



Interactive, authentic, gameful e-learning concepts for the foreign language classroom

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Introduction

This chapter aims at presenting a sort of snapshot narrative of my current research, i.e. some central aspects of my interdisciplinary cumulative dissertation. The special focus lies on the aspects that have been deeply influenced by both my teacher education studies in the early 90s at the University of Tampere and by my master's studies in educational sciences starting in the year 2008. My purpose is to substantiate a few pedagogical intentions with the multimodal interactive language learning concepts I have been designing. I also introduce connections in my teaching interventions to learning approaches (or concepts), such as holistic conception of the human being, authenticity, experiential and situated learning, learner

autonomy, agency and identity building, dialogue, collaboration, as well as intercultural encounters and communication. The snapshot approach means that the research procedures, different interventions and their results are not described in detail here. Several publications already completed and a few more in parallel preparation will complete the task, as well as the abstract, introduction and conclusion of my PhD dissertation (Pihkala-Posti 2011; 2012a, b, c; 2013; 2014a, c; 2015a, b; 2016; Pihkala-Posti & Uusi-Mäkelä 2013; Pihkala-Posti et al. 2014, Kallioniemi et al. 2014; 2015).

Theoretical and conceptual frames

A leading theme in my research is the concept of *authenticity*. This is thanks to Professor Pauli Kaikkonen who was the lecturer in language didactics for the students of German in 1993–1994, when I completed my subject teacher education studies in the University of Tampere.

Authentic foreign language learning is enhanced through interactive and reflected encounters when using a foreign language. Observing and testing meanings in real-life linguistic-cultural situations play a significant role in authentic foreign language learning. (Kaikkonen 2002b, 40). [Translation from German original: Authentisches Fremdsprachenlernen wird durch interaktive und reflektierte Erfahrungen über den fremden Sprachgebrauch gefördert, wobei Wahrnehmung und Bedeutungsüberprüfung in wirklichen sprachkulturellen Situationen eine wichtige Rolle spielen. Translated by Pihkala-Posti].

In addition to the emphasis on the interaction with people of a target culture (native speakers) and the authentic media of a target culture (newspapers, books, radio, TV, films, websites) as a second dimension of authenticity, the authentic classroom communication and output of language learners, e.g. about their own lives, interests and experiences, that is, the communication about “something real

and present”, are also highly important. According to many studies concerning the brain, particularly those pertaining to learning and motivation research, for example, activating and strengthening the language users’ own meaning structures to enhance learning is essential (e.g. Garner 2007; Grein 2013). In the best-case scenario, discussions about “one’s own” lead to further reflections on one’s own culture, which is essential to be able to prepare for the encounters with otherness (Kohonen 2001; Jaatinen 2001). As a teacher, I have tried to develop my teaching and educational materials, pedagogical approaches as well as the local curriculum in order to implement language education that enables my students to experience authentic communication in the formal school context. My purpose has been to develop their language learner identities towards open-minded intercultural actors (Kaikkonen 2001; 2002a, b; 2012). As noted in this chapter, I have experimented and developed the use of online applications for this purpose for 15 years.

The authentic approach in this research emphasises the role of dialogue, reflection and understanding in the hermeneutical sense, and represents a holistic view of the human being (cf. Lehtovaara 2001; Rauhala 1983). Learner autonomy (Korhonen 2016; Jiménez Raya & Lamb 2008; Kohonen et al. 2001), here, is present through the more visible/concrete concept of *learner agency* (van Lier 2010; Kohonen 2010). According to my understanding and experience, its development is crucial and also a prerequisite for the development of learner autonomy (cf. also Kaikkonen 2012). It is an active attitude of a person towards the others and the world, which is evident in the intension and willingness to engage in dialogue and interaction.

Individual mental knowledge is generated in interaction with the environment, shaped by the quality of the interaction. The pupil has an active role in this process, constructing their subjective personal knowledge and meaning. Dialogue entails essentially openness to the other person and to the subject matter at hand, a willingness to understand the diversity of views and opinions. (Kohonen 2010, 4.)

In the context of this chapter the interaction between the learners often happens virtually, sometimes between just a learner and a(n) (interactive) platform.

Focusing on learner agency does not mean leaving the learners on their own, on the contrary. The role of the teacher merely changes from the traditional one. The teacher's new role is that of a learning catalyst, regulator and organizer. The concept of *co-operative learning*, nowadays referred to as *collaborative learning* (see, e.g., Arnold 2003 for the differences between these concepts), plays a central role in my research and education. In the Central European context, the popular concept *Lernen durch Lehren* (Martin 1996) is parallel to this co-operative approach. The central idea is to activate and deepen the learners' knowledge construction by letting them first learn something and then teach it to other learners. It is important to interchange the composition of the learning groups collaborating on the micro-level; sometimes it is good to study in heterogeneous groups where the more advanced learners teach those who are not as far yet and are challenged by the example of the more advanced. However, it is also important that the students who are enthusiastic about a theme, for example, are allowed to work in the same group and share their knowledge and passion together. Then, positive emotions that are activated promote learning (see Kohonen et al. 2001 and Grein 2017 concerning the role of emotions in learning). From the perspective of the Vygotskian *zone of proximal development*, working in homogeneous groups is also important. In this situation, the group members share a more equal zone of proximal development whereby they can promote each other's learning by challenging each other in a reasonable way - as we know, too little and too much challenge are both detrimental for a learner. Therefore, both a suitable zone of proximal development as well as relevant *scaffolding* are of high importance. As a consequence, both peer support by the co-learners and by the didactic expert, the teacher, in particular, have a high value

in learning new things (Lantolf & Thorne 2006; Eskelä-Haapanen 2012).

Online platforms offer various opportunities for learning dialogues and engaging in collaboration and peer support, which will be exemplified in this chapter. It should be noted that individual learning methods are needed, as well. Some students simply prefer to work alone and forcing them to always work outside their comfort zone would be discriminating. What is more, individual processing is always required for something to become part of the individual's knowledge structures. Neither a strictly collaborative approach nor only working alone suffice as a balanced and fair pedagogical approach - both are needed.

The Common European Framework of Reference for Languages has played a central role in my thoughts when practising the different skill areas in communicative competence (Council of Europe 2001). On the one hand, the equal importance of/focus on spoken communication and action orientation in CEFR and, on the other hand, the lack of possibilities for oral practice in the first generation of web-based solutions have strongly influenced my research focus. In addition, it is an eternal challenge to be able to include real action-based communication opportunities in the classroom, as important as it would be (cf. Pihkala-Posti 2014; 2015a, b; 2016; for the construction of action schemes, see also Aebli 1991).

In this chapter, I will show and report about a few important solutions included in my research project. As a synthesis, I have connected central ideas of these streams to my own experiences with and knowledge of the mediamorphosis/changes in the media world (e.g. Luukka et al. 2008; Fidler 1997; Gee 2003; 2004; Prensky 2001; Carr 2010; Small & Vorgan 2008; Pihkala-Posti 2012a, b). This includes, among other things, the challenge of keeping students interested in learning several foreign languages while, at the same time, their workload is increasing in the compulsory school subjects (Pihkala-Posti 2012a, b). One factor that explains this is the growing

gap between informal and formal information processing strategies. This leads to a situation in which e.g. strategies and routines of working with longer linear texts and memorising contents by heart have decreased, but their use in school context is still remarkable. This leads to a sort of capacity dilemma. (Rosén & Gustafsson 2016; Pihkala-Posti 2012a.) According to my reflections, in this type of situation, where pupils need to become more deeply motivated and involved in order to engage in a multilingual learning approach, the key issues are, among other things, creating an atmosphere of respect and support different types of learners as members of a learning community (Gieve & Miller 2006). Further goals are to support language learning as part of the learner's personal identity building processes and to support the students reaching their own learning goals. Furthermore, the pedagogy of encounters and combining informal and formal learning play an important role here (Prensky 2001; Gee 2007; also Kohonen et al. 2001).

Waypoints of the research journey

In the following, the results of my interdisciplinary PhD research project are briefly described. My research methodology is based on the ideas of action- and design-based research but have their roots deep in the hermeneutic tradition. This means that the goal is to reach a deeper understanding of different aspects in foreign language learning and teaching that play a role in learning communities and learning identities of different types of learners. During my PhD project, multimodal, collaborative, experiential, action-based and authentic web-supported concepts have been developed for the context of foreign language education (Pihkala-Posti 2014c; 2019 manuscript). Ideas of gamification have also been applied (Pihkala-Posti 2015a, b; Kallioniemi et al. 2015). The central issue has been to support the development of learner agency as well as skills for

intercultural communication (Pihkala-Posti 2012a, b; 2015a; 2016; 2019 manuscript).

To find as realistic and authentic approaches as possible to develop the different areas of the communicative competence in a foreign language, several Web 2.0 tools and platforms have been used in various interventions on different school levels, from primary school up to university as well as in international co-operation (Pihkala-Posti 2011; 2012a, b; 2013; 2014a, b, c; 2015a, b; 2016; 2019 manuscript). They are *Wordpress* blogs, *Wikispaces*-wikis, *Wordle*-wordclouds, *YouTube*-videos, various voice recording and videoconferencing platforms, the informal webgameworld *Minecraft* and, finally, the embodied, collaborative language learning environment *Berlin Kompass* created in our multidisciplinary project *Active Learning Spaces* at the University of Tampere. Also, *CityCompass* – a different user interface realization of the idea of *Berlin Kompass* was developed and tested. Special emphasis was placed on the development of oral communication skills which had been disregarded/ ignored in the first generation of the web-based approaches, where mostly written communication took place (cf. Pihkala-Posti 2011; 2012a, b; 2013; 2019 manuscript, Kallioniemi 2018).

Both material and method triangulation have been essential elements in the research strategy. Student feedback, teacher observation, recordings of the learning situations on the platforms and student output have all served as my research data. (Pihkala-Posti 2011; 2012a, b; 2013; 2014a, b, c; 2015a, b; 2016; 2019 manuscript.)

Step 1. Social media, videoconferencing and voice applications

In the first part of my research project, I implemented teaching interventions with different web tools that enable oral communication in order to strengthen the role of oral communication. The said tools included videoconferencing with *iVocalize* and *Adobe Connect Pro*, in addition to other applications, such as *Skype*, *Vocaroo*, *Voxopop*,

Voicethread and, not to forget, the most popular tool of all used in the teaching, at least according to my research (Pihkala-Posti 2012b; 2013; 2014c; 2019 manuscript), *YouTube*.

Vocaroo, a simple tool enables the online recording and embedding of short oral comments to a web-page (e.g. *wiki*, *blog*, *Facebook*) or emailing of recordings to a recipient. Comments related to different themes were recorded by the upper secondary school students. The themes had to do with the students' own everyday life: their friends, hobbies, housework, etc. *Voki*-messages, i.e. (student) recordings spoken out by (speaking) avatars were also explored but not used extensively. One effect with using an avatar is to reach a certain distance to oneself just by hearing the voice but not seeing the speaker him- or herself, which could minimize the social pressure of talking compared to personally presenting something in front of the class, for example. (Pihkala-Posti 2014c.)

Voxopop is an online discussion forum platform where the discussion input is recorded as chains: an initial recording is made by someone and after that commented by others, or principally, also by the initial person him- or herself (unfortunately the *Voxopop* platform was closed in autumn 2017). My aim was to create an asynchronous online dialogue between the teacher and the students, i.e. a discussion community. The supposed advantage of this platform was that it would be possible for the students to listen to the output and to consider in peace, how to react upon it. This would especially support the types of learners that need time to organize their ideas into words. A discussion chain including input both by the teacher and the students would hopefully enhance peer learning.

In the spring semester 2012, *Voxopop* was used for the first time in GFL (German as a foreign language) teaching at the language centre of our university in three courses with a focus on oral communication. Different discussion tasks were assigned to students and the teacher recorded the assignment instructions. Each student listened to the recording and the possible previous comments recorded by the

other students in the course. Then the students added their own contribution to the assignment, and the teacher recorded a feedback comment on each student's contribution. The students were then able to listen to the feedback. The students expressed their opinions on various topics; the discussions formed "chains" through which they practised argumentation in the target language. The topics of discussion included the role of mass media versus Internet, financial saving measures, student living, tobacco consumption, women and careers, etc. Also, the students made summaries of lectures given by a series of German language specialists and subsequently recorded oral presentations about them.

The majority of the students saw that for the first time oral exercises could be done as homework, which was considered to be important and useful. The most common criticism that individual students expressed was related to technical problems that had occurred during recording. The students did not react negatively to the pedagogical setting, but nonetheless some students preferred face-to-face interaction. The teacher found that the short samples of oral speech provided her with a more versatile picture of what the students' oral skills were like. In addition, the students felt that the personal oral feedback (asynchronously) was an advantage. Even if it proved to be time-consuming, the students found it personal and valuable. The next step could have been that, instead of the teacher, the students had started discussions on different themes. (Pihkala-Posti 2014, 210)

It was nice to do these exercises at home, and it was possible to record the task as many times as I wanted, until I was satisfied enough with the outcome. In addition, it was nice to listen to the presentations of others as long as they were not too long. My learning is enhanced by the use of different teaching methods and tools. Especially in speech production, and also in other oral exercises, the use of technology brings new opportunities. Too little speech

production is practised at our schools. It is difficult, because the students are shy to speak. Therefore, perhaps Voxopop could help here...(A student of German at the university language centre, participating in the voice application teaching intervention).

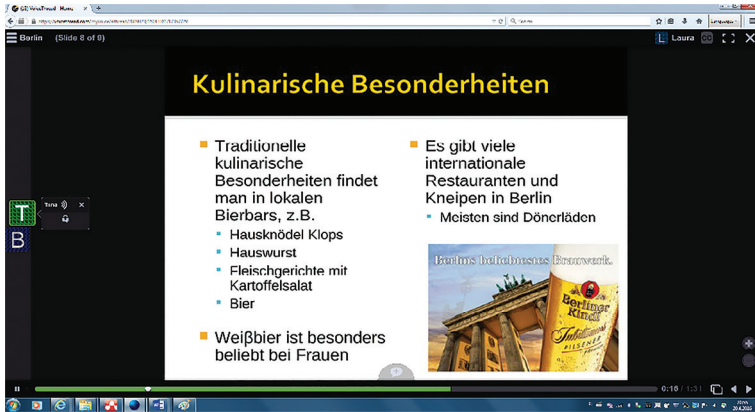


Picture 1. A screenshot of a Voxopop group discussion task with the upper secondary German learners: reading and recording a favourite poem in the target language

In the upper secondary school, the participating students listened to my *Voxopop* voicemail instructions, after which they recorded their own responses and listened to the responses of others. Every day topics were discussed in German, e.g. the music they like/dislike, answers to voicebox messages recorded. However, even more demanding themes were also included, for example, poems were recited and discussed, and jokes were told after web searches for interesting ones. These last mentioned tasks are not very common as oral exercises in a typical classroom context, because quite a few Finnish students find it embarrassing to express these types of intimate things, for example to recite poems in the classroom publicly. With *Voxopop*, this type of group pressure and stress were avoided, because the recording was made at the students' own pace at home. Understanding jokes

in the target language is not simple, either. The fact that Voxopop offers opportunities to listen to and record speech at one's own pace - and several times if needed-, is encouraging. These recorded samples on various topics (a kind of a portfolio) of students' pronunciation, intonation and oral production gave, according to my evaluation, a better picture of a single student's oral skills than in typical classroom situations. In the classroom, students practise oral interaction while the teacher typically goes around and listens to students here and there for a short moment. A further advantage of Voxopop-type oral practice relates to the possibilities to use these kinds of samples for evaluation purposes of oral skills, e.g. as in CEFR. Of course, the evaluation should be complemented with synchronous face-to-face interaction. About one half of the students liked this approach, the other half reported that they learn best by reading and writing something, not by listening and talking, which does not mean that they do not need training in oral production or would not learn language in that way, too. (Pihkala-Posti 2014c.)

Voicethread is an interactive presentation tool that enables combining records with pictures and texts, Power Point presentations or even videos. Others can comment on these using voice or text, which creates possibilities for asynchronous interaction and dialogue. The university students searched for information and pictures in the Internet and made presentations on cultural issues in the different states of Germany. The presentations were commented on by other students and the teacher who also gave linguistic feedback. The presentations, as well as the related discussions, were interesting and their pedagogical value was evident, but some technical problems concerning, for example, the sharing of the presentations caused frustration among students. (Cf. Pihkala-Posti 2014c.)



Picture 2. A screenshot of a Voicethread page in the language centre's culture project

Two videoconferencing platforms, i.e. *iVocalize* and *Adobe Connect Pro*, both combined with *Skype*, were used during two courses to teach upper secondary school students from different schools participating in oral communication in German in a blended learning setting (Pihkala-Posti 2012b; 2014c). This means that most teaching occasions were online in the evening. The students worked at home and talked through their headsets to the teacher and the other students. The students used the chat of the videoconferencing room actively as a second synchronous communication channel during the spoken interaction in the platform, and different types of parallel discourses were created. An added value of the chat that the teacher-researcher (myself) also found during the sessions was the discrete possibility of giving support while the students were talking. For example, during the oral production when the students were searching for suitable words, the teacher could give advice through the chat without the need to interrupt the speech flow. So, the teacher could simply let the students talk and offer vocabulary help in the chat window, if needed, answer supplementary questions to the vocabulary, comment on something or correct expressions, if necessary, without affecting the pupil's discussion otherwise. Ideally, the teacher only intervenes in the discussion if the student communication stops completely. A special

part of the course consisted of intercultural encounters, i.e. native speakers “visited” the online sessions and talked with the students. The students also told them facts about the Finnish nature, among other things. (Pihkala-Posti 2012b; 2019 manuscript.) According to the feedback, the students highly appreciated these visits (Pihkala-Posti 2012b, 18):

It was a lot of fun to talk with the [online] visitors. It felt good to notice that it was possible to understand at least the central content and to become understood myself too. I once again got a practical reminder of (the fact) that German skills are useful. ☺ Waiting for the next time... [A 16-year-old student of upper secondary school]

The videoconferencing platform, *iVocalize*, was also used on a special German course for business students at the university language centre in spring 2012. The students interacted with students of the same field in Slovenia. The Finnish students gave presentations about the Tampere Trade Fair in German, after which the Slovenian students asked further questions. This is a type of communication the students could encounter in their professional life later. The authenticity of the situation was a significant motivating factor, which, according to the teacher, was seen in the students’ thorough preparations for the situation, compared to similar assignments earlier. The overall experience of videoconferencing was evaluated positively both by the teachers and the students in both countries. (Pihkala-Posti 2014c.) Authenticity and intercultural dialogues, in particular, were considered as an added value in the feedback comments:

Slovenians reacted differently to the things in the presentation than the Finns. I started to think more about the things myself, too, as Slovenians posed good questions. (A student of German in the university language centre, participating in videoconferencing with Slovenian students)



Picture 3. A screenshot of a Videoconference presentation of language centre students with Slovenian students

The third teaching intervention with *iVocalize* was conducted in an international pilot project in cooperation with *Deutsche Auslandsgesellschaft*. GFL learners from three countries, Finland, Estonia and Russia, worked together with upper secondary students in Germany on the topic of intercultural communication. The task was related to stereotypes of the nationalities presented in the project. After having received the task in a videoconference session, the students went into the streets in their towns and made interviews with people about their understandings of different nationalities. The results of their interviews, showing, among other things, common knowledge and stereotypes of the nationalities, were then presented to the others in the second videoconferencing session and discussed in order to understand the role of stereotypes in culture. The students also discussed negative stereotypes and answers revealing nearly no knowledge of the other nationalities. As a consequence, these challenging findings were discussed. These issues were reflected upon together to avoid staying on the level of stereotypes. The students began to interact spontaneously with each other by chatting synchronously about the interview results. (Cf. Pihkala-Posti 2014c.)



Picture 4. A screenshot of a Wordpress blog of the intercultural project with upper secondary school students

Feedback on the project was gathered in a Wordpress blog, e.g.

Student feedback:

I liked the project. Interesting, but difficult.

Thanks for the project. The questions were interesting; we noticed that we knew little about Estonia and Finland. I will read and my friends also.

I find that it was a nice experience. We had lots of fun. I can say that I spoke German for the first time with other students.

Teacher feedback:

The [online] project is an experience! The first time in my life! Hope that this experience will motivate me and my students to work more seriously and creatively with the language in the future.

Compared to the most common digital language learning environments, the videoconferencing platforms allow more versatile multimodal working methods, which can support communication and learning processes. One of the most serious deficiencies in most Internet applications is the lack of opportunities for

nonverbal communication, which however, is an important part of communicative and intercultural competence. In a videoconference with a webcam, this is possible to a limited degree, even though the nuances of this interaction cannot be compared to face-to-face communication. Also, the use of videos makes the passive observation of nonverbal matters possible. (Pihkala-Posti 2012b, c; 2014c; 2019 manuscript.)

Conclusions: Step 1

The students' feedback on the use of different applications and platforms –was reflected in and combined with my own observations and in those cases where I was not the teacher of the group, but the interventionist researcher, with the feedback and observations of the actual teachers. It became rather clear that a relevant approach must include a pedagogically measured multifaceted combination of different types of applications and working styles in order to satisfy the different types of learners, support and challenge the whole language learning community in a versatile way (Allwright 2006; Kohonen et al. 2001; Pihkala-Posti 2013; Pihkala-Posti & Uusi-Mäkelä 2013; Pihkala-Posti 2014a, b, c; 2019 manuscript). Still, more variation and different approaches were added to meet these requirements even better (e.g. Schupmann 2015; Grein 2013; Coffield et al. 2004; Pihkala-Posti 2014c; Pihkala-Posti 2019 manuscript).

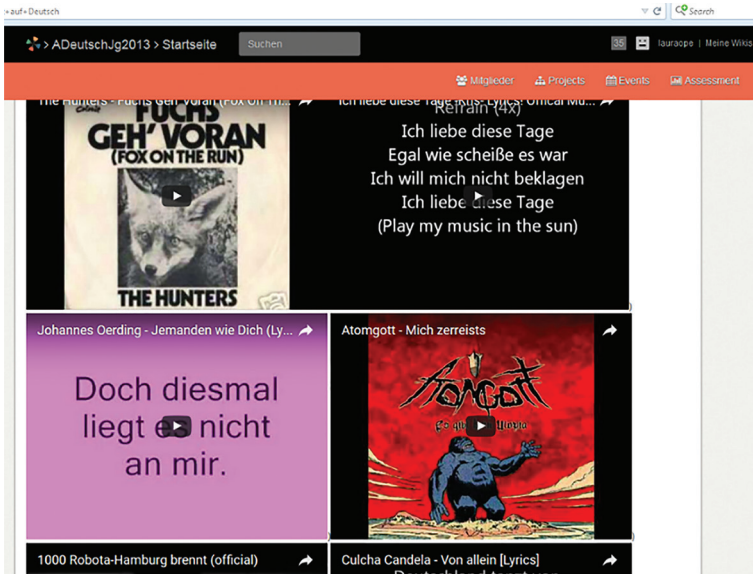
Based on the knowledge that I have acquired since my teacher education, action-based approaches seemed to be the most relevant ones in offering a holistic communication context, compared to, for example, the traditional textbook-oriented approach, but also with writing or speech applications used during the first part of my research project (Pihkala-Posti 2014c; Pihkala-Posti 2019 manuscript). Although praised as one of the most effective ways to enhance learning, the concepts such as *learning by doing and experiential learning* (Dewey 1915; Kolb 1984; Gee 2004; Aldrich 2005) have,

according to my experience, not managed to become the mainstream in schools (Pihkala-Posti 2015a; 2016; 2019 manuscript; Kallioniemi et al. 2015). They are occasionally used as an enriching method almost everywhere but seldom play a central role (Kallioniemi et al 2015). The practice of (oral) communication situations in a normal classroom environment still often remains at a relatively non-authentic level (Pihkala-Posti 2016). I mean hereby that far too often isolated phrases and sentences are produced, without any real possibility of proving their actual communicational relevance (Pihkala-Posti 2014 a, b, c; 2016; 2019 manuscript). This means that there are no experiential consequences, although e.g. advice was incorrect or misunderstood by the peer (Pihkala-Posti 2014a, b, c; 2016; 2019 manuscript). In real-life communication situations, the descriptions must be adequate in order to lead to a desired goal. New technology-supported action-oriented approaches seem to offer promising opportunities to create experiential and relatively authentic communication and action environments for the formal context (Pihkala-Posti 2014a, b, c; 2016; 2019 manuscript). *Minecraft* and *Berlin Kompass* which will be described in the next section are examples of such approaches. (Pihkala-Posti 2014a, b, c; 2015a, b; 2016; 2019 manuscript.)

Step 2. Authenticity through informal, action-based and gamified approaches

A central goal of my research work has been to find ways to bring informal learning into the instructed language classroom. Informal learning has, in my understanding, to do with the experience of authenticity in the learning contexts where the language is used. (cf. Kohonen et al. 2001; Kaikkonen 2001; Pihkala-Posti 2014a, b, c; 2019 manuscript; Pihkala-Posti et al. 2014). For example, my students have often been given a task to search for music in the target language from *YouTube*, the type of music that is as close as possible to their own music tastes and then share it with the entire language class e.g. via

Wikispaces (Pihkala-Posti 2014c). The entire group then, respectfully, listened to the songs. The purpose of the task was to increase the tolerance of the students towards different (music) tastes, i.e. towards otherness and to support the target language becoming part of the learners' identities.



Picture 5. A screenshot of a student's favorite songs in the Wikispaces

Based on my experience as a teacher, researcher and textbook writer, I have come to the conclusion, over the years, that the most promising use of new technology enables students to practise communication as authentically as possible, not the traditional oral exercises (Pihkala-Posti 2014a, b; 2015a; 2016; 2019 manuscript). To create an action-based multimodal communication environment with an informal connection, the popular web game *Minecraft* (<https://minecraft.net/>) was introduced and used in my research project. *Minecraft* is currently a very popular action-based virtual world building game in informal contexts (around 70 million licenses sold). This type of virtual world can be built alone or together with other people. The *multiplayer mode*

enables many players to interact and communicate with each other within the same platform. Communication is possible while playing via the Minecraft chat or through an added speech application, e.g. *Skype* or *Teamspeak*. In the game blocks, cubes of different materials are used for building projects. They can be broken and placed to build different types of buildings and other objects. In addition to the blocks, there are other resources and features, such as plants and items that can be found and used in the game environment. (Pihkala-Posti & Uusi-Mäkelä 2013; Pihkala-Posti 2015a, b; 2019 manuscript; Uusi-Mäkelä 2015.)

A version of the game is available in many different languages. An essential part of playing the game is to follow or, rather, to participate in the discussions on the online player community platform (so-called *Minecraft wiki*). The Minecraft wiki has been created in all of the available languages in which the game's user-interface exists. The Education Edition of the game (*MinecraftEdu*) was developed, which I used for the purposes of my research. To date, the game has been marketed primarily to other subjects, such as science education, but the author (myself) and her research group (Pihkala-Posti & Uusi-Mäkelä 2013; Pihkala-Posti 2015a, b; 2019 manuscript; Uusi-Mäkelä 2015) were especially interested in the opportunities it would offer to expand the opportunities for action-based approaches in foreign language teaching.

The game was used by the author in upper secondary school in the teaching of German in an international project with the Finnish students playing with Russian students who were learning German. The task was to invent a mutual building project and execute it. Just a loose frame was given: they had to build something that had to do with culture. First, the students practised in small groups and then started the joint building project, which was to build a football arena for an international event. The students played on international teams, which prompted the need to use the target language while playing. In addition, the building collaboration offered a meaningful way to

develop skills for intercultural dialogue. There was a clear need for these types of skills, as the student feedback revealed themes such as frustration with non-successful communication, for example.

It was an evident problem that the communication with the eastern neighbours was not fluent.

However, in the second intervention, the use of German was reasonably successful also within a Finnish teaching group when the students were playing together. Student groups built a dream school on the ruins of the old school destroyed by an earthquake. During that project, they embraced a variety of roles and acted quite autonomously from the very beginning. The teacher played the role of coach, supporting the use of the target language and helping with difficult expressions. (Pihkala-Posti 2014c; 2015a, b; 2019 manuscript.)



Picture 6. A screenshot of the result of the building project in an upper secondary student group



Picture 7. A screenshot of the result of the international building project at upper secondary level

According to the student feedback in the questionnaire answers, the authentic communication context and natural oral interaction opportunities, as well as the student collaboration were considered valuable:

I liked it very much; to work together, and to speak German.

I liked it very much. It was fun to play in the group of three people.

Also, the writing task afterwards, a report on the group work in the target language, revealed positive student experiences (Pihkala-Posti 2015a, 121):

I've learned new things with Minecraft and had fun. I [pupil's name removed] built with [pupil's name removed] a house, but we destroyed the house with lava and water. At that time, we were not so good at playing ... Luckily, [pupil's name removed] rescued our house. Then we lost the house and our bridge because we flew too far away from them. Then we built a new house and the house is now much nicer than the old house. We killed some monsters and animals.

I also made many mistakes because I never used to play *Minecraft* before. I find that to play *Minecraft* and to speak German with other people is now much easier. [A 16-year-old student of Finnish upper secondary school]

From the other point of view, the gaming was criticised by some pupils in both groups (approx. 30 % of those who gave feedback). They seemed to feel that playing games is entertainment and a leisure-time activity that is not part of school. They preferred textbook and grammar oriented traditional teaching (Pihkala-Posti 2015a, 120):

Not so good. I think we should first learn the textbook units and grammar, and then play *Minecraft*. I think that we just lose our lessons and don't learn so much. It was great, but I do not know if playing *Minecraft* in German was so instructive. [A 17-year-old student of Finnish upper secondary school]

The described approach seems meaningful, however, as some other students became highly motivated, especially because of this gaming possibility. For the most part, those who said they played video games in their free time also liked this approach. That could be interpreted as successful bridging between the informal and formal spheres. Indeed, a male upper secondary school student told me he was really motivated to speak German in this *Minecraft* building project for the first time in his seven years of language learning (Pihkala-Posti 2015a, b; 2019 manuscript). Teaching approaches that activate boys are on demand, because currently in Finland boys are becoming marginalised alarmingly often (2019 manuscript). On the other hand, the *Minecraft* sessions also motivated at least some successful girls who chiefly appreciated traditional teaching methods. They found that they learned and explored new things in the game environment, and enjoyed the freedom and authenticity of the communication. To benefit from this type of informal gaming in the formal context, I

suggest integrating target language learning and communication tasks in playing the game (didactic suggestions in detail, see Pihkala-Posti 2015a, b). (Pihkala-Posti 2015a, b; 2019 manuscript.)

Berlin Kompass

The *Minecraft* results were promising, but a further variation of approaches was pursued to develop the interaction skills of language learners as diversely as possible (Pihkala-Posti 2014a, b, c; 2015a; 2016; 2019 manuscript). I had become acquainted with a few computer scientists of our university and managed to get them involved in a development project on digital language learning environments. The project was called *Social Media, Games and Interactive Applications in the Foreign Language Classroom* and it was part of a larger project, *Active Learning Spaces*, financed by the Finnish Funding Agency for Innovation (TEKES). The *Berlin Kompass* application project¹ was based on my pedagogical idea of creating a multimodal, interactive, collaborative and experiential virtual learning environment for oral communication. Contrary to *Minecraft*, the multimodal application *Berlin Kompass* was originally designed for formal learning purposes, but it makes use of embodied and gamified learning experiences. The environment of a virtual target culture is enriched with multimodal communication support and gameful elements² (Deterding et al. 2011; Oksanen 2014; Pihkala-Posti 2014a, b, c, 2016; Pihkala-Posti et al. 2014; Kallioniemi et al. 2015).

¹ *Berlin Kompass development team*: Laura Pihkala-Posti, Pekka Kallioniemi, Jaakko Hakulinen, Pentti Hietala, Mikael Uusi-Mäkelä, Markku Turunen, Tuuli Keskinen, Sanna Kangas, Jussi Okkonen, Roope Raisamo.

² Gamification, is defined as the use of game elements and game thinking in non-game environments in primarily non-entertaining contexts (Deterding et al. 2011; Betts 2013; Kallioniemi et al. 2015; Pihkala-Posti 2015a). The goal can among other things be to enhance the level of engagement for learning or as in our case, to diminish the fear of speaking a foreign language by distracting the attention to other matters.

With this multimodal language learning application, players make a virtual trip to the metropolis of Berlin. The *Kinect* device is used by the body and gestures in order to look around and to move in the 360 degree city panoramas. The application is used for technology mediated simultaneous interaction, negotiation and collaboration between two users, who are working in two separate spaces and use headsets for communication. The communication task is about finding the way to different places in Berlin. One (“tourist”) asks for a route to famous attractions and the other (“guide”) describes the optimal route. They both use the visual (and aural) information that can be found in the panoramic views. (Pihkala-Posti et al. 2014; Kallioniemi et al. 2014; 2015.)



Picture 8. A user trying to find the correct route in Berlin (*Kompass*)
Photo taken by the author

The users of *Berlin Kompass* can access multimodal support (text plus speech synthesizer voice synchronously) for vocabulary and phrases by showing the relevant objects literally by hand; these are “hotspots” in the cityscape. The “tourist” can move forward along the route by interacting with the “guide”. Primary communication involves interacting and collaborating with the other user, i.e. describing the (visual) environment as well as asking for and giving instructions and solving possible problems. The tourist moves forward in the panoramas by actually walking towards the correct (assumed) direction (embodied experience). If the choice is correct, both users land at the next crossing. When there are misunderstandings, the tourist ends up at a dead end where relevant communication needs to take place in order to get out and on the correct route again. The realistic panoramic images are intended to create a motivating sense of immersion. The purpose of the orientation task is to train oral skills to negotiate, engage in dialogue, collaborate and solve problems. To get ahead on the route, most learners learn quickly to clarify the instructions and questions until they reach their desired goal. (Pihkala-Posti et al. 2014; Kallioniemi et al. 2013; 2014; 2015; Pihkala-Posti 2014a, b, c; 2016; 2019 manuscript.)

Our pilot studies at our university’s language centre and in the upper secondary school included a total of ~250 people. The observations during the pilots revealed that the system offers language learners of different levels an individual freedom to practise their oral communication and interaction skills in the target language. Considerable variation was found in the strategies used to proceed along the route, i.e. in the communication and description strategies, which enabled the users to reach the goal (Pihkala-Posti 2014a, b, c; 2016; 2019 manuscript; Pihkala-Posti et al. 2014; Kallioniemi et al. 2015). The information offered by the panoramic environment itself and the hotspots with vocabulary and phraseological help can be freely brought into use or disregarded. Some users actually got along with their language skills, while others wanted to learn something

new from the hotspots even if their language skills would have been sufficient to fulfil the task. Others, nevertheless, needed more scaffolding to find their destination. Student feedback confirms that the pedagogical idea of Berlin Kompass actually works; its central pedagogical concepts *agency*, *authenticity*, *motivation*, *dialogue*, *collaboration*, *learning by doing* and *scaffolding* are commented on in the student feedback (Pihkala-Posti et al. 2014; Pihkala-Posti 2016; Kallioniemi et al. 2015):

You're able to look around yourself and you can look for different hints about what things are called, for example the yellow.

Using language in an authentic situation when the other user is 'present in the same image' and the cityscape is realistic.

You should use the language fast and as if you were really in a situation where you need guidance.

One must interact in the foreign language in order to guide the other user. Necessity motivates interaction, or else the game does not progress.

The only thing that's going to help you succeed is collaboration.

The best thing was that you do something besides sitting still.

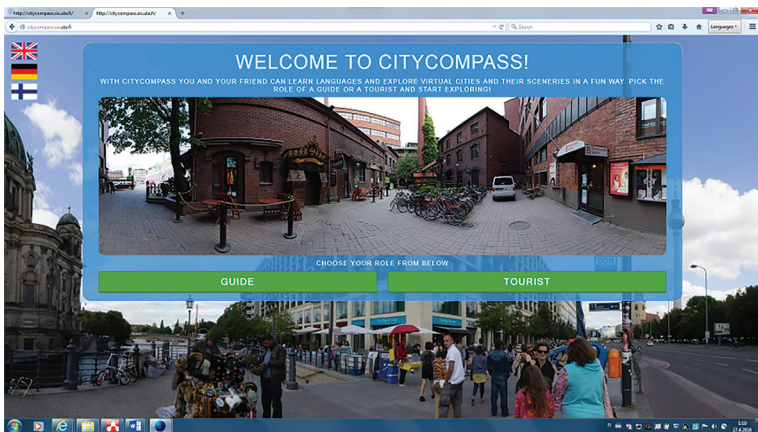
One was able to kind of work in the real language and practice it.

One can learn the language in quite a different way when using the programme. You discover that you may still need some help and it is useful.

It is fun to interact with the application with your body and the positive thing about it is that you also learn German at the same time.

As the next step, a web-interface, called *CityCompass*, was created with the same idea. It enables a whole student group to use the application at the same time, which naturally facilitates its use in normal classroom work without the need for a transition to a separate workstation, in this case, the virtual space. The disadvantage

compared to the original projected, larger view of the city is that the sense of immersion may decrease when working with a small screen and because embodied interaction (with *Kinect*) is not included. However, the use of the computer or tablet version of the application, *City Compass*, also works when one wishes to create an authentic communication context for learners. Of particular interest have been the communication and road advisory encounters that were realised between different countries. Intercultural wayfinding situations were carried out on the web interface, which means e.g. that Indian school students were advised by a Finn, or Finnish students by an Indian person (see also Kallioniemi 2018; Sharma 2018). According to my observations of the Finnish students, they also took the computer screen communication situation seriously and tried their best. In this case, intercultural communication is involved in the adventure game in quite an interesting way and brings additional excitement and challenges – as well as learning opportunities.



Picture 9. A screenshot of the user interface of the *CityCompass* version of the learning concept

Conclusion: Step 2

On the basis of the interventions, both game approaches described in this chapter seem to have the capacity to bridge informal and formal learning. According to my observations and student feedback, this bridge refers to the fact that these types of games seem to dissolve factors occurring in the normal class interaction such as social pressure and inhibition caused by a self-criticism (Finns) that often restricts target language communication in the language classroom. In game situations, the attention is drawn to the gaming itself, the adventure and its excitement. The situation becomes focused on the capability to fulfil the task and the question how. In this case, the concern of individual words and grammar issues moves to the side, and this gives a new way of exercising oral language skills. The word and the phrase hints offered by the *Berlin Kompass* environment support communication and can help to prevent the linguistic ‘jamming’. *Minecraft*, in turn, provides a creative environment for co-operation in the target language, as well as a rich array of supportive resources and supplementary materials that other users have created and offer in different languages, e.g. *Minecraft Wikis*, as well as videos of the construction projects on *YouTube* with oral comments. In addition, it offers contexts where word and expression repertoire of the target language can be systematically expanded and the knowledge of the use of grammatical structures can be applied in holistic communication contexts. (Pihkala-Posti 2014a, b, c; 2015a, b; 2015a, b; 2016, manuscript 2019.)

Discussion

Implementing written, spoken and embodied communication with Internet, interactive applications and games, together with Internet applications (Pihkala-Posti 2014c; manuscript 2019) have been used

to support development of (intercultural) communication skills in addition to all the possibilities a normal classroom and face-to-face-encounters offer through international projects, visitors, etc. (Pihkala-Posti 2012a, b; 2014c; 2015a, b; 2016; manuscript 2019). Technology offers other possibilities for intercultural exchange, too, especially in times when finding funding to travel in international projects is difficult. In addition, a central question has been to support different types of learners in new ways. Holistic approaches (including embodied approaches) are becoming more popular, as the meaning of the corporeality of the perception and position of the meanings of signs in the embodied experiences of the learner have become more widely understood (e.g. Gee 2004; Pihkala-Posti 2015; Kallioniemi et al. 2015; Pihkala-Posti manuscript 2019). A separation of the language use from the learner as a whole e.g. to be just a written or spoken text is to simplify the picture in a counterproductive way (cf. Kohonen et al. 2001; Rauhala 1983; Merleau-Ponty 1974/1966; Kallioniemi et al. 2015; Pihkala-Posti 2019 manuscript). *YouTube*, *Berlin Kompass* and *Minecraft* are applications, which offer embodied, i.e. holistic experiences, either concretely by moving the body as with *Berlin Kompass*, or by avatar and with the mouse as with *Minecraft*, and “brain-mediated” with *YouTube*, which means the same areas can be activated in the brain while following actions on the video that would be activated when physically acting in the situation (cf. Kok & de Bruin 2017; Pihkala-Posti 2014c; 2015a, b; 2016; 2019 manuscript).

Results from the above diverse research sessions using interactive web applications offer potential in language learning, especially for practising oral and intercultural communication (Pihkala-Posti 2014c; 2015a, b; 2016; 2019 manuscript). When used in a pedagogically meaningful way, they offer opportunities for *dialogue*, *collaboration* and *sharing* and can support the building of an *enthusiastic learning atmosphere* and *community*. *Learner agency* and a *positive language learner identity* can be encouraged. Moreover, *action-based learning* and *degree of authentic communication* can be increased, not to

mention relevant *scaffolding*. Multi-faceted, pedagogically sound approaches offering different modality and media combinations seem to motivate and challenge learners of different types or with different cognitive styles, but also the entire learning community (Pihkala-Posti 2019 manuscript). Using various formats provides different types of learners with feeling of success. All of these applications can contribute to the development of communication and action competence skills that serve the ultimate goal, i.e. *fruitful intercultural encounters*. (Pihkala-Posti 2014a, c; 2015a, b; 2016; 2019 manuscript.)

Different stages on the road to authentic communication can be supported by the use of different applications (Pihkala-Posti 2014c; 2019 manuscript). *Voxopop* and *Voicethread* with options for asynchronous communication can prepare language learners for subsequent synchronous communication, dialogue or discussion. To be able to argue accurately is known to be a challenge in a foreign language. With these applications, for example, students can practise their argumentation skills in peace (cf. Pihkala-Posti 2013; 2014c; 2019 manuscript). The language learners have an opportunity to reflect on their reactions, to plan what they want to say and how. Recordings can be repeated as many times as necessary before saving the desired version fit to be published. This also provides a shy or slower person with a discrete chance to practise oral interaction. For the viewer, listener or discussion community, *Voicethread* serves as preparation for synchronous presentations enabling comments and discussion pertaining to the embedded presentation. On a videoconference platform, the same may then be realized synchronously. On these platforms, e.g. a videoconference platform or in the *Minecraft* game discussion, dialogues, etc. can be conducted autonomously also, without the guidance of a teacher. In *Berlin Kompass* this is the default approach. (Cf. Pihkala-Posti 2019 manuscript.)

Among the various forms of work with these applications, the above-mentioned aspects were meant to be emphasised in

different ways: Voxopop was primarily used to strengthen the skills for oral collaboration and dialogue, while autonomy, agency, collaboration and dialogue were the focus when using Voicethread. With Videoconferencing, in turn, dialogue and authenticity of communication were concurrently emphasized. In addition to learner creativity, Minecraft supported autonomy, agency, collaboration, the emergence of action and authenticity, while Berlin Kompass combined all these different aspects and prepared relevantly for authentic communication and action situations, for example, real life situations in the street. As regards intercultural exchange, these platforms enable important dimensions that are not included in the traditional classroom based approaches. (Cf. Pihkala-Posti 2019 manuscript.)

A technologically-centred society changes human interaction and learning not just in a positive way. Technology mediated communication can e.g. threaten the capability of humans to interpret nonverbal communication. As Lehtovaara (2001, 152) states, there are risks with “a calculative and technologically oriented mindset”. I am not trying to minimise the risks that societal change has clearly engendered. My intention is to try to find new pedagogically meaningful opportunities for learning that are not calculative but advance the opportunities for dialogue, co-operation, agency and authenticity in the technologised society. In this way, technology is not a ‘big evil’, but opens up positive, even democratic, opportunities. Much research is still needed to show how multimodal action-based approaches influence learning motivation and the outcomes in the long term. (Pihkala-Posti 2014c; 2019 manuscript.)

During this long research journey, I have learned to understand more and more deeply in which ways students are individuals, representing their own micro-cultures, and all seeing the world in quite different ways. To learn to encounter foreignness and otherness in a constructive way, and to build their identities, students need various modes of support for their journey of growing up. This is a real

challenge and at the same time, a huge opportunity for education. The learning solutions presented here are elements which can be brought into connection with a meaningful pedagogical whole. However, without the pedagogical whole, they are not enough.

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