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Report

**D5.4 Policy Paper
on the Implementation
of Creative Writing
laboratories**

Summary

This Policy Paper complements practical tools developed for education professionals in the CREAM Project. It is aiming at informing and supporting policy makers at EU, national and local level in order to foster specific programmes to help the implementation of the CREAM Creative Writing Laboratories (CWL) model as well as use results and knowledge created within the Project in defining education policies.

The Policy Paper builds on the research done before the development of the CREAM CWL model on the state of art of STE(A)M education with special focus on the countries implementing the project later on (Greece, Italy, Poland and Slovenia), on the gender dimensions of STE(A)M education design, and the experiences of implementing the model in these countries - with the intention of also supporting policy making in other countries.

It summarises the enablers and potential barriers of implementing CWLs and other innovative approaches in teaching, especially STEM/STEAM teaching, highlights inspiring policy examples, and provides some evidence-based recommendations for different levels of policy making.

While it focuses on the CREAM CWL approach, it is intended to support the mainstreaming and upscaling of other innovative education initiatives at the crossroads of STEM and Arts. It draws on current and related European policies on STE(A)M, teacher professional development and the whole school approach.

This Policy Paper is to be read together with other CREAM deliverables that contain the evidence-base.

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1. Creative Writing Laboratories (CWLs) in STE(A)M Education

The term “Creative Writing Laboratory” in the context of the CREAM Project and this Policy Paper stands for storytelling for science education.

The story is typically composed of the following (not necessarily all) elements:

- A scientific or technical topic (e.g. a rechargeable battery);
- A use case (e.g. the battery could power a car, an electric bicycle, or be applied for energy storage);
- Personas (e.g. a teacher, a science promotor, a salesman who want to sell an electric car);
- Scenarios, meaning the situation when a given topic and use case/s are presented in a specific context by a persona (e.g. a teacher introduces a project to the students);
- And finally, a story that may use specifically adopted elements of one or more teaching methodologies.

The following six elements are necessary to build a CWL:

- 1) an original idea
- 2) a problem to solve via a STEM subject
- 3) an activity organised around solving the problem
- 4) a story, to embed your activity into a narrative
- 5) a narration, to make the activity, the story and the solution visible
- 6) a conclusion, to show everybody what your students have achieved.

When we talk about creative writing, it may mean creating traditional text, but it can also mean creating any other means of

creative expression that includes a script, such as a comic, a podcast, a film or a series of photos. It is a well-established and effective way to add the 'A' to STEM and make it STEAM education. It is an excellent opportunity for students to showcase their skills and competences often acquired outside of school.

A CWL requires students to collaborate, and teachers to use student-centred teaching methods to make it possible. It requires the active support of school leadership. It often requires flexible time and space – going beyond the boundaries of the lesson and the classroom. It is likely to necessitate the engagement of experts or other participants, meaning that it is necessary to implement a whole school approach to make the engagement of participants beyond the students and teacher(s) possible. It often requires teachers – e.g. STEM and Arts teachers - to collaborate with each other and work in a team, and it needs collaboration opportunities and competences.

Implementing CWLs is an excellent approach for schools to become learning organisations and to support students in understanding real-life problems that are close to them, and may lead to not only a deeper understanding of these topics, but also may ease related stress or trauma. For example, CWLs are suitable for tackling climate anxiety and making students more resilient– if they are done well. This example also highlights the need for guidance and supervision. A poorly-designed CWL can also lead to misunderstandings or the feeling of being powerless, and thus to elevated climate anxiety levels.

CWLs are also suitable for making a direct link between learning and assessment through students receiving immediate feedback that also includes the assessment of their transversal skills, especially creativity, creative and design thinking, collaboration and problem solving.



2. Why is the CWL approach effective?

Research has shown that changes and transitions in our world, society, and also the labour market are happening more and more rapidly over time. This change includes the more and more widespread - and practically inevitable - use of digital technologies – an accelerating trend since the 1980's. It also includes the need for educating people who are flexible, ready to learn and grow throughout their lives, think critically, be creative, and care for others.

Most of today's school students will either work in professions that need creative thinking and problem-solving, or in care professions. The skills necessary for their labour life are also crucial for peaceful societies that collectively find solutions for key challenges (such as living in a world with a changing climate). Creating and using narratives in learning support the development of all of these competences.

At the same time, the traditional view on STEM subjects and tackling STEM as a complex notion still accepts that they are “hard” in comparison to humanities and arts, which people often tend to consider easier. The teamwork, collaboration and proper sharing of duties in CWLs make it possible for students who struggle with STEM or certain STEM subjects to thrive in roles they are comfortable with. There is enough research evidence showing that performing tasks around the creative writing element of such activities supports struggling students to increase their knowledge and skills in the core STEM topic, too.

From research in and outside of CREAM it is known that STEAM approaches and specifically storytelling are means of preventing disengagement with school and learning in general, thus it could be a vehicle in enhancing motivation for learning, and thus in preventing early school leaving – a major challenge in most countries.

Using creative expression tools also support gender equity. In the European context, more and more countries have an underrepresentation of boys in higher levels of formal education such as academic secondary and higher education (now even up to PhD level). The main reason behind this seems to be the lower level of resilience of boys to traditional classroom settings in a dynamically changing world that are deemed boring and their tolerance of subject matter they don't find relevant and interesting. Implementing CWLs is an answer to this challenge as the activities are self-driven and support the implementation of STEM principles and knowledge to real-life situations students, both boys and girls can relate to. In a well-designed CWL activity, all students will find their own role, and will manifest increased, deep and long-lasting learning. CWLs bring school life and the life outside of school closer together.

Furthermore, CWLs are also an excellent opportunity for school leaders and teachers to build professional and constantly learning teams and communities as they often require support from teachers of different subjects, need a collaborative effort to overcome timetable issues, and also require the engagement of external stakeholders.

We live in a world of instant and fast replies that often also lead to interpersonal conflicts. It is accelerated by growing pressure within most western societies stemming from socio-economic differences, cultural diversity, and even the impact of politics on daily life. CWLs need all participants to assume the role of the interested and neutral scientist, to understand that in science absolute truth is very rare, and thus they need to become curious, sceptical and thorough in finding their answers. The CWL Model requires a complex final creative product strongly anchored in science supporting to overcome this pressure of need for instant and simplified answers that often lack depth and real science-base.

3. Challenges identified in implementing the CWL Model

The CREAM Project Team has interviewed several education professionals – school leaders, teachers of science and humanities subjects, non-formal educators – and also solicited the voice of the students and their parents. Some partners also implemented CWL pilots. Some challenges that seem to be very similar in the various school systems have been identified and need to be addressed for successful implementation.

One of the challenges often mentioned in CREAM research interviews is overpacked curricula that are often accompanied by a compartmentalised approach to subjects rather than looking at the breadth of the curricula with multidisciplinary lenses on, when designing activities and timetables. In case school curricula are overcrowded with compulsory cognitive elements, the implementation of storytelling and STEAM approaches in general might be prevented by the lack of time. Teacher leadership supported by school leaders is key to overcoming the time pressure challenge. When implemented well, the interdisciplinary CWL approach might actually integrate and apply curricula in a way that actually saves time.

Some teachers may find it challenging to directly link problems that are high on their students' personal agendas to prescribed curricular content. At the same time, these topics are often related to stress and negative emotions. There is also a growing percentage of students who suffer from some kind of trauma(s) related to what they consider topical. CWLs may provide a pathway to address stress, trauma and well-being related to real-life topics.

The two main stakeholder groups that are key in successful implementation of creative STEAM learning approaches are teachers and

parents. In the case of teachers, teacher-to-teacher knowledge transfer is of utmost importance. Strong school leadership incentivising and supporting the necessary capacity-building and collaboration as well as the use of innovative teaching methods is also a prerequisite. This, in many cases, needs to be accompanied or preceded by teachers first experiencing the impact of such methods so that they whole-heartedly believe in them as they do not have first-hand experiences of such methods as learners.

Parents also play a crucial role in embracing or rejecting creative STEAM methods. When a school is determined to implement such methods, they need to consider that parents can be gatekeepers preventing students from fully embracing these methods. Thus, the school should consider parents' previous (and often bad) experiences with science learning, their concerns for their children's further education, the novel nature of these methods, and engage parents in planning the introduction and implementation of new teaching methods. Once on board, parents can become motivators, supportive collaborators and major accelerators of the education renewal process.

In some countries, schools find it difficult to engage with external stakeholders that are often key to successful CWLs and STEAM initiatives in general. There are often mixed policy messages about engaging companies or having a proper ecosystem of non-formal education providers (e.g. NGOs, museums, libraries, universities) that are key for success. The autonomy of schools and giving professional educators guidance on stakeholder engagement are key elements that are sometimes not present. School leaders' play an absolutely crucial role in this.

4. Recommendations for policy at different levels

The above-mentioned benefits cannot be fully utilised, and the challenges cannot be overcome without commitment from policy at all levels, from EU to local (municipal to school) level. The European Union (EU) has already published several relevant policy documents (e.g. Communication on Achieving a European Education Area by 2025, European Education Area strategic framework, Education and Training Monitor, Digital Education Action Plan) and collaborates with Member States to make the European Education Area a reality.

Although EU education policy is taking the format of recommendations, it has strong messages about the importance of teachers' professional development, developing key competences for lifelong learning, holistic approaches to STE(A)M, digital competences or life competences (including collaboration, problem solving, and other social skills).

The main tools the EU can utilise are the open method of coordination, and financial incentives. National level can ensure the implementation of these principles through legislation, providing political, policy and professional support, prioritising the necessary methods, and organising relevant continuous professional development opportunities for education professionals. At lower, namely regional, municipal and school level, system thinking, holistic, but targeted support, and the sharing of experiences are opportunities for supporting innovative, creative and collaborative STE(A)M education.

Promote and support the implementation of creative, arts-based methodologies in STE(A)M education

It is of utmost importance that the benefits of creative, arts-based methodologies such as CWLs are widely known to the whole educational community (including policymakers and education authorities, school leaders and school educators, non-formal and informal educators, and parents) as well as the general public. It is crucial to show their versatility, complex positive outcomes and their superiority over traditional methods.

At the same time, it is also necessary to show the investment-outcome ratio and convince education professionals that they are worth the effort. Also, supportive material should be made available in an open source format to reinforce school leadership and support teachers in planning, implementing and assessing these innovative ways of learning. The assessment element is of crucial importance as is it clearly reflected in research, e.g. the most recent PISA result.

At European level

- Showcase successful initiatives e.g. through the European School Education Platform.
- Make it a priority in EU-funding and ensure that relevant EU-funded project outcomes are mainstreamed and upscaled with the support of the funding available.
- Link these methodologies to existing competence frameworks (e.g. DigComp, GreenComp, LifeComp) for the education profession and the general public.

At national level:

- Guide teachers and other education professionals to experience the implementation of such methodologies by providing opportunities to share experiences and observe peers already implementing them.
- Collaborate with the media, and make the promotion of creative STE(A)M learning a job for national media.
- Explicitly stress the importance of innovative methodologies and interdisciplinary approaches in national curricula.
- Provide relevant training and other professionalisation opportunities for school leaders as well as both pre-service and in-service teachers.
- Adjust requirements to ensure creativity is an essential part of assessment processes.

At regional and local level:

- Provide schools with easy access to open schooling collaboration.
- Provide relevant teacher and school leader training opportunities.
- Build networks of schools and other relevant actors.
- Provide teachers with assessment methodologies that consider creativity as a core element.

Support teachers' collaborative work and mutual learning

Teaching is still one of the loneliest professions meaning that only a few teachers are used to working collaboratively and sharing their experiences. Including innovative methods in daily teaching practice is far easier if teachers collaborate by sharing their resources, from professional knowledge to developed tools.

At European level

- Showcase successful initiatives e.g. through the European School Education Platform.
- Make it a priority in EU-funding and ensure that relevant EU-funded project outcomes are mainstreamed and upscaled with the support of the funding available.
- Prioritise teacher and school leader exchange programmes supporting collaborative teaching and mutual learning.

At national level:

- Provide the necessary training and other professionalisation opportunities for school leaders as well as both pre-service and in-service teachers.
- Make time spent on collaboration and mutual learning part of teachers' regular workload and remunerate accordingly.

At regional and local level:

- Create opportunities for collaboration and the sharing of experiences.

Link real life and school curricula better together

The CREAM Project Team has interviewed several education professionals

At European level

- Support curricular reform through the open method of coordination, especially working groups.
- Showcase innovative curricula.

At national level:

- Revise national curricula engaging various stakeholders, including businesses, NGOs and parents.
- Support education professionals in local curriculum development in the form of sample curricula, available consultation and sharing inspiring solutions.

At regional and local level:

- Prioritise real life topics and challenges in the development of local curricula.
- Pool experts, including teaching professionals, school leaders, labour market players and parents for identifying regional and local challenges.



Promote and support a whole school approach and open schooling

Creative arts-based teaching methods like the CWLs, which are innovative by nature, are difficult to frame within the traditional classroom and timetable framework. Also, they often need students to reach out to external people for advice or for testing their innovation. Thus, the whole school approach and open schooling are important prerequisites for most of these initiatives.

At European level

- Ensure the mainstreaming and upscaling of EU-funded project results related to the whole-school approach and open schooling.
- Scope potential gaps, and provide funding for relevant initiatives.

At national level:

- Provide a legislative framework that makes the whole school approach and open schooling a priority, including
 - o the necessary autonomy for schools,
 - o dismantling barriers such as police clearances and insurances, and
 - o sustainable funding for such initiatives.
- Provide support in the form of trainings, advise, and tools to all relevant members of the whole school community including engaged non-formal providers, businesses and parents.

At regional and local level:

- Make open schooling opportunities visible and accessible to all schools and educators by e.g. local catalogues, dedicated websites, or providing dedicated funding.

Raise awareness of the benefits of creative, arts-based methods as a means of trauma-relief and support for well-being

Student and teacher well-being are getting a growing attention and becoming a priority for more and more schools and education systems. Several initiatives have proven that arts-based methods and especially various forms of creative writing (even if it is not writing a text, but creating cartoons, films, podcasts, etc.) have a direct positive effect of mental health and well-being. Creative artistic methods help people to unearth their anxieties and deal with them in an orderly fashion.

Supporting people in finding the core of problems that impact their well-being is especially challenging when they are rooted in trauma. Trauma is often difficult to articulate, and since it is becoming a growing challenge in European societies, especially in recent years, related to the COVID-19 panic, the war in the Ukraine, the pressure of migration, and climate anxiety/panic. It can be paralysing for students, often creating a difficult-to-identify barrier to their learning. Thus, methods that support teachers in consciously dealing with traumas and supporting their students in dealing with them is crucial for providing the right support for learning.

At European level

- Showcase successful initiatives e.g. through the European School Education Platform.
- Make it a priority in EU-funding and ensure that relevant EU-funded project outcomes are mainstreamed and upscaled with the support of the funding available.

At national level:

- Explore and make available information about the main challenges to mental health and wellbeing in the country.
- Make professionalisation opportunities, trainings and information available that focuses on trauma-informed approaches and supporting well-being.
- Build a network of mental health professionals that can support the use of creative, arts-based methods for increased well-being.

At regional and local level:

- Explore and make available information about the main challenges to mental health and wellbeing locally and regionally.
- Support the collaboration of relevant professionals by matching, sustainable funding, and providing coaching opportunities.