Preparing teachers
for crowdsourced language learning

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ABSTRACT: Crowdsourcing is among the most popular language learning tools, like Duolingo and Busuu, attracting millions of users worldwide. Its wide acceptance and the necessity to immediately switch to online techniques due to Covid-19 pandemic encourage the inclusion of crowd-oriented features into traditional language courses. The addition of new methodologies changes the role of language teachers from conventional lecturers to proactive coaches of their students. Such a dramatic shift is never painless. Therefore, it must be done skilfully, ethically and equitably. Based on the discussion of each of these points and strategies to successful manage change, a framework for teacher preparation has been developed. It is enhanced with exact examples of teaching procedures intended to put the new knowledge into practice. Implementation of proposed six activities of teacher training sequence enables enhancing of teachers' learning and teaching activities through crowdsourcing.

KEYWORDS: Crowdsourcing for education,teacher training,language learning,online learning and teaching.

1 Introduction

The emergence of advanced technologies in the field of first and second language (L2) education has led in the past to different kinds of challenges that teachers had to face in the teaching process. Perhaps one of the most common challenges is to keep up with the technical development and the level of

expected digital literacy (Lotherington and Jenson, 2011). The connection between these two is very important because it reflexes possible differences in the use and application of various L2 tools. The most recent technical developments in this area often include artificial intelligence, social networking, the collection of user data, and most recently, crowdsourcing.

Crowdsourcing is a technology mediated form of collecting, creating and distributing data. This method became widely recognized after Jeff Howe (2006) Howe (2006) published his chapter on crowdsourcing in Wired Magazine. The importance of crowdsourcing was linked with the creation of Wikipedia and online-learning communities (Corneli and Mikroyannidis, 2012). More recent examples of crowdsourcing and education are linked with the mobile applications (Corneli and Mikroyannidis, 2012), such as Duolingo and Busuu, in which the translation part is crowdsourced by its users. Crowdsourcing also supports multilingual language learning (Garcia, 2013) by, for example, providing information about vocabulary and sentence structure that can be used in the field of Natural Language Processing (NLP) (Wang et al., 2013).

The first association of crowdsourcing and language learning is, however, with Duolingo (Garcia, 2013). Initially introduced by Von Ahn (Garcia, 2013) as a project targeting to translate all the Web contents into many languages, it became a pool of currently 36 language courses intended for English speakers.[1] These courses are "made by the people" and enable more than 100 million learners to discover the secrets of foreign languages. Almost simultaneously, the project Xpress intended for learning colloquial expressions was launched by Chang et al. (2013) from the University of Michigan but, unlike Duolingo, it did not attract a great attention. Another project in which a large number of crowds became interested was the online experiment on word knowledge in Dutch, which involved nearly 300 000 participants who helped to determine the word prevalence frequency, i.e. how many people know some word (Keuleers et al., 2015). If language content is crowdsourced in an open-source online tool by various content providers, such as language teachers and instructors, and becomes openly available, it may not only be used for language learning, but also to "transform traditional educational institutions" by defining and conceptualizing "crowdsourcing for education". (Prester et al., 2019; Jiang et al., 2018)

The necessity to find an alternative methodology intended for second language learning and acquisition is the direct consequence of Covid-19 pandemic. Almost everywhere worldwide, traditional language courses were re-

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[1] Duolingo courses.

placed by various online or remote activities instantaneously. This immediate switch to completely new approach disabled the steady adaptation to innovations and resulted in the teachers' developing the so-called resistance to novelty. This resistance can even be compared to a biological immunity resulting in indolent teachers who are completely indifferent to any methodological change or innovation (Hiver and Dörnyei, 2017). An aggravating problem when switching to online classes is the resistance of older people towards digital technology (Comunello et al., 2017). Skaalvik et al. (2016) hypothesis that teachers' possible lack of motivation due to stress and workload is the greatest obstacle for adopting novelties in teaching was recently proved realistic. Namely, many teachers demonstrated a low motivation to transform their habits and refused to shift from traditional to remote learning caused by the Covid-19 pandemic. Teachers' unions supported their demands and discouraged online learning[2]. On a contrary, European Commission decided to encourage the use of online teaching and learning, emphasising the necessity of careful thinking about all the consequences of transposing the teaching style to technological devices (EPALE, 2020).

Sudden forced alteration immediately triggered many safety and privacy concerns of the popular communication tools, such as Zoom, which was banned by many companies, government agencies and educational institutions.[3] Crowdsourcing at current stage of its development can be perceived as a complementary and innovative approach, which can generate some additional negative experiences caused by the lack of knowledge and making them aware of certain possible consequences unethical use of data could have. In this regard, privacy concerns (Yu, 2016), data breaches (Edwards et al., 2016), intellectual property infringements (Bettig, 2018), and in some cases even life-threatening behaviour in the form of cyberbullying (Aboujaoude et al., 2015) can occur. This means that apart from changing the teaching style, teachers and learners need to take into consideration the ethical norms into the teaching process and consequently add to their digital competence.

It seems that more experienced users are aware of the ethical challenges the new technologies bring (Madary and Metzinger, 2016) but both the teachers and the academic administration possess a lack of ethical competence when novel educational trends are introduced (Catacutan and de Guzman, 2015). The EU has also only very recently established a completely new set of regulations in the area of data protection (EC, 2016), network and information security (NIS, 2016), and intellectual property rights (DSM, 2019)

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[2] FUREY: Teachers' union discouraging online learning

[3] Who has banned Zoom?

in order to answer the aforementioned concerns. They considerably affect the transfer from in-class to remote teaching and learning. However, their impact will be crucial if some schools decide to start using new technologies with crowd-oriented language learning. During this digital change, teachers will have to become familiar with the technological devices and their management, but also with the ethical considerations of using crowdsourced data from various users on the Internet. This may improve their open and active participation and collaboration that does not violate the ethical norms.

One solution to overcome the gap between the strict EU directives and people's unawareness about ethical issues in language learning applications with crowdsourcing techniques is to re-educate teachers (Arhar Holdt et al., 2020) and similarly include this process in the education of new teachers at universities. For this reason, establishing a sound framework for increasing the ethical awareness of issues related to the creation and use of online content may be an effective solution. The following section suggests the five challenging focus areas for organizing teacher training intended to enhance the ethical awareness as a ground for implementation of crowdsourcing in language learning. Then, the paper recalls the general strategies of introducing change in education. It is followed by the framework how to introduce crowdsourcing in language learning illustrated by examples of class activities. The paper concludes with an overview of proposed recommendations for implementation and future work.

2 Focus areas for building the base for adopting crowdsourcing in language learning

Teachers are the backbone of educational system, and their role is crucial for the effective students' learning. In the recent decades, they have been confronted to many initiatives, aiming to successfully prepare students for the new job demands and new types of work. Although majority of them were acquainted with some basics of online teaching, they presented much reluctance to digital innovative approaches because they had known how to teach effectively without digital technology. The sudden alteration to complete online learning methodology showed that it is necessary for teachers to constantly develop their competences to be able to adapt them when the circumstances require such change. The following five challenging focus areas illustrate the gaps in the basic teachers' knowledge:

2.1 Lack of digital competence

Digital competence is considered one of the crucial abilities in the 21st century, which enables the acquisition of the remaining seven competences, such as language, mathematics, cultural awareness, as well as learning to learn (Ferrari, 2012). But according to OECD Teaching and Learning International Survey TALIS (OECD, 2020),teachers feel that technological skill is one of the skills they are most lacking, which is in tune with the fact that 44% of EU citizens have low or no (19%) digital skills. The digital competences are the major goal of the huge European project framework DigComp.[4] The framework identifies five crucial areas: information and data literacy, communication and collaboration, digital content creation, safety and problem solving. The project is extended with the DigCompEdu background framework intended to educators (Redecker et al., 2017). Although already very moderate, around 35% of teachers "believe they are good role models for use of technology" (Instefjord and Munthe, 2017). This personal opinion should be taken carefully, because the survey done with 174 preservice teachers showed that they usually overestimate their digital competence (Maderick et al., 2016). This is rather bad news. However, the online test created by the Center for Digital Dannelse, Denmark, offers more optimistic results varying from 49% in the area of programming, up to 74% in self-service.[5] Although some teachers may be computer literate what they lack most are the pedagogical digital skills, which refer to the effective use of technology in the teaching profession. Lack of the abovementioned competences can compromise the use of crowdsourcing in language learning and teaching.

2.2 Resistance to novelty

As already mentioned in the introduction of this paper, teachers, particularly the more experienced and the more mature become immune to novelty and tend to keep their working habits unchanged (Hiver and Dörnyei, 2017). In spite of all the expectation of policy makers that the implementation of digital technologies will improve teaching and learning, it seems that the final effect is minimal (Howard and Mozejko, 2015). Furthermore, many teachers, including the truly dedicated ones simply refused to adopt new learning as they are convinced that their current knowledge of materials, aids and methods was sufficient for effective professional activity (Powell and

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[4] DigComp.

[5] Online test created by the Center for Digital Dannelse.

Kusuma-Powell, 2015). Therefore, there must be an organized effort based on "adaptive ways of working" and mutual collaboration, to overcome the tendency of preserving the status quo (Kunnari and Ilomäki, 2016).

Training and retraining require change, which is hard for the subjects of change, particularly adults. Young people develop own theories about the world (Gardner, 2006). Below the age of 15 people easily change their mind-sets (Piaget and Mussen, 1983). Later any change is difficult and takes place slowly. What is more important, adults tend to come back to their previous opinions (Gardner, 2006). The change may affect only oneself. Thus, there is a need for creating an environment in which people may want to change (Easen, 1985; Lamie, 2005). The old observation by Machiavelli (1513/1969) says that an innovator meets strong opponents in all people who benefited from old settings and only weak supporters who expect to defend the innovation as people do not believe in new things unless they see them work. It is still true. People in general do not want to overcome their comfort-zone so teachers' attitude to the variety of innovatory approaches which firstly make more troubles than benefits can be, to some extent, understandable.

2.3   Teachers' awareness of ethical challenges

Another prerequisite for the effective introduction of the novel methodology is the level of ethical awareness among the teachers (Chou and Chen, 2016). Many examples show that it is not satisfactory. Ethics is not obligatory in all teacher training programmes, if so it refers to essential human values, which, as many cultural phenomena are taken for granted (for example: various aspects of social interactions, such as forms of address and politeness rules are governed by ethical principles; the perception and construction of human dignity also involves ethical aspects). A broad concept of ethical issues in the digital context referred to new technologies is usually limited to basic aspects of internet safety. For instance, teachers are asked to support the controversial initiative Bring your own device (BYOD), which causes serious privacy and security risks among K-12 children (Ghosh et al., 2013). They have not oppressed the unwanted and illegal collection of various personal data, which are being shared with third parties (Peddy, 2017). School teachers are not immune to stolen laptops (Wakeling et al., 2017), phishing and malware attacks (Leukfeldt et al., 2017), social engineering scams (Meinert, 2016), and even cyberbullying (Kopeckỳ and Szotkowski, 2017). Finally, they sometimes tolerate plagiarism (Canzonetta and Kannan, 2016). Teachers are

rarely aware of how legal policies e.g. General Data Protection Regulation (GDPR) affect their teaching context and are not aware of bad practices of certain platforms which violate the established rules (see point 5 below). All these unethical procedures should be revealed and discussed by teachers so that they can avoid or prevent them as much as possible.

2.4 Deficiency of motivation to transform teaching habits

The teachers' reluctance to novelty discussed above is enhanced by persistent teachers' burnout, which is one of the major reasons for lack of motivation and job satisfaction among teachers (Skaalvik et al., 2016). There are many examples indicating that "many teachers face occupational stress and burnout", and that the rate of these problems is very high (Oberle and Schonert-Reichl, 2016). It also affects students' quality motivation (Shen et al., 2015). Therefore, a serious effort should be made to convince the teachers to implement the three recommended rules:

- to be ready for "continued learning and satisfaction with learning",
- to wish to increase their intellectual development, and
- to be adequately rewarded for the self-development (Nicholls, 2017).

As Lamie (2005) claims, change requires clear aim. It responds to solving specific problems, but usually it creates even more problems due to destruction of previous patterns and procedures. It is focused on its actors – that is teachers in our case. Change is part of a complex system so many institutions, organizations, and societies are affected by any change. It is also part of social and economic context. It refers to personal attitudes and beliefs which evoke strong emotions. Finally, change is a process which requires training, practice, and time.

2.5 Non-compliance of crowdsourcing in education with EU regulations

Last, but not the least is the non-compliance of crowd-oriented education with the new EU legislation. The most infamous crowdsourcing platform that considerably violates the regulations is Mechanical Turk (MTurk). MTurk privacy notice from 2017[6] is not adjusted to General Data Protection Regulation GDPR[7] and it does not obey the rights of data subject including the

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[6] MTurk privacy notice from 2017.

[7] GDPR.

Article 85, which protects the "processing and freedom of expression and information". Additionally, there is an obvious incompatibility of some crowdsourcing platforms with the Directive on security of network and information systems, the so called NIS Directive (NIS, 2016). Namely, the amount of malware attacks toward the educational web resource is increasing (Kupreev et al., 2018). Crowdsourcing platforms are additionally vulnerable, because they, such as the MTurk, contain unpatched and vulnerable browser plugins (Kanich et al., 2011). Each platform should be used responsibly, so its creators must envisage all the prospective incompatibilities with the current legislation, and do the best to avoid any of them. There are no indications to crowdsourcing in the European key documents such as Council conclusions on the role of early childhood education and primary education in fostering creativity, innovation and digital competence.[8] Although a lot of European documents articulate clearly the need for improving teachers digital competence and the need to accept the change, their willingness to adopt such approaches is far from satisfactory.

This section presented some of the most important obstacles of online learning and teaching. They will be considerably amplified if crowdsourcing is adopted as a complementary educational approach adding a variety to teaching practice (Zdravkova, 2020). In order to adjust teachers' routine towards an effective crowd-oriented education, new approaches should be implemented. They are explained in more details in the next section in line with the framework for intended teacher retraining.

3 Approaches to prepare teachers for crowdsourcing in language learning

Prior to introducing new learning and teaching methodologies, it is inevitable to carefully set up the scene, based on previous experience. Teachers generally do not know much about the use of crowdsourcing in language teaching and learning, but they want to learn and they need practical tasks ready for their classes. (Arhar Holdt et al., 2020). There are various strategies for bringing about successful implementation. The most important for an effective shift are the following three strategies:

1. Power-coercive strategy
   It requires political, economic, and even moral sanctions. There are examples of its implementation (Kennedy, 1986; Goh, 1999; Lamie, 2005)

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[8] Digital competence.

but people may have hostile attitudes towards it and it blocks teachers' creativity.

2. Rational-empirical strategy

It assumes that people are rational and when the benefits of change are explained to them they will adopt the change (Lamie, 2005). It may encounter less resistance than the power-coercive one.

3. Normative-re-educative strategy

It is focussed on the individual who is not perceived as a passive receiver of information and knowledge. It usually takes place with the presence of a consultant and facilitator. This role involves not only possessing knowledge, but also ability to convince that all goes smoothly and the people do not feel threatened and devaluated. The individual must take an active part in their own change. They need to change if they want it (Lamie, 2005). The generic strategies can be applied to the specific context in which crowdsouricing is introduced.

3.1 Framework of teacher preparation to implement crowdsourcing in language learning

Covid-19 triggered the first strategy as teachers and students all over the world have been forced to start online teaching. On the one hand, this strategy may result in a rapid increase of digital competences of teachers. For some teachers, the techniques of teaching online invented under pressure may not be effective. As a result, this strategy may produce a hostile attitude towards the use of digital technology in education. But the main educational trend does not cover advanced innovative approaches such as crowdsourcing, which has been introduced to the discussion among pioneers and teacher trainees recently, because the majority of the teachers are covering and catching up with the basics only. The frontrunners of digital education who have managed to acquire digital teaching skills earlier are much better prepared for the recent challenges. Even in the era of such intensive change they are able to creatively utilize the opportunities for the implementation of various techniques, including crowdsourcing as new approaches in education.

Although the use of crowdsourcing is not even recommended by any curriculum for teaching, studies have shown that some pioneer language teachers have already started experimenting with crowdsourcing (Arhar Holdt et al., 2020). The mainstream lags behind waiting either for policy regulations or strong convincing effects of this approach. Having in mind the strategic areas presented in Section 2, putting crowdsourcing in practice may be a

part of the suggested framework for retraining teachers as professional development of teachers is perceived here holistically. The role of the teachers' vision of themselves and its impact on their motivation to teach (Dörnyei and Kubanyova, 2014) are emphasised in the framework, which follows the normative re-educative strategy in which the individuals take an active part in their own change. Educational challenges stemming from the COVID-19 pandemic indicate the need of future-oriented approaches within this strategy. Involving teachers may include the following activities with direct reference to what has been presented above. The teacher training sequence goes throughout three stages:

Stage one: Setting the scene (teacher training sequence) The main goal of this stage is to create an ethically sound environment for practicing crowdsourcing in language learning. As it was stated above, the ethical issues are most essential in approaching it. It consists of six activities, in which each activity triggers the following one (Figure 1).
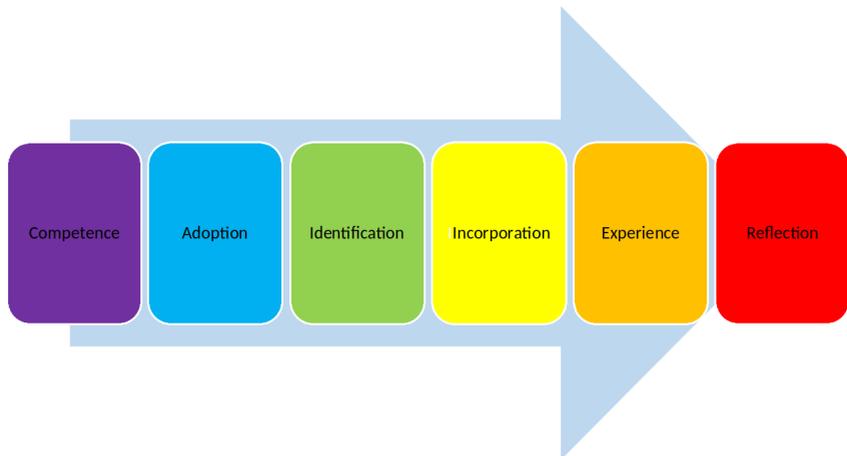

Figure 1. Six activities of teacher training sequence

The only actors of the stage one are the teachers, who will in perspective conduct language learning. Summed up briefly, teachers should:

– Become familiar with the existing crowdsourcing platforms for language learning – this raises their digital competence. They reflect on their current understanding of a good teacher in terms of the content they teach, their teaching methods and techniques. They create a vision of a role-model teacher who is technically savvy, aware of crowdsourcing platforms, and is able to use them ethically.

– Be encouraged to use the platforms for their own learning, which may reduce the resistance to novelty. They are also reminded that any curriculum is broad enough to allow them to adopt new innovative practices. They reflect on what crowdsourcing adds to the teaching content they work on everyday basis.

– Be given hints how to identify ethical or non-ethical practices in the platforms they are familiar with which raises their awareness of the importance of ethical issues in the use of such platforms. They recognize why ethical use of Information and Communication Technologies and especially crowdsourcing platforms make them better teachers.

– Be encouraged to incorporate crowdsourcing techniques in their own teaching, which may motivate them to change their teaching habits. They reflect on how crowdsourcing techniques enlarge their professional digital competence.

– Learn how GDPR influence their profession. They relate the formal regulations to ethical values that set the background of the teaching profession.

– Be encouraged to reflect on the crowdsourcing practices in language learning, identify their benefits and risks. They redefine their vision of a good teacher in a social and digital environment. They evaluate to what extent they have reached the goal set at the beginning.

Stage two: Sparkling creative tension through networking of in-service teachers and trainers

The need to re-envision own teaching occurs in the profession quite often. New posts, new opportunities require that teachers act accordingly. When they face a discrepancy between their vision and reality, they may feel uneasy but this tension may motivate them to transform.

This creative tension (Dörnyei and Kubanyova, 2014) may be generated through peer observation, self-observations, collecting student feedback, action research or focus group discussions and interviews. Thus, encouraging networking and sharing good practice examples by the pioneers as well as

offering them recognition, on any institutional digital infrastructure or social media, may trigger this creative tension. This way others may observe the examples and identify their relevance to their teaching context.

The crowdsourced collection of good practices may serve as referential materials for novices. In-service teacher training centres may facilitate this process by offering short courses or presentations tailored to the target group of teachers as the institutions respond to the needs of teachers which mirror the needs and practices adopted by their learners. What is more, via networking the teacher trainers build communities of practice who share similar ideas and concerns.

Stage three: Dissemination

Pioneers who disseminate the idea of crowdsourcing in their teaching contexts, e.g. among student teachers, colleagues, via professional conferences and publications, can be role-models. They may facilitate self-reflection in themselves and encourage others to reflect on their teaching practice, for example, by sharing videos made in their classes and sharing their students' feedback.

A group of collaborating teachers creates an encouraging environment for action research and discussions. International collaboration can also generate a creative tension. A Safer Internet Day within eTwinning programme, described in more detail later in the text, is an example of such collaboration.

Each of the recommended three stages is equally important to enable the inclusion of crowdsourcing as a complementary model for language learning.

4   Examples of teaching procedures

Teachers learn best when they are able to put the new knowledge into practice. The following examples of teaching procedures may help participants of a teacher training session to bridge the gap between theory and daily activities. Having in mind the current situation with pandemic, all of them can be applied in both face to face and online teaching environments.

4.1   Examples of teaching procedures are based on materials for reading, listening and speaking

With reference to raising technical awareness, language teachers may use texts on crowdsourcing as teaching materials including the ethical issues involved in the process. Learners may develop reading and listening skills in

a foreign language while working on written texts related to crowdsourcing or while watching videos. Then, they may speak about the topic, share their own experiences, write answers to quizzes or prepare their own quizzes. Finally, they may mediate the information into their first language or practice multimodal translation by presenting an infographic on a selected issue, justifying orally their selection.

While preparing a lesson for their learners, teachers raise their own awareness and develop digital competence and literacy (check points 1, 2, 3 of the list above). To be able to select appropriate materials to their learners regarding their age, needs, and prior knowledge, teachers need to learn more and develop professional teaching competences.

An exemplary teaching sequence for reading comprehension and practicing speaking can include: asking pre-reading comprehension questions for a selected text to raise interest and motivation of learners, explaining key words to facilitate comprehension or letting learners guess the meaning from context. Learners read the text and answer the questions. They do some vocabulary activities prepared in advance by the teacher depending on the age and interests of the learners. Then, they relate the knowledge to their own experiences, revise grammar by asking their colleagues questions about their experience.

An exemplary teaching sequence for listening comprehension and practicing speaking may include: brainstorming the topic with learners by checking their prior knowledge, playing a video on the topic, asking comprehension questions to the video, relating the content to their own experiences, asking colleagues about their experience.

4.2   Examples of teaching procedures based on tools

Teacher introduces one of the tools like: Duolingo for schools, Buusu, Memrise, Writeandimprove, Speakandimprove, or any other, as they appear and disappear quite fast, depending on the needs of the learners. They should emphasise the importance of ethical issues. For at least intermediate language learners, Busuu and Memrise can be used for general language and for practicing specialist language. Cambridge University initiatives Writeandimprove and Speakandimprove.com refer to the development of productive skills with reference to Cambridge Exams. It is hard to create an evaluative list of tools which may be used because each tool evolves rapidly – functionalities are updated, moved or withdrawn. After the presentation of the tool a teacher trainee needs to refer the content and functionalities of the tool to her or

his teaching context. Moreover, tools appear or disappear, thus the trainer's responsibility is to acquaint trainees with the resources available at the moment of training.

4.3 Example of collaborative raising the ethical awareness of teachers and learners

A short international project on Safer Internet Day within eTwinning programme can be a motivational factor to introduce this topic into teachers' own lessons. Last Safer Internet Day was celebrated on the 11th of February 2020.[9] More than 170 countries jointly discussed the topic "Together for a better Internet", especially caring for children and young people. One of the lessons learned is that Learners should be informed about whom they may address in case of risk, so that escalation of cyber violence can be prevented. Another suggestion from this event is that learners may respond and mediate the content of the rules how to behave safely in the digital environment into their first language in order to practice mediation competence and experience translating in classes.

4.4 Examples based on writing or speaking tasks

Teachers may involve written interactive activities with the use of Squiffy or TADS (Text Adventure Development System) for a school newspaper or debates on the importance of ethical awareness in the use of crowdsourcing materials for language learning.

Such simple activities may trigger interest and encourage further steps in the professional development. The following websites in English may be recommended for a start, but every teacher may need to find resources appropriate to the needs of their learners.

To sum up, when it comes to crowdsourcing techniques in language education there are some initiatives such as Duolingo, which was presented above, and Kahoot, where a crowd of teachers prepares materials for their learners, with the latter being especially recommended for lower levels. Both services are used by teachers and innovators either in classes or as extra activities as an attempt to introduce gamification approaches to teaching. The services for at least intermediate learners are mentioned above. KhanAcademy and Wikipedia embrace more general educational topics. Their content may serve

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[9] Safer Internet Day.

for language lessons as it is available in various languages. Storybird aims at improving writing and Flocabulary helps to learn English vocabulary in the context of rap music. At this moment only teacher pioneers explore these resources.

5 Discussion, recommendations and future work

The suggested framework and examples of procedures may be generally applied in pre-service teacher training with all necessary modifications. Young future teachers are computer literate to a greater extent than in-service teachers. What they need is to develop their pedagogical-digital skills. They are not resistant to novelty at this stage of professional development as there are so many new perspectives of teaching. They do not have to reshape their teaching habits because they are still in the process of building them. With all this in mind, it is highly recommended that ethical awareness in the context of crowdsourcing and other digital tools is part of their training. However, preparing a language teacher involves so many psychological, pedagogical, methodological, and content-related issues, including social interactions with the community and cultural values, that ethical reflection on the use of digital materials, tools, and data protection of stakeholders may seem to be of little value for the trainees.

Although the use of crowdsourcing in language education seems to be beyond the main interest of educators now, Covid-19 lockdown demonstrates clearly that teachers and educational policy makers, as people who are responsible for shaping the future, should be frontrunners of educational change despite the surrounding obstacles. The most effective way to prepare teachers to challenges they might face in the future is to do it through ongoing teacher training open to digital novelties, research findings, and professional networking. The use of crowdsourcing as a means of professional teacher training may be a good solution in the future. The current daily online activities focused on helping and supporting teachers who had lagged behind and had not acquired the basics of online teaching before the pandemic, should not hinder the visionary thinking of all education stakeholders about innovative teaching including crowdsourcing among others. All in all, being able to use a variety of techniques including crowdsourcing ones, allows teachers to respond to learners' needs, motivate them and prevent demotivating attitudes.

To conclude, taking into consideration that a) there are no policy documents that impose the use of crowdsourcing techniques for language learn-

ing, and b) there are some official curricular requirements to teach about ethics in the digital environment, there is a need for further development in this area to build awareness and disseminate the importance of such issues among teachers and policy makers. As a revolution in education is being experienced now, the actual progress may involve encouraging evolutionary change by building teachers' awareness and willingness to include the topics into their practice.

There are many voices expressing the need of preparing a variety of materials tailored for teachers that enable the practical use of crowdsourcing in language teaching and learning. There is a need for further work that presents the teacher's perspective on the use of such resources in practice, as for example the use of Duolingo (Grygo and Gajek, 2019). With the online revolution, teachers will need to be guided to innovative pedagogical approaches and techniques. Otherwise, they may easily tend to get back to the past practices.

Acknowledgment

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