

Videoconferencing and Virtual Worlds in Tourism Language Education – Practical Evaluation of the Systematic Approach in the Czech Context

David Zejda¹, Taiwo Temitope Lasisi², Jenniefer Managuelod³, Shemie Breitenbach⁴, Ellery Canoy⁵

e-mail: david.zejda@uhk.cz, tlasisi@gelisim.edu.tr, racinrye@yahoo.com, shemieb888@gmail.com, ellerycanoy@gmail.com

¹ Faculty of Informatics and Management, University of Hradec Králové, Hradec Králové, Czech Republic

² Faculty of Applied Sciences, Department of Gastronomy and the Culinary, Istanbul Gelisim University, Istanbul, Turkey

³ International Open Academy, Ireland, Dublin

⁴ ProvenBase, Fort Lauderdale, Florida, United States

⁵ Doctor's Choice Home Care, Beaver, Pennsylvania, United States

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Abstract

Language learning in tourism is increasingly embracing digital technologies for both synchronous and asynchronous content delivery and interaction. Blended learning combining online and traditional face-to-face forms as well as immersive forms such as 3D virtual worlds, where participants may travel as they learn from the comfort of their sofa, offer promising benefits, namely in times of pandemic and other turbulent events. Involving culturally and geographically distant tutors in the learning process may increase learners' motivation as well as satisfaction, provided that the course curricula and lesson plans utilize the potential by appropriate selection of activities. Despite all the potential benefits, however, troubles caused by the increased complexity of digitally enhanced courses may ruin learners' experience. The paper provides a conceptual basis for a systemic approach in planning, creating, and delivering courses, considering both technical and psychological aspects, which may assist in the prevention or mitigation of the challenges. To provide a relevant context, presentations of several language schools are briefly examined. The study of changes in their presentations between 2014 and 2021, in the light of web search trends, provides an additional glimpse into the evolution of the adoption and perception of relevant forms of education and technologies, further supporting the necessity of a systematic approach. Experience from three separate projects implementing innovative language courses collected both qualitatively and quantitatively via questionnaires is summarized, pointing out both successes and challenges.

Keywords

Tourism, tourism education, videoconference, virtual worlds, blended learning, English as a foreign language, EFL

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Introduction

Tourism is an industry characterized by the dynamics of changes in technology used, approaches to product creation, and the use of new destinations, resulting in changes in training and education needs for tourism professionals, as evidenced by studies carried out at different times (Strietska-Ilina & Tessaring, 2005; Lee, 2017). An important part of training and education in tourism is e-learning, using in addition to LMS systems (Learning Management Systems), possibly connected to YouTube and other social media as sources of fresh content, also various tools for online education in the form of video conferences and virtual worlds (Huang et al., 2013). In the context of new technologies, specific requirements are placed on students and teachers in the field of hospitality and tourism education (Adeyinka-Ojo, Lee, Abdullah & Teo, 2020). An important trend related to the development of artificial intelligence is the personalization of e-learning (e.g., Rani, Nayak & Vyas, 2015; Truong, 2016). COVID-19 pandemic further highlighted the importance of the forms of education which do not require commuting and physical contact between educators and participants. Also, as traveling was severely restricted and thanks to technology advancements, engaging digital representation of tourism destinations are increasingly important both as a source of virtual tourism experience and as an immersive educational content.

Language competence is an important competence of tourism professionals, which can be developed with the use of e-learning in primary education in vocational training and also developed lifelong. Various trends are emerging in e-learning, including combined / interactive education (its effectiveness in comparison with distance is documented by Chang, 2016) and distance education. Some of the new challenges facing course designers, instructors (teachers/tutors), language school management and others involved in the educational process include different cognitive approaches of today's digital citizens (Mossberger, 2007), the pace of life, traffic congestions in urban areas, high mobility for business and tourism, and upheavals caused by unforeseen events, such as pandemics or natural disasters.

Quality resources including authentic rich multimedia and relevant software and hardware abound, though their proper exploitation may pose a challenge. Serious attempts to embrace IT in collaborative language education may be traced back to 1992 when Kelm (1992) reported how non-native speakers of Portuguese participated in a real-time class facilitated by computer networks. A control group was used to compare participation with the face-to-face setting. The study concluded that computer-assisted discussions promote participation, reduce anxiety, render the expression of emotion, etc. Roed (2003), as well as studies referenced by him, confirm that when communicating online, people display less social anxiety, fewer inhibitions, and lower public self-awareness. As a result, they tend to be more honest and more forthcoming in talking about themselves and presenting their viewpoints. A virtual learning environment may provide more relaxed experiences than a physical classroom.

However, the online form will likely not replace traditional forms, or at least, not very soon. Lu, Goodale, and Guo (2014) present an educational collaborative project between two colleges in the United States and China. Online synchronous video-conference-based communication was arranged

between future Chinese teachers and American undergraduates for 10 weeks to improve Chinese learners' English oral skills and their confidence in teaching the English language. It had positive impacts on learners' pronunciation, oral fluency, and coherency, though confidence did not improve significantly. The study indicated that face-to-face language instruction by non-native speakers works better for grammar, whereas online videoconference with native English speakers serves as a practical, affordable, effective alternative especially for listening and speaking skills. Combining native and non-native speakers, face-to-face and virtual forms with extra study seems very promising. More authors are in favor of such blended courses (Garrison & Kanuka, 2020; Hubáčková 2011 & Kissau, 2012).

English as a Foreign Language for Tourism

Literatures on English for tourism and hospitality suggest that most studies have focused on the adequacy, appropriateness and strategies in structural materials being used. Studies such as Al-Khatib (2005) have compared the communicative needs of bank personnel and tourism employees to understand the attitudes towards want, needs, and lack. Findings suggests that tourism employees used more English than the bankers; indicating that the type of works plays an important role on English language usage. It is believed that the common reasons why tourism and hospitality staff require more use of English includes offering destination guides, making online hotel booking, browsing the internet, making online ticketing, writing, and sending emails; however, writing was the most important skill for tourism employees. Therefore, it is imperative developing and teaching English for Tourism Purpose (ETP) course is important and should be put into consideration. The plausible reason is that in the tourism field, using sufficient language learning and professional strategies is required (Zahedpisheh, Bakar, Zulqarnain, & Saffari, 2017).

Actually, employees required to use ETP need to improve their language accuracy, fluency, and communicative abilities. It is of great importance that employees within the tourism and hospitality industry to be skillful in foreign language skill because it helps in understanding cultural differences as well as communication (Leslie & Russell, 2006). Generally speaking, employees in the service industry should be accurately fluent in a professional service language at a high level. Furthermore, Ghany and Latif (2012) argues that English for tourism could be considered as a subset of business English, incorporating both business and academic English through linking workplace and classroom interactions which can help in increasing job opportunities in all.

With the world's rapid development, international economic and cultural exchange have become increasingly common, English language has become an international language, as such, it is necessary to improve English with computer-assisted tools. With technology advancement and emergence of new technical domains, a variety of new tools and approaches for language education have been introduced. The rapid growth of digital technology for wireless, mobile learning has progressively been deemed a novel and effective means of learning, as well as a way to circumvent the traditional classroom learning's time and space constraints.

E-learning

According to Kakoty, Lal, and Sarma (2011), e-learning is defined as the distance learning process that encompass different facets of information society. It is considered as a pedagogical tool that fosters more cooperative, active, and individualized erudition. Knowledge is no longer passed down from “authority” but rather generated in a dialogic, changing, and open environment, allowing for the growth of collective intelligence (Fandiño & Velandia, 2020). Through the use of media and technology means, as well as a sustained and dialogic dialogue, e-learning emphasizes on developing and maintaining personal networks in their private environments (dos Santos Nunes et al, 2012). Computer Assisted Language Learning (CALL) is a model used in e-learning that focuses on the English language. According to Tafazoli and Golshan (2014), the model has four components: World Wide Web, multimedia, explorative, and traditional.

CALL's referential framework is based on psychosomatic schools such as connectivism, constructivism, cognitivism, and behaviorism. CALL activities can enhance contextual problem-solving skills and improve English learning (Fandiño & Velandia, 2020). CALL is a model that can help students learn more effectively by incorporating a variety of technological resources and a constantly planned workflow that are closely related to real life scenarios. Alresheed, Raiker, and Carmichael (2017); Yang and Kuo (2020) have ascertained that CALL proves students' skills such as speaking and writing, grammar, reading, listening, pronunciation progress, and new vocabulary acquisition. Additionally, exercises and materials encourage students' autonomy and motivation while also allowing them to evaluate and monitor their evolvement on the course's major topics. CALL can take place online, and it is important in this new context because it has a decentralized system and multiple streams of permanent information in exclusive engagements, particularly with the online tutor (Lange, 2021).

E-learning can be carried out synchronously and asynchronously (Alzahrani, 2019). In asynchronous methods, newspapers, audio discussions, group discussions, and emails are used to foster interaction with the lecture. For synchronous methods, online and video conferences are used to convey the courses (Moore & Kearsley, 2011). On this basis, it is necessary to understand the concept of videoconferencing for synchronous learning with emphasis on ETP.

Videoconferencing and ETP

Several studies such as Akimova, Bobyrev, Palutina, and Pomortseva (2015) have carried out studies on distant language education. Using qualitative research method, the authors collected data from 125 respondents and their findings revealed the advantages and disadvantages of distance learning resources. These include feedback from lecturers, ways and type of assessment, personal preferences of learning acquisition, content-related and structural factors, technological and technical aspects. Kacetl and Fiserova's (2016) study discussed the use of video clip in English and German language classes using respondents from the department of Management of Travel and Tourism in University of Hradec Kralove, Czech Republic. Their findings indicated that students prefer audio-

visual materials and are able to come up with interesting video clip topics. Using clips introducing a tourist attraction or destination, usually, a village, town, city, region, island or country, Kacetl and Frydrychova-Klimova (2014) carried out a research to determine English vocabulary in video clips focusing on travel and tourism. The goal of this study is to raise awareness of an impending research of the language used in travel and tourism-related video clips, whose transcriptions will be evaluated using the British National Corpus.

While afore-mentioned studies have carried out research on English language for Tourism, but all have focused on direct education, it is imperative to discuss the subject on e-learning or distant learning context. A study by Zelenka (2005), modifying the Jafari education model described the conventional learning courses and role of distant learning in Tourism confirmed that Tourism courses can be taught through distance learning. Video-conferencing has since gain relevance in the 1990s and has been used to remotely connect students and teachers across the world (Zejda & Canoy, 2015). Quite a number of studies have explored the use of video-conferencing for language learning (e.g. Nakatsuhara, Inoue, Berry, & Galaczi, 2017), using different respondents (children (Gruson & Barnes, 2012), university students (Benitt, 2019), and older adults (Airola, Rasi, & Outila, 2020). However, to the best of the authors' knowledge, no study has been conducted to determine the role of videoconferencing in facilitating English Language learning for tourism purpose. Therefore, the aim of this study is to bridge this gap in literature.

Approaches to the research issue

In the following paragraphs, specific challenges of technology-enhanced course delivery are evaluated in the light of Moore and Kearsley's analysis (Moore & Kearsley, 2004). Based on the conceptual analysis of the use of modern technologies in distance education, the article recommends a systemic approach to language education in tourism.

To provide a real-world context to the proposed systemic approach, selected language course web presentations are briefly examined. Namely, 5 Czech language schools conducting video-conference courses have been identified by a relevant search query in 2014. Comparison of the main message and contents of their offering in 2014 and 2021 together with relevant keyword search trends suggest the dynamics of the sector (or lack of it).

Experience from three innovative educational projects embracing culturally and geographically distant tutors delivering language courses both via video conference and in an immersive 3D virtual world is summarized, highlighting both successes and challenges. The data collected include feedback questionnaires from more than 1000 participants, both elementary school pupils, and adult learners. Synthetic reflection on the role and need of systemic approach in language education for tourism (in primary education in the preparation of potential workers in tourism as well as language education for adult learners) or language education embracing virtual tourism (in immersive 3D virtual worlds as part of the educational experience; through purposeful involvement of diverse remote tutors and suitable course curricula), is provided at the end of the paper as the lessons learned.

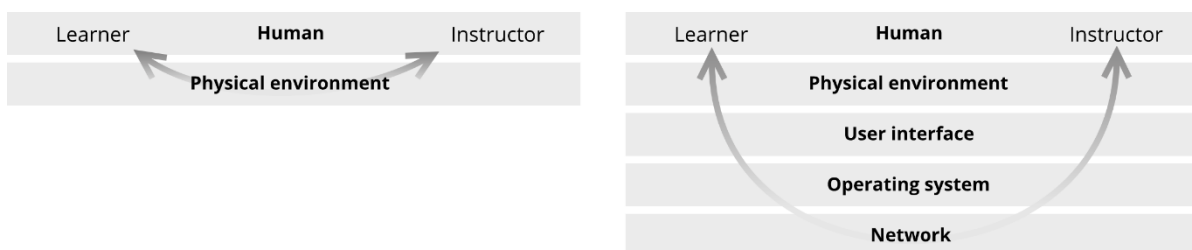
Results

Technology-enhanced Courses – the Systemic View

The process of interaction and educational content delivery can be described as a signal delivery over several layers on both sides; the OSI (Open System Interconnection) model that characterizes and standardizes the communication functions of telecommunication or data exchange systems may be used as a conceptual reference in this regard (Zimmermann, 1980). Video-conferencing and other digital technologies provide some of the aforementioned advantages, however, the technology necessary to facilitate the connection and delivery brings additional complexity to the conventional educational model. (Fig. 1).

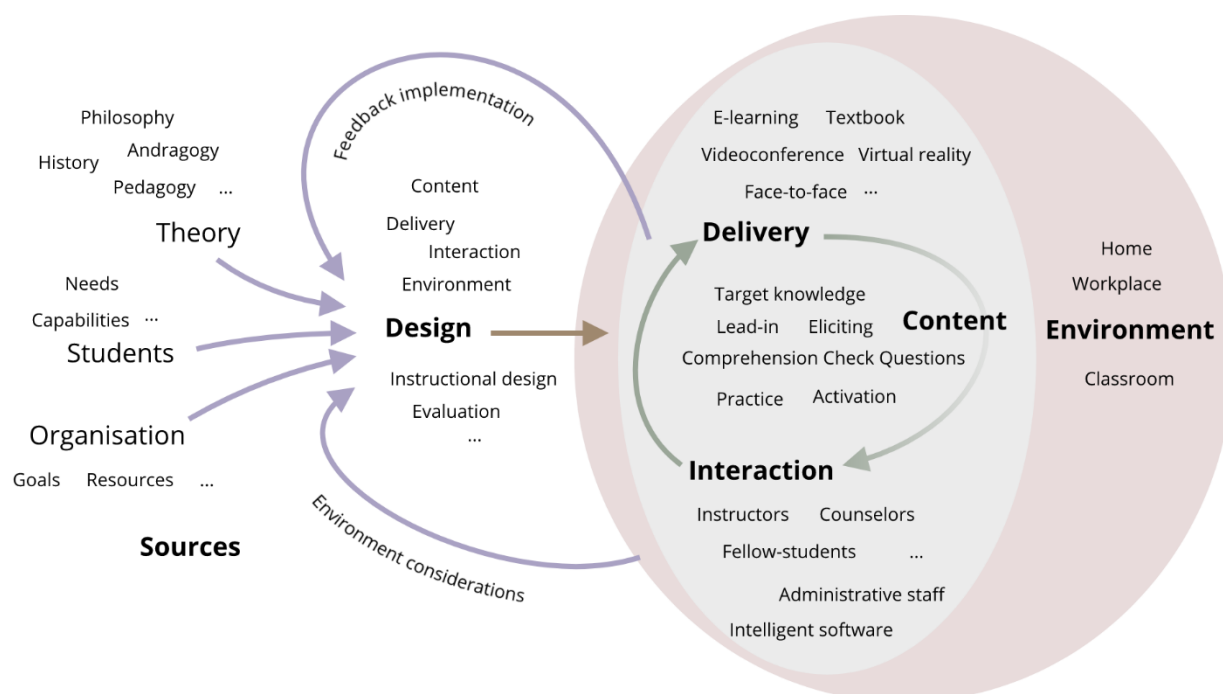
Thus, additional variables affect the success of the learning process. Disruptions may emerge in the user interface (both hardware and software), in the underlying operating system and network, in the physical environment (sound conditions, light conditions, sources of distraction), or be caused by humans (both learners and instructors). Often, responsibility for the management of individual layers on each side (such as the device used, versions of involved application software, the Internet connection parameters) vary, which leads to a different level of control over variables manifested at each level. In a typical scenario, where learners participate from their homes using their devices, the control the educator or the educating institution has over communication layers on learners' side, is low, often reduced to providing the user technical advice when needed.

Figure 1 Increased complexity of technology-enhanced courses (Source: authors)



Moore and Kearsley (2004) deconstructed the process of creating and delivering a broadly defined distant course to analyze its internal structure, being aware of the related complexities. According to them, distant courses have to be conceived and developed as a total system, giving sufficient attention to the whole delivery process and embracing all its components. A systemic view allows for the identification of both inputs, such as learners' characteristics, instructors' experience, learners' access to resources, and outputs, such as satisfaction ratings and quality assessments, achievement scores, completion rates, total enrollments, costs, and revenue, and for the analysis of how they interact and influence each other (Fig. 2). Based on the systemic deconstruction of the educational process, the role and interaction of each component within the system may be analyzed regarding its impact on the intended or experienced results.

Figure 2 Course life cycle within its environment, including the design, creation, delivery, interaction, and implementation of the feedback (Source: authors, inspired by Moore and Kearsley, 2004)



The Design Stage

The design stage requires individuals with knowledge of instructional principles and techniques as well as knowledge of the technology. Designers are not necessarily good instructors and vice versa (Moore and Kearsley, 2004). So, the expertise of pedagogues, content authors, instructional designers, IT and digital media specialists has to be combined, depending on the course purpose and target group.

For example, poor design-stage decisions negatively affected attendance and overall success of Health Services Management's video-conference-based courses held at the University of South Africa (Matlakala, 2013). Participants were happy about the clarity of the course content and feedback on assignments however, the lecturers were reportedly hasty to finish the content within the allocated time. The implication is clear – course designers should find the appropriate amount of material should they include in each lesson. Expectations based on experiences with face-to-face courses may be too high; the amount of information which may be successfully delivered via video conference may be significantly lower for a variety of reasons (worse transmission of non-verbal signs, voice quality, the time required to set up the environment and to solve technical issues, etc.). Good communication between course designers and other relevant experts in the design stage and proper testing is necessary to minimize the drawbacks and risks.

Educational video conferencing systems should foster natural interaction between the learner and the instructor, thus supporting both psycholinguistic and sociocultural knowledge acquisition, which may play an even stronger role in education for tourism where diversity is not a drawback, but an expected prerogative. Hampel and Stickler (2012) analyzed written and spoken interaction in recorded

video-conferencing sessions and additional quantitative data to find out how learners use and combine multiple modes to make meaning. Such insights into learners' cognition may help to design better multi-modal educational systems and better courses.

Delivery and Interaction Stages

Moore and Kearsley (2004) emphasized that in the delivery and interaction stages, sufficient interaction with instructors is a must, though the nature and extent of the interaction may vary according to circumstances, such as organizational and designer's teaching philosophy, the nature of the subject, technical matters, skills and maturity of learners, location of all involved parties and available media. Course structure may consist of smaller functional blocks of activities, switching between explanation and interactive practice rather than putting a sharp distinction between the delivery and interaction. Vertical interaction between instructors and learners as well as horizontal interaction between learners is useful. Wu (2012) in the study concerning English as a foreign language (EFL) instructional models examined how focused peer interaction contributes to the learners. Learners in Taiwan interacted with a native English speaker in America with peer interaction involved. Integrative and instrumental motivation, satisfaction, confidence, and actual performance improved as a result of peer interaction.

The importance of the instructor's competence in handling technology as a part of the educational process is examined in the case study conducted with an EFL teacher at a German secondary school (Schmid, 2010). Though the study is concerned with the interactive whiteboard, it provides a good insight for the effective delivery of a video-conference-based course. The competencies concluded as necessary are (1) the ability to design relevant materials, (2) the appropriate management of interaction around the equipment in a way that ensures all learners are provided with opportunities to be actively involved, and (3) the ability to find the 'right balance' of technology use. Bigger responsibility lies with learners too. They have to consciously acquire the skills and habits of being effective distant learners (Moore & Kearsley, 2004). It may involve adjustments to their schedule, to the software and hardware, the physical environment, and securing cooperation from the family, co-workers, etc.

Videoconference-based language Courses in The Czech Context

As a way to assess the dynamics of individual video-conference-based courses offerings over the course of time, presentations of language schools offering a distant form of language education have been examined in 2014 and compared to the offering of the same schools in 2021. The first 5 relevant results of a search using the term "jazykový kurz videokonference" (Search query "language course videoconference" formulated in the Czech language) on google search engine were POLYGLOT jazyková škola s.r.o., (2014), SPĚVÁČEK jazyková škola s.r.o. (2014), WANGLE SCHOOL s.r.o. (2014), Lampa systems s.r.o. (2014) and Kohoutová (2014); the same query in 2021 results in a completely different set of results, where none of the initial websites is present among the first 10 returned links. A summary of the analysis follows:

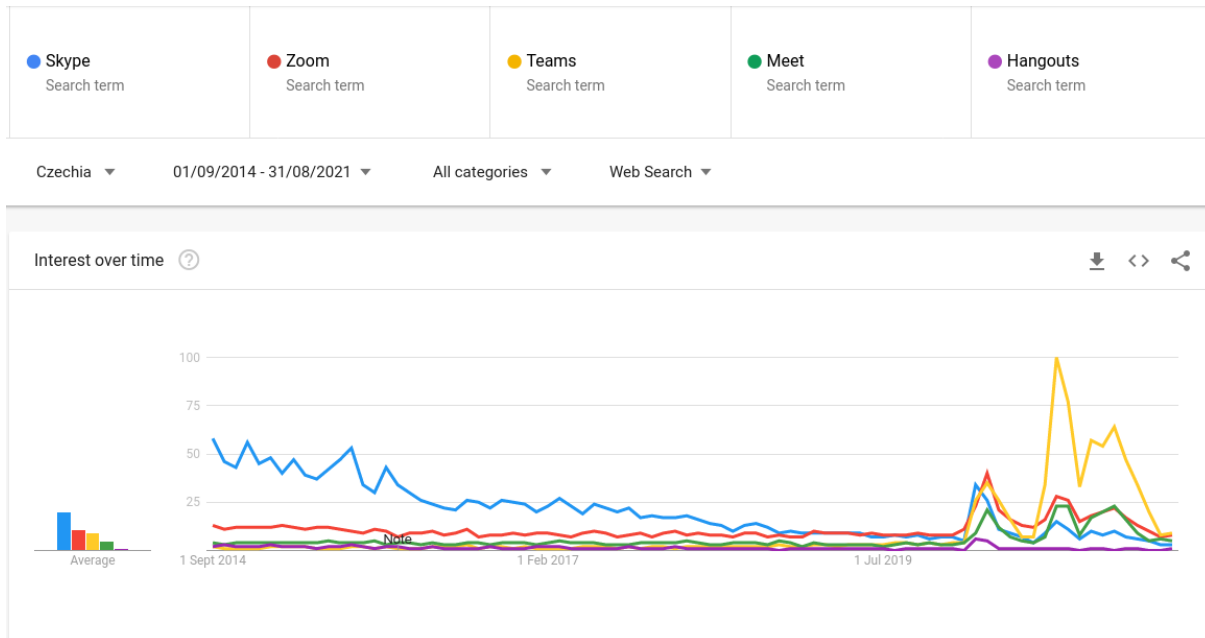
- The offering of **POLYGLOT** remained almost equal (POLYGLOT jazyková škola s.r.o., 2014). Skype-based courses are being described as an alternative to face-to-face suitable mainly for those who can't attend in person for whatever reason. The main advantages are indicated by words such as modern, efficient, comfortable, any time, and accessible from anywhere. Also, the tutor is not fixed to the physical classroom, which brings additional flexibility – tutors from around the world may be employed seamlessly. Sessions are recorded for learners' personal reference and also as proof of attendance and active participation. Both conversational and textbook-based courses are offered, mainly for individual one-to-one sessions, but small groups of up to three learners are also supported. Online education remains a supplement to face-to-face courses in 2021.
- **SPĚVÁČEK** highlighted time flexibility and accessibility from anywhere (SPĚVÁČEK jazyková škola s.r.o., 2014). Skype-based courses were recommended as a great supplement to face-to-face courses. Besides the real-time communication with the tutor, the courses offered further content, such as additional audio, multimedia, and writing exercises. As of 2021, alongside online courses again presented as flexible and accessible (SPĚVÁČEK jazyková škola s.r.o., 2021a), the school advertises also blended learning as a form suitable mainly for corporate clients (SPĚVÁČEK jazyková škola s.r.o., 2021b). It is presented as a combination of e-learning, videoconference either via Skype or other means, with possible face-to-face sessions. The tutor either conducts normal lessons according to a course plan or provides individual consultations tailored to learners' specific needs including asynchronous electronic communication e.g. to facilitate homework workflow. Coronavirus pandemic is not mentioned however, the online form is the first offered on the title page in 2021.
- The current main page of the **WANGLE SCHOOL** s.r.o. (2021) presentation highlights the coronavirus pandemic, during which online courses remained as the only viable way. Regarding the presentation courses for both one-to-one and for groups of up to five learners are being offered, namely to those who prefer home setting, from busy managers to mothers busy with children, same as years ago, though back then it was just a supplement to the main face-to-face offering (WANGLE SCHOOL s.r.o., 2014). Same as before, a web-based video-conferencing system provides screen-sharing and file-sharing functions.
- **Lampa** is providing a matching directory of tutors who were available for individual online lessons (Lampa systems s.r.o., 2014, 2021). Besides languages, music lessons and formal and natural sciences were offered as well back in 2014. Among the main advantages they mentioned were schedule flexibility, accessibility from anywhere, and increased comfort. The school deployed its web-conferencing system integrated into a course planning and management application. Content created specifically for the video-conference-based courses was used by the tutors. Sessions and materials were monitored to oversee their quality. The application provided further means of interaction, such as text message exchange and sending files. While in 2014 the conferencing room itself provided only very basic functions, it evolved into a product that claims almost 87 thousand lessons taught so far (LAMPA Systems s.r.o., 2021).

- The presentation of **Kohoutová** (2014) language school described the video-conference form as comfortable, effortless, economical (no need to travel – time and money saved), and flexible regarding the schedule and course contents. Video-conference-based courses were offered for a lower cost to reflect the savings in running costs on their side. The school used their own lesson plans, so learners didn't need printed textbooks. All activities, such as listening, writing, reading, with a high emphasis on the conversation were included. Learners could keep recordings of all sessions for their future reference. As of 2021, the presentation is no longer available, presumably, the school suspended its operation.

Despite 7 years passed between the initial and subsequent assessment of the web presentations, rather minor changes were observed and even the COVID-19 pandemic did not lead to a transformative change; at least not yet. Though it serves as an additional motivational force to embrace videoconferencing, e-learning, blended learning, and other alternative forms of education, it is still possible, that its effect on language education will be largely temporary. Traditional language schools increasingly offer videoconference as an extension or an alternative to face-to-face courses, but haltingly and likely with mixed results. Possibly, budget limitations, perceived risks of the investment, technical problems, insufficient tutors' capabilities, or learners' preference of face-to-face form play their respective roles. Lack of systemic approach may be behind all of them.

Alongside the effect of the COVID-19 pandemic, the growing popularity share of modern videoconferencing platforms is indicated by the search trends (Fig. 3). However, despite its limitations (on the number of participants, obtrusive advertisements, limited media sharing, the absence of API since 2013, etc.), Skype is probably still the most often mentioned platform for educational videoconferencing on the web (“Skype jazykové kurzy” – 574 000 results on Google), with other platforms just pushing in (“Google Meet jazykové kurzy” – 267 000, “Zoom jazykové kurzy” – 179 000 results, “Teams jazykové kurzy” – 112 000, etc.). Adoption of relevant technology in reaction to the trends in user preferences seems to be rather slow among language schools.

Figure 3 Google search terms - videoconferencing platforms Skype, Zoom, Teams, Meet, Hangouts (Source: Google)



Practical evaluation of Video-conferencing and Virtual Worlds for the EFL Courses

To evaluate the practical applicability of video conferencing and blended-learning approaches in EFL education of different target groups, with the support from the Education for Competitiveness programme co-funded by the EU (Online English Language Teaching for Primary Schools CZ.1.07/1.1.05/04.0027, Active English by the Means of Videoconference and in Virtual Reality CZ.1.07/3.2.10/04.0016, and Partner Network for Active English with Online Tutors CZ.1.07/3.2.03/04.0040) three projects were conducted by the main author as the principal investigator and with the participation of other co-authors in three regions of the Czech Republic between 2011 and 2015. Within the projects, tourism-related topics were taught as part of the curricula of most of the twenty-five courses created; several courses were specifically focused on English for Travel and Tourism.

Connecting Foreign Tutors with Students at Elementary Schools

The first project was aimed at the students of six elementary schools in the Hradec Králové region and was conducted between November 2011 and December 2012. Specifically, designed video conferencing sessions were experimentally blended with the ordinary English language lessons taught at the participating schools. Vodáková (2020) emphasized that with the general goals of elementary education in mind, including the acquisition of effective learning, motivation for life-long education, supporting creativity, effective communication, respect for others, cultural and moral values, specific areas of benefits for students were determined and followed as goals: (1) the language confidence, (2) the ability to work in teams, (3) the ability to combine knowledge from different subjects, (4) the ICT literacy, and (5) respect for differences in the multicultural world. Three specific courses have been

created for grades 4 and 5, 6 and 7, 8 and 9 respectively, consisting of lesson plans, instructions for tutors, and supplementary materials. Up to four tutors connected in parallel in one classroom with a teacher physically present to oversee; each tutor was assigned to a team of 4 – 5 students.

Tutors from the Philippines were hired to make the activities more appealing for the students. Interacting with tutors, guided by lesson plans permeated with cultural and geographical references and comparisons, participants could grow their interest in the world, other cultures, or even travel in their imagination, alongside acquiring language knowledge and communication competencies. Skype as the most popular video-conferencing platform of that time was used for real-time interaction. Playful homework and other activities involving asynchronous interaction were evaluated as well. A custom course management information system has been developed for timetable planning, progress management, feedback gathering, and work reporting.

Figure 4 Students talking to a Filipino tutor (Source: authors)

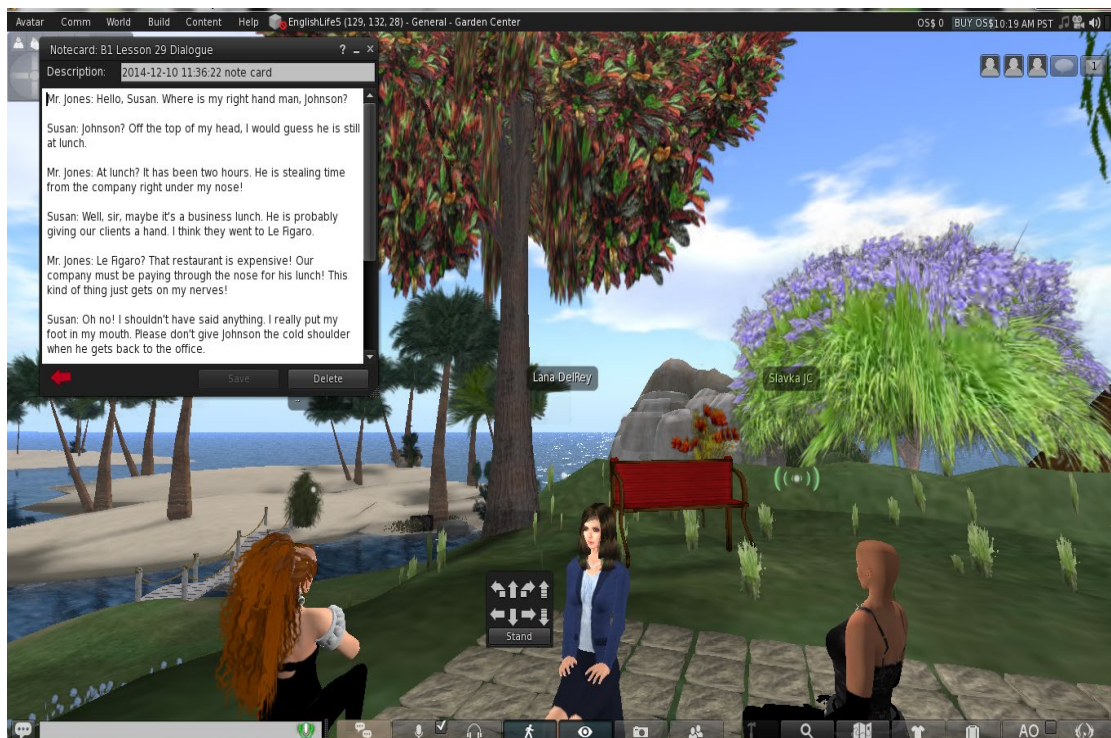


Eventually, 547 students participated. Though the progress in the language competencies was not objectively measured, subjectively (in terms of motivation and feelings towards learning about other cultures and places and perception of the language as means to connect with the world) the courses had a positive effect. Feedback questionnaires were collected from 433 students and 119 parents. The data supported what has been observed by the team throughout the project – the activities were perceived as interesting, inspiring, and beneficial for the students. During the preparation and at the beginning of the project there were some doubts about the applicability of the method in lower grades. But the data has shown that lower grade students were even more positive about the method and their perception of an increase in the language confidence and at least similarly positive in other aspects (Zejda and Canoy, 2014).

Videoconferencing and Virtual Worlds in Courses for Adult Learners

The two other projects aimed at adult EFL learners mainly from the Hradec Králové and Zlín regions of the Czech Republic. The goal was to evaluate various forms of online or blended education, with various specific target groups on mind, such as (1) learners with physical disabilities, (2) mothers on maternity leave or more generally parents on parental leave, (3) the elderly, (4) very busy persons, such as managers, (5) IT enthusiasts. Experimental information systems were developed to support or facilitate the learning process, specific courses were prepared, tutors trained. The courses, methods, and technology were eventually evaluated on 461 participants. Three EFL courses have been prepared for virtual worlds running on the OpenSimulator (2020) technology (Fig 5.), namely for OSGrid by Osgrid Inc (2020) and Metropolis Metaversum (Hypergrid.org) worlds. As a base in each world, custom regions have been deployed, but tutors were instructed by the courses to take their learners to various locations according to the character and objective of each session (virtual educational traveling). An integration bridge has been implemented between the OpenSimulator instance and course management system for attendance records, user management, course and schedule management, feedback, an overview of learners' progress, etc.

Figure 5 Sample screen from the OSGrid world (Source: author)



Classrooms were equipped with a comprehensive sound system, camera, and a big screen to allow remote learners to connect directly and participate fully in face-to-face sessions (Fig. 6). A variety of EFL courses have been prepared for video conferencing or for blended courses, together with a web-based course management system offering per-institution domain separation, attendance tracking, and configurable layouts.

The system was built upon the web2py application framework (Di Pierro, 2020). BigBlueButton open-source video-conferencing client-server system (Blindside Networks, 2020), deployed within the international high availability video-conferencing network Mconf (Mconf network has been dissolved as newer versions of BigBluebutton are available; Universidade Federal do Rio Grande do, 2020), was integrated into the system to provide multi-way video connections, session recording, and in-session content sharing. Because BigBlueButton did not support shared video playback during the session back in the date (Current versions of BigBluebutton allow external video playback), a solution based on According to Karl-Ellis (2020) WebcamStudio, involving a virtual camera and virtual microphone fed by a video stream was tested successfully. Fig. 7 illustrates the flow of video and audio signals through the WebcamStudio to the BigBlueButton.

Figure 6 Equipment in the classroom for the full participation of remote learners (Source: authors)

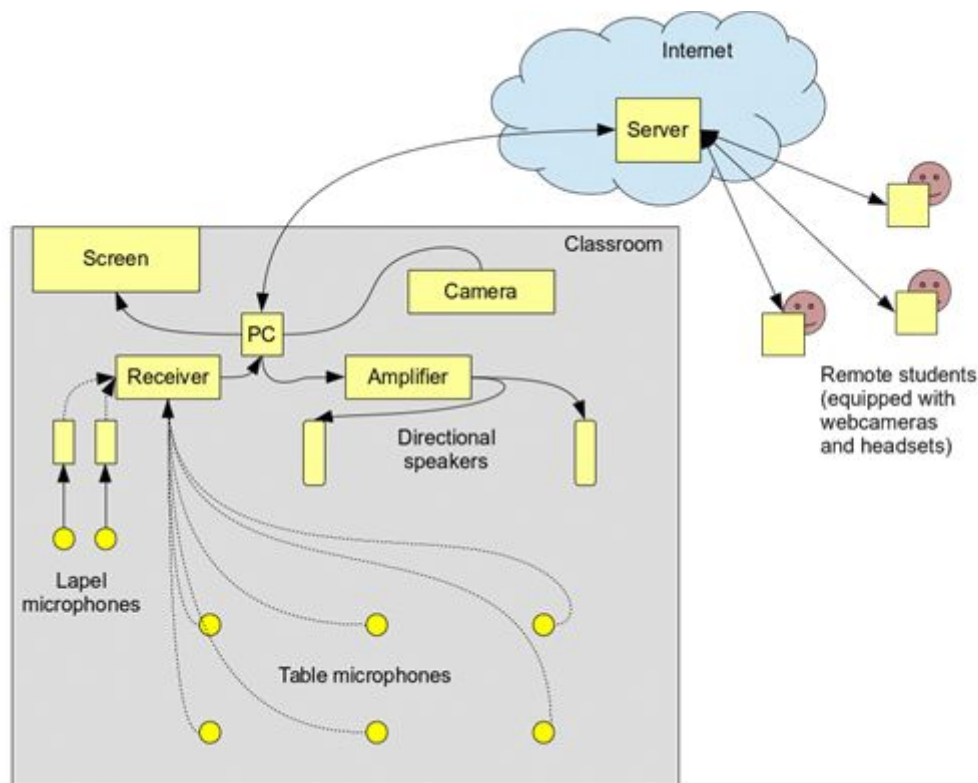
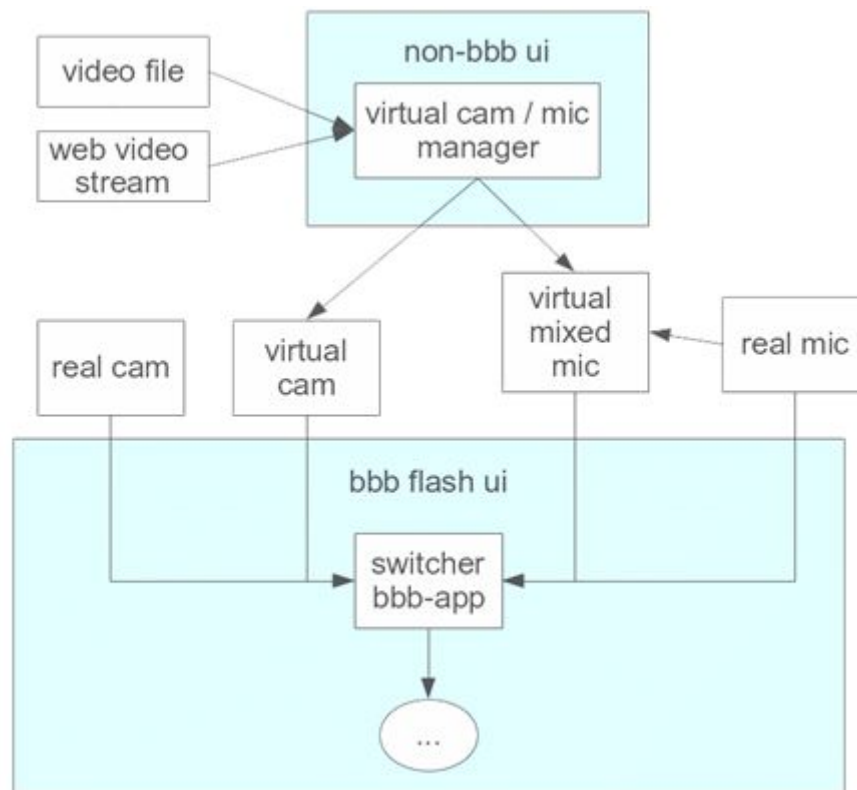


Figure 7 Video playback implemented by the means of a virtual camera and a virtual microphone
(Source: authors)



Discussion

Though the learners' feedback throughout the courses was positive, weaknesses and limitations of the methods and tools were observed too. Courses in virtual worlds required substantial technical support for the participants, especially when incompatibilities arose. Several patient learners or those with less adequate hardware were even deterred from continuing their participation. The camera made some learners feel anxious about their appearance; table microphones and the camera in the classroom seemed to have an even stronger negative impact on the learners' anxiety. The lack of previous experience with video conferencing or with a table microphone among some learners probably played a role. On the contrary, the courses conducted in a virtual world made learners feel less anxious about their language. However, handling the complex English user interface of the virtual world viewer, navigating the avatar, and performing other actions was a challenge for some. The interface should be simplified, or even radically stripped down. Also, connectivity problems affected the course delivery at times.

Conclusion

Involving technology, such as video-conferencing and virtual worlds, makes courses more accessible or appealing, but the increased complexity leads to new challenges and potential problems. Courses should be *created* and *delivered* systemically (Moore and Kearsley, 2004), starting from the course planning and creation, based on a thorough analysis of learners' needs and capabilities, organizational goals and resources, and the technical aspects. The technology should not distract the attention and divert the focus from humans, learners in particular. Learners should not be distracted by unnecessarily complicated user interfaces; distractions or even disruptions caused by technical problems should be minimized. Training of instructors, thorough testing, systematic feedback collection, and implementation, all these are necessary. Schools that offer video-conference-based courses usually highlight advantages such as comfort, flexibility, or affordability. The comparison of how several Czech language schools presented their usage of videoconferencing in 2014 and 2021 in the context of relevant search trends suggests, that a systemic approach in the course creation and delivery is rather lacking and as well as the adoption of up-to-date technologies.

Three experimental projects successfully evaluated the applicability of virtual worlds and video conferencing for more than 1000 participants, both elementary school pupils, and adult learners. Sessions were conducted mostly by tutors connecting directly from the Philippines and the USA, using specifically designed lesson plans which transformed the cultural and geographical difference into engaging and motivating user experience. Elementary students, even from lower grades, may benefit if the technology is used to facilitate communication with native speakers, boosting the language confidence and interest in learning the language, besides other positive effects. Regarding adult learners, various groups of people could benefit from the IT-supported distant or blended learning, such as those with physical disabilities, those limited by their time-consuming family responsibilities, the elderly, businesspeople busy with work or traveling extensively both for business and tourism reasons, or IT enthusiasts. Various forms were evaluated, such as purely online courses conducted either via videoconference (Skype, BigBlueButton) or in an online virtual world, courses combining online and face-to-face sessions, or allowing remote participation in face-to-face courses in a classroom. The systemic approach to course creation and delivery contributed to the positive response. However, technical and psychological challenges on different layers of the communication stack (Fig. 1) require further attention.

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