



Output 2 – Task 2.1

A School Digital Data Literacy Co-design protocol

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Index:

1. Introduction:	3
2. Co-design concept	3
3. Co-design – principles	5
4. Co-design tips for teachers, school leaders and students	6
5. Data Literacy Strategic Plan for Schools	7
5.1. How to develop a strategy	7
5.2. Content of the strategic plan	8
6) Co-designing of school's institutional strategic plans – steps	10
6.1.) Templates	12
6.1.1) Class plans	12
6.1.1) Gantt:	13
7) Conclusions:	13
References:	14

1. Introduction:

The project Data Literate aims at capacitating educators from secondary schools in Digital Data Literacy, in order to identify disinformation and manage the overload of received information. To achieve that, the results of the project will ensure that teachers and school leaders will know how to use the information available to them and how to support student learning, improving their way of communicating, marshal resources and tailor practice to student need.

In this stage of the project, the goals are to focus on the development of strategies, processes and resources for schools to nimble and effectively implement their own Digital Data Literacy Strategic School plans. This output specifically, converges efforts into producing a Data Literate Handbook which will contain instructions for school communities on how to become Data Literate, how to use the Data Literate project resources, methodologies, materials and training approach.

The current document outlines and explains the meaning of the co-design approach, as well as showcases the existing perspectives and specific tips already available for teachers, school leaders and students on how to implement the different stages of a project based on that learning methodology. Furthermore, this protocol will be used as a guideline for the Strategic plan process and working groups that will be implemented in the participating schools of the consortium of the project.

2. Co-design concept

As mentioned previously, the first part of this document defines and comprehends the Co-design as both a methodological and a practical approach in schools. Nevertheless, before analyzing the entire concept of co-design, it is extremely important to define the meaning of the word “design”.

In this sense, Zamenopoulos and Alexiou (2018, p.11) define design as a “task in which people seek to understand, interpret, and ultimately address a challenge or opportunity in their present reality by conceptually developing and creating things (...) that could create a (better) future reality”. In other words, designing means

understanding a problem or a determined situation, and plan and provide a possible solution for it. This solution must be capable of avoiding the same problem to happen in a near future.

After analyzing the meaning of the concept “design”, we have to understand the meaning of the prefix “co”. According to Zamenopoulos and Alexiou (2018), the prefix corresponds to the words “collaborative, cooperative, collective or connective nature of this engagement in design”, which means that people have to work together to develop and create things and obtain specific results.

Based on that analysis, it is possible to understand that the concept of “co-design” is complex and diverse. In consequence, there are many different definitions and ideas about the learning approach, which may be interpreted, explained and used in different ways.

In the perspective of Gros (2019) and Bovil (2020 cit. Villatoro Moral & De Benito, 2021, p. 235), co-design refers to a “collective creativity knowledge, to the advancement of the implementation of technological designs that respond to educational needs” (2020 cit. Villatoro Moral & De Benito, 2021, p. 235), and it is directly related to participatory and collaborative research methods.

Similarly, the Design for Europe (2015), refers co-design as an approach that enables people to make a creative contribution in problem-solving situations, motivating them to collaborate equally in the process to solve a particular challenge in a specific matter. It should be underlined that, usually, co-design methodology combines exploratory research, that is useful to the definition of a problem, design of respective solutions and decision making (FairDeal Forum, 2016).

It can be noted that the appliance of this methodology challenges the common “top-down” approaches, where leaders try to find solutions and make decisions without the input of their teams/colleagues/students.

At this point, it becomes clear that there are several ways to use the co-design approach, with different methodologies and tools. However, there are always similarities between the different definitions, in fact, all of them focus on key aspects related to collaborative work towards finding a solution of an existing problem, in a horizontal way.

Following this perspective, the purpose of this project is to integrate co-design in the implementation of digital data literacy in classrooms and during the process of co-designing of school's institutional strategic plans. Also, the methodology can be useful to prepare the trainers/teachers and secondary students to manage the increasing amount of information that the society constantly provides, especially in a technological world.

3. Co-design – principles

The complexity of the co-design approach does not allow the elaboration of a universal and specific set of guidelines or principles that may guide the co-design process, especially in school environments. In spite of that, there are few researchers that define successful measures that may help the process of implementation. In this case, based on the perspective of Dollinger and D'Angelo (2020), the authors mention some important principles to be considered in co-design:

- 1) "Co-design involves the perspectives of diverse participants who hold mutual interest in the production of a successful outcome. People who are affected by changes should be a part of the decision-making process".
- 2) "There should be no prior decision-making before the co-design process. In order to ensure the co-design is authentically grounded in everyone's perspectives, there needs to be freedom to explore new ideas and solutions. Participants may bring technical knowledge, or their own experiences, but should stay open minded."
- 3) "Everyone is treated equally in the co-design process. People may contribute different ideas, but everyone has a unique and valuable contribution to make".
- 4) "Co-design is a shared responsibility. Each co-design participant should be involved in determining the trajectory of the exercise as well as taking responsibility for successes and any subsequent challenges when they arise".
- 5) "Co-design not only solves problems; it strengthens our relationships. By working with everyone, we gain mutual respect and trust that can invigorate our communities".

These principles are applied in the School Digital Data Literacy Co-design protocol for the supporting schools in preparing their own strategic plans.

4. Co-design tips for teachers, school leaders and students

Inserting co-design in classrooms environments is an important topic that has been studied by many researchers in the learning science field. In this perspective, many authors mentioned that the integration is easier with the assistance of technological tools to support teacher's practices, which is something expected in this project (Roschelle et al., 2006).

In this perspective, it is crucial to salient that co-design in education focuses on the broad goals of learning, contrasting with the expected traditional learning behavior. In other words, educational programs and curricula expect teachers to follow the scripts, with no dynamism or innovation, and that is the opposite of the co-design intentions (Roschelle et al., 2006). Due to this, it is important to underline that the teachers and schools' leaders are key actors in this approach, with an active contribution to the success of the methodology.

Considering the implementation of co-design in schools and among institutional educational fields, Gonski et al., (2011) mention a few practices that can help the integration of co-design and other dynamic and specific teaching practices in a successful way:

- 1) Identify the learning needs of the students, especially regarding Digital Literacy. After that, the school leaders and teachers must interpret the information and prepare the most appropriate interventions according to the diagnosed needs of the students;
- 2) Based on the results of the first step, the second stage is about preparing the teachers to use the curriculum and activities about Data Literacy and the resources of the project in the educational programmes;
- 3) The third stage is based in quality instructional leadership, influenced by the involvement and motivation of School Leaders, because they must foster the implementation of data literacy activities and practices within their own institutions but also among external schools, if possible.

- 4) The last step is based on the involvement and shared commitment and understanding of the whole-of-school in the implementation of co-design activities.

The steps mentioned can be useful to the schools of the consortium, in order to understand how the transition to become data literate can be made in a gradual and dynamic way.

5. Data Literacy Strategic Plan for Schools

5.1. How to develop a strategy

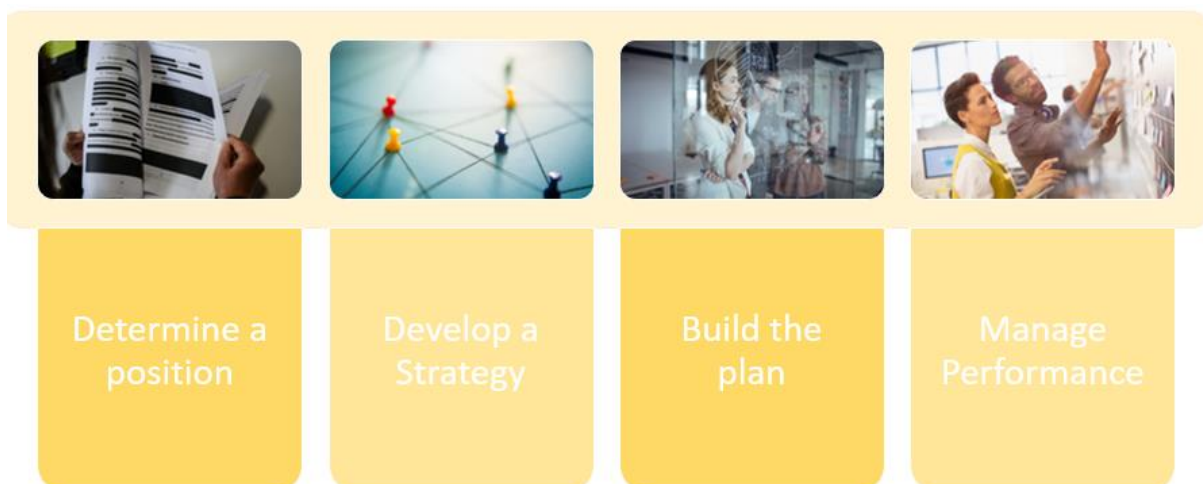


Figure 1. How to determine a strategy

Source: <https://onstrategyhq.com/resources/strategic-planning-process-basics/>

In this stage of the project, the intention is to prepare a strategy to support schools to become data literate. To achieve that, it is important to establish a strategic plan, based on the experience of the previous result and, specially, with the feedback provided by teachers and students during the piloting stage. In this sense, we can relate each stage with each task of the output (Figure 1):

- 1) **Determine position:** This stage can be based on the report and input of the students, teachers and school leaders of the MOOC, and of their piloting

experience. With this report, it is possible to gather different perspectives and define some existing weaknesses and strengths.

- 2) **Develop a Strategy:** The second stage can be considered this document, the co-protocol, that it will be used to determine the vision, the goals and the methodology that will be used in the next steps of the process. Additionally, the report with the overview of the participants of the piloting will guide the development of this strategy.
- 3) **Build the plan:** This stage will be represented by the development of the Strategic Plan (in the next topic -5.2- it will be explained what kind of contents will be at the document). In other words, the strategic plan will define a few key concepts that need to be introduced to teachers and school staff, and then, will provide a line of action for schools to put in practice the activities to become data literate. In addition, the strategy plan will provide guidelines to evaluate the level of digital literacy of the schools.
- 4) **Manage Performance:** This stage is directly related to the co-design task for schools, where the Strategic Plan For schools can be used as guide, throughout the execution of the working groups (inception working groups, ignition working groups, acceleration working groups), that will result on institutional plans (1 per school) that should, at least include: class plans, a Gantt chart with short, medium- and long-term plans. This stage will be guided by the roadmap.

5.2. Content of the strategic plan

The Digital Data Literacy Strategic Plan for Schools is a document elaborated by the entire consortium of the Data Literate project that aims at supporting school leaders and teachers to make data-driven decisions and to implement DDL culture in their institutions. The content provided will be based on the Behavioural Change (BCM) Methodology (KPMG).

In terms of contents, the document will provide:

- 1) Definition of data roles: Data Believer; Data User; Data Scientist; Data Leader. Associated to the data roles, 5 digital data literacy competence levels will be developed and matched to such roles;
- 2) Profile for data literate teacher, for school data literacy leader and for a data literate student;
- 3) Line of action for school leaders, teachers and another for students which suggests activities and ways in which they can implement data literacy in the school settings;
- 4) Strategy on how to evaluate the school community digital data literacy competences;
- 5) A capacity building roadmap for schools' leaders and teachers and students based on the IO1 experiences and approach.

6) Co-designing of school's institutional strategic plans – steps

Activity	Description	Impact
1. Inception Working groups (1 per school)	Teachers from the partners school which didn't participate in the project (at least 2 more teacher/school) will be called to take the MOOC and elaborate their implementation plan on digital data literacy for at least 1 class.	Teachers previously trained will manage this with the active support of VU and INOVA+. This will convey an enlargement of the school DDL community, having as consequence a greater and adequately informed participation in the following working groups. 4 inception working groups with at least 4 teachers each. 8 extra class plans (2/school partner)
2. Ignition working groups (1 per school)	Collaborative workshops with school community teachers; ICT staff, school leaders and students for setting the school scene in terms of digital data literacy.	It should be discussed with the partners. 4 Ignition working groups (1/school partner, meet twice)
3. Acceleration working groups (1 per school)	The participating groups will write the school-specific strategic plan elaboration based on all information and outcomes of the previous working groups. This working groups will be formed by the same intervenient as the ignition working groups.	The institutional plans (1 per school) should, at least include: class plans, a Gantt chart with short, medium- and long-term plans, definition of data literacy as a school strategic plan and teacher's CPD priority, the identification of the school data literacy leader responsible for assuring that the plan is implemented. • 4 Acceleration working groups • 4 co-designed individual strategic plans in 4 languages (1/school partner)

Figure 2. Activities to be implemented by the schools, based on the Data Literate proposal:

After the elaboration of both co-design Protocol and the Digital Data Literacy Strategic Plan, the next step of the project is to focus on the schools, teachers and students. During this phase, the participating schools from the O1 of the project, will organize several working groups for co-designing the school's individual plans on DDL. The expected activities are:

During this stage of the project, the leaders will be the participating schools of the consortium, together with the invited teachers/ school that will participate in the **Acceleration Working Groups (last stage from the figure 2)**. In terms of responsibility, the schools of the consortium must establish contact with other teachers and/or schools to participate in the Inception groups and to prepare, with the support of VU, VJG and INOVA+, the institutional strategic plans per school/teacher.

The institutional plan prepared by the teachers must include specific information that will result from the working groups. **The information present on each institutional strategic plan must be:**

- Class plans (template available in the document);
- A Gantt chart with short, medium and long-term plans (template available in the document);
- Definition of data literacy as a school strategic plan and teachers CDP priorities;
- The identification of the data literacy leader: responsible for ensuring that the plan is implemented.

To facilitate the process, a few templates will be shared in the next topic of the document, including the class plan and the Gantt chart.

6.1.) Templates

6.1.1) Class plans

Age 	
Duration and date of the class 	
Knowledge area / subject:	
School:	>
Nr. of students involved:	>
Learning outcomes	> Xx > Yy
Resources 	YouTube video: Web JCF: (ENG, PL)
Required previous knowledge:	> Xx
Activities Steps 	<ol style="list-style-type: none"> 1. Introduction - teacher introduces topic ... 2. Main activity 3. Discussion and conclusion 4. Evaluation (quizzes, test...)

6.1.1) Gantt:

School			
Country			
Goal:			
Activities (example)			
	Short term (M1- MX...)	Medium Term (MX-MY)	Long Term (MX-MY)
Activity 1			
Activity 2			
Activity 3			

7) Conclusions:

In general, the purpose of the Output 2: Digital Data Literacy Roadmap for Schools intends to ensure that schools of the consortium and new schools know how implement their Digital Data Literacy Strategic School Plans, during and after the end of the project.

To achieve that, this document presents the main aspects of Co-design and its implementation in schools and classrooms, providing guidelines for any educational institution involved in the next steps of the project. Additionally, in this document is possible to find a detailed explanation regarding each step of the Output 2, including the content that will be available on the Digital Data Literacy Strategic Plan for schools, and what is expected from the involvement of teachers, school leaders and students in the Inception, Ignition and Acceleration groups.

Finally, the results obtained by the working groups will facilitate the elaboration of a realistic and useful handbook that will guide other institutions to ignite their school in the data literacy community.

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