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Acronym
COMnPLAY SCIENCE

Full Title
Learning science the fun and creative way: coding, making, and play as vehicles for informal science learning in the 21st century

Programme / Pillar / Topic
Horizon 2020 / Science with and for Society / Science education outside the classrooms

Type of Action
Research and Innovation action

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Overview
The project aims to help Europe better understand the new ways in which non-formal and informal science learning is taking place through various coding, making, and play activities that young Europeans (children, adolescents and young adults) are nowadays increasingly engaged with, outside school and higher education science classrooms, beyond the formal boundaries of science education.

The project’s main objectives are to:

a. Develop an appropriate conceptual and methodological framework integrating all aspects of the project into a unifying conceptual map.
b. Setup a European-wide community of stakeholders, including learners, educators, facilitators and policy makers from diverse fields, to contribute, guide and help assessing the conducted research.
c. Identify, pool and analyse diverse existing coding, making and play-based practices taking place outside formal science classrooms which bear some promise for non-formal and informal science learning.
d. Conduct in-depth learner-centred participatory empirical research on selected practices.
e. Gain a deep understanding of the impact that this kind of non-formal and informal science learning has on formal science education, traditional non-formal and informal science learning interventions, young people as learners and citizens, as well as, on society.
f. Communicate and disseminate the messages and outcomes of the project widely, and enable the exploitation of the findings of the research through the development of relevant guidance for practitioners and recommendations for policy development and further research.
The main results stemming from the project include:

- An online inventory of all the identified and pooled practices, appropriately categorized and annotated in the light of the findings of the research, available to stakeholders and the public.
- A set of community building methods and tools for everyone wishing to get involved in community building linked to the project.
- A Web-based game promoting and supporting the continuous prolonged engagement of learners and their facilitators in the field research.
- The COMnPLAY-Science Knowledge Kit, a modular set of reader-friendly, practice-oriented publications, encapsulating the findings of the project.
- The COMnPLAY-Science Roadmap for Europe, a detailed concerted account by the consortium, the stakeholder communities and policy makers of the potential for short-, medium- and long term impact of coding, making and play-based non-formal and informal science learning.
- Numerous public events (workshops, training seminars, conferences, contests, fairs), often combined with training activities (winter and summer schools).

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OVOS

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Science Museum Group, UK

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Facebook: https://fb.me/ComNPlayScience
YouTube: https://bit.ly/2Hq5FsK
Twitter: @comnplayscience
ResearchGate: https://www.researchgate.net/project/CoM-n-Play-Science
Executive Summary

This deliverable reports on the outcomes of Tasks 4.1 and 4.2 in the form of practical community building methods and tools which will facilitate the development of a community of stakeholders around the project (learners and their parents, educators/facilitators, practitioners and policy makers from diverse fields and from across Europe), their consultation, and their involvement in all stages so that all research conducted can be in close contact with real life conditions. The aim of the report is to introduce the guidelines according to which the Community Building Methods and Tools will be set up and carried out during the project.

Section 1 provides a short introduction to the role and scope of this document.

Section 2 introduces the role, contribution, benefits and potential challenges for each stakeholder group, including Education Academics and Researchers, Educators (i.e., facilitators, teachers and practitioners), Policy Makers, Learners and Parents.

In the following sections (3 and 4), specific methods and activities are presented, which aim at creating a sustainable community, the members of which will support the proposed initiative and get inspired towards creating or/and implementing non-formal and informal learning activities based on coding, making and play in science education.

Section 5 presents communication methods and tools that will allow new members to get aboard and sustain an informed and active community, including: (a) Face to face contact, (b) E-mail contact, (c) Web site, (d) Social media, (e) Events (local and international), (f) Contests and (g) Mini-game. Moreover, various alternatives of technological tools that may be used and adapted in order to set up an online forum platform are described along with indicative guidelines on how to keep a community active and how to structure online content.

Section 6 is dedicated to the General Data Protection Regulation (GDPR) established by the European Union and its impact on aspects of the COMnPLAY Science project which are related to Community Building Methods and Tools (data protection and privacy policies, event organisation, online communities, social media, etc.).

Finally, Section 7 summarizes the goals to be achieved by the project in the context of the Community Building activities.
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1. Introduction

This deliverable reports the outcomes of Tasks 4.1 and 4.2 in the form of practical community building methods and tools which will facilitate the development of a community of stakeholders around the project (learners and their parents, educators/facilitators, practitioners and policy makers from diverse fields and from across Europe), their consultation, and their involvement in all stages so that all research conducted can be in close contact with real life conditions.

This project will investigate important parameters on the introduction of coding, making and play in science education supported by the development of a Community of Stakeholders (or Community of Practice – CoP as terminology used in the literature).

Efforts for the building of a community of stakeholders around the project starts from the outset (Task 4.2, M1-M36). Plans are made and tools are selected so that the consortium can collaborate with learners and their parents, facilitators, other relevant practitioners, and policy makers from all participating countries and beyond, during the whole project. Facilitating their consultation and involvement in all stages of the participatory research, the research can look into real life conditions and applications of coding, making and play for non-formal and informal science learning, and the community can guide the consortium towards delivering outcomes ready for full and immediate exploitation across Europe.

Overall, the community created in the Preparation phase and maintained in the subsequent phases will consist of at least 500 individuals who will be available for participation in broad-base quantitative aspects of the research (the wider community), and among them at least 100 individuals available for participation in the in-depth qualitative aspects of the research (the core community). The community building effort starts in the first project month, when the project launches an invitation to communities and practitioners to collaborate and contribute their practices, in the context of the Introductory Workshop (M1, June 2018). Next, in the context of the Community Workshop (M5, October 2018) a call is issued and promoted for the engagement of communities and practices in the processes of the field research. By the Grand Launch Event and Winter School (M9, February 19), the project will have managed to form the community of stakeholders that will be involved in the field research during the rest of the project. Throughout the project, the composition of the community is monitored and moderated so that the members involved cover all aspects of the project and of its expected impact. Interaction, exchange and sharing within the community is also actively monitored, facilitated and motivated, exploiting social media, other digital spaces and tools, as well as the gameful design of the research described further below.

The composition of the community will be monitored and moderated so that the stakeholders involved will comprehensively cover all of the diverse aspects of the project and of its expected impact. In particular with regard to specific aspects of the expected impact (impact on science education and impact on society, innovative practices reflecting societal needs,
introduction of assessment and accreditation in the future) special provision is made so that the project community will include:

- At least 40 members with special expertise/interest in the impact on science education and on society.
- At least 2 special interest groups focused on the impact on science education and on society.
- At least 20 members with special expertise/interest in innovative practices reflecting societal needs.
- At least 1 special interest group focused on innovative practices reflecting societal needs.
- At least 10 members with special expertise/interest in the introduction of assessment and accreditation in the future.
- At least 1 special interest group focused on the introduction of assessment and accreditation in the future.

Interaction, exchange and sharing within the community will be actively monitored, facilitated and motivated by the project. Popular social media (e.g. Facebook) will be exploited in order to provide the community with a digital space for interaction, and will be complemented with other tools offered by the consortium. Some of the additional tools will be offered as alternatives to popular social networking, e.g. in cases of activities involving minors for whom the use of popular social networking is not appropriate.

The development and sustainability of the community of stakeholders will be continually monitored throughout the project. Sustainable intrinsic motivation of the community for active participation in the research processes will be achieved through two means, as described below: a) gameful design of the process of learners’ and practitioners’ involvement in the research; and b) contests organized by the project.

This deliverable aims to inform the consortium in the next steps of the project and the interested average reader outside the project wishing to get involved in community building linked to the project (target number of downloads: 100).

1.1 Acknowledging EU funding

All communication related to the project (including electronic communication using social media, etc.) and all infrastructure, equipment or major results funded under the grant will (EUROPEAN COMMISSION, 2014, 2018):

(a) display the EU emblem
(It can be downloaded in various format resolutions from: https://europa.eu/european-union/about-eu/symbols/flag_en)

(b) include the following text:

“This project has received funding from the European Union’s Horizon 2020 research and innovation programme under grant agreement No 787476”.

and

(c) the following disclaimer:

“This dissemination item reflects only the authors’ view. The Research Executive Agency (REA) and the European Commission are not responsible for any use that may be made of the information it contains”.

2. Identifying community stakeholders

In order to build a community, first we need to identify and agree upon who are the candidate members of this community. Who do we need to get on board? Why? How will they benefit from participation? What problems might we face?

The project involves five key stakeholder groups:

Group A. Education Academics and Researchers
Group B. Educators (including facilitators, teachers and practitioners)
Group C. Policy Makers
Group D. Learners
Group E. Parents

Each group has distinctive characteristics and interests, as well as potential contribution and impact on the outcomes of the project:

Group A. Education Academics and Researchers

Who are they?

• People who study learning and the interplay between formal and non-formal / informal learning.

Why are they important?

• They offer theoretical frameworks (potentially from a number of disciplines) to inform and guide analyses of learning and engagement.
• They offer guidance on the design of participatory research techniques.
• They offer methodological tools for research on learning (in all types of settings, and formats).
They offer insights on appropriate evaluation techniques appropriate to the domains of learning. For example, they may advocate for processes of formative assessment rather than the application of summative measures.

- They can share the findings in their academic publications, but also use findings in the development of education/youth policy work.
- Evaluate and provide recommendations to improve curriculum planning and teaching methods.
- Train teachers.
- Modify traditional teaching approaches.
- Share ideas on the organisation of formal and non-formal learning practices and events on Science Learning.
- Share expertise on previous relevant research approaches and findings.
- Provide a robust evidence base.
- Added status for funders and policy makers.

**What do we want to achieve?**

- Form a Community of Practice.
- Develop curriculum to be aligned with non-formal/informal learning methods.
- Apply problem-based learning activities in non-formal and formal learning practices that address real life problems.
- Involve them in the discussion concerning the organisation of relevant events and research approaches, as well as the interpretation and dissemination of the results of the project.
- The formation of a community comprising both those with practical understanding of this emerging field (including its design and facilitation) and those with a deep theoretical understanding of the nature and processes of learning, facilitation and evaluation.

**How will they benefit from participation?**

- Potential to open new areas of collaboration and research.
- Their involvement and contribution will be acknowledged by the project.
- Gain pragmatic insights into the nature and organisation of these new domains of learning.
- Potentially obtain access to new sites for research.
- Gain new contacts (academic and practice-based) to enrich their own networks.
- Exchange knowledge from each other.
- Provide means for building a community and exchange knowledge.

**Potential challenges?**

- Language barriers.
- Lack of a core group.
- Low level one-to-one interaction between members.
- Practice intangibility.
Some may be unfamiliar with the logistics and practicalities of research in more non-formal settings.

- Limited availability and time.
- Academic researchers may be committed elsewhere and unable to participate as they would wish.
- Academic research may not be open access and so out of reach of the practitioners who would benefit from insights already identified.

**Group B. Educators**

**Who are they?**

- People developing, delivering or, interested in using, coding, making and play-related non-formal / informal sector learning experiences through various practices.

**Why are they important?**

- They play a key role in developing and integrating learning activities in non-formal education.
- They assist students to build on their skills and learn new ones, embracing the spirit of creativity and innovation.
- They can contribute to identifying and pooling diverse existing coding, making and play-based practices taking place outside formal science classrooms which bear some promise for facilitating science learning.
- They can help and participate in in-depth learner-centred participatory empirical research on selected practices.
- They can offer insights into the ways in which the productive attributes of non-formal and informal sector learning could be adopted in formal sector science education. Furthermore, in implementing new non-formal techniques in their classes, and advocating for some effective classroom practices in non-formal settings, they will act as ambassadors demonstrating the potential of building greater interplay between formal and non-formal ways of engaging with science.
- They can advise developers of practices by reporting their own experiences.

**What do we want to achieve?**

We would like (some of) them to:

- Contribute their practices.
- Collaborate with us and participate in our studies.
- Download, disseminate and ideally use new practices.
- Provide feedback.
- Participate in project events.
- Play the web-game.
- Report their experiences in and outside classrooms.
How will they benefit from participation?

- They will gain new ideas and insights from others in the community about innovative coding, making and play-based techniques.
- They will have the opportunity to be in contact with others across Europe involved in similar activities.
- They may better understand how their endeavours may complement formal sector learning, and vice versa.
- Open up new areas of collaboration, research and evidence that may help in seeking of additional funding.

Potential challenges?

- Language barriers.
- Lack of identification with the community.
- Practice intangibility.
- Reluctant to share their practices (for various reasons, e.g., fear of criticism, difficulty in providing a structured description, ad-hoc nature of activity, unsure or not convinced of the mutual benefits, and so on).
- Some may be sceptical regarding the educational value and impact of the practices.
- Limited free time to engage in sharing and dissemination efforts.
- Gaining access to key individuals (because school administrations may prevent this).
- Preparation of the learning activities requires time.

Group C. Policy Makers

Who are they?

- People at local / regional / National / EU / International level who have the authority to shape how education works (at different levels).

Why are they important?

They can:

- Embrace project results and propagate them into respective policy frameworks, thus effectively promoting their wider acceptance and adoption.
- Influence political bodies regarding financial issues.
- Provide support and follow-up opportunities and potential benefits for future developments: inspectors/educational advisors, Ministry representatives, curriculum developers, methodologists, etc.
- Appropriately highlight, at the level of funders and administrators, the role, nature and potential value of non-formal, and often ad-hoc, making/coding opportunities.

What do we want to achieve?

- Convince them about the added-value of our results.
- Have them on “our side”.
- Influence future decisions.
• Help us introducing the proposed learning activities in formal education.

**How will they benefit from participation?**

• Get more ideas to provide more effective educational tools.
• More effective and better targeted funding and interventions.
• Will be part of the discourse around a newly emerging field of practice and study.
• Will be introduced to innovative practises.
• Will enrich their understanding and experience in non-formal and informal science education.

**Potential challenges?**

• They need hard evidence to be convinced.
• Limited availability and time.
• Depending on their background, they may have preconceived ideas regarding this approach.
• They use and understand a “different language”, usually infused with legal and managerial terminology.

**Group D. Learners**

**Who are they?**

• Young Europeans (children, adolescents and young adults)

**Why are they important?**

• They are required in order to conduct learner-centred participatory empirical research.
• They are key partners in the project: their insights, needs, learning, and experience will inform our models of practice around design and facilitation, and our recommendations for policy and practice.
• They are engaged in the practices and activities that the project aims to study.

**How will they benefit from participation?**

• Individuals will experience new initiatives that may have been previously inaccessible to them (due to lack of local provision, or being unaware of such opportunities).
• Youth communities will gain resources and practical knowledge about how they can engage in making/coding activities.
• They will have the opportunity to participate in playful and engaging activities (i.e. non-formal learning practices and events organised by the project).
• Motivation to expand their natural curiosity and desire to explore.
• Creative thinking.
• Experience a “learn by doing” approach.
• Learn how to use coding, making and play activities in order to be able to solve real-world problems.
• Get familiar with alternative learning approaches.
• Cross European community will allow them to interact with other peers.

What do we want to achieve?

• Work in partnership with young people to identify, improve and disseminate the practices that are effective and transformative for individuals and youth communities.
• Contribute their opinions and experiences in shaping science education in schools.
• Indicate if the proposed methods can help learners to develop their critical thinking.
• Indicate if the proposed methods can help learners be creative and learn through fun.

Potential challenges?

• Ethical issues
• Language barriers
• Anonymization (i.e., nicknames)
• Lack of time due to after-school activities.
• Depending on their background or previous experiences, some may be negatively prejudiced against coding/making activities.
• Gaining and maintaining contact.
• Lack of encouragement from the parents / teachers / co-students.

Group E. Parents

Who are they?

• The caregivers of the learners that will be included in the community.

Why are they important?

• Their consent is required for the participation of the learners (i.e., their children) in the community.
• Their active participation and feedback can be valuable, and can also be used for mobilizing educators and policy makers.
• Their positive (or negative) attitude may considerably affect educators, learners and policy makers.
• Active involvement of parents in their children's education support the learning and development of their children.
• They have to approve all surveys among minors.

What do we want to achieve?

• Help them understand the educational value and impact of practices.
• Learn about the value of science through the contexts of making and coding for all sorts of jobs in all sorts of industries.
• Have them consider such type of activities and practices to motivate their children (inside or outside schools).
• Participate in studies and project events.
• Provide feedback.
How will they benefit from participation?

- Attending events, seminars or as member of the communities of the project parents may get inspired, trigger their curiosity and expand their knowledge skills and interests towards Science Learning.
- Learn how to lead the curiosity of children and encourage them to solve problems.
- Connect with experts and other parents to communicate and share common experiences.
- Common ground for activities with their children.
- Communicate and interact with educators.
- Active role to their children education.
- Learn about the value of participation in coding/making/play activities in non-formal sectors for engagement in science/maths learning in formal sectors.
- Opportunities to introduce their children to playful learning activities.
- In addition to seeing the value of such activities for their children’s learning and engagement, they may develop their own interests.
- Opportunities to motivate their children to follow a science career.

Potential challenges?

- Language barriers.
- No related background knowledge.
- Lack of interest.
- Limited time.
- Access / notification / approval of communications from / to their children.
- Conservative thinking. May consider playful approaches as non-educational.
- Gaining and maintaining contact.

3. Wider & core communities

The *wider community* will consist of at least 500 individuals who will be available for participation in broad-base quantitative aspects of the research.

The *core community* will consist of at least 100 individuals from the *wider community*, who will be available for participation in the in-depth qualitative aspects of the research.

3.1 Local level-communities

It is very likely, that partners, based on their local networks, will setup and run local communities of stakeholders who are interested or, want to actively participate, in the project, but eventually only a subset of them will take part in the *wider and core* project-level communities (e.g., due to language, location, time, or other constraints).
The proposed methods and tools need to take this into account, supporting all levels and types of communities, as well as the smooth and transparent integration and transition from one to the other.

4. Practical community building methods and tools

This section is about how we can build our community, where we can find potential members, how do we approach them, how do we sign them in, how do we engage them, how do we keep them active and involved and how do we make them stay.

To develop a vibrant community we will form a Communities of Practice (CoP). CoP roots in apprenticeship as a learning model and based on the notion of legitimate peripheral participation\(^1\). Legitimation and participation together define the characteristic ways of belonging to a community whereas the peripheral and participation are concerned with location and identity in the social world. Wenger extended the concept and applied it to other domains, such as organizations\(^2\). On the internet, online communities continue to rapidly grow as well, increasing the need for improved knowledge management. In this context, the term Communities of Practice has become of much greater interest in recent times. They are seen by people as a way of promoting innovation, developing social capital, facilitating and spreading knowledge within groups, etc.

Communities of Practice are groups of people who share a concern or passion for something they do and learn how to do it better individually and together as they interact regularly, e.g. a group of scientists working together to solve similar problems or a group of teachers helping each other to adjust to their new position. McDermott and Snyder later updated this definition to “groups of people who share a concern, a set of problems, or a passion about a topic and who deepen their knowledge and expertise in this area by interacting on an ongoing basis”\(^3\). A Community of Practice can evolve naturally because of the member’s common interest in a particular domain area or it may be created deliberately with the aim or goal of gaining knowledge relating to a specific topic. Wenger stated that the following three characteristics are crucial to a community of practice and these are what differentiate it from a normal community (e.g. a neighborhood):

---


• **The Domain:** The identity of a community of practice is defined by a shared domain of interest. It is not merely a network of people or a group of friends. Membership implies a commitment to the domain.

• **The Community:** In pursuing their interest in their domain, members engage in joint activities and discussions. Members willingly help each other and openly share information. Through interaction, members build relationships that enable them to learn from each other. Members don’t have to meet on a daily basis but unless members interact and learn together on a regular basis, they are not a community of practice. Having the same job or job title as someone else is not enough to form a community of practice.

• **The Practice:** A community of practice is not simply a group of people who like the same thing (e.g. sport, a book, a TV show etc.), that is referred to as a community of interest. Members of a community of practice are practitioners. They share a common practice and they develop a shared repertoire of resources which can include experiences, stories, tools, ways of addressing recurring problems etc. This type of interaction needs to be developed over time and the interaction needs to be sustained.

**Communities of Practice utilize several activities**, including, but not limited to⁴:

- problem-solving
- requests for information sharing
- seeking experience
- reusing assets
- coordination and strategy
- building an argument
- growing confidence through practices
- discussing developments
- documenting projects
- visits
- mapping knowledge
- identifying gaps

**The structure of a CoP** described by Wenger consists of three inter-related terms and these are all crucial to the formation of the CoP:

A. **Mutual Engagement:** Members in a community establish norms and build collaborative relationships. They engage in common actions or ideas. From Wenger’s perspective, mutual engagement is associated with the work involved in learning how to interact with other people in an emerging community of practice.

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B. **Joint Enterprise:** Through the member’s interaction, they develop a shared understanding of what binds them together. This creates accountability among participants.

C. **Shared Repertoire:** As part of its practice, the community produces a set of communal resources which is called their “shared repertoire”.

### 4.1 Face to face contact

A very effective way to get people aboard, is through personal contact. This may happen by design (e.g., during a scheduled information day / event), or by serendipity.

Some indicative facts that may be mentioned to get someone’s interest in the project include:

- The project is about the value of coding, making and playing activities for youth engagement with science.
- Related practices will be collected, studied and disseminated.
- Several significant European research and academic institutions are involved.
- It has started on June 2018 and will end after 3 years.
- We focus on building a European-wide community and inviting people interested in this subject to participate.
- There are several ways to participate including: getting informed about project results and materials, joining online groups and discussions, participating in workshops and events, and sharing one’s own practices.

Some follow-up actions include:

- Referring the person to the project’s web site for further information.
- Offering a printed project leaflet (if available).
- Providing your e-mail address and or asking for the person’s e-mail, in order to send a comprehensive message describing the project, as well as options and ways for possible participation (see next section).

### 4.2 E-mail contacts & lists

E-mail is a handy, fast, effective and cost-free way for inviting people to join the community. On the downside, if the receiver does not recognise the sender’s address, there is a good chance that the e-mail will end-up in a spam or trash folder. To minimise this possibility, it is preferable to send first-contact e-mails from a personal account (the receiver may acknowledge the organisation, or at least the country of origin) rather than the generic project’s address.

An e-mail invitation, as presented in Annex A, can be adapted when targeting a specific user group. Since, in the case of Learners, the recipients will most likely be minors (and probably also not even have an e-mail address), the e-mail targeted to them can be addressed to their Parents, also including some information explicitly targeted to the children.
Important note: When contacting a person whose e-mail address was not obtained through direct personal contact (e.g., through a mailing list, a social media group, a publication), a note or a post scriptum should be added, mentioning the original source of the contact information (e.g., “Your e-mail address was retrieved from the official web site of the National Council of Education” or “was provided by the Science Teachers Association”, etc.), also mentioning that “No further contact regarding the COMnPLAY SCIENCE Project will be made, unless you subscribe to the mailing list at the project’s web site (http://comnplayscience.eu).”

4.2.1 Creating and managing e-mail lists

A very popular tool for creating and managing mailing lists is MailChimp\(^5\). It is a simple and easy-to-use tool for e-mail marketing campaigns, offering several options for designing, sending and saving templates of e-mails, as well as newsletters of varying types which can also be shared on social networks (e.g., Facebook, Twitter). MailChimp also provides reports and analytics regarding audience engagement (how many contacts opened, clicked, or unsubscribed from a campaign, geolocation, etc.). MailChimp is available for free for mailing list of less than 2,000 subscribers and 12,000 e-mails per month. It is one of the most popular e-mail marketing services and also considered to be the best e-mail marketing software for non-profits\(^6\).

4.3 Project’s web site

The invitation will appear at the Community Section of the Project’s web site. Additionally, it will be sent to people who will ask to join the Project’s mailing list.

4.4 Project’s social media

An invitation will also be posted at the Project’s social media (Facebook and Twitter).

4.5 Events

Events are a good place to recruit community members. A set of tools is being created in order to promote the project in an effective and coherent way and approach potential community members. These tools include:

- PowerPoint Presentation - Introduction to the COMnPLAY SCIENCE Project
- PowerPoint template for creating additional project-related presentations
- 2-slide PowerPoint (intro to the project + link to the Community section) to be appended to other presentations
- Project Poster
- Project Leaflet / Brochure

\(^5\) https://mailchimp.com/
\(^6\) https://www.wpbeginner.com/showcase/best-email-marketing-services/
• Project Factsheet
• Invitation to Join the Community (for a sample that can be printed on A4 see Annex B).
• Newsletters to all the participants announcing the event
• References of studies that prove the scientific scope of the proposed practices

The event preparation should include the following steps:

(a) Confirm the purpose of the event and create the goals.
(b) Define audience and ideal attendee numbers.
(c) Design the workshop agenda – Intro, exercises, materials/tools needed and a well thought summary that the audience can take away.
(d) Produce supporting materials as mentioned above.
(e) Devise marketing strategy (i.e., budget, marketing channels, key messaging, key influencers, marketing plan, etc.).
(f) Book the venue, catering and staff support that will be needed throughout the event.
(g) Set up the event page that will communicate and promote the event through an effective unity of logo, theme, colours and fonts on the event website.
(h) Organize take away materials for attendees (e.g. badges, pens, notepads, paper bags, event handouts) with the logo of the project.

4.5.1 Events organised by the project

At least nine major communication events will be organized in conjunction with corresponding major project consortium meetings in the countries of the consortium. At least at the beginning and before the end of every event, an invitation for participation to the community will be publicly addressed. Additionally, the printed invitation will be disseminated.

At least nine major communication events are organized in conjunction with corresponding major project consortium meetings in the countries of the consortium so that all project partners can contribute to these public communication events without additional travel and subsistence costs to the project (adequate resources in the project budget have been earmarked for consortium members’ attendance of these events). The nine communication events will be attended in person by at least 500 participants, while the project will also offer the option of following the proceedings at a distance, through video streaming and the popular social media. More precisely:

• **Introductory Workshop** (June 2018): introduction to the aims and methods of the project, invitation to stakeholder communities to collaborate (cf. Task 4.2).

• **Community Workshop** (Oct. 2018): presentation of the conceptual framework of the project (Task 1.1), promotion of the call for the engagement of communities and practices with the research (Task 4.2)

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[7](https://eventcart.com/blog/the-ultimate-checklist-for-organizing-a-workshop)
D4.2 Community Building Methods and Tools - PUBLIC

- **Grand Launch Event and Winter School** (winter 2018-19): presentation of the research methods and tools (Task 1.2), of the identified and pooled practices (Task 2.1) and of the research sample (Task 2.2); playful start of the engagement of the communities in the research (Task 4.2)

- **Community Workshop and Contest Launch** (spring 2019): presentation of first experiences from the research on learning (Task 3.1), motivation of the communities engaged in the research through the launch of the first contest (Task 4.2)

- **First Research and Innovation Workshop and Summer School** (summer 2019): presentation of the interim findings of the research on learning (Task 3.1) and of the first version of the online inventory (Task 2.3), finals and conclusion of the first contest (Task 4.2)

- **Community Workshop and Contest Launch** (winter 2019-20): presentation of experiences from the research on learning and impact (Tasks 3.1, 3.2, 3.3), motivation of the communities engaged in the research through the launch of the second contest (Task 4.2)

- **Second Research and Innovation Workshop and Summer School** (spring/summer 2020): presentation of the findings of the research on learning and impact (Tasks 3.1, 3.2, 3.3), finals and conclusion of the second contest, launch of the third contest (Task 4.2)

- **Key Stakeholder Workshop** (autumn 2020): communication of all project findings and of the pre-final plans for further exploitation to key stakeholders and policy makers (Task 4.3)

- **Final Conference and Fair** (spring 2021): presentation of all project outcomes to a wide audience of practitioners, other stakeholders and policy makers (Task 4.2), finals and conclusion of the third contest (Task 4.2).

4.5.2 **European & International Events (Conferences, workshops, etc.)**

In such events, depending on the type of participation and level of engagement, project partners may employ any of the aforementioned promotional tools.

4.5.3 **Local Events**

Local event address people at the local level. They may include initiatives addressing people within the partner institutions, as well as communities of stakeholders at the local level, e.g. learners, educators, facilitators, policy makers in the context of a town or city in which a project partner develops community-based activity for the project. In each participating country, at least 4-5 local events will be organized in the course of the project. Local events provide a good opportunity to meet people before inviting them to join the community as well as directly enlisting them. To this end, local events should allow participants to join in, either by filling in a paper form, or making to them available (e.g., on a laptop or tablet) the Community section of the project’s web site.
4.6 Contests

Participants’ intrinsic motivation for active engagement in the research processes is also achieved through the organization of three major project contests. In those, participants are incentivized through the opportunity for publicity and prizes that will be awarded for active participation in activities that will provide the research with rich input. The First Contest will be launched in the Community Workshop and Contest Launch (M13). Its finals and conclusion will be part of the subsequent First Research and Innovation Workshop and Summer School (M17). The Second Contest will be launched in the context of the Community Workshop and Contest Launch event in M22. The finals and conclusion of the Second Contest will be during the Second Research and Innovation Workshop and Summer School (M27). In the framework of the same event, the Third Contest will also be launched, to be concluded with its finals in the Final Conference and Fair (M36). Overall at least 150 individuals will be engaged with the three contests, and there will be 5 winners per contest (15 winners overall). After the completion of contests the winners will be rewarded with branded giveaways.

4.7 Mini-game

A mini-game will be designed, developed and implemented in the first 8 months of the project as the main tool for the promotion and support of the continuous prolonged engagement of learners and their facilitators in the field research, which will last 19 consecutive months. Through the utilization of appropriate and meaningful gamification schemes involving the collection of points, badges, etc., though mini-contests online, as well as through rich opportunities for players to share and promote their activities and achievements within the community, the game will help in the structuring and timing of the various empirical research activities in very diverse settings, and will motivate players to participate in surveys, interviews, workshops, etc. The game will be delivered as part of deliverable D1.2 ‘COMnPLAY SCIENCE Research Instruments and Tools’ in M8. It will be offered for use as a responsive web application. It will be launched in the Grand Launch Event and Winter School (M9, February 2019), playfully kick-starting the engagement of the communities in the research.

4.8 Tapping into existing pools of stakeholders

4.8.1 Online groups

There are several existing online groups (in dedicated Forums, Facebook, Twitter, LinkedIn, etc.) who share common ground and interests with the project. A list is being compiled, using the form presented in Annex C. For confidentiality / privacy reasons the results will not be included in this deliverable. A very kind and brief invitation will be addressed to their members (if required, after getting related permission by the group’s moderator).

4.8.2 Initiatives & (Research) Projects
Another source of potential community members are related active local, national, European and international initiatives and projects. A list is being compiled, using the form presented in Annex D. For confidentiality / privacy reasons the results will not be included in this deliverable. The contact persons identified will be contacted, invited to join the community, as well as to propagate the invitation to other members of their group if deemed appropriate.

4.9 Special provisions for minors

Since COMnPLAY SCIENCE’s vision is built upon the participation of minors in non-formal learning activities, their contribution and participation in the online communities of the project is required. However, there is a number of actions that have to be followed in order the project to be fully conformed to special provisions regarding the privacy and personal data protection of minors. Such are the following:

A. Share guidelines

Building a healthy community entails standards that have to be communicated to all the community members, especially to minors, in a clear way in order to avoid any potential disruptive behaviour. Specific language and behaviour expectations should be set up front as guidelines easily accessible from all the community members. More specific, online forums of the project may have a “Read before posting” link at the top of the page, which will provide to young members a guidance and encourage them to communicate properly, whereas, consequences of potential disruptive behaviour will be exclusively reported. Respectively, in the comment sections of the online communities communication guidelines will be shared through a link or popup window.

B. Apply proactive moderation

The community administration will ensure to embed the appropriate tools able to automatically filter, escalate and review abusive content. Moderation software, such as profanity filters or content moderation tools, can be used in order to prevent inappropriate messages to reach the community. Profanity filters use strict backlists or whitelists to detect harassment, however they may lack accuracy in understanding the context or nuances while some support only the English language. On the other hand, content moderation tools accurately identify inappropriate behaviour and remove it in real time. They allow to moderate the community much more efficiently and effectively than a simple profanity filter. Alarming content (e.g. suicide threats, child exploitation, extreme harassment, etc.) can be escalated to queues in order to be reviewed by the Administrators or take automatic action on accounts that post disruptive content.

Furthermore, moderation tools may also be applied to detect and filter usernames, required for new registrations, aiming to prevent offensive language. These tools do not allow

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8 https://www.thewhat.com/three-techniques-to-protect-users-from-cyberbullying/
inappropriate usernames to be registered, while they provide feedback to users through short messages referring to language recommendations.

The COMnPLAY SCIENCE community platform will retain a reporting system to monitor abusive behaviours and take appropriate actions based on the aforementioned methods.

The potential of using anonymization tools (i.e., IP anonymization, etc.) will be explored to protect the personal information of minors without distorting the statics of the project. All the personal information that will be collected during the project will be directly provided by parents/guardians accompanied by a written consent.

C. Notify parents
Parents and legal guardians of young learners can be given access to their children’s records regarding their activities in the online communities until the age of eighteen years old. Once young members have turned eighteen, parents can be given access if their child authorizes the permission.

The Children’s Online Privacy Protection Act (COPPA)10 clarifies how parents, teachers and online forum providers can protect children’s personal information in respect to promoting the effective use of social media and online learning communities as educational tools. The rules apply to operators of general audience websites or online services with actual knowledge that they are collecting, using, or disclosing personal information from children under 13.

Parents will be promptly notified for the activities of their children, including reporting of their communication activities, duplicated e-mails, explicitly informed in case of alarming content, etc.)

D. Reward positive users
Positive behaviour of young community members can be reinforced through rewarding strategies. Forum moderators can up-vote posts that conform to community standards. Community managers can comment publicly on encouraging or supportive posts. Even private messages can be sent to users who contribute to a healthy community. Moreover, social rewards, such as providing access to exclusive content or achievement badges, will reinforce positive behaviours as well as peer recognition and popularity. Positive users can be identified through content moderation tools automatically by measuring the user reputation based on behaviour.

E. Informed Consent
Informed consent will be asked from both parents or legally authorised representatives and also children, only if they are able to give consent, taking into account the age of consent for children in EU countries (see also EU Better Internet for Kids platform11).

10 https://www.ftc.gov/tips-advice/business-center/guidance/complying-coppa-frequently-asked-questions
11 https://www.betterinternetforkids.eu/web/portal/practice/awareness/detail?articleId=3017751
If the research involves research participants who are unable to give informed consent (e.g., children), the consent form shall be signed by the research participant's legally authorized representative. It is normally considered appropriate that in the case that research participants are children who are able to give assent, apart from the consent of their legally authorized representative, agreement to participate shall also be obtained from the children themselves.

It will be ensured that each person signing the written consent form is given a copy of that form (in pdf format). The research participant or the research participant's legally authorized representative will be given adequate opportunity to read the form before signing it. In addition, when conducting and reporting the research results, e.g. when these results involve data from online communities, it should be noted that the integrity and dignity of the participants has been respected and the rights and welfare of the participants (i.e. children, adolescents) were ensured.

More specific, parents may be requested to provide their consent in activities related to their children in cases such as the following, while they will be given the opportunity to opt out and withdraw their consent any time.

- Online registration in the project’s social media, forums, newsletters, etc.
- Usage of children’s personal data for statistical purposes
- Participation in learning activities
- Filling out questionnaires
- Appearance in pictures and videos of the project.

4.10 Additional provisions

COMnPLAY SCIENCE will conform to European Parliament regulations (18/03/2013) concerning the “Protection of minors in the media environment”\(^{12}\) in respect to actions that will ensure that minors are not exposed to harmful content, such as sexually explicit material, political opinions, religious beliefs, and views on racial matters, or information that might offend, shock, or disturb.

Additionally, the examples provided by the “Guide to Online Services\(^{13}\)” of EU’s Better Internet for Kids (BIK) web site will be studied, to further extend our approach by capitalizing on the practices followed by some of the most popular apps, social networking sites and other platforms which are commonly being used by children and young people (and adults) today.

\(^{12}\)http://www.europarl.europa.eu/RegData/bibliotheque/briefing/2013/130462/LDM_BRI%282013%29130462_REV1_EN.pdf

\(^{13}\)https://www.betterinternetforkids.eu/web/portal/onlineservices
5. Tools for implementing and running an online community

This section is about how we can implement and run an online community.

5.1 Online Forum Platforms

Any online community needs to support discussion and interaction among its community members. Popular social media like Facebook and Twitter may allow this to a certain extent, but they support only unstructured and “shallow” types of dialogue. The optimal tool for such functions is an “Internet forum”, or “message board”. Forums support online (often moderated) discussions, organised around topics and subtopics, in the form of posted messages. A dedicated online forum platform will allow existing and potential stakeholders to interact with the project’s community and with each other in order to discuss, suggest and/or express their experiences regarding non-formal science learning activities and their potential impact on minors. Everyday discussions and comments through an online community generate valuable knowledge and may propose solutions that will optimize non-formal education based on Science learning initiatives and suggest possible improvements.

Currently, there are numerous free and commercial forum tools available. There are also websites like the ForumMatrix\textsuperscript{14} and Forum Software Reviews\textsuperscript{15} which allow to select and compare the features of them. According to builtwith.com\textsuperscript{16}, (Top In Forum Software Usage Distribution in the Top 1 Million Sites), currently the mostly used popular software is vBulletin, followed XenForo, SMF, Discourse, phpBB and Invision Power Board.

Some of the most popular related platforms include\textsuperscript{17,18,19}:

\begin{itemize}
  \item \textsuperscript{14} www.forummatrix.org
  \item \textsuperscript{15} www.forum-software.org
  \item \textsuperscript{16} https://trends.builtwith.com/cms/forum-software
  \item \textsuperscript{17} https://www.a2hosting.com/blog/5-outstanding-forum-platforms-set-online-community/
  \item \textsuperscript{18} http://www.quertime.com/article/15-best-online-forum-platforms-software-free-and-paid/
  \item \textsuperscript{19} https://www.webnots.com/comparison-of-bbpress-vs-phpbb-forums/
\end{itemize}
5.1.1 bbPress

bbPress is free and open source forum software built by the WordPress Foundation. It works on top of the WordPress Content Management System (CMS) and can be installed as a plugin into a WordPress powered website. It is light weight and works with most WordPress themes. It is mostly appropriate for creating a support or small forum integrated in another site. The WordPress.org support forum is using bbPress.

**Key Characteristics**

- Can be integrated in WordPress sites – no separate hosting is required.
- Easy and fast to set up and use.
- Small and lightweight.
- Very extensible and capable of handling custom forums.
- No need for a lot of maintenance for forums.
- 100% free.

5.1.2 phpBB

20 https://bbpress.org/
phpBB\textsuperscript{21} is a free flat-forum bulletin board software solution in the PHP scripting language. It has an extensive database of user-created extensions and styles database containing hundreds of style and image packages for customising a forum. It is claimed that almost 50% of forums on the web are powered by phpBB. It is a tool for creating dedicated bulletin board sites.

**Key Characteristics**

- Includes a robust extension system.
- Optimizes the forum for search engines.
- Offers powerful anti-spam functionality.
- Comprehensive set of moderation options (user management, post approval, forum search and administration features).
- Supports login via third-party services, including Google and Facebook.
- Requires a hosting service and a domain to install the software.
- 100% free.

5.1.3 Simple Machines Forum

Simple Machines\textsuperscript{22} Forum is a free software package written in PHP and using a MySQL database. It includes a powerful custom made template engine for controlling the layout of message boards and provides functions for letting a forum and a separate website to interact with each other. Simple Machines won forum-software.org best free forum software award in 2009.

**Key Characteristics**

- Advanced user and permission management settings.

\textsuperscript{21} [https://www.phpbb.com/](https://www.phpbb.com/)
\textsuperscript{22} [https://www.simplemachines.org/](https://www.simplemachines.org/)
D4.2 Community Building Methods and Tools - PUBLIC

- Offers both a template and a package management system.
- Multi-language support from a large community.
- Advanced security settings.
- Allows to create child boards under other boards (sub boards)
- Requires a hosting service and a domain to install the software.
- 100% free.

5.1.4 Discourse

Discourse is an open source Internet forum and mailing list management software application which includes several features popularized by social networks. The software provides a more “modern” approach on how discussion platforms should function, taking into account mobile devices and social networks.

**Key Characteristics**

- Natively designed for high resolution touch devices.
- Comes with advanced community moderation settings.
- Offers a ‘Like’ function for posts.
- Users can log in using their Google, Facebook, Twitter, and Yahoo accounts.
- Requires a hosting service and a domain to install the software.
- 100% free (but also offers hosting packages).

5.1.5 vBulletin

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vBulletin\textsuperscript{24} (vB) is a proprietary Internet forum software package developed by vBulletin Solutions. The vBulletin software package powers over 10,000 sites globally.

**Key Characteristics**

- Site Builder tools for creating a community website in minutes.
- A broad range of highly customizable themes.
- Multi-user system with unlimited roles and permissions.
- Expanded photo and video capabilities.
- Mobile optimized version to ensure a quality experience for smartphone users.
- It is not free. There is a licence fee (for self-hosting) and a hosted cloud version which has a monthly subscription cost.

### 5.1.6 Invision Community

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\textsuperscript{24} vbulletin.com
Invision Community\textsuperscript{25} is a flexible, feature-packed and easy to customize platform written in PHP and uses MySQL as a database management system. It provides a family of apps that can form the foundation of a community such as forums, image galleries, file sharing, social groups and more, neatly integrated into a single product.

\textit{Key Characteristics}

- Fully configurable.
- Can be integrated with existing systems via APIs.
- Easy To Manage.
- Works seamlessly on desktops, tablets & phones.
- Users can create their own blog within the community.
- It is not free. There is a licence fee (for self-hosting) and a hosted cloud version which has a variety of monthly subscription costs.

5.1.7 Vanilla Forums

Vanilla Forums\textsuperscript{26} is an open-source, standards-compliant, multi-lingual, fully extensible discussion forum for the web. It provides fine-grained control of what members can do and what they can see with role based permissions and also makes it easy to share content from a community to social networks.

\textit{Key Characteristics}

- Allows users to post questions and polls.
- A variety of community made themes and add-ons are available.
- Single-Sign On and Social media login.
- Can integrate with WordPress.

\textsuperscript{25} \url{https://invisioncommunity.com/}
\textsuperscript{26} \url{https://vanillaforums.com/en/software/}
• Free open source version to download. A hosted, paid, cloud-based community version also exists.

5.1.8 XenForo

XenForo\(^{27}\) is a commercial Internet forum software package written in the PHP programming language using the Zend Framework. It is a strong and popular software for big communities. According to Google Trends, activity around XenForo has been growing at a steady pace over the past four years\(^{28}\).

**Key Characteristics**

• Supports social engagement through user trophies for reaching milestones.
• Has a "like" system and integrates with Facebook.
• Provides recent activity streams.
• Highly extensible and flexible with a lot of add-ons.
• Built-in Search Engine Optimization (SEO).
• It is not free. There is a basic licence fee and additional fees for extra components.

5.1.9 Additional options

There are several additional – yet less popular – platforms and tools, including:

\(^{27}\) https://xenforo.com/
\(^{28}\) https://www.keycdn.com/blog/speed-up-xenforo/
(a) WordPress plug-ins

- BuddyPress\textsuperscript{29}: Helps you build any kind of community website using WordPress, with member profiles, activity streams, user groups, messaging, and more. It is not as well documented as bbPress and finding help can be difficult.

- WP Symposium Pro\textsuperscript{30}: Includes profiles, activity (wall), unlimited forums, friends, e-mail alerts, etc. It is highly customizable and multilingual. The version including all features is not free.

- CM Answers\textsuperscript{31}: A questions and answers plugin for WordPress that enables users to add questions and answers (Q&A) in a stack overflow style, leave comments, vote, and upload files in a discussion board format. The full (pro) version is not free.

- DW Question Answers\textsuperscript{32}: A WordPress plugin which builds a complete Question & Answer system for your WordPress site, like Quora or Stackoverflow. The plugin supports multi-languages, shortcodes, reCAPTCHA, e-mail notification system and so on. It is open source and free for commercial use.

(b) Stand-alone or hosted tools

- ZetaBoards\textsuperscript{33}: Offers free forum hosting for growing an online community. Forum communities are not limited by posts, members, or bandwidth. E-mail notification of new topics, replies to existing topics and notification of new registrants is not part of the standard ZetaBoard package. Google AdSense is present on all forums to allow for the free cost to forum admins to host their forums on their own domain.

- Vanilla Forums\textsuperscript{34}: Provides hosted and open source community forum software that powers discussion forums. It allows you to create a customized community that rewards positive participation, automatically curates content and lets members drive moderation.

- PunBB\textsuperscript{35}: A fast and lightweight PHP-powered discussion board. It is released under the GNU General Public License. Its primary goals are to be faster, smaller and less graphically intensive as compared to other discussion boards. PunBB has fewer features than many other discussion boards, but is generally faster and outputs smaller, semantically correct XHTML-compliant pages.

\textsuperscript{29} https://buddypress.org/
\textsuperscript{30} https://www.wpsymposiumpro.com/
\textsuperscript{31} https://wordpress.org/plugins/cm-answers/
\textsuperscript{32} https://wordpress.org/plugins/dw-question-answer/
\textsuperscript{33} http://www.zetaboards.com/
\textsuperscript{34} https://vanillaforums.com/en/software/
\textsuperscript{35} http://punbb.informer.com/
• FluxBB\textsuperscript{36}: Designed as a lighter, faster alternative to some of the traditional feature heavy forum applications. It is easy to use and has a proven track record of stability and security making it an ideal choice of forum for your website.

• PlushForums\textsuperscript{37}: A cloud-based forum platform aimed primarily at businesses and large organizations. Offers real-time discussions, integrated blog, member directory, private messaging and mobile support. It offers alternative subscription packages.

• Phorum\textsuperscript{38}: An open source message board system written in PHP designed to meet different needs of different web sites while not sacrificing performance or features.

• MyBB\textsuperscript{39}: A free and open source, intuitive, extensible, and incredibly powerful forum software eith everything from forums to threads, posts to private messages, search to profiles, and reputation to warnings. Through plugins and themes, MyBB's functionality can be extended.

• miniBB\textsuperscript{40}: A standalone, open source program, free to download and highly customizable. Comparing to the other message board software available on the market, miniBB just brings what it's created for: an easy, lite, and speedy quick forum. It is used to create a simple and stable community attached to an existing website at the deepest integration level, incl. the customization of the layout to the look of the website, or even synchronizing with the existing membership system.

5.2 Making the Online Community Active

Creating a successful online community or forum and making it active includes a number of steps. As suggested by Fizzle\textsuperscript{41} and WIX\textsuperscript{42}, these include:

1. Define Your Focus: What is the topic or theme that brings your community together? Who are the people you wish to have join your forum, and what are their shared interests?

2. Create an on-boarding process for your community: through a series of touch points (e.g., e-mails) that tells people why the community is important and guides them through creating a profile and posting their first message.

3. Create a guided video course about how to use your forums best: explaining the different features since many people have never used forums before.

\textsuperscript{36}http://fluxbb.org/
\textsuperscript{37}https://plushforums.com/
\textsuperscript{38}http://www.phorum.org/
\textsuperscript{39}http://www.mybb.com/
\textsuperscript{40}http://www.minibb.com/
\textsuperscript{41}https://fizzle.co/sparkline/active-community
\textsuperscript{42}https://www.wix.com/blog/2017/10/best-practices-for-creating-a-forum-website/
4. **Do not Over-Thread**: When too many threads are available, visitors (especially first-time visitors) get overwhelmed. Too many topics may also lead to a situation in which some threads have only very little conversation going on in them.

5. **Make It Beautiful**: Do not neglect your forum’s appearance. Members will feel more at home on a forum designed for greatness.

6. **Encourage progress logs or other types of forums that require regular interaction**: where people check in regularly to talk about what they have accomplished and what they are working. This type of forum is great for building activity and engagement in your community.

7. **Spend time in the community yourself**: especially in the beginning, it is crucial that people feel like it’s worth their time to participate in the forums. Before there are other contributors in the community, it’s your job to be there to answer every post that goes unanswered. Be pro-active, answer questions, start a conversation and encourage your community members to share their thoughts. Think about ways to get members engaged, like starting a poll or reviewing events that are relevant to your community.

8. **Promote members of your community to special positions**: eventually, a handful of members will stand out as leaders and active contributors. A great way to reward and encourage this behaviour is to recognize it in front of the whole community.

9. **Send weekly “what is new in the community” messages and give shout outs to people doing great stuff**: sending weekly summaries of the best posts and accomplishments from your community is a great way to keep people coming back, and to encourage them to make progress themselves.

10. Make sure e-mail notifications are enabled, and encourage people to subscribe to thread activity: forum notifications are important to let people know when there is activity on one of their posts or comments.

11. **Get your community together in other ways**: especially in person and on live video calls: the people who show up to either live online video calls and especially in-person meetups are consistently our most active forum members.

12. **Create case studies from your most successful members**: they are a great way to shine a spotlight on people who have accomplished great things. These case studies will encourage other members, and they can be a great way to draw in new members as well.

10. **Other ideas**:
   - Require real names and photos.
   - Funnel discussions from courses, blog posts and other places into the forums.
   - Track key forum metrics, including posts per member, percent of members with forum profiles, percent of members posting per week, etc.
   - Study features of other popular forums.
5.3 How do we structure content

The proposed online communities will form clusters of people around a common interest or goal aiming to develop valuable skills through sharing information and building knowledge. The online communities will follow a content-centric design in order users to focus primarily on the content keeping participants engaged with an attractive, user-friendly design.

Sharing things that are meaningful to participants, e.g., volunteering photos, videos and stories can increase the participation.

6. General Data Protection Regulation (GDPR)

The General Data Protection Regulation (GDPR) (EU) 2016/679 is a regulation in EU law on data protection and privacy for all individuals within the European Union (EU) and the European Economic Area (EEA). It also addresses the export of personal data outside the EU and EEA areas. The GDPR aims primarily to give control to citizens and residents over their personal data and to simplify the regulatory environment for international business by unifying the regulation within the EU. The regulation is in effect, as of May 2018.

All project community building and running activities must be compliant to the GDPR. Under GDPR organizations in breach of GDPR can be fined up to 4% of annual global turnover or €20 Million (whichever is greater). There is a tiered approach to fines e.g. a company can be fined 2% for not having their records in order (article 28), not notifying the supervising authority and data subject about a breach or not conducting impact assessment.

6.1 Rights of individuals

The GDPR aims to give individuals (i.e. citizens) more control over their personal data. The GDPR includes some fundamental data subject rights in terms of protecting personal data:

1. **Right to information.** Provide data subjects with information about personal data being processed, data processing activities carried out and the rationale for such processing. This information is usually provided in a Privacy Notice or Privacy Statement and will be based on a privacy by design approach.

2. **Right of access.** Get access and a copy of personal data that are being processed.

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43 https://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1528874672298&uri=CELEX%3A32016R0679
44 https://www.eugdpr.org/the-regulation.html
45 https://www.i-scoop.eu/gdpr/data-subject-rights-gdpr/
3. **Right to rectification.** Ask for modifications when personal data are inaccurate or incomplete.

4. **Right to withdraw consent:** Withdraw a previously given consent for processing of personal data for a purpose.

5. **Right to erasure or right to be forgotten.** Ask for the deletion of personal data in case\(^7\): (a) the personal data is no longer necessary in relation to the purpose for which it was initially collected, (b) the data subject withdraws their consent or objects to the processing and there are no overriding legitimate interest to continue processing, or (c) the personal data has to be erased in order to comply with a legal obligation.

6. **Right to data portability.** Ask for transfer of personal data back (to him or her) or transferred to another controller.

7. **Right to object.** Object to the processing of their personal data.

8. **Right to restriction of processing.** Limit the processing of personal data.

9. **Right not to be subject to a decision based solely on automated processing**, including profiling.

A Privacy by design approach will be applied to all the processes developed in terms of the project aiming to adjust protective measures and minimize personal data processing, i.e., pseudonymisation, etc.

### 6.2 Collecting community members personal data

When collecting personal data (using online or printed forms), the following text should be included:

“By filling out this form, you consent to the process and collection of the personal data that you provide, as necessary for keeping you informed about the COMnPLAY SCIENCE Project. These personal data are used exclusively for this purpose and no further transfer or disclosure shall take place unless required by law.

We would like to inform you that you have the right to access, the right of information, correction, update or even erasure of your aforementioned personal data in accordance with the EU Regulation on the protection of natural persons with regard to the processing of personal data (EU/2016/679) and applicable national laws. In addition, you have the right to file a complaint with the Data Protection Authority.

In order to receive further information and to exercise your personal data protection rights, you may contact [name of person in charge] at [email address].

\(^7\) [https://www.wrighthassall.co.uk/knowledge/legal-articles/2017/11/21/gdpr-individuals-rights/](https://www.wrighthassall.co.uk/knowledge/legal-articles/2017/11/21/gdpr-individuals-rights/)
The project involves the sample collection and thorough analysis of user data thus, we will: (a) follow all ethical principles on data analysis of the EU and in the H2020, and (b) ask for informed consent from all participants or the legal guardians in the user studies (see sample form in ANNEX E). The project will adhere to widely recognized international codes of practices and texts including, but not limited to:

- The United Nations Universal Declaration of Human Rights;
- The Declaration of Helsinki in its latest version;
- The Directive 95/46/EC of the European Parliament and of the Council of 24 October 1995 on the protection of individuals with regard to the processing of personal data and on the free movement of such data;
- The Regulation (EC) 45/2001 of 18 December 2000 on the protection of individuals with regard to the processing of personal data by the Community institutions and bodies and on the free movement of such data;
- The Directive 2006/24/EC of 15 March 2006 on the retention of data generated or processed in connection with the provision of publicly available electronic communications services or of public communications networks.
- The Directive 2004/23/EC of 31 March 2004 on setting standards of quality and safety for the donation, procurement, testing, processing, preservation, storage and distribution of human tissues and cells;

Participants will be asked to provide their informed consent in written or electronic form prior to a user study, explicitly acknowledging their voluntary participation and the collection of personal data. In the case of an online survey, participants will provide their informed consent electronically. It will be made clear that participation is entirely voluntary, and that the participants will be free to withdraw themselves and their data from the study at any time, if they so wish.

6.3 Events

6.3.1 Photos and Video Recording

The following statement should be included in all (electronic) invitations, in the web page of each event or wherever such information is believed that should be available and easily perceived by potential participants in the event:

“In the context of the General Data Protection Regulation (2016/679 / EU), known as “GDPR”, which came into force on 25 May 2018, we would like to inform you that the event “……..”, which will take place in ...... from .... to ..... 20..., will be video recorded while, in the context of the event, photos will be taken. The video and the photos will be used by the organizers to promote the ...(event).... to the media (e.g. press releases in newspapers, magazines and other media, including websites, social media, etc.). These publicity actions aim to inform the public or/and the scientific community on the event itself and to broadly disseminate its scientific results.

By participating, you declare that you are informed about the collection and use of the aforementioned video/audio data and you consent.”
The day of the event, the same text should be printed and attached at a highly visible spot. Additionally, the following text should be appended:

"If you do not wish to be included in the video/photo shoot please contact the organizers of the event".

### 6.4 Online communities

A set of measures will be applied to all community members of the project in order to conform to the GDPR rules. Such are:

- Participants will be provided with a unique account and password.
- Each user may receive certain rights defined by the administrators (role based security).
- Encrypted passwords.
- The administrator will be able to set expiration date of passwords within a predefined interval.
- Maintenance of personal data for a predefined timeframe and permanent erasure after exceeding the specific timeframe.
- The administrator is able to anonymize the dataset being used for retroactive statistical analysis.
- Cookie notice in compliance with the existing ePrivacy Directive.
- Special fields (e.g. checkboxes) will be available for giving consent to personal data.
- Community members will be given the opportunity to unsubscribe any time from the newsletter mailing list through a dedicated link provided in the footer of each e-mail.
- Members may be informed any time about the data kept.
- An individual shall have the right to erasure of personal data concerning him or her.

### 6.5 Privacy Policy

The COMnPLAY project is committed to protect the visitors’ privacy whilst viewing the project web pages in accordance with the provisions of the General Data Protection Regulation and all other applicable privacy and data protection legislation. The underlying Privacy Policy explains the types of data that will be collected and how this information will be used during the Project.

#### 6.5.1 Access Information

The COMnPLAY website server automatically logs each visit that it receives. This data contains some information about the visitor: the Internet address of the computer (s)he is using, the type of browser and operating system (s)he is using and the Internet address of the web site from which (s)he came from. It also contains some connection information such as the page or service (s)he is requesting and the date and time of the request.

This information is used for the sole purpose of statistical information gathering and demographics relating to the use of the web site, and enables the administrators to determine
general visitor patterns and pathways within its pages. This statistical data is then fed back into future design and usability modifications of the web pages.

6.5.2 Personal Information

During the project, it will be decided for how long each type of data will need to be stored, the process for updating and changing user profile data, as well as how a user can be deleted upon request. There will also be a form or e-mail account dedicated to GDPR-related requests.

6.5.2.1 Submission Forms & Surveys

The COMnPLAY SCIENCE project may also collect personal information supplied through the use of web-based forms and surveys. This information will not be supplied to any third party, and will only be used for subsequent communications, if indicated by users at the time of submission. In submitting personal information online, users are agreeing that Project partners may use his/her details for the sole purpose of conducting research in the framework of the Project.

6.5.2.2 Cookies

Cookies are small pieces of information that a website can put on users’ hard drive in order for it to remember something about the user at a later time. The information is in the form of a text file, which will only be understood by the web site that initially set the cookie. The Project web site uses cookies for certain applications, e.g. to remember users’ name when filling in online forms. A cookie is also used to anonymously track how visitors interact with the Project website, including where they came from and what they did. This is then used to ultimately provide a better online experience for all our audiences. The browser can be stopped from exchanging cookies with web servers at any time by changing the settings in visitors’ web browser.

6.5.2.3 E-mail

In case the Project will be contacted by e-mail, we keep a record of that correspondence for the purpose of conducting work relevant to the Project. We do not add any e-mail addresses of those who communicate with the Project through e-mail to any mailing databases, nor do we pass this to any third party.
6.5.2.4 Contact Numbers

The Project may collect contact numbers through the use of web-based forms and surveys. When users submit their contact number/s online, they are agreeing that Project partners may use their details solely for conducting the research and other work related to the Project, and specifically for the purpose referred to on the web-based form or survey where the contact number/s are submitted. The contact numbers will not be supplied to any third party.

For queries or to express any concerns relating to the Project’s processing of their personal data, users may contact the Project Coordinator, Prof. Michail Giannakos Norwegian, at michailg@ntnu.no.
7. Measurable outcomes and impact

Task 4.2 includes the following quantitative goals:

7.1 Community members

Goal 1. A sustained community of learners, practitioners, and policy makers numbering at least 500 individuals participating in quantitative aspects of the research.

Goal 2. At least 100 individuals participating in in-depth and qualitative aspects of the research.

Goal 3. At least 40 community members with special expertise/interest in the impact on science education and on society.

Goal 4. At least 20 community members with special expertise/interest in innovative practices reflecting societal needs.

Goal 5. At least 10 community members with special expertise/interest in the introduction of assessment and accreditation in this field in the future.

7.2 Special Interest Groups (SIGs)

Goal 6. At least 2 special interest groups in the community focused on the impact on science education and on society.

Goal 7. At least 1 special interest group focused on innovative practices reflecting societal needs.

Goal 8. At least 1 special interest group in focused on the introduction of assessment and accreditation in this field in the future.

7.3 Events

7.3.1 Major events
Goal 9. At least nine major communication events are organized in conjunction with corresponding major project consortium meetings in the countries of the consortium.

Goal 10. The nine communication events will be attended in person by at least 500 participants.

7.3.2 Local events

Goal 11. At least 4-5 local events will be organized in each participating country.

7.4 Contests

Goal 12. Three major project contests (M13, M22, M27).

Goal 13. Overall at least 150 individuals will be engaged with the three contests.

7.5 Mini-game

Goal 14. The number of its registered users is expected to exceed 500.

7.6 Deliverable D4.2

Goal 15. Target number of downloads of deliverable D4.2 ‘Community Building Methods and Tools’: 100
ANNEX A
SAMPLE E-MAIL FOR INVITING STAKEHOLDERS TO JOIN THE COMMUNITY
Dear [name],

We’re setting up a European-wide community for all those interested in the power of coding, making and gaming for transforming young people’s lives. We’d love for you to join this community, learn with us, and share your advice and experiences to help others.

The community is part of the COMnPLAY Science project (http://comnplayscience.eu) – an EU funded initiative running for 3 years across 10 European countries, designed to support young people’s engagement with science outside of school.

There are several ways to get involved. You could join in local and international workshops and events or, take part in online groups and discussion forums.

To find out more go to http://comnplayscience.eu/community

[if you are willing, I will also add you to our local network here in [London/UK/Norway etc]]

I very much hope you will join us in this exciting project!

Best wishes

[Sender’s name]

Alternatively, you can also contact:
Prof. Michail Giannakos (Project Coordinator)
Norwegian University of Science and Technology (NTNU)
Phone: +47 73590731
E-mail: michailg@ntnu.no

PS: Your e-mail address was retrieved from [identify source]. No further contact regarding the COMnPLAY SCIENCE Project will be made, unless you subscribe to the project’s mailing list at the project’s web site (http://comnplayscience.eu).

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This project has received funding from the European Union’s Horizon 2020 research and innovation programme under grant agreement No 787476. This document reflects only the authors’ view. The Research Executive Agency (REA) and the European Commission are not responsible for any use that may be made of the information it contains.
ANNEX B
SAMPLE INVITATION (TO PRINT)
TO JOIN THE COMMUNITY
LEARNING SCIENCE
THE FUN & CREATIVE WAY!

Horizon 2020 / Science with and for Society / Science education outside the classrooms (No. 787476)

HOW TO JOIN
Visit the official project website:
http://comnplayscience.eu/community
or, contact:
Prof. Michail Giarmatkos (Project Coordinator)
Norwegian University of Science and Technology
Phone: +47 73590731 / e-mail: michailg@ntnu.no

WEB & SOCIAL MEDIA
Web Site: http://comnplayscience.eu
YouTube: https://bit.ly/2q6qfUK
Facebook: https://fb.moi/ComnPlayScience
Twitter: @Comnplayscience
ResearchGate: https://tntnu.researchgat.net/project/ComnPlayScience

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ANNEX C

FORM: RELATED ONLINE GROUPS
### RELATED ONLINE GROUPS FORM

<table>
<thead>
<tr>
<th>Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Platform</td>
</tr>
<tr>
<td>Scope</td>
</tr>
<tr>
<td>Link</td>
</tr>
<tr>
<td>Contact person</td>
</tr>
<tr>
<td>E-mail</td>
</tr>
<tr>
<td>Phone</td>
</tr>
</tbody>
</table>

Are you in any way related to this group (or maybe you can have direct contact)?
(e.g., member, moderator, creator, run by colleagues, personal contact)
ANNEX D
FORM: RELATED INITIATIVES & (RESEARCH) PROJECTS
<table>
<thead>
<tr>
<th>Title</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Type</td>
<td>(initiative / project / other – please define)</td>
</tr>
<tr>
<td>Scope</td>
<td>(local / national / European / international)</td>
</tr>
<tr>
<td>Link</td>
<td></td>
</tr>
<tr>
<td>Contact person</td>
<td></td>
</tr>
<tr>
<td>E-mail</td>
<td></td>
</tr>
<tr>
<td>Phone</td>
<td></td>
</tr>
</tbody>
</table>

**Are you in any way related to this activity (or maybe you can have direct contact)?**
(e.g., project partner, affiliated, member, run by colleagues, personal contact)
ANNEX E
SAMPLE PARENT CONSENT FORM
Parent Consent Form - “[Title] Workshop”

Name of Child …………………………………………………………………………………………………………………………………………………
Date of Birth ……………………………………….
Parent/ Guardian ……………………………………………………………………………………………………………………………………
Address: ………………………………………………………………………………………………………………………………………………………
………………..…………………………………………………………………………………………………………………………………………………………
………………………………………………………………………………………………………………………………………………………… Postcode ……………
Tel (day): …………………………………… Tel (evening): ……………………………………………………………
Mobile: ……………………………………………………… e-mail: ……………………………………………………………………………………………

Does your child suffer from any medical conditions/allergies that the program should be aware of (including any current medication)
…………………………………………………………………………………………………………………………………………………………………………
…………………………………………………………………………………………………………………………………………………………………………
…………………………………………………………………………………………………………………………………………………………………………

Emergency contact details: (If different from above)
Name: ………………………………………………….. Telephone no: ……………………………………
Relationship to child: ………………………………………………………………………………………………………………………………………

CONSENT (please read carefully)
a) I agree to my son/ daughter taking part in the activities of the program.
b) I confirm to the best of my knowledge that my son/ daughter does not suffer from any medical condition other than those listed above.
c) I understand that the …………………………………………… Workshop activities may include a photography and film component in which my child will be both photographed and a photographer. I understand that these images will be part of …………………………………………………………………………………………………………………………………………………

Signed: ………………………………………………. (Parent/ Guardian)

Date: ……………………………