Application of crowdsourcing in education on the example of eTwinning: the Polish experience

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While eTwinning is focused on facilitating collaboration among schools in Europe and beyond, the extensive participation of over one million teachers from 44 countries makes the program an extensive educational crowdsourcing activity. In this paper the program which structures the related pedagogical approaches and practices will be analyzed and discussed in light of the crowdsourcing principles. Teachers and students participate in the program voluntarily. All collaborative activities, material production and publication of results which take place online and emphasize language learning fulfil the characteristics of the effective use of crowdsourcing in education. Two kinds of analyses are undertaken, a global analysis of the program features and local analysis of the selected projects. The global analysis relates the crowdsourcing practices to the eTwinning activities. The local analysis is based on the outstanding projects submitted for evaluation for national awards in Poland, further exemplified by activities and reference to the public sites of the projects. The aim of the text is to show that teachers may effectively use crowdsourcing in educational practice even when not primarily focused on its application.

Keywords: crowdsourcing, eTwinning, language learning

1 Introduction

It can be assumed that the eTwinning program framework fulfils the characteristics of crowdsourcing in education, which is illustrated below in a global analysis of its components.

The participation of schools in the eTwinning program can be perceived as a crowdsourcing activity at a local level, as the following actions are performed by a crowd working online: the materials used in the eTwinning project are produced in various languages (cf. 4.3.1. p.2) by the teachers and students (cf. 4.3.1. p.1) from the participating countries; the activities are initially negotiated by teachers with a greater or lesser contribution by the learners (cf. 4.3.1. p.3); communication and collaboration take place online (cf. 4.3.1. p.3) and mainly via the tools provided by the program, but the participants are free to choose other tools available at their disposal; finally the stakeholders publish the results of their collaborative work so that other teachers and learners can make use of them (cf. 4.3.1. p.4). In addition, teachers support one another by sharing responsibilities within the project (c.f. 4.3.1. p.5). This study reports on a detailed investigation into whether the program activities fulfil the requirements of using crowdsourcing in educational contexts globally and locally.

2 Crowdsourcing practices in education

Crowdsourcing is a technology-mediated form of collecting, creating and distributing data (Howe, 2006). Howe (2009, p. 280) identifies and defines four primary categories of crowdsourcing applications: (i) crowd wisdom or collective intelligence; (ii) crowd creation or user-generated content; (iii) crowd voting; and (iv) crowdfunding.

The first category, crowd wisdom, relies on the fact that a crowd's knowledge is greater than an individual's. As such, creating an appropriate environment where the crowd can present and share their knowledge is essential. However, this is no easy task, as privacy concerns (Yu, 2016), data breaches (Edwards et al., 2016), intellectual property infringements (Bettig, 2018), and in extreme cases even life-threatening behavior in the form of cyberbullying (Aboujaoude et al., 2015) can occur. That is why a level of ethical awareness among teachers who are

the main contributors to this process in an educational context (Chou and Chen, 2016) is a prerequisite for the effective introduction of the novel methodology.

Crowdsourcing has been applied in education, where it is perceived as a "supplementary educational component to enhance the traditional in-class and online activities" (Zdravkowa, 2020). This model is based on engaging enthusiastic teachers on a voluntary basis. It ensures freedom of speech and actions limited only by ethical rules (Zdravkova, 2020). It can be defined as "a type of an (online) activity in which an educator or an educational organization proposes to a group of individuals via a flexible open call to directly help learning or teaching" (Jiang et al. 2018, p. 3). According to Jiang et al. (2018), crowdsourcing can be beneficial for education in four different ways: "creating educational contents (Resources), providing practical experience (Activities), exchanging complementary knowledge (Support), and augmenting abundant feedbacks (Evaluation)" (2018, p. 4). Zdravkova (2020, not paginated), on the other hand, emphasizes the role of a digital platform where "teachers are able to create and observe the pedagogical content, which is consistent to [*sic*] effective learning and teaching methodologies, and facilitates the objective and efficient assessment. Entitled by the increasing content, teachers will themselves become content consumers, as well."

Incorporating crowdsourced materials in ELT classes requires careful planning and detailed instructions for accessing online resources, as a certain level of computer and media literacy is required from both teachers and students. Jiang et al. (2018, p. 10) also suggest that "crowdsourcing educational contents collaboratively among online crowd requires time and effort in coordinating the writing and review process to ensure that the end-product is beneficial to learners and maintained moving forward" (Skaržauskaitė, 2012; Weld et al., 2012). Although this process requires a great deal of enthusiasm from both teachers and learners, it is believed that the benefits certainly outweigh some potential drawbacks. Skaržauskaitė (2012, p. 74) concludes that "crowdsourcing gives students real world experience in coming up with creative solutions to important problems. Students can apply classroom knowledge to real world problems and learn the ins and outs of

their chosen fields from a practical perspective." Such learner contributions to the active construction of knowledge are a major feature of constructivism (McLeod, 2019; Zdravkova, 2020). However, to ensure learner safety and protection of their data, the participants need to be acquainted with privacy and data protection rules (Johnstone and Soares, 2014; Zdravkova, 2020).

Teachers' participation in crowd-oriented education thus requires responsibility and readiness for continuous professional development (Zdravkova, 2020), with support for the participants being provided by outstanding and experienced teachers (Sallis, 2014).

3   Description of the eTwinning program

The eTwinning[1] program is widespread in primary and secondary education (Gajek, 2007a, 2007b, 2021). Its aim is to empower learners and teachers, and it is focused on a holistic educational practice which allows various theoretical perspectives to be taken in the analysis of its structure, procedure, activities and outcomes. It applies blended learning pedagogy (Gajek, 2021) as well as constructionism[2] (Gajek, 2017) and constructivism[3] (Gajek, 2010). It also helps to develop key competences[4] (Gajek, 2009a 2009b) with teachers communicating, collaborating and producing materials together with their learners.

The aim of the program is to facilitate collaboration among schools in 44 countries of the EU and 17 beyond outside it, including Armenia, Azerbaijan, Norway, Iceland, Moldova, Jordan, Turkey, Tunisia, Serbia, Georgia, Lebanon, Bosnia and Herzegovina, Cyprus, and North Macedonia. Teachers voluntarily register on the eTwinning portal and search for partners. Then they work out a concept for a project, which they

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1   https://school-education.ec.europa.eu/en/etwinning
2   Constructionism, in the context of learning, is the idea that people learn effectively through making things.
3   Constructivism is a theory that says learners construct knowledge rather than just passively take in information. Social constructivism teaches that all knowledge develops as a result of social interaction and language use, and is therefore a shared, rather than an individual, experience. Cognitive constructivism states knowledge is something that is actively constructed by learners based on their existing cognitive structures.
4   The key competences for lifelong learning include the following: literacy competence; multilingual competence; mathematical competence and competence in science, technology and engineering; digital competence; personal, social and learning to learn competence; citizenship competence; entrepreneurship[cultural awareness and expression (2019).

develop together. Next, teachers and learners prepare and share materials, communicate and collaborate on the project. Eventually, they evaluate the project and disseminate the results of their work. However, they are free to apply elements that are not harmonized with their partners, e.g. assessment criteria or levels of knowledge or skills attainment. All participants monitor the ethical aspects of intercultural communication. Examples of good practice are open to the public and shared among other teachers.

The main pedagogical approach applied in such projects is Content and Language Integrated Learning (CLIL), which means that language and content are learned simultaneously. This ensures linguistic development in one or more languages used by the partners while they work on any subject theme. There are projects especially focused on a language which is foreign to all participants, but these constitute a small share of the total. CLIL combined with ongoing collaboration focused on the end-product create a natural environment and context for language learning, as the foreign language is most often the only means of communication among partners. It is claimed that a language is learned more effectively when it functions as a tool for achieving other purposes (Kurcz, 2011). In eTwinning languages are learned in practice, through learning by doing in clear contexts, not only as school subjects.

In this program social and organizational incentives are emphasized, although there are also financial incentives for very active teachers in the form of reimbursement for participation in conferences, workshops, and dissemination events at regional, national and international levels. In two countries, Poland and Malta, the program is recommended in the curriculum.

The presentation of data on the participation of teachers in the program is based on the information displayed on www.etwinnig.net (accessed 25.04.2022 at 10:11 am) The eTwinning community involves 1,052,832 teachers employed in 233,087 schools and working on 138,621 projects, which creates a considerable community of contributors.

The statistics which demonstrate the level of participation are taken from the Polish eTwinning National Support Service in and https://etwinning.pl/o-programie/statystyki (January 2022).

The numbers represent the number of schools (S-), number of teachers (T-) and number of projects (P-). The leading country is Turkey (S-52,205, T-287,685, P-50,795), followed by Poland (S-19,358, T-79,556, P-36,118), Italy (S-11,178, T-94,652, P-33,440), Spain (S-16,721, T-77,790, P-30,272), France (S-22,143, T-68,501, P-26,719), Romania (S-9,985, T-34,167, P-24,569), Greece (S-10,658, T-33,086, P-18,696), Portugal (S-1,881, T-21,699, P-14,860), Germany (S-10,353, T-30,587, P-13,112), Slovakia (S-2,926, T-12,403, P-10,074), Czechia (S-4,257, T-11,875, P-9,563), Lithuania (S-1,992, T-11,497, P-9,222), Croatia (S-2,813, T-17,796, P-8,219), Bulgaria (S-2,996, T-10,574, P-7,923), Ukraine (S-1,560, T-2,966, P-5,265), Latvia (S-1,153, T-7,607, P-4,585), Finland (S-2,512, T-8,801, P-4,467), Albania (S-1,551, T-5,485, P-4,426), Slovenia (S-875, T-5,419, P-4,204), Sweden (S-3,540, T-12,660, P-4,108), Belgium (S-2,450, T-9,226, P-4,025), Georgia (S-1,162, T-2,095, P-3,937), Serbia (S-1,286, T-4,161, P-3,920), Holland (S-2,534, T-9,652, P-3,657), Estonia (S-1,004, T-5,454, P-3,576), Azerbaijan (S-1,001, T-3,503, P-3,552), North Macedonia (S-493, T-2,365, P-3,473), Hungary (S-2,358, T-5,867, P-3,043), Norway (S-1,787, T-6,352, P-2,952), Denmark (S-2,066, T-9,277, P-2,840), Austria (S-1,993, T-5,915, P-2,330), Cyprus (S-643, T-3,163, P-2,226), Armenia (S-623, T-2,125, P-1,999), Moldova (S-412, T-950, P-1,985), Malta (S-296, T-4,035, P-1,981), Tunisia (S-885, T-2,189, P-1,908), Ireland (S-1,820, T-3,659, P-1,824), Bosnia & Herzegovina (S-581, T-1,863, P-1,507), Jordan (S-408, T-1,133, P-1,398), Iceland (S-320, T-1,796, P-1,102), Luxemburg (S-151, T-691, P-372), Lebanon (S-80, T-185, P-97), and Lichtenstein (S-17, T-42, P-19).

It is worth mentioning that registration does not equate with active participation, or the creation and sharing of materials. On the one hand, the program is a great success. On the other, as it involves so much scaffolding, continuous professional development opportunities, technical support, support from peer teachers (who serve as active ambassadors of the idea), and support from the National Support Services and Central Support Service, producing new ideas and new practices based on crowdsourcing in education is very challenging.

4   Methodology

4.1   Aims

The aim of this analysis is to demonstrate that the eTwinning program can be perceived as a widespread application of crowdsourcing in education. First, a comparison of features of crowd-oriented education related to eTwinning practices (Table 1) is presented. Then crowd-oriented tasks and procedures are illustrated on the basis of examples of selected projects. Finally, the extensive use of digital tools for educational purposes is presented to reflect on another perspective of eTwinning – its application for crowdsourcing.

4.2   Global analysis of eTwinning practices as crowdsourcing activity

Table 1 shows the relation between the crowd-oriented educational features in relation to the eTwinning practices presented above.

Table 1: *Characteristics of general crowd-oriented educational practices applied to the eTwinning program*

Crowdsourcing practices	eTwinning features and activities
Existence of a crowd	Over 1,000,000 teachers, together with learners and school communities in participating countries create the crowd.
Crowd wisdom and collective intelligence	Anybody involved in the educational system in their country can contribute to the development of the project ideas and their implementation regardless of the languages used, the system organization, specific curricular requirements and educational traditions.
Freedom of speech and actions	The organizational framework is open to exploration. There are no limits related to time, content, number of participants, tools, products, etc. However, some recommendations are published only to facilitate participation by the teachers.
Organization of support	Initial support is provided via open models displayed by National and Central Support Service offices, project ambassadors via webinars, training sessions, contact meetings and conferences.
Readiness for continuous professional development	Participation in the project allows for professional development of the teachers through sharing experiences, resources, multilingual negotiations and discussions.
Inclusion of practical perspectives on the chosen fields	The projects undertake topics related to the close neighborhood of the learners, or they relate globally discussed themes to the learner's neighborhood. They ensure linguistic variety in shared activities.

Crowdsourcing practices	eTwinning features and activities
Flexible digital area where the crowd can present and share their knowledge	TwinSpace is meant to be a place for contact, communication and storage of materials. It is the main area where participants meet, collaborate, get support, store project resources and evaluate the outcomes of their projects. But the use of technology is not limited to TwinSpace.
User-generated content (Resources)	Teachers, learners, and other invited stakeholders create the content, which may relate to the curriculum or go beyond it. The materials can then be published on websites that are open to the public for use by others.
Sharing practical experience (Activities)	Teachers, and to some extent learners, develop activities collaboratively and decide on the project outcomes, forms of evaluation and its dissemination.
Exchanging knowledge (Support)	Within the project participants share knowledge, experiences and resources at a local level, according to their specific needs and contexts.
Providing feedback (Evaluation)	At the end, each project is evaluated by stakeholders: teachers, learners, and others, such as parents via questionnaires and interviews.
Compliance with in-class teaching	The content and theme of the project need to comply with the curriculum, or go beyond it if there is a need for such actions.
Focus on ethical issues in education, GDPR and privacy policies	Clear guidelines on safety and etiquette are provided on the eTwinning portal.

It is worth noticing that such features of crowdsourcing as crowd-funding, crowdvoting, crowdshipping, and crowdsolving, etc. are not used in the eTwinning program.

To sum up, the features of eTwinning related to elements which characterize crowdsourcing clearly show how they are interrelated globally, and how crowdsourcing is applied in this program. They are also in line with theoretical approaches to the educational use of crowd-oriented activities.

4.3   Analysis of selected projects

4.3.1 Criteria of analysis of the projects

Analysis of local projects as crowdsourcing activities provides insights into how the general ideas are translated into in-class practices. As there are thousands of projects undertaken among European schools, it was necessary to specify criteria for the selection of projects for this study. These criteria were as follows:

1. the activities and materials had been designed and prepared by teachers and students together;
2. the language learning tasks involved various languages: native and foreign depending on the needs of the participants;
3. digital technology was used widely for communication, development collaboration and publishing of the materials;
4.   the results of the project were published for further use by other teachers and learners;
5. teachers' workload was shared, thus enhancing professional development.

Although assessment is a very important part of education, it is not included in the analysis as it is not performed as a crowdsourcing activity in the eTwinning projects.

The examples of projects selected for analysis are from those submitted for the Polish national contest titled "Our Project 2022". They cover all age categories, from kindergarten to secondary education, to provide a variety of techniques used in eTwinning projects. All the materials and results of the analyzed projects are published on the internet and comply with the copyright and safety rules as all the participants (teachers and students through their legal representatives – that is, parents) agreed to publish the photographs and outcomes of their work. All of them are focused on the learning outcomes related to both the content and language or languages used in the projects. The projects for which resources were shown exclusively to adjudicators of the contest were not considered for analysis.

4.3.2 Identification of crowdsourcing practices in the projects

The four examples analyzed below fulfil the abovementioned criteria.

A Project for Children 3 to 6-Year-Old Learners

Natural Pharmacy is a project which focuses the young learners' attention on various treasures of the natural world, and the role of nature in our lives. Children learn about healing herbs by exploring their neighborhoods.

The partners in the project were from Slovakia, Turkey, Greek, Slovenia, Czechia, Spain, Estonia and Poland, with the results are presented at https://twinspace.etwinning.net/121166/home.

Ad 1. Projects with the youngest group of children require teachers to communicate and involve learners in those activities which they are capable of doing. However, children are very effective in the production of materials if they are properly supported.

Ad 2. English was the main language of communication and collaboration. The native languages of the participants were used but rarely documented in writing, as such young children do not possess the literacy skills needed to communicate in writing. More often the children were filmed while speaking their native or foreign languages.

Ad 3. Digital tools were used for all communication, activities, the production of materials and reporting, but TwinSpace remained the main area of collaboration.

Ad 4. The project was extensively presented on its public TwinSpace, mainly through photographs. The teachers got the parents' consent to publish the children's faces on the internet.

Ad 5. Teachers shared the responsibility to ensure the flow of work was done in parallel at all partner institutions.

A Project for 7 to 10-Year-Old Learners

Steamist is a very innovative and creative project about biomimicry. Teachers and students from Turkey, Poland, Portugal, Ukraine, Romania, Moldova, North Macedonia, Lithuania, Tunisia, Albania and Italy worked together on holistic topics which integrate themes from various school subjects, such as natural science, maths, languages, art, and digital technology. The students observed nature and found relations with various technological solutions that people use in their everyday lives, i.e. biomimicry. Here the public TwinSpace documents the work and products of the project: https://twinspace.etwinning.net/118413/home and https://steamist20.blogspot.com/.

Ad 1. Teachers and students communicated online synchronously and asynchronously to share their work on the materials and activities.

Ad 2. English was the main means of communication and collaboration, but the native languages of the participants were also used in parallel to explain the work in school communities, as well as for presentation and dissemination of the results.

Ad 3. Digital tools were used for all communication, activities, the production of materials and reporting, but TwinSpace remained the main area of collaboration. The results are presented on a blog.

Ad 4. Various materials such as video clips https://youtu.be/nVFPRyXt_Uk?t=18, a summary of the project https://steamist20.blogspot.com/ and many photographs can be used by other educators.

Ad 5. Teachers clearly stated that they learned a lot during the projects themselves, as biomimicry is not a popular topic in the curricula.

A Project for 11 to 15-Year-Old Learners

My Water Footprint is a project about the role of water in both nature and the human world. Its public website shows the partners, results, and activities, as well as illustrates the work involved in the project: https://twinspace.etwinning.net/120761/home. The participants come from 13 countries: Turkey, Croatia, Poland, Italy, Spain, Portugal, Ukraine, Belgium, France, Lithuania, Romania, Greece, and Bosnia and Herzegovina.

Ad 1. Teachers and students communicated online to share their work on the materials and activities.

Ad 2. Project members used English as the main language of communication and collaboration, but their native languages were also used to share their work in school communities, for presentation and dissemination of the results.

Ad 3. Digital tools were used for all communication, activities, the production of materials and reporting, but TwinSpace remained the main area of collaboration.

Ad 4. Various materials such as video clips https://youtu.be/Ar6Td-HqKf8?t=19, dynamic presentations[5] and reports document the

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5 https://docs.google.com/presentation/d/e/2PACX-1vSsSnKLdRJswX-VZk5FhyvV6fSP-b3x7x8O7qORu2Inzk-j8PfIK5kQInUUHSA6naSp8vasRjVJvaeAC/pub?start=false&loop=-false&delayms=3000#slide=id.gd864009de4_0_5

results of the project work. They are ready for further use by other stakeholders.

Ad 5. Teachers shared the responsibility to ensure the flow of the work.

A Project for 16 to 19-Year-Old Learners

The theme and title of the project, Wonderful Journey, refers to the importance of railway transport. The participants collaboratively prepared various materials, such as maps, posters, journeys itineraries, virtual trips, games and quizzes. Some of these products can be seen online at https://twinspace.etwinning.net/163327.

Ad 1. Teachers and students from Portugal, Italy, Czechia, Serbia, Finland, Greece, Turkey and Poland communicated online to share their work on the materials and activities.

Ad 2. They used English as a means of communication and collaboration, but the native languages were also used for local purposes, such as presentation and dissemination of the results.

Ad 3. Digital tools were used for all communication, activities, the production of materials and reporting, but TwinSpace remained the main area of collaboration.

Ad 4. The booklet[6] was one of the final results of the project, and shows the various perspectives that were applied, with focuses on ecology, economy, safety, comfort, and sustainability.

Ad 5. Teachers shared the responsibility to ensure the flow of the work, which is well demonstrated on the project website.

4.3.3 *Discussion of the analysis of projects*

 The projects described briefly above only illustrate some of the activities undertaken in all good projects, and thus show features characteristic of many eTwinning projects. What is more, one of the criteria of selection was the presentation of the resulting content on TwinSpace, which is thus made available to the wider public. It has not been possible to provide detailed data about closed projects that are only available to the adjudicators of the Polish contest, as this would be contrary

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6   https://read.bookcreator.com/b3Rh2kc4eQUQFHXQNszpWWTwpsq2/hqSYLpGJQ8iZpS-3b6EhXjQ

to ethics and safety regulations. That is why the general discussion below not only presents an interpretation of the processes and activities observed in the projects outlined above, but also gives more holistic insights into the program as a crowdsourcing phenomenon.

Even such a limited presentation and analysis of project activities shows that they have a lot in common. In all projects both teachers and learners work together to prepare materials and tasks. However, their level of contribution depends on the age of learners, their computer literacy and ability to take part in making videos, and to participate in discussions independently.

In most of the projects subject to analysis and beyond, the main language of communication is English, and to a lesser extent German and French. In the case of Polish, it is the language of communication between schools in Poland and Polish schools abroad, such as in Latvia, Lithuania, and Ukraine, where a Polish community has been present for many years, as well as between schools hosting children from the recent waves of emigration, such in Great Britain. In all projects, language learning can be seen as one dimension of holistic learning which takes place during the related activities.

In all projects TwinSpace is the main digital platform for collaboration and communication in foreign languages. This is a place where partners are searched for and found, materials stored, ongoing reports written, oral and audio-visual communication is performed, project activities documented, and evaluation and dissemination applied. However, TwinSpace is not the only digital tool used in the projects, as it is shown below (cf. Table 2).

Open sharing of the materials and access to activities depends on the teachers involved. They need to compromise between ensuring the safety of their students, keeping parents' consent and the desire to present new educational practices and models in action to inspire other teachers. The open results, however, are usually prepared in such a way that they do not break the ethical regulations stipulated by the program.

A final but important point to note here is that the teachers ensure their own professional development through such collaboration. Teachers constantly improve their linguistic skills in natural interactions

with other members of the projects, which is of special importance for teachers working with learners at lower proficiency levels. They develop intercultural competences while learning about other school systems, curricula and educational traditions, as well as how to adjust the content of their projects to various time and curricular constraints. They share responsibilities in a collaborative way, which is rarely observed in class as the European tradition of separating school subjects form one another rarely allows for intensive holistic collaboration across the curriculum. Teachers also get acquainted with various technological tools and find reasons for using them in their practice, finding support and advice if needed from others.

All in all, the eTwinning project has the characteristics of crowdsourcing applied to education in local, in-class, contexts with regard to the criteria that were applied: creating content, gaining practical experience, and sharing knowledge.

4.4   Digital technology in projects

The use of various digital tools available for participants also represent the preferences and purposeful actions taken by the crowd of teachers within the eTwinning program. Table 2 shows the technology, free of charge or commercial, applied in projects and used to achieve specific educational goals at various stages.

Table 2: *Digital tools for various purposes (Upgraded source: Gajek, 2021)*

Project activities	Examples of digital tools
Project posters and logos	Canva, Logomaker, Poster Maker, RedenForest, Postermywall, Tagull
Map of partner schools	Google Maps, MapLoco, Tripline, Zeemap, Pictramap
Timeline	Flipidity, Powtoon
Surveys, votes, evaluations	Google Forms, Pollmaker, Tricider, Wakelet, SurveryMonkey AnswerGarden
Checklists, lists of groups	Google sheets, TwinSpace Table
Partners' presentations	Wakelet, Kizoa, Biteable, Animoto, Animaker, MsMovieMaker, RedenForest, Phrase.it, Voki, VoiceThread, BlabbeRize, AvatarMaker, Avachara PhotoTalks, FactoryForAvatars, TellaGami, YouTube, Quik, Canva, Dotstorming, Chatterkid, Pixton

Project activities	Examples of digital tools
Schools' presentations	Emaze, Prezi, Kizoa, Visme Biteable, GoogleSlides, Piktochart, Animaker, MsMovieMaker, RedenForest, GoProQuik, YouTube, Knovio, Voki, Create Avatar, Scoompa Video
Making and editing videos	Scoompa, InShot, Flexiclip, Voki, Create Avatar, Animoto, Kioza, Animaker, Biteable, Flixpress, VivaVideo, TellaGami, Filmora, VivaVideo
Discussions and communication	TwinSpace Journal, Facebook Messenger, Twinspace Forums, Messenger Chat Groups, WhatsApp, Edmodo, Skype, Adobe Connect, Hang Outs, Zoom, Flipgrid, Doodle, Padlet
Taking notes and making mindmaps	Evernote, Mindmeister, Coggle
Cartoons and avatars	Avachara, Voki, Create Avatar, Avatar Maker, FactoryForAvatars, Toontastic, Phrase.it, PhotoTalks
Infographics	Pictochart, Genial.ly, Canva
Project blog	Blogspot, Blogger
Activity photos, photo editing	Padlet, Adobe, Spark Joomag, Canva, Story Jumper, Madmagz, Paint, Befunky, inCollage, Pixlr, Ipiccy, InShot, Tuerchen, Collage-maker,[7] Pixiz, Pizap, PhotoCollage
3D design	Thinkercad
Collaborative area	Jamboard, Padlet, Sway, Pearltrees, VoiceThread
Exchanging instructions	QR code tools
Comparing opinions	Mentimeter
Collages	BeFunky, pixi, Piccollage[8]
Classroom applications	ClassDojo, Google Classroom, ThingLink
Recording and editing audio	Audacity, Vocaroo
Storyboard creators	StoryboardThat
Games	LearningApps, Bookwidgets,[9] JigsawPlanet, Gimkit, Quizziz, Quizlet, Actionbound, Crosswordlabs.Com, Kahoot, Poll everywhere, Cram
Project websites	Weebly
Statistics	IBM Statistics 20, Surveymonkey, jamboard
Final products and publishing	Blogspot, Quik, Powtoon, Moviemaker, Bookcreator, Smore, Google Slides, Calameo, Genial.ly, Wordart, Storyjumper, YouTube, issuu, Flippity, Wordart, Prezzi, Yumpu

The list of digital tools used for educational purposes in eTwinning projects is extensive and constantly changing, as such tools frequently

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7   https://collage-maker.com/
8   https://piccollage.com/
9   https://www.bookwidgets.com/

appear and disappear. It is thus likely that crowd wisdom and collective intelligence are the best ways for teachers to get oriented as to the variety of products and platforms that currently available.

5   Conclusion

To conclude, the size of the eTwinning community and the three dimensions of the program investigated in this study, i.e., the global and local activities undertaken, as well as the various digital tools used for educational purposes, demonstrate that eTwinning is a valid example of crowdsourcing applied in education. Among others results, the linguistic outcomes and progress observed in both learners and teachers establish the added value of using crowdsourcing in this context. However, both the founders and participants of the program are barely aware of this fact, as in general teachers do not know much about how crowdsourcing relates to their work (Arhar Holdt et al., 2020). This shows that the cultural trend that encourages shared collaboration online, which is described under the umbrella term of crowdsourcing in education, may be embodied in various organizations and attract various stakeholders who appear able to translate the general into local. However, sometimes their vague ideas, intuitions and hopes with regard to crowdsourcing can be turned into concrete actions, and the success of these may gradually change educational practices on a large scale.

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Uporaba množičenja v izobraževanju na primeru eTwinning: izkušnje s Poljske

Projekt eTwinning je usmerjen predvsem v spodbujanje sodelovanja med šolami v Evropi in v drugih državah, obenem pa program zaradi sodelovanja več kot milijona učiteljev iz 44 držav predstavlja tudi obsežno dejavnost množičenja v izobraževanju. V članku bo projekt, ki strukturira povezane pedagoške pristope in prakse, analiziran in obravnavan z vidika načel množičenja. Učitelji in učenci v programu sodelujejo prostovoljno. Vse dejavnosti sodelovanja, priprave gradiva in objave rezultatov, ki potekajo na spletu in poudarjajo učenje jezikov, izpolnjujejo značilnosti učinkovite uporabe množičenja v izobraževanju. Opravljamo dve vrsti analiz, in sicer splošno analizo značilnosti programa in lokalno analizo izbranih projektov. Splošna analiza povezuje prakse množičenja z dejavnostmi projekta eTwinning. Lokalna analiza temelji na izstopajočih projektih, ki so bili dani v ocenjevanje za državno nagrado na Poljskem, kar je ponazorjeno tudi z dejavnostmi in sklici na javna spletna mesta projektov. Namen besedila je pokazati, da lahko učitelji učinkovito uporabljajo množičenje v izobraževanju, tudi kadar niso ciljno usmerjeni v njegovo uporabo.

Ključne besede: množičenje, eTwinning, učenje jezikov