

Multimedia Technologies in Foreign Language Learning under Pandemic

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Abstract

Teaching foreign languages in Ukraine have undergone crucial changes with the introduction of multimedia technologies aimed at simulating native speaking environment in audition and oral communication. These rapidly paved their way both into the students’ learning and the innovative teaching techniques. The paper focuses on solving the problems of traditional teaching framework adaptation to the newly-appeared multimedia techniques, their integration into the educational process within and beyond classroom, in face-to-face activities as well as those in remote learning under pandemic. The issue of blending traditional and multimedia techniques embraces further introduction of mobile phone applications to be used in the classroom and combination of plasma TV screens / projector video demonstrations and individual use of mobile applications (BYOD–(Bring Your Own Device)–technology). The research study on the student’s feedback on their audition and communication skills improvement proved efficient and matched the teachers’ evaluation in a number of surveys and interviews conducted by the two foreign languages departments.

Keywords¹

Multimedia technologies, student projects, learner-centered approach, blended learning, digital applications and tools, audition skills, online learning, pandemic

1. Introduction

Information techniques found their way into the classroom activities related to teaching and learning foreign languages as early as the 90s of the past century and brought about crucial transformation both in educational process and students’ achievements alike. There followed numerous publications on methods and teaching techniques based on students’ independent learning and the use of multimedia resources in the classroom. Most of them concentrate on students’ independent learning outside of organized classroom [1, 2, 3, 12]; quite a number on using multimedia audio-visual aids in the classroom [4, 5, 6, 11, 15] and fewer on using them in distance learning caused by the Covid-19 quarantine [8, 9, 13, 14].

It’s of paramount importance to point out the difference between using multimedia teaching and learning techniques aimed at students’ independent work and those for organized classroom purposes. The former deal with PCs, tablets, mobile phones and the internet in general for students’ search, the latter deal with all these plus, most importantly, a classroom plasma TV screen or a projector to demonstrate the selected videos or pictures for the whole group of students taking the course. (Hence the importance of classroom equipment which is costly, not always available but in minor classes can be substituted with laptops).

Furthermore, the demarcation line must also be drawn between the classroom environment and that of remote learning from home, nonetheless based on the same multimedia technologies.

In the present study we define multimedia technologies as a whole set of different kinds of internet-based search for the appropriate materials (audio- and video pieces included) to be used in the classroom on the part of both students and teachers. It’s quite evident, though, that the traditional methods of teaching have to

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be integrated and coordinated with the innovative multimedia technologies as a new strategy to achieve the desired educational results.

The rapid development of newly-introduced techniques was followed by no less rapid development of mobile phone applications. They were intended to equip each student with his/her own possibility to conduct further search under the teacher's guidance in the classroom. The new phenomenon was termed "Bring Your Own Device" (BYOD) and quickly became an indispensable tool in the classroom environment.

Thus, the present research project aims at solving the newly-arrived challenges of blending traditional and innovative methods of teaching foreign languages and is a joint study of two departments, Business Foreign Languages and Translation Dept. at National Technical University "Kharkiv Polytechnic Institute", Ukraine, and German Philology Dept. at Vasyl Karazin National University Kharkiv, Ukraine. Both departments conducted surveys and interviews among the students first on the effectiveness of using multimedia technologies in the classroom as plasma screens and projectors and afterwards on using individual mobile applications before and under pandemic.

Thus, the research comprises 4 clear-cut phases:

1. Combination of traditional and multimedia technologies for teaching foreign languages in the classroom under normal circumstances (face-to-face).
2. Blending traditional and multimedia tools in a remote learning under pandemic.
3. Introduction of mobile applications into teaching organized classes under normal circumstances (face-to-face).
4. Using mobile applications in online learning under pandemic.

2. Remodeling teacher-student partnership in using multimedia technologies in the classroom

The research of using multimedia technologies in the classroom has been attracting scholars at least over the past two decades. Most of the studies concentrate on Internet resources, Web-based or CD-based multimedia [1, 2, 3]. Fewer, however, are based on alternative classroom teaching methods [4, 5, 6] which lead to the development of a substantially new approach to partnership "teacher-student".

In fact, the latter requires the efforts of students on out-of-class Internet Search and the teacher's combination of the students' presentation with the rest of the material for a particular class. Thus, using multimedia in a classroom needs serious prior organizational work leading to a blended course in teaching foreign languages.

The above course involves a large part of students' independent research for the necessary video presentation that enhances and intensifies their skills of audition and speaking, in the first place. It's obvious, that using students' video presentation in the classroom leads to the perfection of students' skills which even formerly used to undergo introduction, drill and, finally, their active communication stages. In addition, this procedure remodels the teacher-student partnership relationship, and creates their closer bond, for the teacher now expands the scope of students' assignments to the Internet Search, while later on the whole class benefits from this kind of preliminary findings and material processing to be delivered in class.

Furthermore, the above approach also tends to remodel the teacher-oriented work into student-oriented and even team-oriented work, since students' video presentations in class require further discussions and peer assessment. This kind of peer collaboration beyond the teacher's assistance and guidance is termed P2P (peer-to-peer) system and is a big part of blended technologies in multimedia and traditional methods of foreign language teaching, among them peer-to-peer assessment, presentation evaluation, joint work in the mobile applications domain, etc.

The use of playing authentic native speaking pieces serves still another purpose, that of creating a foreign-speaking environment leading to students' inevitable immersion into thus simulated real-life situation. It's common knowledge, however, that automated skills of audition and speaking have to be erected on top of multiple repetitions of a particular unit, be it a word, a phrase or a grammar pattern (psychologists claim about 70 times of repetition are required to be firmly memorized). The role of the teacher in this case is to look for available stages of binding up the previously mentioned blocks of presentation, drill and automated communication skills in the final stage.

Let's look at the proposed sequence of stages in multimedia teaching. To start looking for the appropriate video material the student has to be equipped with the subject of his presentation. In our experience of blended courses in foreign languages the very preliminary stage is providing short paper printed materials with the desired vocabulary and new grammatical patterns that help students find the supporting video,

however short, to be shown in the classroom (usually 15-20 minutes). The subject of the video presentation, undoubtedly, is to match the one in the handout given prior to the class in question. Let's look at the specific example of the topic "extreme weather" in freshman courses. It involves a cluster of topical vocabulary like "flooding", "raging fires", "heavy snowfalls", "natural disasters", "global warming" to be combined with the appropriate grammar material (in this case using Future Simple as prediction).

If the student is successful in his search for the appropriate video piece, this same vocabulary and grammar are dubbed on the television plasma in the classroom. To enforce the repetition effect, however, it's not enough, so the student in charge of the individual project is supposed to compress the text of the given handout material, pick up the key vocabulary in the text (and, very often, from the subtitles in the video), put them on the blackboard (up to 5-6 words as psychologists recommend for this purpose in order to avoid distraction) and repeatedly point to some entry in the course of a multi-stage presentation.

This kind of individual responsibility has proved in our experience highly reliable: the student in charge never fails to turn up for class, is already equipped with his compressed story on the given subject, seeks for his classmates assistance in playing the video on a plasma screen via a flash drive, needs to look up for the new vocabulary in a dictionary, prepares his oral presentation to be delivered after playing the video piece, points to the words on the blackboard while talking, prepares and asks topical questions on his/her own presentation, and with luck, organizes further discussion with the classmates afterwards before, eventually, proudly leaving the floor.

3. Benefits of blending traditional and innovative methods

The benefits of this kind of classroom work are evident to both students and a teacher. For a teacher they are:

1. Making sure the student in charge will go through all the stages of preliminary work: reading the topical material, looking up the new vocabulary, compressing the text for further delivery, searching for the appropriate video, making up questions for the students in class and picking the new vocabulary necessary to be put down on the blackboard for the presentation;
2. Playing video pieces in the class does the double job of building up audition skills and teaching the right pronunciation and intonation;
3. Playing video in the class makes students feel they are in a foreign-speaking environment and they are part of it! (simulation);
4. The teacher would never achieve this sort of multiple repetitions without the combination of traditional methods and multimedia teaching [7, p.30]. Thus, to sum up the cases of students' vocabulary/grammar repetition, they comprise:
 - Handout materials;
 - dictionary;
 - video search;
 - vocabulary selection for the blackboard;
 - preparing oral presentation;
 - making up questions;
 - writing the selected entries on the blackboard;
 - asking questions on their own presentation in the class (to keep the other students alert during the whole procedure);
 - and, with luck, their participation in the overall discussion on the subject.

So, achieving multiple repetitions is beneficial to both teachers (leading students through presentation and drill stages) and students (building up their audition and speaking skills). Nonetheless, the above-mentioned number of repetitions is only the starting point for students on their long path to situational communication, therefore the very final stage of in-class discussion on a given subject brings students closer to the most desirable stage of fluent real-life communication. The question is how to gain the rest of the necessary repetitions (70 minus 11-12 encounters with the new item)? The answer is also quite obvious: in the further efforts to read, search, speak and listen. The new items will inevitably appear in the new vocabulary and will be further polished until they become automated in communication.

In addition to piling up repetitions of new items in the students' mind, the benefits are in the pedagogical area:

1. they are taught to be more responsible (it's quite disgraceful to fail with their assignment, let alone not to turn up for the class);

2. they like feeling important and be masters of the proceedings in class, it raises their self-esteem quite substantially;
3. they are aware of their progress in learning English and they want more;
4. it's advantageous to the class team-work and partnership, as well as (sometimes silent) peer assessment;
5. it's stimulating to students' attendance.

We are consciously leaving out some other psychological impacts, like developing their skills of using new technology and striving for modernity in their young lives. It's marginal in our research, but no less important as an additional attraction in studying.

4. Learning and teaching under pandemic

Unfortunately, at the beginning of 2020 the world faced a new challenge of living under the Covid-19 quarantine limitations. It has also changed the world of education to the core. With online facilities available at most higher school the teaching process was bound to be shifted from classrooms to the participants' homes, students' and teachers' alike. Nonetheless, there appeared new challenges like a number of students in need of the proper gadgets, remote places with poor Wi-Fi or even Internet access, as well as frequent overload that blocks either sound or the display picture.

It's also advisable to point out the difference between online learning and that under quarantine emergency: "In the former there tends to be extensive, anticipated and careful planning, long-term strategies and evidence-based approaches to the desired type of learning environment, while in the latter, ongoing planning and design of online courses, on-the-spot adaptations to face-to-face courses... seem to be the predominant factors" [8]. We can only partially agree with the statement in the part which points out some difference in the planning strategies. In our own experience of rapid switching to e-teaching the situation hardly ever changed because of our previous extensive use of multimedia technologies in the classroom. And this is where the new methods of students' individual multimedia projects come to the fore: most things stayed as they were in face-to-face learning: prior search for video pieces, material compression and vocabulary selection, playing videos and making oral presentations (online), organizing discussions and asking questions (online). The only things that missed out were board and chalk, as well as social distance of the education process participants. In addition, online work required more e-correspondence and mobile phone interaction among the teachers, students and class monitors.

In the survey concluded by the departments the students claimed they didn't "feel that much difference between e-learning and real-life classroom activities exactly on account of the previous extensive use of multimedia technologies", the only challenge being emotional lack of face-to-face collaboration in the classroom. The survey selected two groups of strong students who didn't have any problems with new technology or lack of competence using their technological skills in either Internet search or downloading a piece for their presentation demonstration. Moreover, their prior practicing the new methods of learning and Internet search have enhanced their abilities to overcome minor problems effortlessly.

In contrast to the strong groups of students, those with poor language proficiency used to have trouble with face-to-face learning and distance learning alike, but more so with the latter on account of their inability to recognize the vocabulary that otherwise might be familiar in the written form (either in their classroom handouts or on the blackboard). Therefore these two groups of students, "strong" and "weak", needed different techniques of class planning in remote teaching,

The emphasis in the "strong" groups activities should be placed on further reinforcement of the "drill" phase, while in the "weak" ones more effort on the teacher's side should be still on the first "presentational" phase. The reason for such a substantial shift back in the latter case lies in the students' need to properly acquire the skill of recognition the newly introduced units, and for that matter a whole new set of activities is supposed to be developed by the teacher: the selection of the vocabulary to be taught, the provision of the proper "pre-listening" of "pre-reading" material to strengthen their "recognition" capabilities, and in some cases, advice on their appropriate choice of a multimedia video piece with subtitles which are a great tool for the "weak" students' peers to deal with the new units in the classroom.

Further on, with the "recognition" phase being over on playing the video piece with the subtitles, the teacher might reinforce the presentational stage (or even the "drill" stage) with giving tips and time for the students' search in their mobiles via special-purpose applications. (There will be detailed description of mobile phone techniques later).

5. Blended Technologies Assessment

Among numerous research descriptions on online learning there are quite a number stressing the need for **mixed-method** approach or, in other words, **blended** or **integrated technologies** [5, 7, 9, 14]. The traditional methods of using course books, handouts, board and chalk were also based on the same three-phase development of presentation, drill and communication. The major difference in comparison with the newly-introduced multimedia technologies strengthened by the need of online activity under pandemic is qualitative: the time for achieving the final phase is substantially cut, the skills of recognition and using in simulated real-life communication grow manifold, the emotional attraction of the immersion in native-speaking environment becomes of paramount importance. The benefits of using multimedia in the classroom were studied through careful interviewing of students involved and previously presented in [10, 11], to name just a few major among them:

1. access to simulated native-speaking environment;
2. building audition and oral communication skills;
3. concentrating on students' activities and independent search;
4. teaching students to make public oral presentation;
5. enhancing students' sense of responsibility in their classroom performance;
6. manifold acceleration of students' language acquisition through visual perception, and many more.

Undoubtedly, the result of noticeable improvement in the students' communication skills has been achieved due to the aforementioned combination of traditional and innovative methods of foreign language teaching.

The same conclusions about "strong" and "weak" group divisions could be drawn for both techniques in teaching online and offline. There should be different approaches aimed at more careful planning for students with pre-intermediate entry level, which requires more time and teachers' efforts to introduce new vocabulary even before the students start surfing the Internet for the appropriate video to back up their oral presentation in class.

What happens to both groups, which we briefly label "strong" and "weak" in the overall remote learning? What challenges await teachers and students compared to the already common use of multimedia projects in the classroom? Is the teacher's guidance prior to demonstrating students' projects in class accessible? Interestingly, the answer is affirmative in all the three cases:

1. Prior assignments can be sent by e-mail (as well as it was usually done) before the introduction of remote learning;
2. There still could be some organizational work done by the teacher during online classes;
3. Selected videos are played by sharing the screen as before.

It should be noted that even text materials can be sent to students' mobile applications or even e-mail. Surprisingly, in the Lingvocountrystudy course that requires working with maps, the same solution proved useful when maps and tables were photographed, sent to students and later displayed on the shared screen during online class. It's obvious, though, that the shortcomings of remote learning (inadequate skills on both teachers' and students' side, distress, occasional panic, lack of face-to-face socializing and greater strain) remain for both groups in question. Among the other shortcomings mentioned [9] are distractions in the household. According to our survey, most students claimed that a cat walking in front of the computer or family members appearing in the room made the atmosphere more pleasurable and led to tension relaxation rather than disruption.

In the course of online learning introduction there appeared a number of articles dealing with the description of different models of teaching and learning [1; 2; 11; 12]. The author of numerous papers on the subject claims that "...online learning creates a learning environment that, compared to traditional, classroom-based education, is less personal, more independent, often fragmented, rarely systemic, distributed in space and time, and dependent on the learner rather than the teacher" [12, p.61]. By this phrase alone one can see the discrepancy of understanding the term "online learning" as independent learning and the one within a course structure under the teachers' guidance.

The present research, as was stated above, deals exclusively with a course-based set of activities either in the class or outside traditional classroom via different educational platforms in the Internet: Zoom, Skype, Moodle, Microsoft Office365, Google Classroom, etc. Thus, the above citation is only true about students' independent learning beyond the regular course framework. As for the presently described research of the multimedia use in the classroom with the extensive prior independent search for the necessary materials and videos in the Internet resources, their demonstration on the plasma TV in the class and team work with their peers in the classroom the role of the teacher is still being a leader (see the classification by the same author

in [12, p.66]: “Three types of online instructors can be identified based on their involvement in class: Leaders, Facilitators, Mediators”.

Under pandemic, with typical classroom activities shifted onto the computer screen, instructors are to become leaders even more so, since the demands on their guidance are more pressing in organized online learning.

So, the statement that “online education by definition is an independent, autonomous learning” [12, p.65] sounds really ambiguous for organized remote learning based on regular online classes. There is a clear demarcation line between independent online learning and the one organized by the teacher, whose role is not diminished but, vice versa, becomes indispensable with new planning and reorganization.

Moreover, as was also observed in [12, p.66] “... many students rely on a straightforward course structure and unambiguous organization of the class, direct leadership, strong support and even pressure from the instructor”.

Among the studies of innovative approach to learning foreign languages under quarantine are those stressing the importance of frequent watching movies and TV programs [13]. In our opinion, they are outside the present discussion, since we concentrate solely on the use of multimedia in the classroom or organized remote learning and we are more interested in the students’ directed search on a given topic. Any additional activities outside the course of study are also valuable resources aimed at improving students’ language proficiency and are most welcome, like regular watching the BBC, DW or CNN channels, which, however, do not lie in the domain of the research of the chain pre-during-post organized class of multimedia use where teacher-student partnership efforts focus on a certain topic of classroom discussion.

6. Digital Tools in a Classroom and Beyond

Digital media used in blended language learning include a variety of software, digital images, digital videos, digital audiofiles (MP3 and e-books), video games, web pages, social networks, corpora and databases. The advantages of digital media are that

- they are cheaper than paper resources, which saves money;
- simplify work for students with special needs (inclusive education);
- arouse interest in learning through interactivity;
- motivate students through competition (games, quizzes);
- make information multimodal, i.e. presented in different material forms: text, graphics, video, animated images;
- enable autonomy of learning in the classroom (self-examination in pair or group work) and allow taking into account the needs for internal differentiation (students with stronger and weaker background)

Under the current pandemic and long lasting online learning, digital media inevitably dominate over the human factor during the classes and this cannot but have negative consequences, namely:

- loss of time due to insufficient media competence of the audience;
- loss of writing skills, which accordingly leads to a decrease in creative abilities;
- loss of ability to perceive large texts;
- “screen addiction”;
- reduction of social skills;
- negative health effects (electromagnetic radiation, dry eye syndrome, hypodynamics, etc.)

Offline learning mode, which is manifested by markers of students’ and teacher’s presence in the classroom, allows to significantly eliminate these negative features while maintaining the benefits of digital media predominantly due to the mobility of devices these tools are installed on. The students can use their own smartphones and tablets during the classes which is called BYOD (Bring Your Own Device) [20, p.8].

The creation of a BYOD catalog, intended for blended learning, the study of their possibilities became part of a project organized by the Goethe Institute (Germany) in which the teachers from the National Technical University “Kharkiv Polytechnic Institute” and Vasyly Karazin National University Kharkiv took part in 2014-2019. As a result of work on the project, it was possible to identify the most user-friendly and flexible tools that increase the efficiency of teachers’ and students’ performance in the classroom and beyond.

The digital tools BYOD mentioned below were the most effective in teaching students at the Department of Business Foreign Language and Translation of the National Technical University “Kharkiv Polytechnic Institute” under pandemic.

6.1. Padlet

Padlet is a digital tool that represents a multimodal notice board for teachers and students in class and beyond. This virtual “wall” is able to “feature images, links, videos, and documents, all collated on a “wall” that can be made public or private” [16, URL].

Padlet enables teachers to integrate all necessary activities in an interactive collaboration with the students both in a real-time mode and a prolonged one in a shared space.

The multimodality of a padlet-wall involves its ability to integrate text posts, images, hyperlinks and other media [17, URL]. The users of a Padlet are able to post their texts and comment the post of others, to react with emoticons and to place their own content. The list of users’ actions depends on the assignment given by the instructor (teacher).

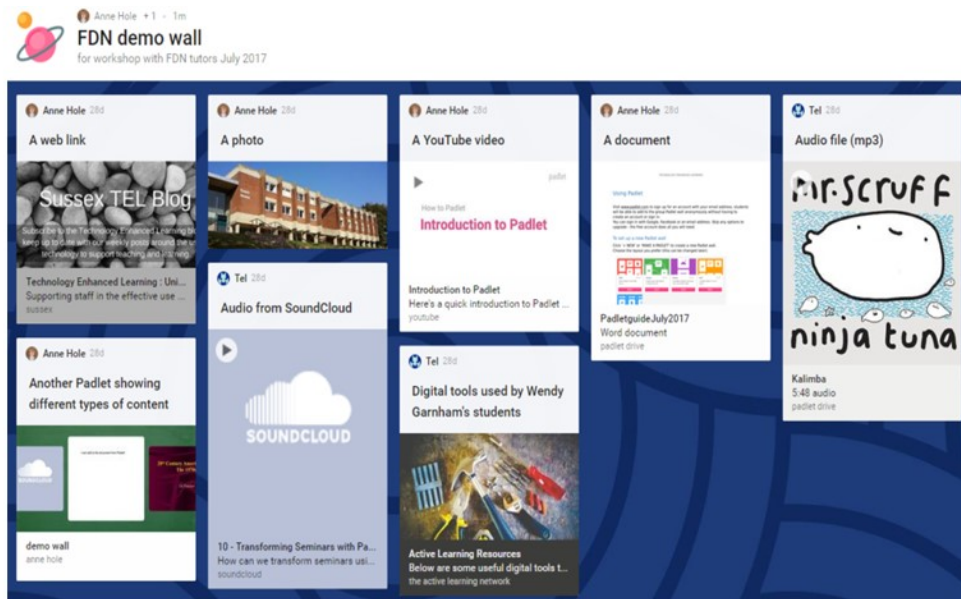


Figure 1: Multimodality of a Padlet-wall [23, URL]

Padlet presents a number of different interfaces and templates suitable for diverse activities. “Wall” is the most common interface for communicative activities; “Canvas” enables connections between the elements, hence creating mind maps; “Stream”, “Grid” and “Shelf” organize contents visually in a different way, “Backchannel” is a chat for communication; “Map” is good for Lingvocountry study; “Timeline” helps teachers and tutors to feature organization points/highlights.

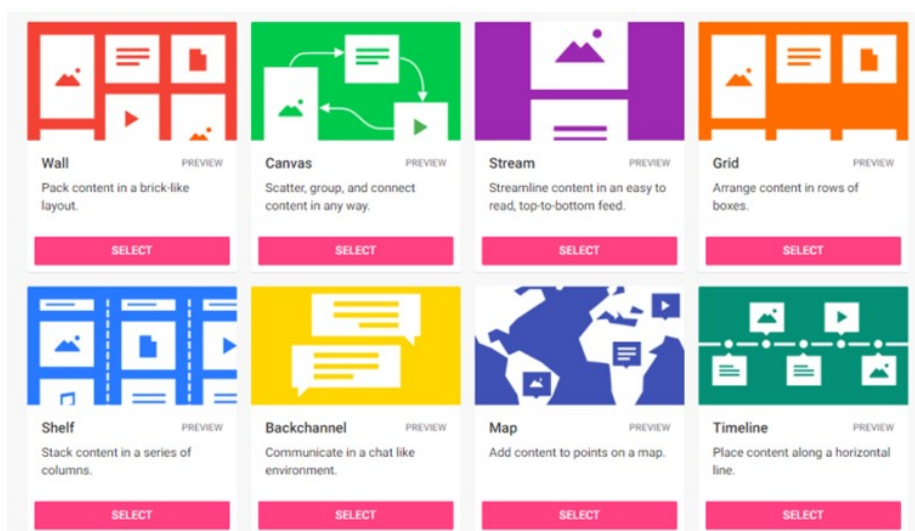


Figure 2: Padlet layouts [24, URL]

Padlet can cover every type of classes including theoretical disciplines like Lexicology, Stylistics, Translatology, Country Studies etc. due to large amounts of information that can be embedded, linked and shared in the frameworks of a single Padlet.

Padlet is the most efficient at the phase of a class such as input and discussion (see Fig. 3) but also necessary during the drill phase exercises, tests (see a quiz in Lingvocountry study, Fig. 4), conclusions and evaluation.

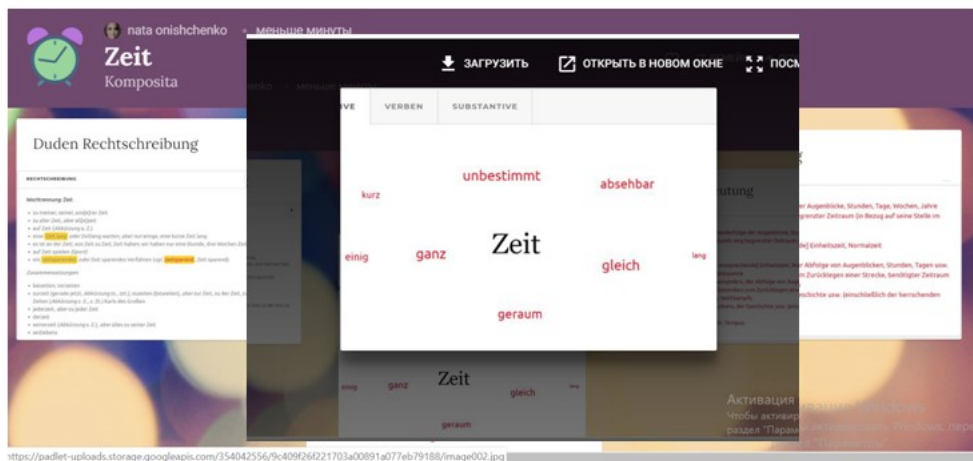


Figure 3: Discussion around complex words and their compatibility in German (Semantic-stylistic aspects of Translation)



Figure 4: Padlet as in put and test for theoretical courses [22, URL]

The link to a created Padlet can be shared or embedded in a teacher's digital course (e.g. Google Classroom, Moodle or Microsoft Class Notebook), personal blogs or websites.

The experience of University of Potsdam (Germany) has been showing the effectiveness of Padlet for almost a decade in classroom and is seen now as a powerful vehicle to attract applicants [18, URL].

The experience of using Padlet for translators training in Kharkiv at the two Universities results in a short list of activities the teacher can enable students to do via a Padlet **online** beyond the classroom:

1. Create a live data bank for their questions;
2. Co-work on mind-maps;
3. Accumulate home assignments in a single space;
4. Create own internet-portfolio (with pieces of information needed for tutors).

The only activity suitable exclusively for **offline** classes is sharing students' notes during a live session (e.g. in order not to interrupt the lecturer).

Padlet's abilities for blended learning are much wider than for every single mode. **Both on- and offline** a Padlet can serve as

1. A meeting place to get acquainted with each other for new groups (tactics of "icebreaker") especially when live communication is biased. The students can share e.g. 2 true and 1 false statement about themselves and let their mates guess "right or wrong";

2. A medium for a class chat for extracurricular activities;
3. A tool to give a feedback on a recent activity or evaluate the whole unit (“exit ticket”);
4. A place to share ideas in a brain storming (e.g. input of a new topic);
5. Co-working hub for mind-mapping.

What is **required** from students and teachers using a Padlet? The students can easily access the Padlet created by their teacher without registration via hyperlink or QR-code autonomic only with their smartphones/tablets. In case its allowed by their teacher they can share their opinions anonymously which works well with heterogenic groups where internal differentiation is needed. All the students can access and combine all the provided materials simultaneously that develops their soft skills needed for their future jobs. And finally all students have to apply their creative abilities and talents to organize contents on the virtual pin wall, to develop posters, projects etc.

What the teacher needs is to register on the Padlet website, start a new project, send an invitation to the students via email or social networks. The challenge for the input activities of the teacher is to combine verbal and visual material reasonably, i.e. blending traditional and innovative techniques. During the communicative activities the role of the teacher is reduced to moderating discussions and comments and also time-watching. The results of this co-working can be saved as handouts.

6.2. ThingLink

This digital tool meets all the contemporary requirements of student-centered learning. This is a massive multifunctional vehicle supporting and motivating students with interactive visual media.

With the help of ThingLink the participants of the education process can create their own interactive projects combining all the types of media: images, video, audio, text. This approach corresponds to the principles of project-based learning, inquiry-based learning and problem-based learning which are a part of constructivist approaches to education that develop the learners’ skills for research, problem-solving and collaboration [19, URL].

Students have neither need to register nor install an application to watch a ThingLink content, but they have, as well as the teacher has, to create a project of their own. There is a free mobile application one can install that has all the functions of a free online version with the desktop interface.

The most popular and easy-to-do functions aimed at providing an effective learning process are: adding a text annotation or adding a multimedia annotation with or without accompanying text (tagging). The accompanying text annotation can be entered into the provided box after uploading a needed video or image that has to be commented. Adding different icons helps visually distinguish text annotations from image and video annotations. The users can then hover their mouse over the icon(s) to view the text annotations that pop up in a separate window (Fig. 5.).

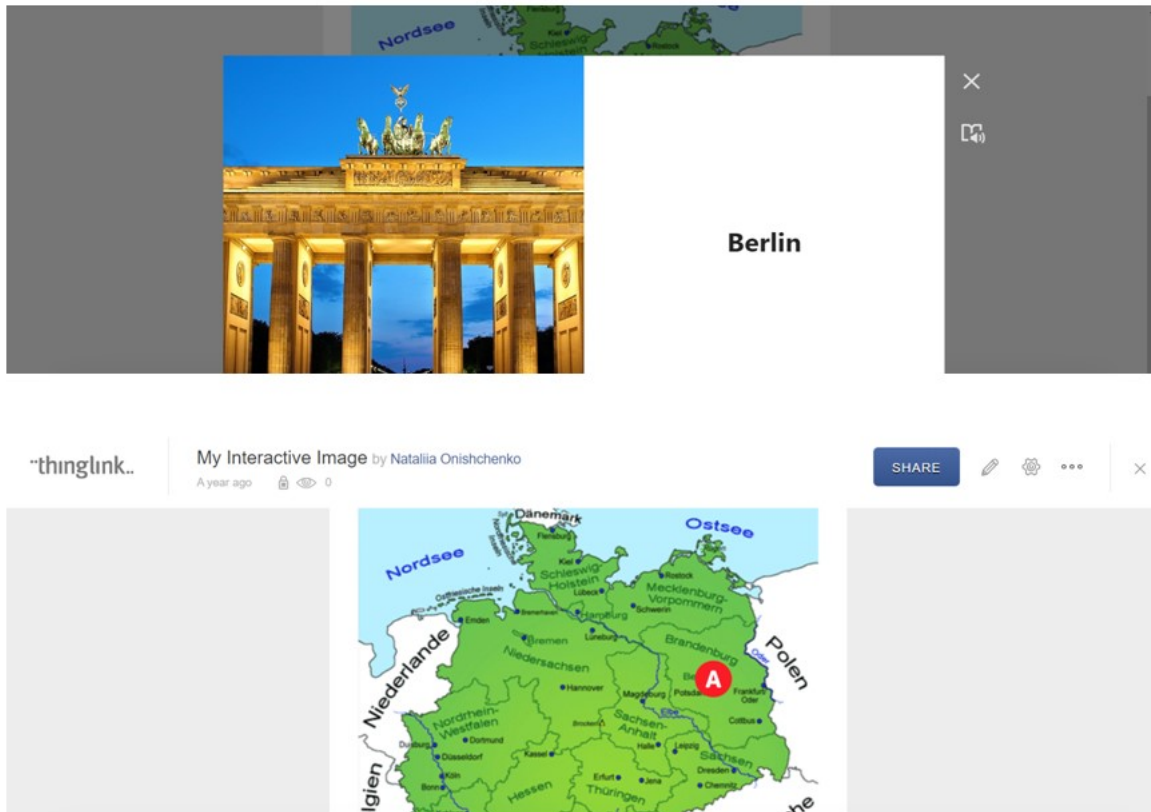


Figure 5: An interactive map of Germany for Lingvocountry study

The other benefits of ThingLink uses include

- Adding comments and links from external services;
- Support for downloading photos, videos, audio from popular hostings (Wikipedia, Vimeo, YouTube, Flickr, Soundcloud, Spotify, Etsy, Facebook, Twitter) with one click copying the URL to the box;
- Viewing detailed statistics for each interactive poster (project);
- Working with a project even without registration;
- Ability to add comments to interactive images;
- Creating a channel (stream) presented as an online album of interactive images;
- Downloading copies of interactive images/projects that further can be edited;
- Sharing interactive images/projects in social networks as web links and embedding codes to homepages;
- Installing a desktop client that does not require access to the site;
- A mobile application available;
- A large free library of 360° images for all purposes.

The most usual forms that can be tagged in ThingLink are images, videos, maps, schemes, block diagrams. But 360° images turn up to be the newest and the most attractive form for users due to the function of virtual tours. It is possible for every level (A1-C1) to create or to use such a tour: from inspecting a new apartment (A1-A2) to detailing a PC system unit (Technical translation B2+).

ThingLink inspires to create systemic units in every subject possible in remote learning **online**. The platform is perfect for training new vocabulary, for every kind of home assignment (writing and speaking essays, reports, conversation topics for oral practice etc.). On the example of a virtual house tour where you can move from one room to another (Fig. 6) you can see the scope of working with a new vocabulary

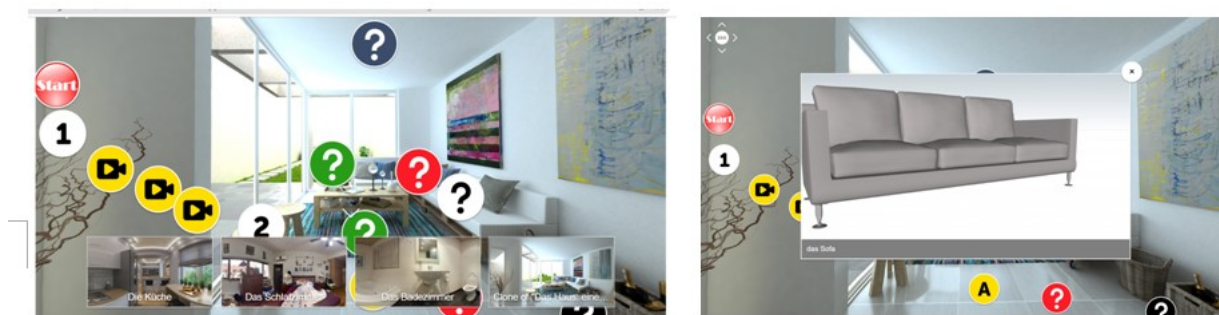


Figure 6: A virtual house tour (German vocabulary) [19, URL]

Homework for students can be creating audio comments for each room, recording them on their gadgets and embed the recordings in the project. Technically this can be done by copying the main project and editing it by every student. Such a task can be both individual and collective.

The **offline** activities include tests and all kind of exercises demanding an immediate help or control of the teacher. Our innovation for expanding the possibilities of working with ThingLink is internal differentiation during lecture classes. Suppose the teacher's plan includes coverage of 7 questions during the lesson. However, it is known that only 80% of the group are able to optimally perceive this information. 10% of the group have lack of language and other background knowledge and can cope with only 5 questions in the allocated time, whereas another 10% have a sufficiently high level to process more information during the same time than is planned for the group, for example 9 questions. Thus, the teacher prepares a 9-point lecture (a text, audio or video form) in ThingLink and invites students to work on at least 5 and maximum 9 questions in the allotted time at a comfortable pace using their device. During the lesson, the teacher himself acts as an assistant or commentator.

ThingLink is absolutely suitable for blended learning because it makes possible some activities conducted both **online and offline**: information input, including theoretical subjects, introducing a new vocabulary, individual and team projects. Teachers and students can collaborate directly and remotely in many ways using ThingLink's shared folders [19, URL]. For example, the master grade students of the Vasyl Karazin National University translated the audio guide for the Nature museum in Berlin under the supervision of their teachers. With the voices of German speakers it is already available for museum's visitors, but for Translation classes it was simulated with actual voices of the students in ThingLink. Similarly, the students of the 3rd grade at the same university translated a video dedicated to the 175th anniversary of the outstanding biologist, Nobel laureate Illia Mechnikov into German. The video will be broadcast during unveiling a monument to Mechnikov on the German island Helgoland.



Figure 7: Translation project "Schatzinsel Helgoland" in ThingLink

After these pilot projects at the Vasyl Karazin National University similar activities are planned for the students at the National Technical University (taking into account specifics of the student's training at the Technical University, e.g. audio or textual technical translation narrated by the students).

All those activities put forward high **requirements** both on **teachers** and **students**, among them a substantial media competence, time spent, substantial research on and off the Internet, the ability to cooperate in the modes "teacher-student", "student-student" (in combination with other soft skills). But the

advantage of this method is always a material product that proves applicability of theoretical knowledge in practice.

6.3. Digital tools for exercises and tests

A number of BYOD tools, e.g. Quizlet [26, URL], Quizizz [27, URL], LearningApps [28, URL] etc, provide strictly distinguished **online and offline** phases aimed at students and teachers respectively.

In online learning Quizlet enables students to do the following:

- create their own vocabulary cards, adding pictures and audio;
- search for cards created by others;
- embed cards on the site and share them on social networks;
- print cards, adjust the visibility of cards (private, for everyone, by password, for a certain group).

The teachers are involved into two-phase activities:

online preparations and reflecting

- creating drill exercises and test;
- post-topic (exit) survey;
- saving test results in a data base;
- contact parents or tutors.

offline conducting activities in the classroom

- providing individual or group work on exercises or tests;
- quality control and academic integrity.

The typology of exercises and tests that can be created in these services is quite wide: pairing words, crossword puzzle, quiz “Who Wants to be a Millionaire?”, fill in the gaps, matching words, classifying words, text input (for mini-essays) etc.

There are also digital tools that cannot be used by learners independently but they save a teacher’s time creating worksheets like puzzles, crosswords, gap texts (including keys created automatically) like Suchsel [29, URL], Trimino [30, URL] or LingoFox [31, URL].

7. Experiment results

The aforementioned project between the two universities (KhPI and Karazin), with the support of the Goethe-Institute Germany, began to be embodied in the educational process even before the pandemic, with the dominance of classroom teaching. The use of multimedia tools has had a long tradition at both departments; nonetheless, the kind of the implementation described (irreplaceable, as it turned out later, in the context of a pandemic) became systematic, regular and controlled only in the late 2018. Furthermore, with the appearance of the competitive form of BYOD, the authors came up with the idea to conduct a study, the results of which are presented below.

At the beginning of the winter semester 2019/2020, a number of academic groups of bachelor's and master's degrees of the departments: Business Foreign Languages and Translation Dept. at National Technical University “Kharkiv Polytechnic Institute” and German Philology Dept. at Vasyl Karazin National University Kharkiv, were included in the experiment. The disciplines for the measurement control points were the Practice of English and German, as well as the Practice of translation. The focus-group in the study was made of 178 undergraduate and graduate students from the two universities.

The study was carried out according to 3 criteria:

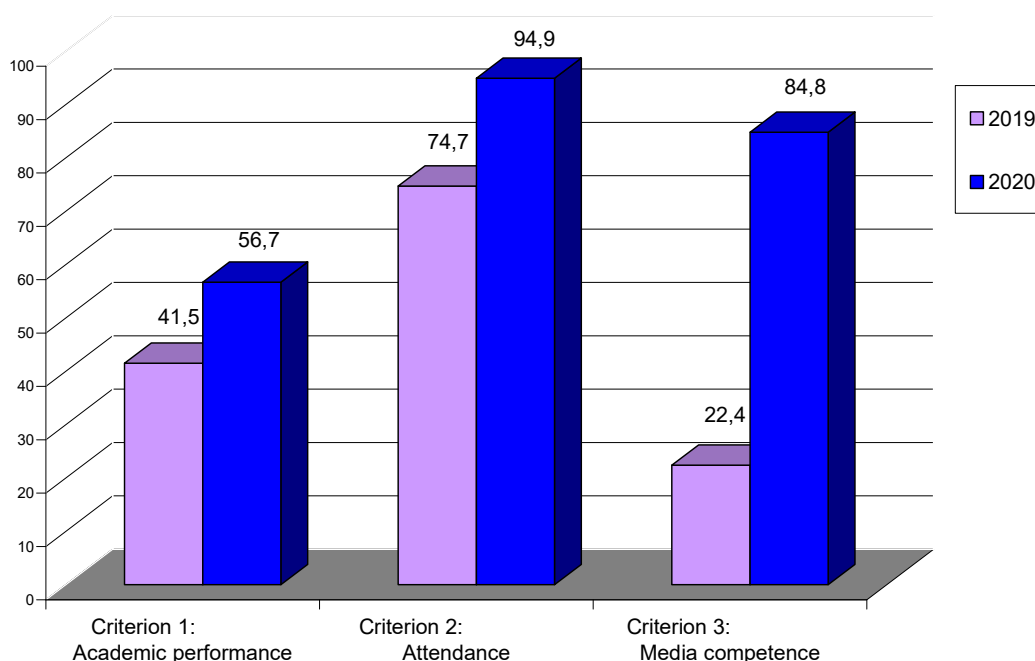


Figure 8: Experiment results

Criterion 1: the quality academic performance of the control groups at the beginning of the experiment (September 2019) and at the end (December 2020). Quality academic performance is understood as the fulfillment of the curriculum with the marks “good” and “very good” on the results of program tests. At the beginning of the experiment, this figure was 41.5% for the focus-group, whereas at the end it **increased** by 15.2%. This is due to the creation of an artificial native language speaking environment with blended learning under the current pandemic.

Criterion 2: an important indicator of the quality of education is students' interest in the object, material and forms of education. The only objective criterion of interest available for measurement is students' attendance. Under the pandemic, considering the 3 semester dynamics, it **increased** by 20.2%.

Criterion 3: This is the only criterion for which data were obtained from direct anonymous students' survey (via Google Forms mailing list). The question for the focus-group was formulated as follows: “How confident do you feel in handling digital tools (Padlet, Quizziz etc.) during foreign language classes?” It was proposed to assess the level of their comfort on a scale from 0 to 10, where “0” is “completely uncertain” and “10” is “completely confident”.

The average data in percentage revealed that the students' media competence (as the criterion was called) has **increased dramatically** from 22.4% to 84.8%. Thus the difference between the original and the final indicators demonstrates that enforced circumstances of a pandemic with the overall online learning can also have a positive effect on the motivation of students to master new media technologies designed for both blended and independent learning (such, for example, are the resources of Quizlet or ThingLink).

8. Conclusions

The era of digital tools and multimedia technology has brought about cardinal changes in the field of teaching methodology, especially so for teaching foreign languages. The introduction of innovative methods in the classroom proved highly beneficial for simulating native-speaking environment which enabled immersion through access to videos demonstrated on TV plasma screens and a number of mobile applications. The surveys and interviews conducted in the course of the partnership collaboration of the two foreign languages departments of National Technical University “Kharkiv Polytechnic Institute” and Vasyl Karazin National University Kharkiv, Ukraine, confirmed the advantages of blended traditional and multimedia technologies used in both offline learning and the one under pandemic alike.

The comparison of the two modes of learning, face-to-face and remote, revealed that there was no significant difference in using the already mastered multimedia technologies in the classroom and online,

apart from emotional anxiety and social distancing of teachers and students as well as some changes in organization work by the teacher.

There are a number of online applications and tools available that can meet the educational needs of both offline and blended learning under pandemic. The range of such applications is very wide. On the one hand, it includes multitask platforms such as Padlet or ThingLink, integrating a number of training and presentation activities. On the other hand, there are specialized tools for training active vocabulary or grammar (Quizlet, Quizizz, LearnungApps) or constructors for creating offline tests and worksheets (Suchsel, Trimino, LingoFox).

As a result of the joint project of the two universities, it turned out that the role of using all the digital tools mentioned above is especially important in blended learning: they provide all the advantages of digital media (multimodal format) and allow students to feel comfortable with their own devices. The results of a statistics based experiment show that two objective criteria and one subjective criterion of learning under pandemic demonstrate a **substantial increase** in comparison with the “before pandemic” state. Nonetheless, the applied methods do not exclude the live interaction of students between themselves and the teacher, as well as assistance and guidance from the latter in the classroom.

9. References

- [1] B.F. Klimova, Multimedia in the Teaching of Foreign Languages. Journal of Language and Cultural Education, 2013, pp. 112-119. ISSN 1339-4045 (print.)
- [2] Z. Dovedan, S. Seljan, K. Vuckovic, Multimedia in Foreign Languages Learning. Proceedings of the 25th International Convention MJPRO, 2002, pp. 72-75.
- [3] S. Malik., A. Agarwal, Use of Multimedia as a New Educational Technology Tool – a Study. International Journal of Information and Education Technology, Vol. 2, № 5, 2012, p. 468.
- [4] Zhno Zhu, Applying Innovative Spirit to Multimedia Foreign Languages Teaching, Vol.3, № 3; Sept, 2010, pp. 67-70.
- [5] A.A. Badan, Board and Chalk Vs Multimedia in Foreign Languages Teaching. Науковий вісник Міжнародного гуманітарного університету. Сер.: Філологія, 2016, № 21, том 1, pp. 148-151. ISSN 2409-1154
- [6] A. Badan, I. Nedainova, Using Multimedia with ESP Environment. Collection of Scientific Articles “Thought Elaboration: Linguistics, Literature, Media Expression “Tell me 2016”, Vilnius University (Lithuania), 2017, pp. 79-91.
- [7] Min Pun, The Use of Multimedia Technology in English Language Teaching: a Global Perspective. Crossing the Border: International Journal of Interdisciplinary Studies. Vol. 1, № 1; 15 Dec. 2013, pp. 29-38.
- [8] C. Hodges, S. Moore, B. Lockee, T. Trus, and A. Bond, The difference between Emergency Remote Teaching and Online Learning”. Educause Review, 2020, March 27. Accessed June 2020. URL: <https://er.educause>
- [9] P. Sepulveda- Elcobar, A. Morrison. Online teaching placement during the Covid-19 pandemic in Chile: challenges opportunities. European Journal of Teacher Education, Issue 4: The COVID-19 pandemic and its effects on teacher education, Volume 43, 2020, pp. 587-607. URL: <https://doi.org/10.1080/02619768.2020.182981>
- [10] A. Badan, I. Tymchenko. Applying systems methodology of dynamic modeling to monitoring of students’ effective communication skills. European Humanities Studies: State and Society. Part 1. The Bologna Process and the Prospects of Higher Education in Ukraine, Europe and Worldwide. East European Institute of Psychology, Kyiv; Ukraine, Slupsk, Poland, 2016, pp. 61-70.
- [11] I.I. Tymchenko, A.A. Badan, I.V. Nedainova, Teaching effective interpreters communication skills in multimedia classroom. Вчені записи Таврійського національного університету ім. В.І.Вернадського, Серія: Філологія. Соціальні комунікації. Том 31(70), № 2. Київ: «Гельветика», 2020. pp.103-110.
- [12] P. Serdyukov Does online learning need a special pedagogy? Journal of Computing Information Technology, Vol. 23, № 1, 2015, pp. 61-74.
- [13] N. Mammadova, New Methods of Learning Foreign Language during the Pandemic: Movies and Series as a Novelway to Study Online. SSRN’s eLibrary, 2020. URL: <https://ssrn.com/abstract=3731532>
- [14] L. Xingzhen Gao, L. Jun Zhang, Teacher Learning in Difficult Times: Examining Foreign Language Teachers’ Cognition about Online Teaching to Tide over Covid-19. Front. Psychol., 15 Sept. 2020. URL: <https://doi.org/10.3389/fpsyg.2020.549653>

- [15] T.M.F. Wazeema, M.I.F. Kareematt. Implication if Multimedia audio-video aids in the teaching language classroom. Proceedings of the 7th International Symposium, SEUSL, 7 and 8 Dec. 2017, Dept. of English Language Teaching, South Eastern University of Sri Lanka, pp. 433-442.
- [16] L. Edwards, What is Padlet and How Does It Work for Teachers and Students? Tech and Learning, October 19, 2020. URL: <https://www.techlearning.com/how-to/what-is-padlet-and-how-does-it-work-for-teachers-and-students>
- [17] Digital Education. Padlet. URL: <https://www.bristol.ac.uk/digital-education/tools/padlet/>
- [18] Ch. Rubach, Digitale Medien in der Lehre I. URL: <https://w3.uni-potsdam.de/koop/index.php/tag/digitale-tools/>
- [19] U.-M. Koivula, Interactive Visual Media in Remote Learning. URL: <https://www.ThingLink.com/articles/new-tools-for-the-flipped-school-interactive-visual-media-in-remote-learning>
- [20] R. Godwin-Jones, Using mobile devices in the language classroom: Part of the Cambridge Papers in ELT series. Cambridge: Cambridge University Press, 2018.

10. Illustrative sources

- [21] Padlet. URL: <https://uk.padlet.com/>
- [22] Quiz A London Digital Wall. URL: <https://micool.org/blog/2017/03/09/the-uk-quiz-a-london-digital-wall/>
- [23] A fantastic versatile tool: PADLET. URL: <https://gizemcann.wixsite.com/website/post/a-fantastic-versatile-tool-padlet>
- [24] Digital Learning. URL: <http://generic.wordpress.soton.ac.uk/digital-learning/2020/05/18/padlet-for-student-engagement-online/>
- [25] ThingLink. URL: <https://www.thinglink.com/>
- [26] Quizlet. URL: <https://quizlet.com/>
- [27] Quizizz. URL: <https://quizizz.com/>
- [28] LearnungApps. URL: <https://www.learningapps.org>
- [29] Suchsel. URL: <http://suchsel.bastelmaschine.de>
- [30] Trimino. URL: <http://paul-matthies.de/Schule/Trimino.php>
- [31] LingoFox. URL: <https://lingofox.dw.com/>