold is an important start to problem-solving respectful solutions. For middle school students, add conversations about online relationships (using helpful conversational scripts like these, if needed).

### **Encourage supportive friendships and constructive peer groups.**

It's good "insurance" for children to foster peer relationships in a few different environments inside and outside of school, such as community sports leagues, out-of-school clubs, or among neighbors or extended family. It doesn't have to be large numbers, even a single friend in different venues is protective.

When children face small difficulties, help them cultivate a mindset of resilience that draws on their unique strengths. If they are funny, can they deflect a problem using a sense of humor? If they're socially skilled, can they turn toward friends for support? If they're shy, quiet, and reserved, can they find a compatible way to explore their feelings, through reading, writing, movement, or animal companionship? Are they artistic? They could paint a poster or create art that inspires the good in others.

Sometimes children need to borrow your confidence in them to get over a rough patch, to know that you believe in their abilities when they feel unsure. They may also benefit from understanding that people can change, feelings can change, and situations won't always be as they are in this moment. Let them know that their efforts and practice matter; they can help to bring about that change.

### **Cultivate relationships with school personnel and other parents.**

Research suggests that children benefit when there is a strong partnership between schools and families<sup>7</sup>. Being friendly and helpful to school personnel is not just a decent thing to do; it establishes a pathway of communication, along with trust and a belief in each other's good intentions, should difficulties arise. Teachers and staff will also have a little more context when interacting with your child.

It can be helpful to get to know the parents of children's classmates, as well. Even as casual acquaintances, goodwill, communication, and mutual support can be fostered. This may feel easier when children are younger, but even high school students benefit when parents know each other enough to coordinate around parties and overnights. If things get difficult, a channel for some dialogue will have been established.

There are many causes of bullying, and so it may still happen despite your best efforts. Now what? Though there is not a single solution to stop every bullying situation, researchers and practitioners offer some guidelines.

### **Manage your own feelings first.**

We often forget to do this. Stay calm, and project the assurance to your child that you will see to their protection and safety. If they are the target of, or witness to, the bullying, assure them it is not their fault.

**Gently elicit the story from your child**, gather information, and write down the details and facts. Sometimes children don't want to divulge the names of others involved for fear that adults will inadvertently escalate the bullying, so proceed delicately. Assess the severity. Can you support the child to act first without your direct involvement? This might involve problem-solving concrete strategies together. Or it may be too much for a child to manage, and you need to work behind the scenes with school personnel.

**If cyberbullying is involved, collect data and take screenshots of all offending screens,** and then help your child block the offender. Report cyberbullying to the media platform.

**Consider appealing to the parents of other children involved**—although this can be controversial and every situation is different. The first ground rule of having a conversation is that both of you need to be capable of staying constructive.

The second rule is that expressing yourself doesn't guarantee the impact you desire, so accept that sometimes just having your say is enough and actual change might have to come from a different direction. If there is bullying at school, it is likely that your child is not the only one affected. You might find support by enlisting other parents whose children are affected and appealing to the school together.

**With the school, first approach the adult in charge of the immediate environment** (e.g., the classroom teacher, the after-school teacher), but work your way up the administration if there isn't immediate action.

**Regulate your feelings when you talk with school personnel.**

Emotional intelligence is the ability to regulate feelings to accomplish your goals, and your goal is to ensure the emotional and physical safety of your child.

Schools are incentivized to balance their legal liability with their concern for their students. If possible, take a collaborative, problem-solving approach that can become a win-win. Appeal to the school's stated values, or their aspirational charters on psychological well-being, or the opportunity to improve the school climate for everyone.

If the school does not take action, turn up the volume. Remind them that federal legislation gives students the legal right to learn in a safe environment and offers special protections for bullying based on race, sex, or disability. Point to your state's legislation. If physical threats are involved, law enforcement may be of help, informally or formally.

### **Know when to pull the plug.**

If the bullying is severe or is ongoing and the school does not respond, remove your child from the unsafe situation.

Remember to spend some extra special time with a child who has been bullied or who has witnessed bullying. Surround them with love, affection, and support, and focus on their healing. Your care, along with your swift, constructive action, will speak volumes to them and offer a life lesson on how to face problems.

### **What can teachers do?**

We must remember that feelings of attachment are related to an individual's experience of belonging and feeling safe. The models for this feeling, of course, are the adults in the school environment, beginning especially in elementary schools. As children get older and become more verbally gifted and capable of abstract thought, natural leaders emerge to model strong and dominant positions for other children. Recent studies of relational aggression<sup>8</sup> in African American and European American children in grades seven through twelve showed that for both genders this form of aggression involving ostracizing, name calling, and more subtle forms of interpersonal aggression caused children to feel more unsafe, and for boys to carry a weapon to school. People cannot and do not, however, feel safe when they witness violence on a regular basis. Feeling safe is clearly related to the effectiveness of public safety in keeping overt violence levels in a community low. When in elementary and middle school, children feel safer when they can see and feel their protectors and when these protectors can effectively combat the negative influences leading to bullying. We do know that some forms of media may impact the way children feel about their overall safety. While exposure of children to television has been extensively studied, other media like video games, the Internet, and rock music have been less extensively researched. Clearly unsafe feelings can be generated by repeated violence exposure on television, an effect much greater in preschoolers, and are potentially aggravated when family members or classmates mirror these unsafe feelings. Drug and alcohol abuse are also important factors in determining how safe individuals feel in any given environment.

Physical surroundings play an important role in determining a child's feeling of safety, or lack thereof. Studies have also shown that even children who live in dangerous areas felt safer when they could rely on the routine of going to school and living with their families<sup>9</sup>. Simply having a routine and a productive place or safe haven is a key element of feeling safe. Factors such as truancy and out-of-home placement are, then, the big enemies against this vitally important sense of safety. Training in personal safety can also help children feel more confident in their abilities to protect themselves. Feelings of safety are also related to the social climate. When students engage in altruistic behaviors such as cooperating, helping, or consoling, academic achievement improves as a direct result. Having friends and being helpful as part of a larger group can contribute to children's senses of safety and success. Children need to feel valued and respected in order to attain their own sense of a positive collective and individual identity.

There are a number of programs adapting behavioral models that would ease the process, such as the Center for Social and Emotional Education. Such approaches allow teachers to become models for their students as an organic part of their teaching process. Teachers do model a great deal already, not only in what they teach about, but how they teach it, and how they embody that model in handling day-to-day problems in their own lives.

A safe and well-disciplined classroom is one in which teachers manage their classrooms by treating disciplinary problems as potential opportunities for learning. For instance, teachers may reward good behavior more intensely than they punish bad behavior. They may also try to find out whether individuals or groups have learned their own roles in each new disciplinary experience, but again, this is only possible in a safe classroom where the teacher is able to manage his or her students and communicate with them in a healthy and productive way. If this happens children learn from a calm, safe teacher who embodies discipline in her personal habits, and they will internalize the example. An unsafe teacher punishes erratically and children despise the example and act out whenever the teacher leaves the room.

Research has shown that intervention by schools in an effort to tackle bullying can be effective<sup>10</sup>. Below is a summary of research findings collated from individual research papers and books. A summary can be found in Smith et al. (2004)<sup>11</sup>.

1. For various reasons, interventions have been more effective in primary schools than in secondary schools. However, all schools that implemented preventative and protective strategies did better than the control group.
2. Success depends on the quantity and quality of adult involvement.
3. The whole-school approach and school policy are important but these can be vague terms. Their effectiveness depends on the detail of the implementation.
4. Class management was an important factor. Significant elements were the classroom climate, class rules against bullying, class meetings, classroom activities and curriculum work.
5. Student participation and peer interventions were noted as effective factors.
6. The involvement of staff included: discussion groups; the perceived importance of tackling bullying to all the staff and senior management; staff consensus on what needed changing; the coordination of responses; availability of information for staff and continuing professional development, including contributions from experts.
7. Supervision included: break-time supervision; staff vigilance; intervention in playground bullying; the redesign of the schoolyard.
8. Meetings with parents of victims, bullies and all other children were effective, as was adult awareness and involvement in the programme.
9. Talks and individual intervention plans for bullies and victims, including a discipline plan for bullies, were effective. The above shows that emphasis must be placed on preventing bullying rather than simply responding to events. The aim should be to create an appropriate ethos and an emotionally literate school. Given below is a range of procedures and measures of good practice which parents and schools need to have in place in order to address bullying. These form the bedrock upon which to start in considering gender differences in interventions.

### **Immediate approaches**

1. It is essential that the victim feels safe. Ensure she knows that there is to be a determined effort to stop the bullying. If necessary, call a multidisciplinary meeting.
2. All students should have access to a member of staff with whom they can discuss personal matters comfortably. Each student should feel free to choose whom to approach when worried.
3. Strategies given earlier are appropriate for schools to use when preparing an immediate response for a victim.

### **Medium-term approaches**

- **A survey**

An anonymous survey could reveal that many students come across bullying in some form in their school career. Questionnaires for primary and secondary school are given in Besag (1992)<sup>12</sup>.

- **Support for younger students**

It could be useful for older students to make a booklet of advice, or a brief film, for younger students, drawing on what they found helpful. Older students can talk to younger students about issues such as bullying.

- **Art**

Girls enjoy working together but adults need to keep a close eye on their social interactions. Following a discussion group, give the girls pieces of paper cut to the size and shape of leaves. Ask them to paint one side of the paper to resemble a leaf. The girls write with coloured pens some of the bullying acts, words and phrases they have received, used or witnessed in the past on the reverse of their leaf. Without anyone else seeing what has been written, each girl pastes her leaf onto a wall collage of a bonfire to signify the destruction of these bullying behaviours.

Ask victims to draw or write on a flipchart all the good things they feel about themselves. It is a powerful exercise if others volunteer to do this for them. They can draw round the student lying on the floor and fill in the outline with compliments. These comments could be put on a T-shirt.

- **Drama**

Many girls enjoy drama and dance. They could prepare a drama to present to younger students. Some may prefer to do the music or costumes for a production.

Older students as models

students from the school or local college of further education can work with small groups of girls on a project. For example, this could be an art project for the school or community. It is most effective if done on a weekly basis over several weeks. The older students model behaviours such as negotiation, mediation, empathy and compliments while working with the students. They are able to give recognition and respect to the more vulnerable students. The girls think the end product is the reason for the working groups. Only the older students know that the underlying rationale is to improve the girls' social behaviour.

- **Conflict resolution**

Many girls only want someone to hear their side of a quarrel, making it impossible for them to discuss the problem rationally. A mediator ensures that both sides of the story are given an equal and impartial hearing. This may be enough for the girls to resume their friendship. Mediation is not a technique to use if a vulnerable victim has to face a powerful bully. Both disputants must feel comfortable about trying the mediation. Primary schools, as well as secondary schools have effective student mediators.

## **Long-term approaches**

An effective approach is for the school to have a training day on bullying which incorporates a variety of workshops for staff. Teachers could choose an area of interest outside their usual role at school and prepare a day for a group of students around their choice e.g., a maths teacher could help students compose a rap song or drama. Further information is given in Besag (1992).

- **Building up friendship skills**

A strong supportive friendship network is the most powerful protective factor. Those without friends often feel rejected and lonely and quickly lose confidence and self-esteem. The peer group may fail to include a child from thoughtlessness rather than active rejection. Programmes such as Circle of Friends (Newton et al. 1996) can develop group awareness of those children who feel isolated and rejected<sup>13</sup>. Staff may be able to help in building up friendship networks, internal or external to school, by identifying other students with similar interests.

- **Building confidence, self-esteem and assertiveness**

Once lost, it is difficult to restore confidence and self-esteem. The best response is to ignore any defensive behaviour and embark upon a practical plan of action, discussing the bullying as little as possible. It is possible for young people to learn by teaching others. For example, the girls could help in a toddler group alongside professionals and parents. Many peer supporters began their training because they were bullied and wanted to help others. It would be essential to check that the peer supporters are comfortable with their role. If the focus is on the task rather than social behaviour, these students often gain confidence.

A vulnerable student may progress best in an adult-based group, gradually working towards inclusion in adult-controlled peer groups and finally to groups and events both peer run and peer based without adult supervision.

## **Four Critical Ways for Teachers to Prevent Bullying**

### **1. Model, teach, and reinforce kindness and compassion. By taking the time to teach kindness and compassion, you lay the foundation for a bully free classroom.**

What you model is key. As Albert Schweitzer once said, “Example is not the main thing in influencing others, it is the only thing”. When he wrote these words, he had little idea that inside the human brain are millions of mirror neurons that cause us to mirror each other’s behaviors, emotions, and facial expressions. Neuroscientists have recently discovered that this is why we tend to smile back when someone smiles at us, or frown when we see someone frowning. Mirror neurons are the reason kids’ attitudes and behaviors are so contagious. It’s also the reason teachers have even more influence than they realize. Mirror neurons are functioning all day long. Plus, kids watch the teachers for clues as to how to behave, even when we think they’re not. There have been times when kids were saying things like, “I know my teacher doesn’t like Mr. So-and-So. I see the look on her face every time he walks by.” This attests to the need to be mindful of our body language and facial expressions as well as the teachers’ words. For some kids, teachers may be the most influential role models they have, so teachers need to hold themselves to a high standard. When teachers tell kids to treat others with respect and they see them doing this themselves, they make a powerful impact for the good. Their mirror neurons are sparked to follow our lead.

## **2. Make kids part of the solution, and hold them accountable.**

When kids have a role in coming up with their own rules and agreements, they are far more motivated to abide by them. That's why it's important to start by having the students define the kind of atmosphere they want to have in the classroom, then come up with agreements for creating it. It's also critical to hold the students accountable. Kids can be good at parroting back the right answer when it comes to respect, kindness, and acceptance. They often “talk the talk,” but don't “walk the walk.” Getting kids to “walk the walk” requires frequent check-ins on how they're applying what they're learning. For example, after teaching an anger management or assertiveness strategy, students have to be monitored how they apply it in real life.

## **3. Teach kids concrete strategies they can use when they're angry and in conflict.**

A study in the Canadian journal *Child Development* revealed that “Students who bully their classmates also tend to have lots of conflicts with parents, friends, and others”<sup>14</sup>. Giving kids acceptable ways to deal with conflict and anger can cut back significantly on bullying. “Stop, Breathe, Chill” exercise is the number one anger management strategy in this book. Using Stop, Breathe, Chill and sharing some personal examples with students can make the practice come alive for kids. The more they hear about your real-life applications the likelier they are to follow in your footsteps. Sharing how the teacher handles challenges in angry situations can give the students the confidence to keep trying rather than give up when they meet challenges of their own. The road to managing anger and conflict is never easy. It requires us to be mindful of old patterns and willing to change them. The role modeling the teachers provide in this regard will be invaluable to the kids. In terms of helping kids resolve conflicts, the key strategy is the Win/Win Guidelines.

#### 4. Never look the other way when bullying takes place.

Kids need to know that bullying and other acts of cruelty will not be tolerated. Sometimes adults pooh-pooh bullying, saying that it's always existed or that it's just part of life. But that doesn't make it acceptable. And, over time, bullying has changed. It is more insidious and pervasive, and is now part of what many experts see as an epidemic of cruelty among kids. In recent years the ubiquity of the Internet and cell phones has spurred widespread cyberbullying, which can start in elementary school. Ignoring or minimizing the problem only allows it to grow. The educators must call kids on cruel behavior and hold them accountable. Not doing so actually reinforces it by sending a silent signal that cruelty and bullying are okay. Most schools have some system of consequences for misbehavior as well as bullying response protocols. Research reveals that kids who are bullied have certain social challenges in common. The Journal of Clinical Child and Adolescent Psychology reports that these students often have difficulty in at least one of the following three areas: reading nonverbal cues, understanding the meaning of social cues, and coming up with options for resolving conflicts<sup>15</sup>.

#### Narrative approach in bullying prevention and constructive interview

Narrative: narrating: giving an account of any occurrence: inclined to narration: story-telling— n that which is narrated: a continuing account of any series of occurrences:story<sup>16</sup>.

'Narrative' can mean an account of an event or events; story-telling<sup>17</sup>. Works like *Sir Gawain and the Green Knight* or Tennyson's *The Lady of Shalott* present events in a structured sequence, making them examples of narrative poetry. In contrast, Gray's *Elegy Written in a Country Churchyard* is reflective in nature and does not follow a storyline, so it is not considered a narrative poem<sup>18</sup>. Within this therapeutic approach, the terms *account*, *story*, and *narrative* are often used interchangeably, referring to selected sequences of life events that take on form and meaning through the very act of being told.

An individual's *self-story* is the personal narrative they use to define themselves, shaped by memories of past experiences, their current circumstances, the roles they play in different social and personal contexts, and their relationships. Narrative therapy centers on the creation and interpretation of these stories. A core principle of this approach is *externalizing the problem*<sup>19</sup>—seeing the problem as separate from the person, so that the person is not the problem, but rather the problem is the person. From this perspective, clients are regarded as the experts of their own lives, with the skills, experiences, and values needed to face and adapt to challenges. In addition, narrative therapy broadens the focus from the individual or family unit to the wider social context, considering factors such as societal structures, oppression, and internalized belief systems.

The **narrative approach** in bullying prevention and **constructive interviews** are both innovative and effective strategies that focus on shifting the perspective from problem-oriented to solution-oriented, with an emphasis on empowerment, collaboration, and personal growth. Let's break down these concepts individually, and then explore how they can be integrated to improve bullying prevention efforts.

### **Narrative Approach in Bullying Prevention:**

The **narrative approach** is grounded in the idea that people make sense of their experiences through stories. The approach focuses on how individuals *frame* and *interpret* their experiences rather than just focusing on the event itself. From this perspective, blame is not placed on the individual, which makes it possible to examine bullying behavior from multiple viewpoints.

This can be especially powerful when addressing issues like bullying because:

- **Identity Construction:** Bullying often disrupts a person's sense of identity. The narrative approach helps individuals reclaim control of their stories, highlighting their agency, strengths, and values.

- **Re-authoring the Story:** Instead of seeing themselves as victims, individuals are encouraged to *re-author* their experience in a way that emphasizes their resilience, capabilities, and potential for change. For example, a child who has been bullied may be guided to identify how they've already shown courage or resourcefulness in other areas of their life, helping to build their self-esteem.
- **Externalizing the Problem:** In this approach, bullying is viewed as a problem outside of the person's identity. It helps prevent individuals from internalizing negative labels like "victim" or "outcast." The bullying itself becomes the problem, not the person.
- **Social Narratives:** The narrative approach also emphasizes the broader context of bullying, including societal and cultural influences. This perspective helps us understand that bullying is not just an individual issue, but also a collective societal one. It's essential to challenge harmful narratives in schools and communities about what constitutes "normal" behavior and acceptable power dynamics.

### **Key Elements of the Narrative Approach in Bullying Prevention:**

- **Re-storying:** Individuals can reconstruct their experiences by framing them in ways that highlight growth and positive change.
- **Empathy:** Encouraging empathy through storytelling—helping children and adults alike understand that everyone has a unique story, and bullying is a reflection of deeper insecurities or problems.
- **Support Systems:** Encouraging communities (peers, educators, parents) to work together in reshaping the narrative about bullying.

## How to Apply a Narrative Approach in a Constructive Interview for Bullying Prevention:

When conducting a constructive interview with the narrative approach in mind, the goal is to facilitate a conversation that allows all involved to tell their stories and reflect on their experiences. Here's how it can be done effectively:

### 1. Creating a Safe Space for Open Storytelling:

- **Inviting Reflection:** Encourage the interviewee to reflect on their experience by framing questions that prompt storytelling, such as:
  - Can you describe what happened in your own words?"
  - "How did this situation start, and how did it evolve?"
  - "How did you feel during this situation? How do you feel about it now?"
  - "What do you wish had been different in this experience?"
- **Non-Judgmental Listening:** In this interview, the key is to listen deeply and without judgment. Your role is to help the individual frame their story, not to tell them what the "correct" story is.

### 2. Exploring the Bigger Picture:

- **Contextualizing the Story:** Ask questions that allow the individual to think beyond the event itself and explore the broader context:
  - "What was going on in your life when this happened?"
  - "How do you think other people around you might have felt or experienced this situation?"
  - "Is there a way that other people's actions or words influenced what happened?"

- **Identifying Patterns:** Sometimes, bullying is part of a broader pattern or systemic issue (e.g., peer pressure, cultural norms). Asking about previous experiences or exploring how this incident fits into the person's broader narrative can be revealing.

### **3. Reframing the Experience:**

- **Changing Negative Narratives:** Encourage participants to reframe their experiences in ways that focus on their strengths, resilience, or the lessons learned. This is especially important for victims and those who have engaged in bullying behavior.
  - For example, ask a victim, "What strength did you find in yourself during this time?" or "How did you handle the situation, and what did you learn about yourself?"
  - For someone who has bullied others, you could ask, "What would you say to someone who was affected by your actions?" or "Looking back, what would you do differently?"

### **4. Helping the Individual Rewrite Their Story:**

- **Empowering Change:** Invite individuals to think about what they want the future to look like. This part of the conversation is about moving forward, not just reflecting on past harm.
  - "If you could rewrite this story, what would the ending look like?"
  - "What changes would you want to see in yourself, your relationships, or your school?"
- **Setting Goals for Positive Action:** For both the victim and the perpetrator, the narrative approach can help set a clear path forward. Encourage setting personal goals that support positive change:
  - "What steps can you take to ensure you feel safe in the future?"
  - "What are some ways you could repair any harm caused, if possible?"

## 5. Incorporating the Perspectives of Others:

- **Including Bystanders' Stories:** Often, bystanders witness bullying without intervening. Asking them to share their perspectives and reflect on their role in the situation can create a more comprehensive understanding and help prevent future bullying. Bystanders might also be asked to rewrite their own narratives, focusing on how they can act as allies moving forward.
- **Restorative Circles:** A group interview format or circle discussion (where the victim, perpetrator, and other involved parties come together) can be powerful. Each person shares their story and reflects on how they were affected by the situation, with the goal of building empathy and finding common ground.

### Benefits of the Narrative Approach in Constructive Interviews:

1. **Promotes Self-Reflection and Accountability:** Individuals involved in bullying, whether as the aggressor or victim, are more likely to reflect on their actions and the impacts of those actions when given the space to tell their own stories.
2. **Fosters Empathy and Understanding:** This approach can help people see bullying as a multifaceted issue. Understanding each other's stories leads to empathy, which can change behavior.
3. **Empowers Victims:** Allowing victims to tell their stories can help them reclaim their power, promote healing, and provide validation for their experiences.
4. **Builds Positive Social Norms:** When people are encouraged to reflect on how they want to act in the future, it can help shift group norms and create a more inclusive, supportive environment.

## **Storytelling as non-formal method for bullying prevention methodology**

Storytelling is a powerful approach because it fulfills the basic human need to share personal experiences while shaping meaning and identity. Through this process, students can externalize challenges by framing them within a narrative. A key strength of narrative therapy in school counseling lies in its capacity to help students recognize that they have agency—that they can actively author and influence the course of their own life stories.

Storytelling is a powerful non-formal educational method that can be used effectively in bullying prevention. Unlike formal education approaches (e.g., lectures, structured curriculum), non-formal methods like storytelling are more participatory, emotionally engaging, and learner-centered, making them especially effective for sensitive topics like bullying.

### **What Is Storytelling in the Context of Bullying Prevention?**

Storytelling involves sharing personal, fictional, or collective narratives to explore emotions, values, and social experiences. In bullying prevention, it serves as a **tool for empathy-building, reflection, and dialogue**—allowing students to better understand themselves and others. In narrative counseling, the act of telling a story allows students to revisit and reinterpret experiences that may hinder healthy emotional growth. The primary aim is to help them see themselves not merely as passive characters in their life story, but as authors capable of shaping its direction. By viewing events through the lens of a fictional character, students can create the emotional distance needed to explore coping strategies, expressing feelings such as anger, fear, or intimidation in a safer, more controlled context. Once these emotions are expressed through the fictional lens, they can begin to experiment with practical ways of addressing situations similar to those in their own lives. In this way, stories function as a neutral space in which suggestions—whether to encourage certain states, attitudes, ideas, or behaviors—can be embedded subtly or repetitively, often through the words or actions of characters.

## **Why Use Storytelling as a Non-Formal Method?**

### **Benefits:**

#### **1. Empathy Development**

Hearing or telling stories about bullying helps students put themselves in others' shoes, fostering compassion.

#### **2. Safe Emotional Expression**

Storytelling creates a space where children and youth can safely express fears, pain, or confusion related to bullying without feeling judged.

#### **3. Critical Thinking and Perspective-Taking**

Stories challenge listeners to consider multiple viewpoints and the consequences of actions.

#### **4. Empowerment and Voice**

Victims of bullying can regain agency by reframing and sharing their experiences. Even perpetrators can reflect on their behavior by crafting new narratives.

#### **5. Cultural Sensitivity and Inclusion**

Storytelling can draw from diverse cultural backgrounds and respect different identities, helping to challenge stereotypes and discrimination.

## **How to Use Storytelling for Bullying Prevention?**

### **1. Story Circles or Sharing Circles**

- Small group discussions where participants share personal experiences or listen to stories related to bullying.
- Rules include active listening, confidentiality, and no judgment.
- Facilitator prompts might include:
  - *“Tell me about a time when you saw someone being treated unfairly.”*
  - *“What would a brave person do in that situation?”*

## **2. Digital Storytelling**

- Students create short videos or multimedia presentations combining personal narration, images, music, and text.
- Ideal for engaging digital learners and addressing cyberbullying.

## **3. Role-Play and Drama-Based Storytelling**

- Students act out bullying scenarios and then reflect on how each person in the story might feel.
- Encourages active participation and deep emotional learning.

## **4. Fictional Stories and Literature**

- Teachers use age-appropriate books or folktales addressing bullying, justice, kindness, and courage.
- Follow-up discussions allow students to relate stories to their own lives.

## **5. Restorative Storytelling**

- In restorative practices, both victims and perpetrators of bullying can tell their stories in a controlled, supportive setting to repair harm and rebuild relationships.

## **Outcomes of Storytelling in Bullying Prevention**

- Improved peer relationships
- Increased empathy and social awareness
- Greater student engagement in anti-bullying efforts
- Reduced instances of exclusion and aggression

## Conclusion

Storytelling, as a non-formal method, aligns deeply with **social-emotional learning**, **restorative justice**, and **student-centered pedagogy**. It turns passive learners into **active participants**, helps communities explore **shared values**, and supports a more **inclusive and compassionate school culture**. Its strength lies not only in addressing the immediate effects of bullying but also in transforming the underlying school climate. By offering a safe emotional space, storytelling allows both victims and perpetrators to reflect, reframe, and reconstruct their experiences in ways that promote empathy, accountability, and resilience. It bridges the gap between individual healing and community change, encouraging students to see themselves as agents of their own growth and as contributors to a respectful, caring environment. Moreover, because storytelling is inherently adaptable, it can be tailored to different age groups, cultural contexts, and forms of bullying, including cyberbullying. It can be integrated into peer-led initiatives, counseling sessions, classroom activities, or whole-school programs without requiring extensive resources, making it accessible even in under-resourced settings. In the long term, using storytelling as a prevention methodology can foster a generation of students who are more emotionally literate, socially responsible, and willing to challenge harmful behaviors. It is not merely a technique for intervention, but a sustainable cultural practice that strengthens the bonds within the school community and builds a shared commitment to kindness, fairness, and mutual respect.

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## Part 4 – Methodology for creating 3D materials for educational purposes

### 4.1. 3D puzzles as educational instrument: concepts, general aspects

#### 4.1.1 A story of puzzles, creativity, and learning

Human beings have always felt an irresistible attraction to enigmas, to everything that poses a question without an immediate answer. Perhaps it is that eternal curiosity that has driven us to explore new lands, to decipher the secrets of the universe, and also to spend hours sitting in front of small cardboard pieces, trying to piece together a fragmented landscape. Solving a puzzle is much more than fitting pieces together: it is a symbolic act of imposing order on chaos<sup>1</sup>, of reconstruction, of patience rewarded. There is something profoundly human in the quiet sense of triumph experienced when, after long minutes of searching and trial and error, a piece finally fits into its exact place.

This fascination with mental challenges has roots as ancient as civilization itself. Even in ancient cultures, we find artifacts that were not merely decorative objects or tools, but also puzzles: intricate locks in Egypt, impossible-to-untie Chinese knots, labyrinths drawn on the floors of palaces and temples. It was not merely a form of entertainment; solving these challenges required skill and intelligence.

But if we look for the formal birth of the puzzle as we understand it today, we must travel to 18th-century England<sup>2</sup>. There, a London engraver named John Spilsbury, in search of an innovative way to teach geography to young people, had a simple yet revolutionary idea: to paste a map onto a wooden board and cut the borders of the countries into irregular shapes. John Spilsbury used to say: *"The mind learns best when the hands take part in the game. If we can get young people to explore the world piece by piece, they will better understand its geography... and perhaps also their place within it."* Therefore, the first known educational puzzle was born. The concept was a success, as it not only helped students memorize the locations of territories, but did so in a playful and engaging way.

1. Moreno Lucas, F. M. (2013). La manipulación de los materiales como recurso didáctico en educación infantil.  
2. Europea. (2020). The history of jigsaw puzzles. Europea.

From that moment on, puzzles began to diversify. In the 19th century, demand grew with scenes of English rural life, reproductions of famous paintings, family portraits, and so on, as everything could be turned into a puzzle. Each puzzle had to be made by hand, piece by piece, making every puzzle a unique object. However, with the advent of new machines, it became possible to produce puzzles on a large scale, turning them into an everyday experience accessible to everyone.

Over the years, it became clear that puzzles were not merely a pastime. Studies in child development began to recognize their powerful impact on logical thinking, hand-eye coordination, and cognitive abilities in general. From the earliest years of life, puzzles have accompanied children as tools that stimulate neural connections, problem-solving strategies, and perceptual skills. It is no coincidence that puzzles have been and continue to be a fundamental part of early learning environments.

However, if assembling an image on a flat surface was already a satisfying challenge, imagining and bringing to life structures in three dimensions would open up a whole new world of possibilities. This is how 3D puzzles were born not as simple decorative objects, but as a new way to challenge the mind, taking the building experience far beyond what we had known.

Today, within the framework of innovative educational projects, 3D puzzles have taken an even greater qualitative leap. Combined with 3D printing and the use of educational narratives, puzzles are transformed into powerful psychopedagogical tools<sup>3</sup>. In this approach, puzzles are no longer simple manipulable objects, but authentic narrative devices: each piece, each fit, tells a story, conveys a message, and invites personal reflection.

Each puzzle created within this context is linked to a specific theme related to self-image, empathy, or school coexistence, adapting to the needs of different educational levels from early childhood through primary and up to secondary education<sup>4</sup>.

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3. Rodríguez Illera, J. L. & Annacontini, G. (Coords.). (2019). Metodologías narrativas en educación.

4. Moyer-Packenham, P. S., & Bolyard, J. J. (2016). Revisiting the definition of a virtual manipulative. En P. S. Moyer-Packenham (Ed.), *International perspectives on teaching and learning mathematics with virtual manipulatives* (pp. 3–23).

In this way, 3D puzzles not only challenge students' minds, but also provide active and deeply meaningful learning experiences, fostering key competencies such as empathy, cooperation, and resilience, essential skills for preventing bullying and building positive coexistence environments.

Assembling a puzzle in this context is not simply about solving a logical challenge. It is about immersing oneself in an emotional narrative that speaks of personal growth, mutual respect, and the discovery of oneself and others.

#### **4.1.2 Escape Rooms: when the puzzle becomes a collective experience**

This unstoppable evolution of puzzles, their ability to stimulate not only the mind but also the imagination, found its ultimate expression in the emergence of an entirely new experience: escape rooms.

These emerged in the early 21st century, inspired by adventure and logic video games in which players had to search for clues, solve puzzles, and unlock doors to progress.

Gradually, the escape room craze spread, and thousands of cities around the world now have escape rooms with endless themes, ranging from historical mysteries to science fiction plots or survival scenarios.

What is fascinating about escape rooms is that they are not just skill-based games, but rather fully immersive experiences where logical thinking, creativity, collaboration, and the ability to handle pressure are just as important as finding a key or solving a puzzle<sup>5</sup>.

And this is where they connect deeply with the history of puzzles and their evolution. Because, at its core, an escape room is a large, living, three-dimensional puzzle. Each room is designed as a series of interconnected puzzles: codes to decipher, pieces to assemble, hidden mechanisms to activate, and so on.

Solving them requires exactly the same skills as building a classic puzzle or a 3D puzzle, but taken to a whole new level, as it adds the social dimension and the element of time.

If traditional puzzles invite individual concentration, and 3D puzzles require thinking in terms of volumes and structures, escape rooms add the need to work as a team, communicate effectively, manage emotions under pressure, and find solutions in an active and dynamic play environment.

But beyond entertainment, this form of play combines active learning, social skills, and a deep emotional connection to the learning experience.

Solving puzzles, building 3D models, overcoming an escape room... these are not isolated activities, but parts of the same journey: a journey of discovery, creativity, and personal growth that today, more than ever, holds a privileged place in 21st-century education.

#### **4.1.3 Why should we integrate these experiences into education?**

The real world is a three-dimensional puzzle, full of unexpected challenges and problems that require creativity, collaboration, flexibility, and resilience to solve.

Integrating narrative 3D puzzles into the educational context not only develops fundamental cognitive skills such as critical thinking, problem-solving, and strategic planning, but also fosters essential emotional and social competencies for life.

Moreover, we are living in a time where bullying prevention and positive school coexistence are true pillars of any educational project that aims to shape individuals who are both respectful and well-rounded. Therefore, working with tools that foster empathy, respect, collaboration, and resilience is essential<sup>6</sup>.

Narrative puzzles designed in 3D and printed within the framework of innovative educational projects offer a unique opportunity, allowing students to immerse themselves in stories that awaken empathy, reflection, and social engagement<sup>7</sup>.

Each completed puzzle becomes a process of exploration, collaboration, personal growth, and self-understanding. Teaching through these experiences is much more than an innovative methodology.

Piece by piece, story by story, challenge by challenge, students not only acquire knowledge, but also grow as human beings capable of thinking, feeling, and acting in an increasingly complex world.

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6. Gusqui Cayo, L. H. et al. (2025). Educación emocional y prevención del bullying en el contexto educativo.

7. Arce Cabrera, A. M. & Palacios, C. K. (2020). La educación emocional como factor de prevención del acoso escolar.

#### **4.1.4 General aspects of 3D puzzles as an educational tool**

However, if we want these experiences to be truly inclusive and enriching, there are accessibility aspects that we cannot overlook.

First and foremost, it is essential that the pieces are of an appropriate size, allowing for comfortable and safe handling by all students, including those with motor difficulties<sup>8</sup>. Accessibility should not be an afterthought, but a design principle from the very beginning.

For this reason, it is essential to ensure a safe experience for students, especially for younger children or those with specific needs. It is important to consider European toy safety regulations. According to standard EN 71-1:2014<sup>9</sup>, a component is considered hazardous if it fits entirely inside a test cylinder measuring 3 cm in diameter and 6 cm in length (section 63 - 8.2 - Small parts cylinder).

This criterion is crucial when designing puzzle pieces, as it ensures they do not pose a choking hazard. Therefore, beyond their pedagogical function or aesthetic appeal, the minimum size of the pieces must comply with this standard to be deemed appropriate in educational settings.

A practical recommendation is to use a cylindrical test gauge, known as a “small parts cylinder,” which can be 3D-printed to easily verify the designed pieces. This way, an objective safety criterion is established from the early stages of the design process, allowing the creative development to align with internationally recognized standards.

It is also key to incorporate functional visual supports, such as differentiated colors that help guide the quick identification of puzzle elements, making it easier to understand the whole.

Moreover, the use of reliefs, varied textures, and distinct shapes in the pieces is essential for people with visual impairments, allowing tactile recognition to become an effective and enriching means of accessing the learning experience.

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8. García Arias, T. (2025). Aulas sin bullying, aulas sin miedo.

9. European Standard EN 71-1:2014. Safety of toys – Mechanical and physical properties.

In turn, the narrative and functional reuse of the same puzzle allows for the creation of diverse experiences, even within the same group. Using the same pieces, it is possible to build different scenarios, represent multiple stories, or design clear and open narratives with alternative endings, fostering empathy, emotional connection, creativity, and dialogue.

It is also worth noting that additional pieces can be incorporated to transform the course of the story or modify the students' roles in each dynamic, encouraging the exploration of different perspectives.

In this way, the 3D puzzle, conceived as a narrative, functional, and accessible tool, is not merely a playful object; it is a living space for the collective construction of meaning, where each piece represents not only a part of the game, but also an opportunity to build knowledge, empathy, and community.

#### **4.1.5 Gamification: when learning becomes meaningful play**

In this educational context, where 3D puzzles challenge us to think tactically and reflect abstractly, gamification emerges as a naturally complementary tool.

When we talk about challenges, stories, teamwork, discovery, and symbolic rewards, we are also talking about gamification.

Its purpose goes beyond simply playing or adding a playful component; it is about completely transforming the educational experience into a structured, dynamic, and highly motivating journey<sup>10</sup>.

It's the ability to create educational experiences through the principles of play.

Implementing gamification in the field of 3D puzzles means transforming each task into a meaningful mission: a challenge with clear goals, progress levels, and both tangible and intangible rewards.

From the actions involved in assembling the pieces to the group interactions that foster collaboration, everything can be integrated into a system where teaching and fun naturally come together.

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10. Farrington, D., Ttofi, M., & Zych, I. (2019). Protective factors against bullying and cyberbullying.

Each assembled piece not only represents a step toward creating a physical object, but also reveals a narrative, drives a mission, and opens the door to the next level of the experience.

The real impact occurs when the game dynamics and elements generate authentic emotions, foster active participation, and stimulate the desire to overcome challenges.

Gamification becomes a powerful ally for storytelling. Stories are no longer just told, they are experienced, played, and completed, all from an active and emotional perspective.

By integrating gamification into activities involving 3D puzzles, not only are logical reasoning and spatial perception strengthened, but a complete experience is also created, one that fosters students' active participation, their motivation to learn, autonomy, collaboration, and the development of social and emotional skills such as empathy, respect for others, and resilience.

All of this with a common goal: to prevent bullying and promote environments where coexistence is as exciting as solving the most intriguing of mysteries.

Moreover, this methodology intentionally integrates the principles of game design, applying mechanics such as challenges, missions, rewards, and instant feedback; dynamics such as narrative, collaboration, visible progress, and self-expression; as well as elements like levels or badges, in order to increase student engagement.

Gamification is based on the principle that we play because it makes us happy, a foundation linked to the PERMA theory (Positive Emotions, Engagement, Relationships, Meaning, and Accomplishments), which explains why these strategies achieve such deep motivation. Thus, play becomes a facilitating agent for meaningful learning, generating emotions and fostering active and collaborative learning processes.

On the other hand, the use of narrative as a central element of the experience; storytelling is key in gamification applied to educational contexts.

Through immersive stories and contextualized situations, students not only acquire knowledge, but also develop their critical thinking, creativity, and conflict resolution skills<sup>11</sup>. This narrative approach fosters an emotional connection that supports the internalization of values such as empathy and cooperation.

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11. Colomina, B. (2025). El 'bullying' no es cosa de niños, sino que es un problema de toda la sociedad. EL PAÍS.

Finally, the practical application of gamification requires careful design, taking into account aspects such as the participants' profile, learning objectives, the adaptation of challenges, and the evolution of the experience. Successful examples, such as simulations, escape rooms, or collaborative gymkhanas, demonstrate that gamification is not just a trend, but an established methodology that transforms education into a meaningful and transformative experience.

## **4.2 The process of developing activities using 3D puzzles:**

### **4.2.1 How to define 3D puzzles - how to do a brainstorming to create a puzzle idea**

How can we create experiences that truly connect with our students?

How can we go beyond content and reach, even if just for a moment, the realm of the emotional, the human, the shared?

In an environment where bullying, disconnection, and lack of motivation at school are becoming increasingly common realities, we look for tools that not only teach but also transform.

This is where a different proposal comes into play: 3D puzzles as an educational resource.

This approach to bullying prevention has something special.

Through pieces that fit together, come apart, and are rebuilt, students can explore stories, emotions, and dilemmas... and do so in an environment where play is not about isolation, but rather a gateway to broader learning.

That is why we created a new methodology: **Game-Based Learning**.

This methodology transforms the classroom into a space of challenges, exploration, and shared rules.

It is not just about "playing for the sake of playing," but about learning through play, with motivation, personal involvement, and the desire to improve oneself.

When we introduce a 3D puzzle into the classroom with this intention, we are not simply providing an object to play with, but proposing a complete experience.

Each piece is a fragment of a story; each fit, a decision; each mistake, an opportunity to build together, to dialogue, and to empathize.

Learning becomes a shared adventure, where every participant can find their role and contribute, without fear of making mistakes.

But how does the creation of a 3D puzzle begin?

Defining a 3D puzzle is not simply about deciding what shape it will have or how many pieces. It means thinking about the story it will tell, the emotions we want to awaken, the conversations we want to open in the classroom. The puzzle is a tool, but it is also a narrative stage that must have coherence, intention, and pedagogical meaning.

This is where one of the most exciting phases of the process comes into play: brainstorming.

Imagining possible scenarios, themes, symbols, characters, shapes... is like opening a door to collective creativity<sup>12</sup>.

What if the pieces represented opposing emotions that need to find balance?

What if the pieces changed function depending on who uses them?

The more open and free this phase is, the greater the narrative and educational richness and the more engaging the player experience will be in the final result.

One of the great advantages of 3D puzzles is their capacity for narrative and functional reuse<sup>13</sup>.

With the same basic design, different stories can be represented, roles can be modified, or even the outcome can change depending on how the pieces are used.

This flexibility allows the puzzle to be adapted to different ages, contexts, and needs, promoting creativity, empathy, perspective-taking, and dialogue.

Moreover, considering accessibility from the very beginning is key. The pieces must be manageable for everyone, because designing for all means educating all.

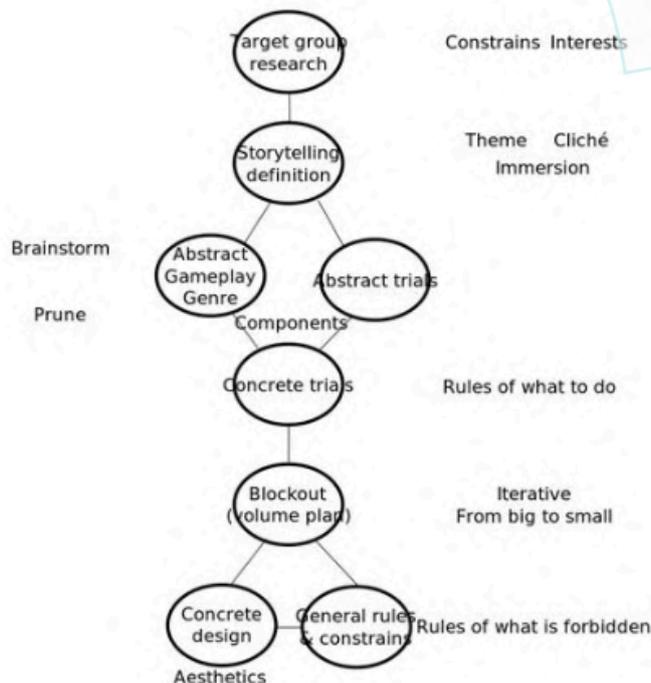
For an activity with 3D puzzles to be pedagogically meaningful, it must go beyond mechanical play.

Below are some of the fundamental objectives that guide the development of these experiences:

- Foster empathy and understanding of others by creating spaces where each participant can put themselves in someone else's shoes through the puzzle's narrative.
- Develop cooperation and teamwork skills.
- Stimulate critical thinking and creative problem-solving by engaging in challenges that put decision-making to the test.
- Improve self-esteem and self-awareness by allowing each student to participate from their own strengths, recognizing their value within the group.
- Promote inclusion and respect for diversity, ensuring that everyone can participate and contribute on equal terms.
- Facilitate emotional expression and personal reflection.

In summary, creating a 3D puzzle is not simply about creating an attractive material; it is about giving tangible form to a way of educating that is more human, more playful, and more meaningful.

#### 4.2.2 Step by step - how to create a puzzle



Creating a 3D puzzle isn't just about designing a structure with interlocking pieces. It's much more than that. It's about building stories—a hands-on challenge filled with emotion, learning, and values. What follows is a structured process for creating an educational 3D puzzle, from the initial idea to its implementation. This journey encompasses both pedagogical and technical aspects, with a special focus on accessible, narrative-driven, and functional design.

### **1.Pre-conditions**

Before starting the design and implementation of an educational 3D puzzle, it is essential to define a series of prerequisites that ensure both the technical feasibility of the process and its pedagogical value. This initial planning stage helps identify needs, anticipate difficulties, and ensure that the learning experience unfolds smoothly.

First and foremost, it is crucial to have a basic set of materials and tools. This includes access to 3D modeling software such as Tinkercad or Blender, which allows the design of the puzzle pieces. The choice of software will depend on the profile of the team involved: there are both free and paid tools available, offering different technical approaches (parametric modeling, sculpting, primitive-based design, etc.). This digital design will serve as the foundation for 3D printing the puzzle components. For the assembly and customization phase, additional materials may be needed, such as glue (in case the pieces do not fit precisely) or acrylic paints and permanent markers for decoration. Adding labels, symbols, or stickers also allows the puzzle to be adapted to the chosen narrative theme, giving the pieces symbolic or emotional meaning.

From a playful and motivational perspective, it is recommended to include elements that enhance the game dimension. These can include mission cards, clues, timers or hourglasses to set time-based challenges. Likewise, level boards, visible progress systems, or recognition tokens such as badges or medals can be useful tools to encourage group engagement and cooperation among participants.

Finally, the physical space where the activity will take place must be considered. This will affect how participants interact with the puzzle and the nature of the collaborative dynamics. Working on a table, for instance, supports a more organized structure, whereas doing it on the floor may foster a freer or more cooperative setup. It is important to adapt both the puzzle's design and its implementation to the available environment.

Therefore, proper planning and preparation of technical, material, spatial, and playful resources are key to ensuring an educational experience that is both effective and meaningful.

## 2. Target group research

For a 3D puzzle to have a true educational impact, it is essential to clearly identify its target audience. This initial phase makes it possible to tailor both the content and the format of the puzzle to the specific characteristics, interests, and needs of the group. A design grounded in a deep understanding of the target group ensures greater engagement, better comprehension, and ultimately, a more transformative experience.

The first step is to clearly define the profile of the group that will use the puzzle. This involves taking into account variables such as<sup>14</sup>:

- Age or educational level: Designing for primary school students is not the same as designing for teenagers in secondary school. The complexity of the challenges, the narrative, and the mechanics should be appropriate to the group's level of maturity.
- Cognitive and emotional development: It is important to consider not only the participants' knowledge but also their ways of thinking, feeling, and relating to others.
- Social and cultural context: Elements such as the group's diversity, family background, or access to resources also influence how the activity is received and how participants engage with it.

- **Specific educational needs:** In certain cases, it will be necessary to adapt the design to students with specific needs, whether in terms of inclusion or attention to diversity.

The more detailed this definition is, the more accurate the decisions will be regarding the language used, the challenges proposed, the visual design, and the duration of the activity.

Once the target group has been defined, it is necessary to identify two key elements: possible limitations and predominant interests. Limitations may include:

- Physical constraints (available space for play, allocated time, number of participants),
- Technological limitations (access to devices or 3D printers),
- Or cognitive or emotional constraints.

On the other hand, exploring the group's interests can make the difference between an activity that merely entertains and one that truly engages.

This requires researching which themes are most appealing (adventure, mystery, science fiction, interpersonal relationships, etc.) and what types of dynamics they prefer, whether cooperative, competitive, narrative-based, exploratory, or others.

Designing with these factors in mind allows for the creation of meaningful experiences in which students feel both identified and motivated.

Finally, it is important to consider the overarching goals that guide the design and implementation of 3D puzzles. Although these goals may overlap or intertwine in practice, it is useful to categorize them into three main areas, each responding to distinct but complementary purposes: pedagogical, playful, and therapeutic.

## 2.1. Pedagogical Objectives

In this approach, the puzzle is used as an educational tool that facilitates the learning of specific curriculum content. The idea is to harness the game experience as a channel to reinforce knowledge, skills, and competencies across areas such as:

- Developing reading comprehension through narrative texts integrated into the game.
- Encouraging written expression by creating alternative endings or describing characters.
- Exploring elements of art education, such as the use of color, symmetry, or visual composition.
- Working on emotional competencies through content like recognizing and expressing emotions.
- Reinforcing cross-curricular content, such as cooperative work or time management, from an interdisciplinary perspective.

The playful experience goes beyond mere entertainment; it becomes an active, experiential medium that enriches academic learning. Moreover, by engaging students in a game dynamic, participation is encouraged, intrinsic motivation is increased, and content retention is improved.

## 2.2. Playful Objectives

In this case, the main focus is on the game itself, understood as a driver of engagement, enjoyment, and the development of social and cognitive skills. Although the puzzle may not be directly aligned with a school subject, its educational value remains high. Through play, the following aspects are addressed:

- Stimulating creative problem-solving through challenges with multiple possible solutions.
- Encouraging peer collaboration by assigning roles and promoting positive interdependence.

- Boosting intrinsic motivation and interest in learning through immersive game dynamics.
- Developing narrative imagination by allowing participants to make decisions that influence the storyline.
- Promoting autonomy and personal initiative through open-ended and flexible challenges.

These puzzles are designed to offer a highly interactive experience in which the group becomes the protagonist. They also allow for the adjustment of difficulty and pacing based on the context, fostering active and personalized learning without the pressure of academic evaluation.

### **2.3. Therapeutic Objectives**

Some puzzles may serve a deeper purpose: supporting personal or group processes related to emotional well-being, coexistence, or socio-educational intervention. In these situations, the puzzle becomes a symbolic and expressive tool that can:

- Facilitate emotional recognition and validation in simulated situations that resonate with the group's real-life experiences.
- Foster empathy by experiencing different roles or perspectives within the narrative.
- Address peaceful conflict resolution within safe, symbolic environments.
- Strengthen self-esteem and confidence through the progressive achievement of challenges and group recognition.
- Create a space for guided reflection, allowing participants to verbalize fears, frustrations, or desires in a supportive environment.

### 3. Storytelling definition

Every puzzle begins with a story that has a purpose that's why defining the theme and the narrative is so important. What story do you want to tell? The narrative is not a decorative add-on; it is the soul of the puzzle<sup>15</sup>. It should be connected to one of the core themes of the project, such as coexistence, empathy, diversity, or bullying.

To achieve this, we must ask a key question: What message do we want to convey through this experience?

From that point on, a wide range of opportunities unfolds. In this sense, storytelling goes beyond simply telling a story; it involves creating a shared world. It's about building an environment where every detail has a purpose, where every action is connected to an emotion, and where each puzzle piece is a step forward in the journey.

That's why it's important to keep the following in mind:

A compelling story must have a well-defined structure that includes a beginning, a development, and an ending. Conflict is a key element of any narrative, as it represents a disruption of balance, followed by a challenge and a resolution. This helps students organize their thoughts and make sense of their experiences.

Another option is to create characters that represent emotions, conflicts, or types of coexistence. These characters don't necessarily have to be realistic—they could be animals, geometric shapes with distinct personalities, objects with feelings, or even figures that symbolize abstract ideas such as empathy, exclusion, or courage. What matters most is that students can identify with them, connect with their decisions, and reflect on their roles within the story.

The setting where the story unfolds is equally important. It can be realistic or symbolic, but it should reflect the emotional state of the narrative or its characters. This environment can also evolve during the activity, showing transformation or resistance to change.

The use of visual or emotional metaphors open to different interpretations can generate interest and depth. For example, a broken piece might represent an emotional wound, while a figure that doesn't fit could symbolize someone who feels out of place.

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15. Bruner, J. S. (1991). The Narrative Construction of Reality. *Critical Inquiry*, 18(1), 1-21.

These metaphors invite students to relate their own experiences and talk about complex topics without having to expose themselves directly. In this way, the puzzle becomes a safe tool for exploring difficult emotions.

Finally, we arrive at the ending. There is the possibility of allowing the group to decide how the story concludes. What do they think happened? How do they interpret the ending? What actions would the characters take from that point forward?

This kind of open ending not only strengthens creativity and critical thinking, but also fosters emotional connection and the ability to imagine alternative outcomes. However, a closed ending is also possible, one in which participants know exactly when the puzzle will be completed and how the story concludes.

#### **4. Abstract, game play and genre:**

Abstraction represents the first mental sketch of the puzzle as a game experience. In this stage, the following elements are generally defined:

- What kind of challenge does the puzzle present?
- What type of interaction is expected from the player or group?
- What kind of feeling should it generate (collaboration, urgency, reflection, exploration, etc.)?

Mechanics are the systems that make the puzzle work. These can be physical, logical, symbolic, or emotional, and they may involve various hands-on elements such as:

- Dice, to introduce randomness or resolve actions
- Cards, for narratives, clues, actions, or resource management
- Movable or interlocking pieces used for building, unlocking, or discovering
- Weights, pulleys, or magnets in more complex physical puzzles
- Color systems, symbols, or codes to activate or solve puzzle stages

The selection of these mechanics should be based on the target audience's profile, the context in which the game will take place, and the educational or emotional goals<sup>16</sup>.

It's also crucial that the mechanics are accessible, intuitive, and aligned with the game's narrative.

In addition, choosing the genre of the game not only defines its setting but also shapes the types of dynamics and emotions it aims to evoke. Below are different game genres, divided into board games, puzzles, and role-playing games:

- **Board Game Genres:**

### 1. Strategy Games

These focus on long-term planning and resource management. They promote logical thinking, decision-making, and anticipation. They are especially useful in educational settings to develop reasoning and responsibility in making decisions—for example, *Catan* or *7 Wonders*.

### 2. Cooperative Games

Players work together to defeat the system of the game. These are ideal for developing social skills, communication, collaborative problem-solving, and group cohesion. They are highly recommended in anti-bullying programs—for instance, *The Mind*.

### 3. Social or Party Games

These games focus on social interaction, humor, and quick mental or verbal responses. They typically have simple rules and encourage active participation, making them perfect as icebreakers or to stimulate expressiveness—for example, *Time's Up* or *Jungle Speed*.

### 4. Thematic or Narrative Games

Characterized by a strong storyline and immersive setting, players take on roles within a well-defined narrative. These are ideal for developing immersive puzzles with deep storytelling elements, such as *Detective* or *Arkham Horror*.

## 5. Abstract Games

These games have pure, rule-based mechanics and no narrative theme. They work on logical reasoning and mathematical strategy, and serve as great inspiration for designing mental challenges and formal puzzle structures—*Chess* being the classic example.

## 6. Competitive Games

Players compete against each other to win. While not the best choice for cooperative contexts, they can be useful to explore rivalry dynamics or controlled conflict—*Monopoly* is a good example.

## 7. Hidden Role or Deduction Games

The main objective is to uncover who is lying or acting in secret. These are ideal for developing deduction skills, emotional interpretation, and social dynamics—for example, *The Werewolves of Millers Hollow* (*Les Loups-Garous de Thiercelieux*) or *The Resistance*.

- **Puzzle Genres:**

### 1. Logical or Deduction Puzzles

These are solved through step-by-step logical reasoning. They promote critical thinking, analysis, and structured problem-solving. They are perfect for use as individual challenges within a larger puzzle experience—for example, *Gravity Maze*.

### 2. Narrative Puzzles

These combine storytelling elements with problem-solving. Players progress by deciphering clues, codes, and riddles—as seen in games like *Exit* or *Escape Room: The Game*.

### 3. Classic Puzzles

Examples include *Tangrams* or interlocking cubes, where the goal is to fit physical pieces together to form a specific shape. These games develop spatial awareness, patience, and coordination.

### 4. Observation or Visual Puzzles

Games such as *Where's Wally?* (*Where's Waldo?*) or *Dobble* are based on visual perception and speed. They are useful as quick group activities to activate attention or encourage observational skills.

- **Role-Playing Game Genres:**

#### 1. Fantasy Games

These games present magical worlds, heroes, and creatures, allowing players to explore themes such as identity, bravery, and conflict resolution in imaginary settings—for example, *Dungeons & Dragons (D&D)*.

#### 2. Horror or Mystery Games

Perfect for creating tense atmospheres, solving puzzles, and interpreting clues and emotions. These games work well for immersive experiences around themes like bullying or fear—for instance, *Call of Cthulhu*.

#### 3. Modern or School-Life Games

Games like *Monsterhearts* or *Kids on Bikes* are set in everyday life and are ideal for simulating real social situations such as school relationships, peer pressure, or bullying.

#### 4. Science Fiction or Post-Apocalyptic Games

Games like *Mutant Year Zero* explore futuristic worlds, global crises, or survival scenarios. Although less common in educational contexts, they can be powerful tools to address themes such as ethics, cooperation, or collective fears.

Therefore, the puzzle designer may choose to focus on a single dominant genre or opt for a hybrid combination, as long as it aligns with the intended experience. For example:

- A cooperative narrative puzzle with escape room elements, ideal for working on group conflict resolution.
- A logical-educational puzzle using tokens and cards to explore emotions in primary education.
- A modern social role-playing puzzle set in a high school, where students explore bullying scenarios from different perspectives.

The key is to ensure that both the mechanics and the genre are not just decorative features, but essential components that enhance the puzzle's narrative, objectives, and educational impact.

## **5. Abstract trials**

Before beginning the physical production of the puzzle or its detailed design, it is essential to carry out a conceptual prototyping phase, also known as abstract testing. This stage allows for experimenting with the core ideas of the game in their simplest form, without needing final materials or finished graphic design.

Abstract tests are early simulations of the challenges that will make up the puzzle. They do not focus on visuals or narrative, but rather on validating the logic, game dynamics, and player interaction. Temporary elements are used—such as post-its, generic dice, cardboard pieces or blocks, simple computer templates, oral or verbal group dynamics, and role-play simulations with team members<sup>17</sup>. The goal is to analyze gameplay, ensure the challenge aligns with the puzzle's structure, adjust the difficulty to fit within the expected timeframe, detect errors, observe interactions, and test alternatives by modifying clues, order, or rules.

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17. Booth, E. (2001). *The Everyday Work of Art: Awakening the Extraordinary in Your Daily Life*. Sourcebooks.

Let's say one of the puzzle's challenges involves assembling a geometric figure using interlocking pieces. During the abstract testing phase, we could use hand-cut cardboard tokens and provide the group with a simple black-and-white image as a reference. We would observe whether they understand the goal without excessive explanation, whether they collaborate to experiment with shapes and rotations, whether frustration or enjoyment arises, and whether the time they take to solve it matches expectations.

Recommendations for this phase include: keeping tests as simple as possible, recording times, reactions, mistakes, and new ideas, and being open to changing direction if something doesn't work.

## **6. Concrete trials**

Now is the time to execute the puzzle and experience it in a tangible way. Specific testing involves creating physical prototypes of the puzzle or its main components and evaluating them with real or simulated groups to verify how they function under conditions similar to those of the final setting. At this stage, the objective is to analyze how participants interact with the physical elements, how they relate to each other, and how the experience unfolds as a whole from sensory and emotional dimensions to pedagogical outcomes.

The design can also be extended by incorporating dynamic elements. Some pieces may be designed to move, slide, or be swapped out, allowing the puzzle's message to change depending on the group's decisions or the development of the activity. For example, a piece that blocks others may represent an emotion that prevents progress and can only be unlocked when a collective agreement is reached or a challenge is overcome. This type of interaction adds a gamified layer, turning the puzzle into more than just a construction: it becomes an active, experiential, and meaningful learning tool.

At this stage of the process, near-final materials are introduced: cardboard, wood, or 3D printed components; initial illustrations; textual or symbolic elements; and movable or interlocking parts. The focus now goes beyond the mere functionality of the mechanics and includes the overall experience: its accessibility, its motivational power, and the clarity with which it communicates the intended message or learning goal.

When planning and delivering an educational experience like this, it is essential to consider a series of constraints and conditions to ensure its effectiveness, accessibility, and adaptation to the school context. One of the most critical aspects is accessibility, ensuring that the puzzle can be used by all students, including those with special educational needs. This may involve adjusting the size of the pieces to make them easier to handle, using materials with different textures to support tactile perception, and applying sufficient color contrast to aid visual identification.

It is also crucial to provide clear and visual instructions, simplify rules when necessary, and design components that are inclusive of all learner profiles. Accessibility should be understood as a core design principle from the outset, not as an optional addition<sup>18</sup>. A high-quality educational puzzle should not only be engaging or clever but also inclusive, accessible, flexible, and attuned to the real needs of the group.

Specific testing allows for the fine-tuning of all these elements before moving on to final production. It also provides a valuable opportunity to observe how participants interpret the puzzle's symbolism, whether spontaneous dialogue emerges, whether emotional responses or reflections are triggered, and whether the group is able to progress collaboratively. All of this information is crucial for refining the final details and ensuring that the finished experience achieves the desired impact.

## **7. Blockout**

It is essential to establish a global vision of the puzzle's shape, structure, and layout. This phase, known as blockout, allows for defining the spatial skeleton of the puzzle, both in physical and symbolic terms.

This is not yet about producing the final design, but rather about outlining a conceptual mock-up that will guide all subsequent decisions: shape, number of pieces, distribution, symbolism, and connection to the narrative.

The first step is to consider the overall form of the puzzle: Will it be a flat object assembled on a table? Will it have volume and height? Will it unfold horizontally, like an emotional map, or rise vertically, as a symbol of overcoming obstacles?

The choice of form is not merely aesthetic; it must serve the story we wish to tell. For example, a figure that remains balanced might represent the importance of cooperation, while a structure that changes when pieces are rotated could reflect a shift in perspective or personal growth.

This structural approach not only affects how the puzzle is visually perceived but also shapes the experience of interacting with it. A vertical design may promote collective construction around a symbolic axis, while a horizontal layout may encourage internal or emotional exploration. In this way, the puzzle's form becomes a spatial representation of the message to be communicated.

The next step is to define the number and size of the pieces so that students can handle them with ease. It is essential that these pieces are inclusive, adaptable, and easy to understand. This means their design must take into account the learners' needs, ensuring participation from all, regardless of their abilities. Inclusion goes beyond the physical aspects of the materials. It must also address cognitive and emotional accessibility.

In this sense, the blockout phase must also take into account practical variables such as the available space for the activity, the number of participants, and the expected duration. A puzzle with too many pieces can become overwhelming or lead to frustration, while one that is too simple may not provide a meaningful challenge. Finding the right balance between complexity, time, and participation is key to creating a positive and transformative experience.

Beyond quantity, what matters most is that each piece has its own meaning. These are not merely parts of a complete image, they are elements of a narrative, a character, a value, an emotion, a conflict, or a decision. Each piece should be able to stand on its own within the broader story context, and its position in the puzzle should have a purpose beyond physical connection. In this way, students can explore what each piece represents, why it is placed where it is, and what the implications would be if it were moved elsewhere.

This symbolic dimension turns the puzzle into a space for active reflection, where each piece holds a specific intention. Thus, the design is no longer just about creating a figure—it becomes a shared narrative, a meaningful experience that can be lived, interpreted, and reinterpreted by the participants.

## **8. Concrete design**

At this stage, the final design of the 3D puzzle is established. After testing various ideas through prototypes and validating their functionality in specific trials, it is now time to definitively design the components that will make up the puzzle: the pieces, the challenges, the narrative arc, and the gameplay in its entirety. This design must be clear, coherent, and well-documented, as it will serve as the foundation for both production and implementation in real-world settings.

A key aspect of detailed design is the documentation of the storytelling—that is, how the narrative is developed and structured within the puzzle. This documentation can take the form of a short script, character sheets, plot diagrams, or even conceptual maps. It is essential that the story is not just decorative, but integrated into the mechanics, giving meaning to the players' actions. The narrative should be dynamic, contextually coherent, and sustained throughout the experience<sup>20</sup>.

At this point, we can begin to define the puzzle's gameplay. This involves identifying the genre and game mechanics that will be incorporated. For instance, the puzzle might involve disassembling something, assembling it, making decisions, forming associations, maintaining balance, or interpreting a role. In short, we define the type of challenges players must overcome to complete the activity. The theme should be closely connected to the gameplay, so that both share the same semantic coherence. For example, in the game *Clue (Cluedo)*, players take on the roles of characters trying to discover who the murderer is and in what context the crime occurred (theme).

The genre is board game, and it integrates elements from other genres such as cards, decks, dice, and tokens. The core gameplay consists of making logical deductions by associating weapon, location, and suspect closely aligned with the detective theme. Additionally, rules about board navigation simulate character movement through the house, increasing immersion and reinforcing the story setting. This kind of coherence between theme, genre, and mechanics is what transforms an educational puzzle from a simple challenge or pastime into an immersive, meaningful experience with a strong potential for experiential learning. In this context, the stage is especially relevant, as we aim for each puzzle not only to entertain, but also to symbolically represent the conflicts, emotions, and social processes we seek to address. Everything the player does within the puzzle should make sense—both within the game and in relation to the real world.

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20. Salen, K., & Zimmerman, E. (2004). *Rules of Play: Game Design Fundamentals*. MIT Press.

The concrete design phase is also the ideal time to define details such as the estimated duration, number of participants, final materials, and the sequence of challenges. It is essential that all this information is clearly documented to facilitate the puzzle's production and its application in classrooms or other educational settings.

### **9. General rules and constraints**

Every gamified experience requires a well-defined set of rules to transform the activity into a genuine educational challenge. These guidelines not only structure the game, but also give meaning to the interaction between participants, fostering collaboration, critical thinking, and an emotional connection with the puzzle's story.

One possible strategy is to set a time limit for solving the puzzle. This introduces an element of pressure and pacing that can increase the group's motivation and engagement. This symbolic countdown creates a sense of positive tension, dynamism, and focus, simulating—at least in part—the real-life conditions involved in decision-making during complex social situations.

To promote teamwork and ensure active participation from all members, roles can be assigned and rotated, such as the person responsible for placing pieces, the narrator of the events, or the group facilitator.

The puzzle can also include integrated challenges that increase the game's complexity. Before placing a piece, the group might need to solve a task, answer a question related to bullying, or perform a cooperative action. This turns each step into an opportunity for reflection or active learning. These types of dynamics help interweave emotional and thematic content with the game's progression, reinforcing the connection between narrative and mechanics.

Some pieces may be symbolically “locked”, meaning they can only be placed after the group has made an ethical or emotional decision related to the puzzle's narrative. This dynamic not only enriches the gameplay, but also enables the exploration of moral dilemmas and values in a tangible and active way. The act of unlocking a piece becomes, in itself, a gesture of understanding, growth, or empathy.

It is also essential to consider the option of an open ending. The puzzle may not have a single correct solution, but instead allow for multiple valid configurations, depending on the perspective of those building it. This flexibility fosters creativity, supports diverse thinking, and reinforces the idea that in addressing issues like bullying, there are no definitive answers only processes built collaboratively through empathy and communication. This pluralistic approach transforms the puzzle into a reflection of reality, where solutions are ongoing and dynamic rather than fixed formulas.

Another key factor is the overall time available for use in the classroom. The puzzle can be completed in a single session or divided into multiple sessions, as it is designed to be modular, allowing it to unfold in stages that follow a coherent narrative progression. This adaptability makes it suitable for different time constraints, group rhythms, and pedagogical needs.

It is also important to consider the age of the participants. The physical complexity of the puzzle, as well as the depth of narrative and emotional content, should be adjusted for all educational levels. This means adapting both the communication style and the types of challenges to ensure that the experience is relevant, accessible, and transformative at every stage of development.

## **10. Production**

Once the narrative proposal has been defined and the methodological design of the puzzle structured, the production phase begins. The first step is to create sketches of the puzzle, as previously mentioned, using various 3D modeling programs or digital design tools. This stage allows the idea to be transformed into a clear visual prototype, ready to be materialized.

After being modeled, the pieces are printed using a 3D printer. This technical phase requires precision and constant review. Once the puzzle has been printed, it is essential to verify that the pieces fit correctly, that they are comfortable to handle, and that the overall set fulfills its intended educational purpose. Making adjustments to the design, refining the narrative, or redefining certain game mechanics are common steps in this iterative process of improvement.

Production should not be seen as a final outcome, but rather as a validation and enhancement process, where theory and practice intertwine to strengthen the overall proposal. It is normal for new ideas to emerge when interacting with the physical puzzle, which may lead to small changes that further enhance its pedagogical impact. Once everything has been verified, the activity is carried out in the classroom. It is important to emphasize that the puzzle process does not end when the last piece is placed. In fact, that moment marks the beginning of one of the most significant phases in the learning experience: evaluation and collective reflection<sup>21</sup>.

It is crucial to create a safe environment where participants feel comfortable sharing their emotions, impressions, and questions that arose during the session. Each student can select a specific puzzle piece and explain its personal meaning, offering an individual and symbolic interpretation of the task. This closing dynamic strengthens the emotional connection to the experience and gives a voice to each group member.

As a group, participants can reflect on the knowledge gained and draw connections between the puzzle and real life. Questions such as “What did we learn about teamwork?”, “Which piece was the hardest to place and why?”, or “What decisions made us feel more united as a group?” help deepen the values explored and reinforce the experience as an educational tool.

In this way, the puzzle goes beyond its playful or structural function and becomes a vehicle for dialogue, reflection, and personal and collective development.

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21. Brown, S., & Vaughan, C. (2009). *Play: How it Shapes the Brain, Opens the Imagination, and Invigorates the Soul*. New York: Avery.

### **4.2.3 Ideas, what to take into account, other considerations when creating a 3D puzzle for educational purposes, limitations**

The emergence of 3D printing technology presents the challenge of finding out how these technological means can support teaching-learning activities, used as a way of acquiring knowledge and developing organisational and creative skills, as well as that of the 'maker' culture, in which individuals are encouraged to create artefacts adapted to their needs or improve existing ones, using technology. As we already know, this type of technology makes it possible to transform a digital design into a physical object through different methodologies, each one depending on the shape and type of material used to create the pieces. In this way, it is possible to have in a few hours, for example, tools, laboratory utensils, models or prototypes made by the students themselves.

#### **What types of educational 3D puzzles could be designed?**

The idea of creating puzzles for educational purposes is considered a good methodology, as it combines learning with fun. Therefore, they are not just a game, but a powerful tool with numerous applications in children's development. They are a new way to challenge and entertain and can be used in a variety of educational contexts to enhance children's learning and development.

Here are some interesting ideas that can help you create engaging and effective 3D puzzles:

##### **1. Solar System Puzzle:**

- Create a model whose pieces represent the planets, satellites and the sun. It would be useful to add information about their movements and what characterises them (how the seasons are formed, day and night, etc.)

## **2.Human anatomy puzzle:**

- Design a 3D puzzle representing the human body, with pieces corresponding to the different systems (circulatory, respiratory, muscular) and their functions.

## **3.Geography puzzle:**

- Create a 3D map representing the continents and the countries on it. You can also indicate the capitals and relevant aspects that characterise them.
- Create a 3D map representing the most important rivers in Europe.

## **4.History Puzzle:**

- Design a 3D model including the most remarkable historical monuments. Add relevant dates and events to learn more about them.

## **5.Natural Cycles Puzzle:**

- Create 3D puzzles representing natural cycles, such as the water cycle, photosynthesis or the life cycle of a plant. It is possible to add small descriptions to help a better understanding of the whole process.

## **6.Mathematical puzzle:**

- Design a puzzle that helps to understand mathematical concepts, such as geometry and spatiality. In turn, it will help a greater understanding of these abstract ideas and improve memory. These puzzles consist of solving mathematical operations or numerical sequences in order to find the correct solution.

## **7.Word Puzzle:**

- Create 3D puzzles that help to expand the semantic field, lexicon and lexical family of the language. It provides children with a wealth of vocabulary and will familiarise them with spelling rules. These puzzles consist of finding hidden words or completing crosswords.

## 8. Puzzle for learning foreign languages:

- Design a 3D puzzle to help them acquire new vocabulary from a language other than their mother tongue. Older children can also learn grammatical aspects to help them understand the language better. In this way, they will become more familiar with the language.

Imagine how many objects we could print and use in any classroom activity, but with only that use, students do not develop any kind of learning. Therefore, the real educational use of this tool has to focus on the learning specified in the different areas or subjects, and not only in the specific subjects of science and technology, but in all those of the curriculum of the different educational stages, where the printing process is evident, which mainly involves the creation, design, lamination and printing of an object contextualised in its curriculum. In other words, where the students are the protagonists in the creation and printing of a 3D object. In the example above, the teacher could propose to the students the task of creating a medal, designing the medal model in 2D and 3D, and finally printing it. Such a task lends itself mainly to an interdisciplinary approach, involving other subjects such as Mathematics and Visual and Plastic Education.

3D printing contributes to the development of mathematical competence and basic competences in science and technology, learning to learn, digital competence, sense of initiative and entrepreneurship.

It is clear that many of the activities that can be carried out lend themselves to work by areas, to develop interdisciplinary projects, STEM+, problem-based learning, etc., favouring creativity, participation and cooperative work.

## **What to take into account when creating 3D puzzles?**

A 3D printer is a machine capable of making replicas of designs in 3 dimensions, creating pieces or volumetric models from a design made by computer, downloaded from the internet or collected from a 3D scanner. The possibilities it offers us are enormous, as it allows us to print various objects or utensils needed in different areas or educational subjects. For example, a physical education teacher, for a sporting event that ends with the awarding of medals, could search in any of the repositories for medal models, download them and print them.

However, it is important that when designing educational 3D puzzles we take into account several considerations:

### **1. Levels of difficulty:**

- First of all, we must be clear that the puzzle to be created must be appropriate for the age of the children. In other words, the degree of difficulty should be in accordance with the knowledge and skills that the children are developing. To this end, variations can be included to gradually increase the degree of complexity of the puzzles. Simple 3D puzzles are appropriate for younger children, while complex puzzles are suitable to challenge older children.

### **2. Materials:**

- Consider using materials that are durable and safe for children. Also make sure that they are as sustainable as possible. These can be recycled or environmentally friendly materials that help to reduce the environmental impact. In this way, you will be raising awareness of the importance of respecting nature.

### **3. Size and proportions:**

- It is important to make sure that the pieces are the right size and proportions so that they are safe for children to use according to their age. On the other hand, take into consideration that these pieces are easy for them to handle while providing them with a suitable challenge.

Ideally, younger children should handle 3D puzzles made up of larger pieces to avoid choking and older children should use smaller pieces to increase the complexity of the puzzle.

### **4. Clear instructions:**

- Instructions given to children should be clear and direct. In this way, understanding will be more effective.

Remember that these 3D puzzles also have an educational purpose, so they should be provided with information explaining what each of the pieces of the puzzle parts represents.

### **5. Incorporate technology:**

- As far as possible, try to introduce digital elements. This will help them to look for additional information on their own and thus become more familiar with ICTs and multimedia resources. An example of this could be QR codes for older children so that they can learn how to use them.

It is worth noting that the increasing prevalence of algorithms, artificial intelligence and profiling systems is isolating young people in ecological bubbles or habitats, also indirectly contributing to radicalisation processes. It is therefore important to make good use of technology and prevent, as far as possible, children from isolating themselves and losing social skills.

## **What other factors should be taken into account?**

It is advisable to take into account other factors in addition to those presented above. Some of them are:

### **1. Interactivity:**

- The more interaction between children, the more the acquisition of social skills, bonding, empathy, cognitive and emotional development increases. Thanks to teamwork in working with 3D puzzles, children will improve their interactivity when communicating.

### **2. Feedback:**

- Educational feedback favours the information that a teacher provides to the pupils while they are doing the 3D puzzle. The purpose is to provide them with tools to help them achieve their goals, as well as to reinforce their successes so that they can improve. It is a two-way process: the teacher gives them guidelines to follow and the students reflect on a different approach. Students play an active role in their own academic development at all times.

### **3. Assessment of learning:**

- Create a system for assessing what they have understood and whether they have applied the knowledge they have been taught in doing the 3D puzzle. There are several ways to do this, either through questionnaires, practical exercises or group discussions.

This evaluation of learning will allow us to obtain relevant information about the effectiveness of the teaching methods we have used during the process. This will allow us to improve them in order to achieve the right impact.

#### **4. Inclusive culture:**

- At all times we must ensure that both the content and the design of the puzzle is suitable for each and every child. This also means taking into account that they respect cultural diversity. To this end, hate speech should be avoided, as it is a form of violence that violates human rights, both offline and online, and should therefore be prevented as much as possible, especially today, when COVID-19 implied an increase in the use of digital tools and the Internet, which, unfortunately, has led to an increase in this problem.

This ensures that stereotypes or representations that are not entirely appropriate are not created, favouring social inclusion and a climate of mutual respect while children interact.

#### **5. Curricular connections:**

- The starting point from which we should begin and guide the design of the puzzle should be in accordance with the existing educational curriculum. It should also be focused on the achievement of specific competences, which will give meaning to the activity. It is crucial that children understand that working with puzzles is also an important activity to work on in the classroom, just like any other.

#### **Practical example with these considerations in mind:**

Imagine you decide to design a puzzle of the Solar System. You could design it in such a way that pupils assemble the different movements of the planets, especially the Earth (rotation and translation), placing each one appropriately. This curricular connection will allow the acquisition of knowledge in a more visual and participatory way.

The level of difficulty, the materials used, the size and proportions of the pieces, as well as the incorporation of technological elements should be taken into account. Remember to give clear instructions, encouraging interactivity among students, feedback from the teacher to the students and considering the inclusive culture and the evaluation of learning among all.

## What are the limitations of 3D printing in education?

3D printing in education has a far-reaching positive impact on the learning experience. The technology has almost limitless opportunities for growth across all ages, skill levels and subjects.

Improvements in the quality and detail of printed objects (known as resolution), flexibility and greater ease of use are driving exciting innovations. However, the use of 3D printing in education has its limits.

- **Cost:**

If someone is unfamiliar with the technology, they may think that bringing 3D printing into the classroom will be too expensive. However, affordable printing options are available and some machine manufacturers offer educational discounts.

Governments also recognise the boost 3D printing can provide in education and have dedicated funding programmes to help schools purchase printers and train teachers to use them effectively.

However, 3D printing comes at a cost, both the initial cost of the printers themselves and the recurring cost of replacing consumables such as printing materials and routine maintenance.

- **Lack of familiarity:**

Although increasingly prevalent, 3D printing in education is not yet commonplace, especially outside of technical schools and universities. Teachers may not be aware of how 3D printing can enhance and enrich the curriculum or how easy it is to integrate it into the classroom.

For schools that have purchased a 3D printer, this lack of knowledge may result in the machine not being used. For those who have not, it may mean that the investment was never made in the first place.

In response to this challenge, many printer manufacturers and distributors now offer training, resources and support for educators to successfully integrate 3D printing into the curriculum.

- **Limited choice of materials:**

3D printing on high quality or heavier materials, such as metals, composites and engineering plastics, requires a large and sophisticated printer. These specialised machines are much more expensive and complicated to operate than desktop models. For this reason, they are currently only found in higher education institutions such as colleges, universities and industry-specific training centres.

Primary and secondary schools and, increasingly, libraries and community makerspaces are often limited to entry-level 3D printers. These machines only print in certain plastics, mostly polylactic acid (PLA) and acrylonitrile butadiene styrene (ABS).

#### **4.2.4 How to create activities to include 3D puzzles in education (storytelling, etc).**

In the world of education, the importance of learning through play is increasingly recognised. In particular, the psychological benefits of 3D puzzles for children are gaining recognition. Educational games, such as 3D puzzles, are not only a fun way to pass the time, but can also be powerful tools for cognitive and emotional development.

As the famous educationalist Jean Piaget said: 'The main aim of education in schools should be to create men and women who are capable of doing new things, not simply repeating what other generations have done'. 3D puzzles, with their ability to challenge and stimulate children's minds, align perfectly with this vision.

Here are some activities and methodologies that can be used in order to include 3D puzzles effectively in the classroom:

- **Interactive storytelling**

**Description:**

It is important that students feel involved in the activity, as they play an active role throughout the process.

The children will have to narrate a story in relation to the design of the puzzle. This perception will allow them to relate key concepts so that, through play, they can construct their own meaning.

**Activity:**

- **Choosing a topic:** Choose a remarkable topic that catches their attention. For example, a trip around the world to learn more about geography.
- **Narration and creation:** As they do the puzzle, they can tell where each country and its capitals are located. Little by little they share their knowledge.
- **Final presentation:** When they have finished the puzzle, each group can present to the other children in the class the part of the puzzle they have made, while explaining what they have learned and how their section is related to the whole.

- **Role play with puzzles**

**Description:**

Encourages the construction of the 3D puzzle in a role play, in which the children take on different roles in relation to the theme of the 3D puzzle.

**Activity:**

- **Role assignment:** each child takes on a specific role with the aim of completing the proposed objective. For example: an explorer, a scientist, a historian, etc. Each and every one of them is crucial for the development of the game.
- **Problem solving:** They must get into the role in order to reason and answer questions according to the character they represent while they work on the puzzle.
- **Reflection:** Once they have finished, they will give their point of view and discuss how playing their roles has allowed them to understand the knowledge better.

Through this activity, importance is given to the role played by each person, with a special emphasis on equality. Thus, freedom of expression, the rights to equality and to life and the obligation of non-discrimination reinforce each other in this activity, avoiding possible cases of bullying.

- **Group projects**

**Description:**

Encourages interaction between children, allowing them to work in groups to research, design and build the puzzle.

**Activity:**

- **Thematic research:** Divide the pupils into groups. Each group will focus on a topic that we have previously assigned to them. This could be about planets, ecosystems, how the human body works, etc.
- **Designing the puzzle:** Each group creates its own 3D puzzle that represents everything they have learnt in relation to the topic they have been assigned.
- **Exhibition:** Propose that each group makes an exhibition to show their puzzle. They should explain why they have chosen that design and the process of creation.

- **Conversation and debate challenges**

**Description:**

The jigsaw can be used as a means of encouraging critical thinking among students, as well as discussion and debate among students in the classroom.

**Activity:**

- **Choose a controversial topic:** Choose a topic that relates to the jigsaw. For example, pollution or climate change.
- **Co-construction:** Propose a topic or ask challenging questions for them to discuss and debate as they construct the puzzle.
- **Debate:** When they have finished the puzzle, organise a debate for the children to use information related to the topic and the pieces that make up the puzzle as a basis for arguments.

- **Integration of arts and crafts**

**Description:**

It would be desirable for children to decorate and design their puzzles in a more personalised way, in order to provide a multi-sensory educational activity. Therefore, the inclusion of art activities is important.

**Activity:**

- **Artistic creation:** In groups they can draw, paint or add decorative elements to the puzzle once it is finished. It is important to emphasise the importance of encouraging their creativity as long as it is related to the topic to be dealt with.
- **Art exhibition:** Organise an art exhibition where everyone can show their puzzles decorated as works of art. They can freely explain why they did it that way and what inspired them. The other groups can participate by giving their subjective assessment.

- **Interactive assessments**

**Description:**

Uses the puzzle for a creative assessment, through which students demonstrate in a more practical way what they have learnt.

**Activity:**

- **Puzzle creation:** Children have to create and decorate a puzzle that relates to a particular topic they have studied.
- **Assessment questions:** Add challenges or questions to different parts of the puzzle for the children to solve. Each time they manage to solve it, they can move on to the next test of the puzzle until they finish it.

## Practical Example: "Solar System"

Imagine you decide to design a puzzle of the Solar System.

- **Storytelling:** Students design a puzzle of the Solar System. They can describe what the planets are like or the characteristics of each one as they build it.
- **Puzzles and Debate:** Students can discuss the factors that may influence each of the planets as they create the puzzle.

3D puzzles are much more than just a pastime. These challenging and entertaining games offer a wide range of developmental benefits for children.

On the one hand, through the development of all these activities there are numerous benefits such as cognitive development, improved concentration, memory stimulation, emotional development, fostering patience and improved self-esteem, as well as the development of problem-solving skills. On the other hand, it also fosters an environment in which there is no room for bullying, as more social skills are developed thanks to the interaction between them.

Without a doubt, 3D puzzles are a valuable tool for children's learning and development.

### 4.3. Tips and tricks for creating a 3D puzzle for educational purposes

3D printers can create ultra-realistic and accurate models of almost anything, from objects from the past and present to models that illustrate scientific or mathematical principles. Examples include planets, skeletons, vehicles, buildings, historical artefacts and an Archimedes screw.

These models help teachers to better explain what something is, how it works and how it interacts in the real world. Being able to hold, inspect and manipulate an object provides students with a richer and more interactive educational experience compared to a diagram or photograph.

There is no doubt that creating a 3D puzzle for educational purposes is a very rewarding experience for improving learning.

Here are some tips that will make this exciting process easier and help us to make the puzzle as attractive and effective as possible:

### **Tips for creating an educational 3D puzzle**

- **Define simple learning objectives:**

First of all, identify the concepts or skills you want students to learn while interacting with the puzzle. You can include topics related to various academic subjects.

- **Choose an important topic:**

Choose a topic that is relevant and attractive to the students. Take into account their tastes and interests, as well as the subject matter included in the curriculum they are currently studying.

- **Attractive and functional design:**

Try to make the design as attractive and visual as possible so that it is motivating for the students. Remember to adapt the size of the pieces according to their ages. They should be easy to manipulate, but they should also present a certain difficulty for the challenge.

- **Sustainable materials:**

Make sure you use sustainable materials, i.e. materials that are as environmentally friendly as possible. These can be recyclable materials or materials that cause as little impact as possible.

In addition to the use of these materials, sustainability can also be a relevant topic to discuss in the classroom to make students aware of the importance of taking care of the environment around us in order to preserve it better.

- **Prototypes and tests:**

Try to create prototypes of each of the pieces prior to the final production of the 3D puzzle, which will allow you to test and readjust those that do not fit or are not suitable. This process will avoid more expensive materials.

- **Incorporates didactic elements:**

Each part that makes up the puzzle should include educational information. It can be questions or concepts related to the theme or even relevant data. In this way, they can build up their knowledge little by little as they construct the puzzle.

- **Encourages teamwork:**

The design of the puzzle should be focused on encouraging interaction between pupils. Promoting teamwork has benefits such as the development of social and communication skills.

- **Stories and context:**

Consider creating a narrative to accompany the puzzle. Once the puzzle is completed, students must remember and tell the story corresponding to each of the pieces, which will allow them to contextualise the information acquired and reinforce their knowledge.

- **Incorporate technology:**

As much as possible, make sure to include technological elements that help to understand it better. One idea could be, for example, if they are studying the solar system, to add a QR code behind each of the pieces that make up the planets. These codes will redirect them to educational videos or additional resources to better understand the characteristics and movements of each of the planets. This way of learning is always very motivating for them and they are always more interested in learning new things.

- **Feedback and evaluation:**

Once the puzzle is finished, it would be a good idea to ask them what they thought of it or what aspects they liked the most to see their point of view. This feedback on their experience will allow them to make improvements in new versions of the puzzle or to take it into account for the future. At the same time, it would be of great help to evaluate whether the learning process has been effective and whether the objectives have been achieved.

This will also help to minimise violence among pupils. Such violence could lead to bullying, as the increase in violence is a consequence of the loss of the ability to express themselves, of their ability to dialogue. The less they know how to express themselves, the more aggressive they become. This is particularly true in the context of a global market based on ongoing competition.

On the other hand, in addition to the tips we have just seen, it is also worth considering some tricks to complete the process:

### **Tips for making the puzzle**

- **Cutting templates:**

The use of cutting templates will ensure that all the pieces are the same size and shape. This will make cutting easier and can be done with greater precision to ensure a better fit between the pieces. At the same time, the creation of the puzzle will be faster.

- **Use precision tools:**

The type of materials you are working with must be taken into account in order to use the right tools. If you are working with hard materials, it is advisable to use very precise cost tools, such as laser cutters. This ensures that the cuts are always clean and accurate so that the parts fit together easily.

- **Assemble a prototype:**

First of all, create a prototype with simple materials, e.g. paper or cardboard, to better visualise the complete puzzle. This way, you will be able to visualise it better and make any changes you think are necessary before giving the final shape to the 3D puzzle.

- **Surprise factor:**

Introduce a magical feature in one of the pieces to surprise the children by fitting the pieces together properly. This will generate impact and, therefore, encourage their participation and improve teamwork.

Consider when to include the surprise factor. It can be when assembling the pieces or when finishing the whole 3D puzzle.

- **Clear instructions:**

Visual instructions are a great help for children and can be useful to better understand how the puzzle works. These visualisations should be close to the puzzle so that they know how to build it cooperatively and effectively together with their peers.

- **Consider durability:**

Consider how the puzzle will be used to ensure that it is durable over time. Think about how it will be used in learning classes to ensure that it is durable enough to withstand constant handling.

### **Practical example following these tips and tricks:**

Imagine you decide to design a puzzle of the Solar System. You can include cutting templates appropriate to the size and shape for each of the planets.

A cardboard model can be assembled beforehand with visual instructions to give them an idea of how the sun and planets should be positioned. These should be clear to help them understand better.

Keep in mind that the material they are made of must be sustainable and environmentally friendly and must guarantee their durability over time. A good idea could be to use recycled materials, which should be decorated and eye-catching for children.

Also remember to introduce relevant information about the characteristics and movements of the planets through QR codes or other technological elements so that they can actively participate in their own learning, without forgetting the surprise factor at the end of the activity to motivate them for their hard work. You can contextualise what they are learning about each planet by telling them a short story in which you can include new aspects they don't know about. Example: "Did you know that on Mercury the days are very long? On Mercury a day can last 59 Earth days. Finally, end the activity with an evaluation and sharing of the experience in order to receive feedback from the children for possible improvements of the puzzle pieces. Thanks to these tips and tricks, you will have a basis for better designing your 3D puzzle. The incorporation of didactic elements will make it not only educational, but also motivating for the children.

In this way, bullying will be avoided, as students will feel safe in a safe environment where social skills will be taught, promoting empathy and inclusion, as well as open communication. Boundaries will be established to provide emotional support and the peaceful resolution of possible conflicts will be promoted when solving 3D puzzles.

For a long time, students have only been able to answer assignments in a theoretical way. In business studies, for example, students are often asked to identify a need and design a product to meet that need. The product is rarely manufactured, at least not in its final, marketable form. 3D printing changes this situation.

Students can now design, test, refine and create a finished product that can be launched and sold. Batches of products can be produced quickly, cheaply, locally and in small quantities. They can also be customised and individually modified in response to market feedback. More and more companies have their roots in classroom projects, and 3D printing is a key element for many of them.

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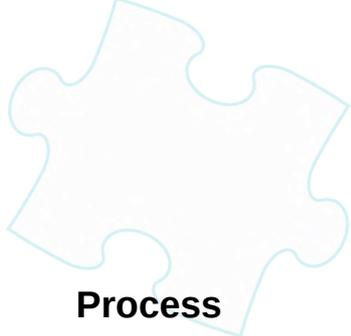
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## Examples of best practices

<b>Name of organization</b>	CEIP Nuestra Señora de la Piedad, in Herrera de Pisuerga (Castilla y León)
<b>Name of project or initiative</b>	“Helping in 3 Dimensions”
<b>Short description</b>	<p>Seeing the benefits that 3D printers can bring to students and observing the interest that they aroused, a teacher contacted the NGO Helping in 3 Dimensions to collaborate with his students. What began as a classroom experience, ended up becoming a solidarity project through which they built and printed 3D prostheses for people without resources in Kenya.</p> <p>As a note, it is worth mentioning that the students, who are in Primary Education, used Tinkercad for 3D modelling.</p>



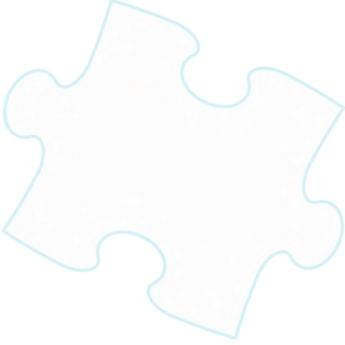
**Process**

They started taking initiative in many 3D designs and objects, which began to be created on the school printer: for Mother's Day, Book Day and even for PBL classroom projects.

They took their first steps with 3D design by learning with a website that is ideal for starting primary school students: "Tinkercad". The advantage of online design is that once the students had mastered the application, they continued to design at home: they bring their finished designs in stl format to school on their USB sticks. The Tinkercad website also allows them to download models already created by other users and customise them.

3D printers print sheet by sheet to create three-dimensional objects. Therefore, it is necessary to run the designs through an application to convert them into a printable format. At the centre they use Repetier. The filament used is PLA, a biocompostable plastic made of 100% renewable and biodegradable corn starch.

After a while, teacher Javier García de Bustos noticed that his students showed great interest in creating objects to give to family and friends. Thanks to this gesture of solidarity, this project focused on being more innovative.

	<p>Searching the Internet, they decided to contact the founder of the NGO “Helping in 3 Dimensions” (Guillermo Martínez) and propose a collaboration with their students. What began as a classroom experience, ended up becoming a solidarity project through which the students started their own line of solidarity.</p> <p>Thanks to the talk given by Guillermo at the solidarity day they organised, they managed to raise a sum of money from the sale of 3D key rings, donations and the Town Council's contribution.</p> <p>His prostheses travelled together with Guillermo's to Kenya to the bambaproject.org orphanage where, in addition to collaborating, he laid the foundation for the delivery of the 3D prostheses.</p>
<p><b>Objectives</b></p>	<ul style="list-style-type: none"> <li>• Raise funds by printing and selling 3D printed objects.</li> <li>• Learn how to use 3D printers by designing and printing 3D prostheses.</li> <li>• Make modifications and improvements to make the prostheses more functional.</li> <li>• Help people without resources in Kenya.</li> </ul>

<p><b>Tools and resources</b></p>	<ul style="list-style-type: none"> <li>• 3D printers.</li> <li>• 3D printable designs and objects.</li> <li>• Hand prostheses, among others.</li> <li>• PLA filament, a biocompostable plastic made of 100% renewable and biodegradable corn starch.</li> <li>• Tinkercad' website</li> <li>• Repetier application</li> </ul>
<p><b>Communication channels</b></p>	<p>The 'Helping in 3 Dimensions' project has its own website where you can see the methodology used and the objectives to be achieved.</p>
<p><b>Indicators of success</b></p>	<p>The success of the initiative is reflected in the scope of certain academic content such as:</p> <ul style="list-style-type: none"> <li>• Discovering your personal capabilities</li> <li>• Generate business ideas</li> <li>• Work on manufacturing techniques with 3D printers</li> <li>• Work on the company's economy</li> <li>• Work on everything related to the company's corporate image and content related to product sales.</li> <li>• Using ICTs</li> </ul> <p>In turn, success is guaranteed given the progress made in the creation of prostheses, which are destined for the poor in Kenya.</p>

<p><b>Impact and outreach</b></p>	<p>The 'Helping in 3 Dimensions' project has had a great impact at an international level, given that the 3D prostheses designed and printed at the CEIP Nuestra Señora de la Piedad, in Herrera de Pisuerga (Castilla y León) have been given to people without resources in Kenya.</p> <p>Thanks to this gesture of solidarity, many daily tasks have been made easier for them, which would not have been possible without these 3D prostheses.</p>
<p><b>Lessons learned</b></p>	<p>The project favours the development of skills associated with communication, analysis of the physical environment, creation and coexistence.</p>
<p><b>Do you think these strategies can be replicated or adapted in other projects or contexts?</b></p>	<p>These strategies focused on the good use of 3D printers in the classroom could be adapted in other educational contexts given the transversality and continuous learning of the 'Helping in 3 Dimensions' project.</p>
<p><b>Other important aspects</b></p>	<p>It is important that children are involved in the use of 3D printers from an early age so that they become familiar with the skills of entrepreneurship. In the same way, children are introduced to social, green and digital entrepreneurship.</p>

**Link to the project's  
website or social  
networks**

<https://www.educaciontrespuntocero.com/experiencias/disenio-3d-en-clase-protesis-kenia/>

<https://view.genially.com/619330216c7ffc0dc401f1c7/presentation-experiencias-impresion-3d>

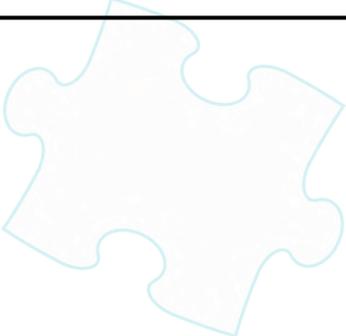
## Examples of best practices

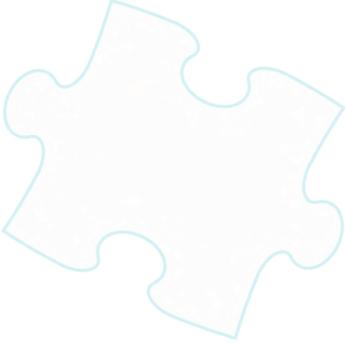
<p><b>Name of organization</b></p>	<p>Gamma Institute</p>
<p><b>Name of project or initiative</b></p>	<p>“Change the Story! The Change Comes from YOUTH!”</p>
<p><b>Short description</b></p>	<p>“<b>Change the Story! The Change Comes from YOUTH!</b>” is an anti-bullying civic innovation project developed by <b>Gamma Institute Iași</b>, with support from the <b>Civic Innovation Fund</b>. It aimed to reduce school violence by empowering young people to become active agents of change.</p> <p>Using a <b>peer-to-peer learning model</b>, over <b>300 students</b> from different school levels took part in workshops that built awareness, empathy, and emotional intelligence. The sessions helped them understand and transform their roles within the <b>victim–aggressor–bystander</b> dynamic.</p> <p>The project combined <b>psychological insight</b> and <b>non-formal education methods</b> such as role-play and guided reflection. Its innovative <b>systemic approach</b> showed that each person in a bullying situation has both responsibility and the power to act for change—making the model transferable to other community and education contexts.</p>

<p><b>Process</b></p>	<p>The project used a participatory, step-by-step approach combining psychological guidance and non-formal education. Students first learned to identify and understand bullying, then reflected on their own roles as victim, aggressor, or bystander. Finally, they applied what they learned by leading peer-to-peer workshops, becoming active change agents in their schools.</p>
<p><b>Objectives</b></p>	<ul style="list-style-type: none"> <li>• <b>To train at least 300 students and young people</b> in recognizing and preventing violence and bullying in schools, increasing their involvement in reducing aggressive behaviors over a 10-month period.</li> <li>• <b>To develop a cascade system of youth involvement</b>, where students learn how to organize peer-led campaigns addressing problems in their communities — in this case, bullying — fostering responsibility, empathy, and active participation.</li> </ul>
<p><b>Tools and resources</b></p>	<p>The project used a set of non-formal educational tools designed to promote empathy, reflection, and active learning:</p> <ul style="list-style-type: none"> <li>• Interactive workshops and experiential activities such as “Find the Ball”, “The Wall”, and “The Circle of Personal Power” to explore emotional and social dynamics.</li> <li>• Peer-to-peer learning materials supporting the cascade model of education between age groups.</li> <li>• A practical brochure on bullying and cyberbullying, offering definitions, prevention methods, and reflection exercises.</li> <li>• Psychological expertise and facilitation guides developed by Gamma Institute trainers and psychologists to ensure emotional safety and meaningful participation.</li> </ul>

<p><b>Communication channels</b></p>	<p>Information and results were shared through school workshops, peer campaigns, social media posts, and community events, ensuring visibility and engagement among students, teachers, and parents.</p>
<p><b>Indicators of success</b></p>	<ul style="list-style-type: none"> <li>• Over 300 students from primary to high school levels trained and actively involved in anti-bullying workshops.</li> <li>• 54 workshops implemented in 6 educational institutions across Iași County.</li> <li>• 24 student promoters trained to lead peer-learning activities and cascade campaigns.</li> <li>• Visible increase in empathy, awareness, and assertive communication among participants, reflected in feedback and post-workshop evaluations.</li> </ul>
<p><b>Impact and outreach</b></p>	<p>The project created a lasting impact by empowering young people to take responsibility for positive change in their schools. It fostered a culture of empathy, inclusion, and emotional awareness, reducing tolerance for bullying behaviors.</p> <p>Through the cascade model, the message reached hundreds of students, teachers, and parents, extending beyond direct participants. The approach also strengthened collaboration between schools, families, and mental health professionals, creating a sustainable framework for anti-bullying education and youth civic engagement.</p>
<p><b>Lessons learned</b></p>	<p>Empowering students as peer educators proved highly effective in changing attitudes toward bullying. The project showed that empathy and reflection are stronger drivers of change than punishment or fear, and that lasting impact comes from involving all actors—students, teachers, and parents—in shared responsibility and dialogue.</p>

<p><b>Do you think these strategies can be replicated or adapted in other projects or contexts?</b></p>	<p>The project's peer-to-peer learning model and systemic approach to the bullying triangle (victim–aggressor–bystander) can be easily adapted to other schools, communities, or topics such as digital safety, inclusion, or emotional education. Its non-formal, experiential structure allows flexibility while maintaining strong psychological and educational impact.</p>
<p><b>Other important aspects</b></p>	<p>The project stood out through its integration of psychology and education, transforming anti-bullying work into a process of personal growth and community change. Developed by professional psychologists from Gamma Institute, it ensured emotional safety and guided reflection throughout all activities. The civic innovation component—empowering youth to take initiative and lead awareness actions—made the intervention both educational and socially transformative.</p>
<p><b>Link to the project's website or social networks</b></p>	<p><a href="https://www.gammainstitute.ro/ro/proiecte/change-story-schimbarea-vine-de-la-tineri">https://www.gammainstitute.ro/ro/proiecte/change-story-schimbarea-vine-de-la-tineri</a></p>

<b>Name of organization</b>	Amnesty International
<b>Name of project or initiative</b>	"Stop Bullying!"
 <b>Short description</b>	<p>"Stop Bullying!" project was an initiative by Amnesty International, integrated into its Human Rights Education program, aiming to reduce bullying and discriminatory attitudes in schools. Developed in partnership with Amnesty International sections in Italy, Poland, and Ireland, the project ran from September 2014 to September 2016, involving 17 schools, six of which were in Portugal.</p> <p>The approach focused on empowering the school community to create more inclusive and safe educational environments, promoting human rights as the foundation for school coexistence.</p>

<p style="text-align: center;"><b>Process</b></p> 	<p>The project followed a participatory and holistic approach, involving students, teachers, operational assistants, school management, parents, and partner entities.</p> <p>Activities included training sessions, awareness workshops, working group meetings, and mobilization events.</p> <p>Action plans tailored to each school were implemented, featuring activities such as mural painting, poster exhibitions, and the creation of educational resources.</p> <p>Additionally, a video was produced with the collaboration of participating students, endorsed by musician Slow J, conveying a message of respect for freedom, individuality, and diversity.</p>
<p style="text-align: center;"><b>Objectives</b></p>	<ul style="list-style-type: none"> <li>• Inform and educate members of the school community about the connections between bullying and discrimination.</li> <li>• Encourage the creation of a safe school environment where anti-bullying and anti-discrimination practices and policies are adopted and practiced daily.</li> <li>• Empower young people to promote non-discrimination and undertake actions against bullying.</li> </ul>

<p><b>Tools and resources</b></p>	<ul style="list-style-type: none"> <li>• Educational manual “Stop Bullying – A Human Rights-Based Educational Resource to Combat Discrimination,” containing information on the phenomenon of bullying and practical activities for different educational contexts.</li> <li>• Training and awareness workshops for students, teachers, and operational assistants.</li> <li>• Awareness materials produced by students, such as posters and murals.</li> <li>• Awareness video created with the participation of students and support from musician Slow J.</li> </ul>
<p><b>Communication channels</b></p>	<ul style="list-style-type: none"> <li>• Events and activities in schools, such as thematic weeks and exhibitions.</li> <li>• Dissemination of awareness materials in school spaces.</li> <li>• Publication of the educational manual online, accessible to any educational institution.</li> <li>• Participation in international meetings to share experiences and strategies.</li> </ul>
<p><b>Indicators of success</b></p>	<ul style="list-style-type: none"> <li>• 33% reduction in bullying incidents in participating schools.</li> <li>• Involvement of approximately 2,400 students, 142 teachers, and 94 operational assistants in Portugal.</li> <li>• Implementation of 31 training and awareness workshops in the project's first phase.</li> <li>• Production and dissemination of educational and awareness materials</li> </ul>

<p><b>Impact and outreach</b></p>	<p>The project had a significant impact on participating schools, promoting changes in school practices and procedures to make educational contexts more inclusive and safe.</p> <p>The human rights-based approach allowed for a deep reflection on bullying and discrimination, empowering the school community to act preventively and interventively.</p> <p>The educational manual and materials produced remain available for use in other schools and educational contexts.</p>
<p><b>Lessons learned</b></p>	<ul style="list-style-type: none"> <li>• The importance of involving the entire school community in preventing and combating bullying.</li> <li>• The effectiveness of human rights-based approaches in promoting inclusive school environments.</li> <li>• The need to adapt strategies to the specificities of each school context.</li> <li>• The value of active student participation in creating awareness materials and activities</li> </ul>

<p><b>Do you think these strategies can be replicated or adapted in other projects or contexts?</b></p>	<p>The strategies used in the “Stop Bullying!” project are replicable and adaptable to other educational contexts.</p> <p>The participatory and human rights-based approach can be implemented in different schools, adjusting activities and materials to the specific needs of each school community.</p> <p>The educational manual serves as a valuable resource to guide these initiatives.</p>
<p><b>Other important aspects</b></p>	<p>The project was funded by the European Daphne III program (2014-2016), which supports initiatives to combat violence.</p> <p>We had 6 participating schools in Portugal.</p>
<p><b>Link to the project's website or social networks</b></p>	<p><a href="https://www.amnistia.pt/projeto-stop-bullying/">https://www.amnistia.pt/projeto-stop-bullying/</a></p> <p>While specific social media profiles dedicated solely to the "Stop Bullying!" project are not available, Amnesty International Portugal actively shares content related to their initiatives on their official platforms:</p> <ul style="list-style-type: none"> <li>• Instagram: @amnistiapt</li> <li>• Facebook: Amnistia Internacional Portugal</li> <li>• YouTube: Amnistia Internacional Portugal</li> </ul> <p>Additionally, a video related to the project can be found here:</p> <ul style="list-style-type: none"> <li>• YouTube Video: Projeto #StopBullying (<a href="https://www.youtube.com/watch?v=K84AzIbQbAM">https://www.youtube.com/watch?v=K84AzIbQbAM</a>)</li> </ul>

## Conclusions

The Bull3D Manual stands as a comprehensive educational resource that bridges psychological insight, non-formal learning, and creative digital tools to address bullying in a multidimensional way. Designed for educators, youth workers, and facilitators, the toolkit invites users to move beyond traditional awareness campaigns toward a transformative learning experience rooted in reflection, empathy, and participation.

By combining 3D conceptual thinking, emotional education, and experiential methods, Bull3D encourages learners to explore the three dimensions of bullying — behavioral, emotional, and social. Its structure supports a gradual process: understanding the phenomenon, recognizing roles and emotions, and co-creating constructive solutions within peer groups. The inclusion of digital storytelling and gamified exercises enhances engagement and allows young people to internalize learning outcomes through creativity and collaboration.

The manual's value lies in its practical adaptability. It can be implemented in schools, youth centers, or community programs, and tailored to various age groups and contexts. Moreover, it promotes active citizenship by empowering youth to act as mediators and changemakers in their environments, strengthening social cohesion and resilience against violence and discrimination.

In essence, Bull3D transforms the topic of bullying from a disciplinary issue into an opportunity for personal and collective growth. It shows that education against bullying must not only inform but also inspire — helping young people see themselves as part of the solution. Through its multidimensional and human-centered approach, the toolkit contributes to building safer, more empathetic, and inclusive communities across Europe.

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