CEDIS

Circular Economy in DIgital Storytelling

Desk Research

Germany

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1. The context

The CEDIS project, which stands for Circular Economy in Digital Storytelling, aims to rethink key concepts such as 'circular economy', 'sharing', 'efficiency', 'sustainable development' and 'everyday behaviour' across Europe. The aim is to reduce the impact of climate change on participants' lives. Inclusion and diversity, environmental concerns, circular economy principles, digital storytelling methodology and digital conversion approach are the core pillars of the project.

In recent years, climate change has affected many regions of the world, resulting in various impacts. The Digital Storytelling School Education Methodology promoted by CEDIS emphasises collaboration and trust. It encourages teachers and students to consider forms of sharing and co-ownership within their protected contexts, as well as sharing assets based on their interests and living environments.

Digital storytelling has emerged as an important aspect of contemporary education, especially in secondary schools. It provides an interactive tool for expression and learning, combining traditional storytelling methods with digital media. In classrooms, the process begins with the selection of a topic relevant to students, ranging from historical events to personal reflections. Students engage in critical thinking and collaborate with peers, refining their stories until they are engaging and impactful.

2. The desk research

The main objective of this working paper was to research and compile general and national data, information, and resources related to Digital Storytelling (DST) as a learning methodology and Circular Economy (CE) as a topic for secondary education.

Project partners investigated previous experiences of using DST to teach Circular Economy across different fields and sectors. The collected material provided an up-to-date overview of digital tools and software, particularly mobile applications, suitable for DST. These tools were analyzed in terms of accessibility for students, ease of installation and use, cost-effectiveness (preferably free), and relevance to current trends in media consumption, such as the shift among young people from platforms like YouTube to TikTok. This analysis contributed to improving teachers' and students' media literacy, including awareness of open-source versus proprietary software and platform-based economies.

Partners selected and documented a set of Best Practices (three per country) related to DST and Circular Economy education, including national initiatives and learning materials available in each partner's language. The research also examined how Circular Economy and Sustainability topics were addressed across different national school curricula, acknowledging country-specific priorities and practices (e.g. plastic waste, electronic waste, sharing economy).

In addition, six video interviews with national experts or activists (one per partner country) were conducted to provide professional insights into DST and Circular Economy. An exemplary list of potential topics for student-produced digital stories and a list of suitable digital tools for their dissemination were also developed.

The desk research consists of 4 different sections The desk research consists of 4 different sections

- **DST in the Secondary School Context.**

Report on up-to-date, existing digital tools and devices to apply DST in schools, descriptive types of Digital Stories and their current use in secondary schools and usability in the Classroom.

- **Collection of Best Practices.**

Collection of Best Practices of Digital Storytelling on Circular Economy in any field or sector.

- **National Reports about Education.**

Six National Reports about Education on Circular Economy in Secondary Schools (English and the six project's national languages).

- **Interview with a national expert.**

Collection of high-quality Video Interviews to national experts/activists on Digital Storytelling and on Circular Economy. 1 for each partner

3. Key Findings on DST in the Secondary School Context

3.1 The use of DST in the Secondary School Context.

Digital storytelling (DST) combines the art of storytelling with digital multimedia such as images, audio, and video, allowing students to create and share their own narratives. Despite the growing importance of digital media in education, DST has not yet reached the same level of dissemination as traditional teaching methods in German secondary schools.

Various federal states have launched initiatives to promote digital education, which may also include the use of DST. For example, North Rhine-Westphalia's "Medienkompetenz macht Schule" project supports teachers in using digital media sensibly in the classroom, including DST. This project aims to enhance media literacy and digital competencies among students and teachers.

On an individual level, some teachers are pioneering the use of DST by offering their students the opportunity to create their own digital stories. These projects often result in increased student engagement, creativity, and critical thinking skills.

Several organizations and projects are specifically focused on providing DST opportunities for schools. These organizations develop curricula, training resources, and tools to help teachers integrate DST into their lessons effectively. Through workshops, training, and online platforms, they help educators improve their skills in using digital storytelling tools and develop innovative teaching methods.

However, the integration of DST faces challenges such as limited resources, lack of training, and varying levels of digital literacy among teachers. Solutions include increased investment in digital infrastructure, professional development for teachers, and the creation of collaborative networks to share best practices.

Looking to the future, the potential for DST in German secondary education is significant. As digital media continue to evolve, and with ongoing support from educational initiatives and organizations, DST could become a more integral part of the curriculum. By embracing these innovative teaching methods, schools can better prepare students for the digital world.

3.2 Types of Digital Stories

Describe the types of Digital Stories and their current use in secondary schools context in your country

In Germany, education is largely decentralized and can vary across different states. Each state has its own Ministry of Education that sets educational standards and curricula. Even if there is no stand-alone curriculum dedicated exclusively to digital storytelling, its principles and practices can be integrated into the existing curriculum of various subjects. This integration is often at the initiative of individual teachers, particularly in German, foreign languages and social studies.

Narrative stories are used in the subject of German or foreign languages. Students can create their own stories, which can contain invented characters, settings and plots. These stories often deal with imaginative scenarios or are inspired by literature.

Documentary stories are used in the subject of Social Sciences. These digital stories represent objective narratives that document real-life events, social issues, or cultural traditions. They can include multimedia elements such as interviews, research data, or supporting material. In social science classes, students can create digital documentaries to explore and dive deeper into important historical events, current social issues or cultural topics.

Personal stories can be used in all the three subjects. These digital narratives focus on individual experiences, emotions, and reflections. In German classes, students can create personal stories to explore their own experiences and feelings and improve their writing skills and self-expression. In foreign language classes, personal stories help students practice their conversational skills and cultural expression by retelling their own life experiences in the target language. In social studies lessons, personal stories can be used to illustrate historical events, social problems or cultural issues. They provide a personal perspective and help students understand and connect with more complex topics.

3.3 Usability of DST in the classroom.

As already described, there are organisations and projects in Germany that are actively committed to integrating and promoting digital storytelling (DST) in schools. Some specific examples of these initiatives are now presented to give a short insight into different DST offerings:

There are projects such as DIST (Digital Integration Storytelling).
DIST is an Erasmus+ funded project that aims to overcome stereotypes and promote social inclusion in the school context by using digital storytelling. In this project, students were tasked with creating videos to share and illustrate their own stories on a range of broad topics.

The “Institute for Applied Children's Media Research” introduces the concept of DST for students from primary school and above and provides various teaching materials to implement DST with students step-by-step.

The project “Digital Storytelling” by the "Staatliches Studienseminar für das Lehramt an Realschulen plus Trier" offers materials for DST in language teaching by linking analogue and digital learning paths. Here, for example, students are first asked to write creative stories, which they then turn into digital stories, such as videos, using digital tools. The project, integral to teacher training, enhances future educators' involvement in linguistic and literary education, fostering intercultural competence and awareness of diverse values and democracy.

3.4 Digital tools and devices

1.	
Name	Book Creator
Description (up to 500 characters)	Book Creator is a versatile and user-friendly app that allows users to create interactive e-books, comics, presentations and more. The app is available for both iOS and Android and offers an intuitive user interface that is accessible to children, teenagers and adults alike.
Keywords	Creativity, interactivity, teamwork
Language(s)	English, German, Spanish, French, Portuguese, Italian, Dutch, Chinese, Japanese, Korean, Russian, Arabic, Turkish, Swedish, Norwegian, Danish, Finnish, Polish, Hungarian, Czech, Greek and Hebrew
Best suited for (name comma-separated tasks that can be achieved with the use of this tool)	The "Book Creator" app is suitable for a broad target group and can be used by different user groups in different contexts. For example, students of all ages can use the app to create their own stories, design presentations, document project work and create multimedia reports, or teachers can use Book Creator to create interactive learning materials; e-books, comics, presentation, graphic novel, travel diaries
Ease of use (provide a rating of 1 = very easy to use, 5 = extremely hard to use)	2 It has a user-friendly interface, templates and instructions, interactive tutorials and a support team that you can contact if you have any questions.
Price	Initially, the tool can be used free of charge. The free version has limited options and the user can create a maximum of 40 books. The premium package costs 10

1.	
(put 0 for a free tool)	euros per month. There is also a discount for education for a premium subscription.
Logo of the tool	BOOK CREATOR
Link	https://bookcreator.com/

2.	
Name	Adobe Spark
Description (up to 500 characters)	Adobe Spark is a user-friendly platform for creating graphics, websites and videos. With a variety of templates and intuitive tools, users can quickly and easily create appealing multimedia content.
Keywords	Graphic design, web design, video editing, presentations, creativity
Language(s)	Adobe Spark is available in a wide range of languages, including English, German, Spanish, French, Italian, Portuguese, Chinese, Japanese, Arabic and many more.
Best suited for (name comma-separated tasks that can be achieved with the use of this tool)	Social media graphics, blog posts, school presentations, digital storytelling projects, advertising materials
Ease of use (provide a rating of 1 = very easy to use, 5 = extremely hard to use)	2 There is an intuitive user interface and a variety of templates that simplify the creation process. There are simple editing tools without requiring extensive technical knowledge. Some more advanced features require a short learning curve.
Price (put 0 for a free tool)	Adobe Spark offers a free version with limited functions as well as paid subscriptions with extended functions.

2.	
Logo of the tool	
Link	https://blog.adobe.com/de/topics/spark

3.	
Name	Microsoft PowerPoint
Description (up to 500 characters)	Microsoft PowerPoint is a widely used presentation software that can also be used in a variety of ways in the field of digital storytelling. With its extensive functions for creating slides, adding text, images, graphics, audio and video elements, PowerPoint offers an intuitive platform for telling stories visually. With the possibility of animation, transitions and interactivity, storytellers can visualise complex ideas and involve the audience in their stories.
Keywords	Presentations, slides, animations
Language(s)	PowerPoint is available in all common languages.
Best suited for (name comma-separated tasks that can be achieved with the use of this tool)	Microsoft PowerPoint is a versatile presentation tool that is ideal for a wide range of users and use cases. Presentations, slide layouts, texts, images, graphics, tables, diagrams, animations, interactive content, multimedia elements
Ease of use (provide a rating of 1 = very easy to use, 5 = extremely hard to use)	3 As more advanced features such as creating custom animations and designing interactive presentations require a certain learning curve and additional time to master them effectively.
Price (put 0 for a free tool)	Microsoft PowerPoint is available in different versions, including as part of the Microsoft Office suite and as a standalone subscription to Microsoft 365. Prices vary by country, currency, current offer and licence terms.
Logo of the tool	

3.	
	
Link	https://www.microsoft.com/de-de/microsoft-365/powerpoint?market=de

4.	
Name	Storybird
Description (up to 500 characters)	Storybird is a creative platform that allows users to create their own stories with beautiful illustrations. Through a variety of images from artists, users can develop their own narratives and share them with others.
Keywords	Creativity, illustrations, storytelling
Language(s)	Storybird is available in all common languages.
Best suited for (name comma-separated tasks that can be achieved with the use of this tool)	Teachers and educators: Storybird enables teachers to integrate creative writing projects into their lessons by providing students with a motivating way to improve their language and writing skills.
Ease of use (provide a rating of 1 = very easy to use, 5 = extremely hard to use)	2 Storybird is relatively user-friendly and intuitive to use, even for people with no previous experience. The platform offers a variety of tools and templates that allow users to easily create their own stories. Storybird's ease of use makes it accessible to people of all ages and educational levels.
Price (put 0 for a free tool)	Storybird offers both a free version and paid subscriptions with extended functions. The costs for the paid subscriptions can vary depending on the functions and duration of use.
Logo of the tool	STORYBIRD
Link	https://storybird.com/

4.	

5.	
Name	Twine
Description (up to 500 characters)	Twine is an open source platform for the creation of interactive stories and text-based games. It allows users to create hypertext stories in which readers can make decisions and influence the course of the plot.
Keywords	Interactive stories, text-based games
Language(s)	English
Best suited for (name comma-separated tasks that can be achieved with the use of this tool)	Teenagers and young adults: Twine can be an attractive platform for teenagers and young adults who would like to develop creative stories and play interactive games.
Ease of use (provide a rating of 1 = very easy to use, 5 = extremely hard to use)	2 Twine offers a user-friendly interface and uses a simple markup language that allows non-programmers to create and share interactive stories.
Price (put 0 for a free tool)	0
Logo of the tool	
Link	https://twinery.org/

4. Collection of Best Practices of Digital Storytelling on Circular Economy

4.1 Introduction to the selection of the best practices

Our selection criteria for Best Practices were based on their relevance to the topic of the circular economy. It was crucial to choose practices directly connected to the circular economy and suitable for secondary school vocational students. Furthermore, it was important that the Best Practices cover a variety of topics and address different aspects of the circular economy.

- "**Circular Munich Knowledge Hub**" This practice was selected because of its high relevance to the circular economy through its clear focus on urban applications. It is user-friendly and easily accessible, thanks to its well-curated digital platform design. The broad range of topics, including basic information, case studies, action guides, and active learning events, provides a comprehensive educational experience. Additionally, this practice was chosen because it offers diverse learning resources such as podcasts, documentaries, and books, catering to different learning styles and interests.
- "**Cradle to Cradle (C2C)**" It promotes sustainable changes in production and consumption habits. The focus is on encouraging a shift in thinking and establishing sustainable practices. C2C impresses with its variety of educational formats, including digital storytelling methods, recorded lectures, blog posts, interactive learning tools, and educational materials for schools. This variety allows it to meet different learning preferences and needs.
- "**Die Sendung mit der Maus. Sachgeschichten: Umweltschutz an Schulen**" It uses vivid and tangible examples from everyday school life to illustrate environmental protection measures. These examples are particularly educationally relevant as they can be directly implemented in schools, creating a direct connection to the students' daily lives. The practical nature of the presentation was another key reason for our selection. The feature showcases practical projects such as self-produced electricity, carpooling apps, and fuel-saving training, which are easy to replicate and implement. Additionally, the programme excels with its multimedia approach. The use of easily understandable and illustrative video formats makes the content accessible and appealing to children from young age to adults. Finally, the programme encourages students' initiative by showing how they can actively contribute to sustainability themselves.

By selecting these best practices, we ensure that the conveyed content is both theoretically sound and practically implementable, thereby making a valuable contribution to education in the field of the circular economy.

4.2 Best practices

Brief description of the case studies

1	
Case study name	Circular Munich Knowledge Hub
Description of the context in which the best practices have been developed	"Circular Munich Knowledge Hub" is a digital platform designed to consolidate existing resources and information on the circular economy and circular cities. It aims to educate users on how the circular economy can benefit their cities. The platform was developed with input from the Circular Munich

	community through surveys and interviews to identify the most valuable information and resources. The result is a well-curated and easily accessible collection of information, covering four main areas: 1. Repository: Circular Economy 101, circular cities around the world, tools, and circular economy for kids 2. Munich case studies and circular economy stories 3. Take action - steps for integrating circular practices in daily life 4. Active learning events Additionally, the Knowledge Hub offers a variety of media and collections, including podcasts, cultural and entertainment content (documentaries, songs), book recommendations, and online libraries, all focused on the circular economy. This ensures that the platform caters to diverse learning styles and interests.
Location	Munich and surrounding area
How the methodology of DST have been used to develop contents related to the Circular Economy	The “Circular Munich Knowledge Hub” uses digital storytelling to create engaging and relatable content about the circular economy. By integrating personal stories, multimedia elements like videos and infographics, and interactive features, they effectively communicate complex circular economy concepts. This approach not only informs but also inspires and motivates the community to participate in sustainable practices.
Target group involved	Businesses, educational organisations, policymakers, NGOs, communities and all citizens living/based in Munich and surrounding who want to learn, share ideas, and engage in concrete action to co-create a more resilient, thriving and “future-fit” city of Munich.
Three most important issues the case study addresses	**1. Education and Awareness-raising:** aiming to increase knowledge and understanding of circular economy principles among citizens, businesses and policy makers. This is achieved through educational resources, workshops and events that disseminate information about sustainable practices and their benefits 2**. Collaboration and Community engagement:** the focus is on fostering collaboration between different stakeholders, including local authorities, businesses, non-governmental organisations and the general public. By promoting community-led initiatives and facilitating networking opportunities, the hub encourages collective action towards a circular economy. **3. Practical implementation**: The hub provides practical tools and case studies to help stakeholders

	implement circular economy practices. This includes showcasing successful projects, providing guidance on waste reduction and promoting sustainable resource management practices in areas such as food and waste management.
Outcomes of the case study (link)	https://ce-knowledge-hub.notion.site/Cases-Learnings-cdbb8d3577b74b6aa41028e172c21aa5 These results clearly demonstrate how the Go Circular Challenge has made a positive impact on promoting the circular economy through practical actions and targeted awareness-building. The challenge inspired participants worldwide to integrate principles of the circular economy into their daily lives, focusing on mindset change, waste reduction, product usage, and regeneration. Participants significantly avoided single-use packaging, reduced residual waste, and learned effective techniques to minimize food waste. Moreover, many discovered new circular business models. These achievements highlight how the challenge promoted awareness of sustainable practices and encouraged active engagement towards a more environmentally friendly future.
Key words (or hashtags) related to the case study	#ZeroWasteCities #circularcity #CircularMunich #CircularChallenge2023 #UrbanApplications

2	
Case study name	Cradle to Cradle (C2C)
Description of the context in which the best practices have been developed	Cradle to Cradle (C2C) e.V. is a non-profit organisation that works towards a world without waste by promoting the cradle-to-cradle design concept. The organisation actively encourages both organisations and individuals to rethink and change their approach to production, consumption, and sustainability. By linking different sectors – business, science, education, politics, culture, and civil society – they ensure a holistic approach to spreading its message and promoting cooperation. They offer a variety of formats to promote its principles, including the method of digital storytelling such as talks delivered through recorded videos, a blog, and interactive learning tools as well as educational materials for school to spread the principles and success of the circular economy.

Location	Berlin, and Germany
How the methodology of DST have been used to develop contents related to the Circular Economy	Cradle to Cradle (C2C) has effectively utilized the methodology of digital storytelling to develop and disseminate content related to the circular economy. These approaches have been integrated through various educational formats and tools tailored to different target groups in diverse educational contexts. C2C has developed digital learning tools like LOOP, which provide foundational knowledge about C2C and guide users through a creative design process for a C2C product using design thinking methods. Through digital or on-site tours at the C2C LAB in Berlin, participants can physically experience the innovative C2C concept, enhancing their understanding through immersive storytelling. The explainer video "What exactly is Cradle to Cradle?" serves as a digital storytelling tool to introduce the C2C concept in a simple and engaging manner.
Target group involved	from every individual citizen to businesses and organisations to communities
Three most important issues the case study addresses	- Promotion of the Cradle-to-Cradle Design Concept: The case study focuses on advocating for a design concept aimed at developing products and materials that are not only sustainable but also circulate in biological and technical cycles. - Rethinking and Changing Production and Consumption Practices: C2C actively encourages businesses and individuals to reconsider and adapt their manufacturing and consumption practices to enhance sustainability and minimize waste. - Integration of Various Sectors and Promotion of Collaboration: The case study emphasizes the importance of integrating and collaborating across sectors such as business, science, education, politics, culture, and civil society to promote a holistic approach to spreading the principles of the circular economy.
Outcomes of the case study (link)	https://c2c.ngo/bildungsarbeit/ The C2C design concept creates products that are not only sustainable but also circulate within biological and technical cycles. These innovations help businesses and organisations to make their products more resource-efficient and environmentally friendly. C2C actively promotes awareness of sustainability and advocates for a comprehensive transition towards a circular economy. By promoting fair and dignified working conditions, C2C also champions social sustainability by advocating for standards in workplace safety and fairness.

Key words (or hashtags) related to the case study	#CradletoCradle #SustainableDesign #GreenProducts #EcoInnovation #SustainableBusiness #FairTrade

3	
Case study name	Die Sendung mit der Maus
Description of the context in which the best practices have been developed	“Die Sendung mit der Maus”, translated "The Show with the Mouse“, is a well-known German television program for children that has been broadcast since 1971. It is distinguished by its educational content, which explains complex topics in a child-friendly manner. At the heart of the show are factual stories that vividly and clearly illustrate everyday phenomena or complex connections. In the series, for example, the Mouse, the Elephant, and the Duck take children on a journey of discovery through our environment. "Die Sendung mit der Maus" has developed a program where a reporter visits schools to experience innovative environmental projects firsthand. For instance, he learned at the Lessing-Gymnasium in Cologne how the school not only saves costs through its own solar energy production but also contributes to environmental protection. At the Marienhöhe School Center in Darmstadt, they successfully use wind energy for electricity generation. The Lessing-Gymnasium has developed a carpooling app to organize ridesharing for students and reduce traffic to the school. Older students are also trained in fuel-efficient driving to further contribute to environmental protection. Through this program, students are shown how creative projects actively contribute to improving the environment.
Location	Germany
How the methodology of DST have been used to develop contents related to the Circular Economy	"Die Sendung mit der Maus" combines storytelling with investigative journalism. Through adventures with characters like a mouse, an elephant, and a duck, environmental issues are presented in an engaging and age-appropriate manner. These narratives help children understand concepts such as sustainability, waste management, and recycling. Additionally, the show features segments where a reporter visits schools that are already actively involved in the circular economy. These segments

	provide concrete examples of how schools are making a difference and illustrate the topic for children through tangible demonstrations.
Target group involved	Children
Three most important issues the case study addresses	- Environmental Education for Children: "Die Sendung mit der Maus" effectively communicates important environmental topics such as sustainability, waste management, and recycling to preschool and elementary school children in an engaging and understandable manner. - Promotion of Environmental Awareness: Through stories and reports, the show raises children's awareness of environmental issues and demonstrates how they can contribute to environmental protection through simple actions. - Practical Examples and Demonstrations: The show provides concrete examples from school life and visits schools that are already actively engaged in the circular economy. This helps children understand the concept of the circular economy and see how it is implemented in practice.
Outcomes of the case study (link)	https://kinder.wdr.de/tv/die-sendung-mit-der-maus/av/video-sachgeschichte-umweltschutz-an-schulen--teile-100.html The show "Die Sendung mit der Maus" plays a crucial role in educating and sensitizing children about environmental protection and sustainability. Through its stories and reports, it explains complex topics such as recycling and waste reduction in a child-friendly manner, motivating children to take active steps themselves. The program contributes to promoting environmental awareness and sustainable thinking within society.
Key words (or hashtags) related to the case study	#TheShowWithTheMouse #DieSendungMitDerMaus #EnvironmentalEducationForKids #RecyclingForKids #ChildFriendlyEducation #TheMouse #DieMaus

5. National Reports about Education on Circular Economy in Secondary Schools

5.1 Introduction

Write a short introduction about Circular Economy Education in secondary schools in your country.

Education on the topic of the circular economy is becoming increasingly important in German schools. This topic is also being integrated more strongly into the curriculum in secondary schools. The aim is to teach students that resources should be used efficiently, waste should be minimised and materials should be reused. Integration into the curriculum should ensure that students are taught the skills and knowledge they need to live and work in a resource-efficient and sustainable society.

For example, the national action plan "Education for Sustainable Development", which is supported by the German Federal Government, is implemented in school lessons at secondary level. The circular economy is a core topic in the action plan.

The Federal Ministry of Education and Research also supports various projects and initiatives that teach and raise awareness of the circular economy and sustainability in general in schools.

Furthermore, there are numerous regional and local programmes in German secondary schools that support schools and teachers in integrating the topic of the circular economy into lessons. For example, project days and workshops are organised, and interdisciplinary teaching units are also provided. Through these educational initiatives, students not only gain theoretical knowledge about the circular economy, but also develop practical skills to actively contribute to a more sustainable future.

5.2 From Linear to Circular Economy, the directive of the Ministry of Education

The transition from a linear to a circular economy is crucial for the sustainable development of a country. The Federal Ministry of Education and Research has therefore developed several guidelines and strategies to promote and strengthen the circular economy.
Firstly, as already explained in 5.1, there is the National Action Plan on Education for Sustainable Development. This plan aims to integrate sustainability topics, such as the circular economy, into all areas of education. To this end, the action plan supports the development of curricula that promote sustainable practices and the support of teachers through training and resources. The ministry has also developed guidelines for the integration of the circular economy into school lessons. This includes cross-curricular approaches that enable students to understand and apply the principles of the circular economy in different contexts.

The Federal Ministry of Education and Research funds research projects that develop innovative solutions for the circular economy, including the promotion of technologies for the reuse and recycling of materials and support for pilot projects that demonstrate how the circular economy can work in practice. Another focus is on working with businesses to promote sustainable business models (https://www.bmbf.de/bmbf/de/forschung/umwelt-und-klima/forschung-fuer-nachhaltigkeit/forschung-fuer-nachhaltigkeit_node.html).

In addition, digital platforms and e-learning tools will be promoted to disseminate knowledge about the

circular economy and support teachers and students. (https://www.bne-portal.de/bne/de/einstieg/themen/digitalisierung-und-bne/digitalisierung-und-bne.html)

5.3 Conceptual Background of Circular Economy in Germany

The circular economy in Germany is based on the concept of using resources efficiently, minimising waste and keeping materials in the economic cycle for as long as possible. This model stands in contrast to the traditional linear economy, which is based on the principle of "take-produce-dispose".

Germany is striving to be resource-efficient. This means optimising the use of raw materials through more efficient production processes and extending the service life of products. Materials are also to be saved and energy efficiency improved (https://www.bmuv.de/themen/ressourcen/deutsches-ressourceneffizienzprogramm).
A central goal of the circular economy in Germany is to reuse or recycle products and materials after their first phase of life. This is supported by comprehensive recycling programmes and the development of new recycling technologies.
But product design should also be sustainable. Products should be designed in such a way that they are easy to repair, recycle and reuse. This requires a rethink in the design process on the one hand and the implementation of sustainable materials on the other.
In Germany, companies are also being promoted and encouraged to develop business models that are based on services rather than products. Sharing models are examples of this.

There are also political framework conditions and regulations that strengthen the circular economy in Germany. One example is the Circular Economy Act. This is a German law that defines the framework conditions for promoting the circular economy and ensuring environmental protection through waste avoidance, reuse, recycling and the environmentally friendly disposal of waste. There is also the Packaging Act, which regulates the responsibility of packaging manufacturers and distributors to take back, recycle and dispose of packaging materials in an environmentally friendly manner.

5.4 Circular Economy and Sustainable Development

In Germany, the development of the circular economy is closely linked to the goals of sustainable development.

Germany has a political framework and strategies for this, such as the " Deutsche Ressorceneffizienzprogramm". The programme aims to make the use of resources in Germany more sustainable. It promotes the development and implementation of measures to increase resource efficiency in various sectors, including production, construction and the consumer goods industry (https://www.bmuv.de/themen/ressourcen/deutsches-ressourceneffizienzprogramm).

There are also initiatives such as the "Circular Economy Initiative Deutschland". This initiative brings together stakeholders from business, science and society to develop innovative solutions for a circular economy. The aim is to accelerate the transformation to a closed-loop economic system and promote cooperation between different sectors (https://www.acatech.de/projekt/circular-economy-initiative-deutschland/).
In Germany, many companies are working towards the concept of a circular economy. Examples include pilot projects for the development of recycling technologies, the creation of product-service systems and the introduction of take-back and recycling systems for consumer goods (https://deutsche-recycling.de/blog/kreislaufwirtschaft-unternehmen/).

Education plays a central role in the promotion and development of the circular economy and sustainable development. By integrating sustainability issues and the circular economy into the curriculum, the awareness of future generations is raised, and they are equipped with the necessary skills to implement sustainable practices.

5.5 Germany’s perspectives On Circular Economies

Germany considers the circular economy to be an essential component of a sustainable and future-oriented economy. The transition from a linear to a circular economy is considered necessary to conserve natural resources, protect the environment, and at the same time strengthen economic competitiveness.

As detailed in the previous key points (5.1 to 5.4), Germany is committed to creating a sustainable economy. This commitment is demonstrated through legislation, the promotion of sustainable companies, research into the circular economy, the promotion of initiatives on the subject, as well as the promotion of education that fosters sustainable thinking.

6. Interview with a national expert/activist on Digital Storytelling and on Circular Economy.

6.1 Introduction of the expert

Lucie Brzakova, an educational project manager and director of ProEduca z.s., works within a network of teachers, facilitators, and motivators. On the European level, she has managed several Erasmus+ projects both as a coordinator and partner on the topics of sustainability, circular economy, as well as digital storytelling. Thus, she has an extended experience in the area of these topics.
She has extensive experience in promoting the Circular Economy, focusing on integrating interdisciplinary concepts like economics, environmental science, and consumer behaviour to foster sustainable practices.
ProEduca z.s. has been using the digital storytelling method as an effective tool to engage learners within their training sessions.

6.2 Interview highlights on the Circular Economy

Circular economy is a complex topic because it requires a shift from the traditional linear economy to a more sustainable model that involves multiple disciplines: economics, environmental science, technology, but also consumer behaviour.
It's especially crucial for students to understand these complexities as they are the future leaders who will drive the transition to a more sustainable world. Their grasp of CE principles will be essential in shaping policies and practices that support sustainability.
While the principles of CE are straightforward—focused on minimizing waste and maximizing resource efficiency—the real challenge lies in changing mindsets and habits. For both students and the general public, the difficulty is not in understanding CE but in consistently applying its principles in daily life. This requires overcoming ingrained habits, convenience, and cost considerations, ultimately necessitating a cultural shift towards sustainability.

6.3 Interview highlights on the use of Digital Storytelling

Digital storytelling plays a crucial role in making complex concepts like the Circular Economy more relatable and understandable. By using real-life examples and personal stories, it helps students connect emotionally with the material, making abstract ideas easier to visualize in their daily lives. A key principle is to create engaging and emotionally resonant stories that capture students' attention through visually appealing content. To be effective, the language and content must be carefully adapted to the learners' level, ensuring even intricate topics are communicated clearly.
However, implementing digital storytelling comes with challenges, such as maintaining student interest and using appropriate language. Collaborating with multiple educators and testing content with students can help refine the material. Developing effective digital storytelling content often requires multiple iterations, including refining scenarios and rephrasing text based on feedback, leading to a more polished and engaging educational tool. An ongoing project with elementary students demonstrates the potential of digital storytelling to make the Circular Economy accessible and engaging, despite the challenges involved.

6.4 List of the main topics to develop during the school lessons

1. **The basics of the CE**
    - **Topic**: Introduction to the principles of the CE, explaining how it differs from traditional linear economy. The focus would be on understanding the core concepts such as reusing, repairing, and recycling.
2. **Interdisciplinary approach to CE**
    - **Topic**: Exploring how different disciplines (economics, environmental science, technology, etc.) interact within the CE. Digital storytelling could be used to show real-life examples of how these areas overlap in sustainable practices.
3. **Real-world applications of the CE**
    - **Topic**: Presenting case studies or examples of successful CE initiatives. Digital storytelling can bring these examples to life, demonstrating how CE can be applied effectively in various contexts.
4. **Challenges in implementing CE**
    - **Topic**: Addressing the challenges of adopting CE principles, such as changing habits and overcoming resistance. Stories can show both the difficulties and successes of individuals or companies that have made this transition.
5. **Emotional engagement with CE concepts**
    - **Topic**: Utilizing digital storytelling to create an emotional connection with CE concepts. The focus here is on making the environmental impact of the Circular Economy relatable through personal stories and visual narratives.
6. **Changing mindsets and behaviour**

Topic: Understanding the importance of shifting mindsets from a linear to a circular economy. Digital storytelling can be used to show real-life examples of how these areas overlap in sustainable practices.

7. Conclusion and recommendations

Conclusion:
The Circular Economy presents a complex yet essential shift from traditional economic models, requiring a deep understanding of interdisciplinary concepts and a significant change in mindset and behaviour. While the principles of CE are straightforward, their successful implementation in daily life and education is challenging. Digital storytelling emerges as a powerful tool to bridge this gap, making complex ideas more relatable and engaging for students. By connecting emotionally with the content and visualizing the impact of their choices, students can better understand and embrace the principles of the Circular Economy. However, educators must carefully design these stories to be accessible, engaging, and tailored to the learners' level. Through thoughtful development and continuous refinement, digital storytelling can play a crucial role in fostering a cultural shift towards sustainability, preparing students to be the future leaders of a more sustainable world.

Recommendations:
To effectively teach the Circular Economy, it is important to integrate various disciplines, such as Economics, Technology, etc., using digital storytelling, which helps illustrate how different fields interact within CE. Emphasising behaviour change is crucial; educational content should focus on helping students understand and adopt sustainable practices. Through the effective use of digital storytelling, complex CE concepts can be made more understandable by telling them in an appealing and comprehensible way. Additionally, ensure that the content is tailored to the audience's age and comprehension level. Continuously refining the material based on student feedback will enhance its effectiveness and impact.

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