Remote Interpreting
in the Context of University Training
in Slovakia during the COVID-19 Pandemic*

Andrej Birčák

Constantine the Philosopher University in Nitra
andrej.bircak@ukf.sk

Abstract

Remote interpreting experienced rapid expansion during the COVID-19 pandemic. Although there are no pandemic restrictions today in Slovakia, the interpreting market has not returned to its pre-pandemic state. Presented chapter examines how Slovak universities prepared future interpreters during online education, especially in regard to remote interpreting. Focus group and individual interviews were conducted with 15 interpreting teachers from all Slovak universities that are offering translation and interpreting program. Analysis revealed a lack of systematic integration of remote interpreting in the university training before and during the pandemic; problems with finding a suitable videoconferencing platform for the training; both good and bad practices. Exploring remote interpreting during the pandemic era helps understand the current practices in the training and the market.

Keywords: COVID-19, online education, remote interpreting, university training

1. Introduction

Remote interpreting (further referred to as RI) as a specific type of interpreting has evolved over the decades from purely telephonic interpreting to sophisticated videoconferencing technology tailored to the specific needs of the clients. Relevancy of the remote modality became more apparent with the onset of COVID-19 pandemic restrictions which restricted face-to-face meetings. Interpreters soon followed their clients to the online space where they provided

---

RI. Similarly, education has also moved to the online space, including interpreter's training, which was a new situation for many teachers and students.

This chapter primarily explores how was the interpreter training conducted during the COVID-19 pandemic in Slovakia. The aim is to highlight challenges and their solutions, as well as to explore whether the training offered during this period was sufficient to prepare the students for future RI contracts. The importance and relevancy of this topic lies in the fact that the COVID-19 pandemic was the catalyst for RI services globally, and it is important to study how the pandemic shaped its current form, including interpreter training. Today, there are no pandemic restrictions, but RI is still being used and is much more popular than during the pre-pandemic era (Nimdzi 2023), both on a global scale (Spinolo 2022; Yuan and Binhua 2024) and in Slovakia (Birčák 2024; Djovčoš and Šveda 2023). Cheung (2022) believes that remote modalities will only become more popular with time, since the world is highly globalized and this trend will only grow. Understanding the processes and aspects that shaped the current form of RI services will enable a more accurate prediction of their future developments, pointing out both to opportunities and limitations.

To fulfill the aim, four semi-structured focus group interviews and three individual interviews were conducted with a total of 15 teachers of interpreting subjects from all five universities in Slovakia where interpreting is being taught. The teachers were asked about various aspects of RI training during three distinct periods (see Appendix 1 for questions), including the post-pandemic and contemporary training of RI. However, due to the scope of the interviews, only answers from the first two topics will be presented in this chapter, which primarily revolve around the pandemic era.

2. Remote interpreting and its modalities

The aim of interpreting is to ensure that two or more parties who do not speak the same language can communicate and understand each other. RI as a specific type of interpreting has the same aim, with the difference that one or more parties are located at different places.

Spinolo (2022) defines RI as a mode of interpreting services in both spoken and signed languages characterized by the remote location of the interpreter. However, Fantinuoli (2018) explains that RI is not a monolithic notion, as it can describe various settings and modalities.

Regarding the location of the interpreter that is isolated from all parties, Cabrera Méndez (2018) distinguish two types of workplaces:

1. The language service provider or the event organizer might set up an interpreting workstation in their offices or venues. This is a centralized

solution that might offer the interpreter equipment and assistance in case of technical issues.

2. The interpreter is working from their home or any other location they consider sufficient. This so-called distributed solution leaves the responsibility to find an adequate workplace to the interpreter. While there are benefits of saved costs from the side of the organizer, the interpreter does not have a direct support to deal with potential technical issues that may occur during interpreting.

RI can only be done by using telecommunication technology, for both consecutive and simultaneous interpreting. Braun (2015) points out that RI can be done using videoconferencing or telephone calls. Ko (2021) distinguishes three categories of RI based on the technologies involved:

1. Interpreting via the Internet;

2. Interpreting via local area networks (LANs) – i.e. internal or designated networks for audioconferencing or videoconferencing;

3. Interpreting via the telephone.

Each of the mentioned RI types can be used in different settings. Braun (2019) mentions some of the most common contexts in which RI is being used, such as legal interpreting, healthcare interpreting, community interpreting, conference interpreting, and institutional interpreting. RI is also being used in private sector, but the author adds that technical solutions are often tailored to the specific needs of the involved parties.

Various settings offer a different set of advantages and disadvantages. Among the most apparent advantages of RI are the saved costs on travel and accommodation, along with a better scalability of the event, the potential for more languages to be covered, additional services to be provided, or reduced carbon footprint. Similarly, RI has its disadvantages. The most common ones are the technical issues that are more likely to appear in RI (primarily in a distributed solution) and the isolation of the participants, especially the interpreter (Interprefy 2024; Downie 2020).

AIIC (2020) points out the reported stress and increased cognitive load by interpreters when working remotely. According to Downie (2020), the potential technical issues are no longer the biggest problem, since the technologies got better over time; the biggest problem of RI is the mental well-being of an interpreter.

3. Remote interpreting and the COVID-19 pandemic

Braun (2019) claimed before the pandemic that the increasing availability of communication technologies has naturally created a demand for interpreting services in settings where geographically separated clients communicate with each other. This includes for example situations like online conferences, virtual meetings, video calls between courts and prisons, and phone calls in healthcare. During this time, RI corresponded to roughly 20% of all spoken language services delivered around the world (Ammour 2021). The COVID-19 pandemic was the catalyst for RI (Yuan and Binhua 2024; Hoyte-West 2022). The pandemic restrictions changed the odds dramatically – RI was now the most popular form of interpreting. During the height of the pandemic, 95% of all interpreting contracts were remote (Nimdzi 2023). Where possible, workers moved from the offices to their homes for work. Interpreters working on-site had to deal with the fact that almost all their contracts were terminated globally, and future events cancelled (Liu and Cheung 2022). Research by Djovčoš and Šveda (2022) reveals that at the beginning and the end of the first wave of pandemic in Slovakia, up to half of interpreters had to cancel 70 to 100% of their planned contracts. When it was clear that the pandemic would not go away anytime soon, people started realizing that they could meet using videoconferencing platforms. As time went on, they became increasingly popular, and with them, the need for language mediation as well.

Survey by Djovčoš and Šveda (2023) shows that the demand for RI in Slovakia has increased – while at the beginning of the first wave of the pandemic (end of March 2020), only 18.75% of interpreters were asked to provide RI services, six weeks later, the number rose to 39.69%.

Today, there are no pandemic restrictions in Slovakia for over three years, but the pre-pandemic situation has not returned. After the pandemic, the proportion of remote and on-site contracts were split in half (Nimdzi 2023). In addition to the adoption of new technologies, the pandemic fundamentally altered perceptions of RI among both interpreters and clients. Before COVID-19, RI was often seen as a supplementary service, mainly used for emergencies or low-budget assignments (Teague 2024). However, during the pandemic, RI became a necessity across multiple sectors, including healthcare, legal proceedings, and international business. As a result, RI has not only remained a viable post-pandemic option but has also continued to shape the future of the interpreting market (Spinolo 2022).

4. Methodology

 Since RI gained significant popularity with the onset of the COVID-19 pandemic restrictions, this chapter explores the interpreter training before and during the pandemic in Slovakia. The aim was to highlight challenges and their solutions, as well as to explore whether the training offered during this period was sufficient to prepare the students for future RI contracts.

Collecting qualitative data for the research was a priority as it can provide a deeper understanding of how RI was implemented in the remote training. Four online semi-structured focus group interviews and three online individual interviews were conducted.[1] In total, 50 teachers of interpreting subjects working at Slovak universities were invited to participate. In the end, interviews were conducted with 15 of them. Out of the 35 teachers who did not participate, 3 were willing to participate but were unable to join the interviews at a time that was convenient for the others. Two other teachers replied that they have no experience with RI and therefore will not participate in the interviews, despite being explicitly instructed in the invitation mail and the follow-up mail that this is not a requirement. The other 30 teachers have not replied, potentially due to their disinterest in participating in the interviews or due to their high workload.

Author of this chapter is affiliated with the Constantine the Philosopher University in Nitra and the invited participants from this institution are his colleagues. Only one of the invited participants from this institution did not join the interview, as they had other obligations during the scheduled time of the meeting. The relatively high participation ratio for the interview with teachers from this institution could be explained by the familiarity of the participants with the author.

Figure 1. presents the overview of the interviews, including the type of the interview, number of invited participants, number of actual participants, date of the interview, length of the interview both in minutes and words.

---

[1]   The original research design expected five focus group interviews, but due to the unavailability of some of the teachers, compromises had to be made in the form of individual interviews.

Figure 1. Overview of the interviews

Int. number	University	Type of interview	Invited participants	Number of participants	Date of the interview	Length (mins)	Words
1	Comenius University in Bratislava	Group		2	14th February 2025	48	6,506
2	Comenius University in Bratislava	Group	15	2	17th March 2025	43	5,481
3	Comenius University in Bratislava	Individual		1	17th March 2025	41	4,825
4	Constantine the Philosopher University in Nitra	Group	5	4	10th June 2024	83	11,202
5	Matej Bel University	Group	9	4	7th February 2025	50	6,702
6	University of Prešov	Individual	12	1	21st March 2025	42	5,398
7	Pavol Jozef Šafárik University in Košice	Individual	9	1	28th March 2025	32	4,574

Interviews were conducted from June 2024 to March 2025. The average length of the interviews was 48 minutes (32 mins; 41 mins; 42 mins; 43 mins; 48 mins; 50 mins; 83 mins), with a total of 339 minutes of recorded material. All interviews were held online via the internal videoconferencing platform, Zoom, or Google Meet, depending on the preferences of the participants. With the participants' consent, all interviews were recorded, transcribed and anonymized. The transcripts contain from 4,574 words to 11,202 words. The whole dataset contains 44,688 words. The transcription was done manually using Microsoft Word, since the previous attempts to use various online tools to convert speech to text were unsatisfactory, due to limitations of

the tools.[2] Regarding the ethics of the research, the author's institution does not require institutional ethics approval for this kind of research. However, the verbal consent of each participant was obtained and documented in the interview recordings. The recordings, transcriptions, and codebook are stored on the author's personal computer and on an online storage in order to prevent the loss of the data in case of the hard disk failure. The access to both the computer and the online storage is exclusive to the author of this chapter, protected by a password.

All seven transcripts were subjected to qualitative analysis. Coding within the qualitative analysis was based on thematic analysis of participants' responses to interview questions. The coding was done through the identification of basic units of analysis, e.g. segments of text that included information relevant to the research topic. The coding was inductive and done manually without the use of any qualitative software (see Appendix 2 for a coding example), and it was done on multiple levels, identifying topics, themes, and keywords. To ensure credibility, randomly selected parts of the transcripts were compared to their corresponding recordings by the author's supervisor. The supervisor compared approximately 10% of the dataset and found no discrepancies. Based on the coding, a codebook was developed.

The interviews focused on RI and its training in the university context before and during the COVID-19 pandemic. The aim was to learn whether RI was being taught, and if yes, to what extent and in what forms. Participants were also asked about additional aspects of remote education in connection with interpreting subjects.

The main research problem was to identify the quantity of RI and the methods implemented for the training of future interpreters in Slovakia before and during the COVID-19 pandemic. Since the pandemic acted as a catalyst for RI, exploring its advent is important for understanding today's situation in the training and the market. This further allows to more accurately predict future development of interpreting methods, alongside measures to improve the experience of all parties involved in the interpreting process. To deal with the proposed research problem, the following research questions were designed:

1. Have universities in Slovakia been preparing future interpreters for RI before the COVID-19 pandemic (before 2020)? (For specific questions, see Topic 1 in Appendix 1).

---

[2] Only a limited amount of speech could have been transcribed using free versions of some of the tools, while others had problems with transcribing Slovak language and produced a high number of errors.

2. How did the training of future interpreters change with the onset of COVID-19 pandemic and how was interpreting being taught remotely? (For specific questions, see Topic 2 in Appendix 1).

The interviews also dealt with the post-pandemic and contemporary situation regarding RI training but due to the scope of the interviews, only answers from the pre-pandemic and pandemic era will be presented in this chapter.

4. Research limitations

The study has limitations in number of participants who joined the interviews. Across all five universities, a total of 50 university teachers were directly invited to participate in the interviews. In the end, 15 of them participated across the seven interviews. Not including the other 35 interpreting teachers may potentially lead to incomplete data, missing of important facts and events, and lacking the broader perspective that they would have contributed. Therefore, the number of participants could have been higher to ensure more authentic and complex data.

Another limitation is that the data acquired within the interviews are uneven in terms of quality and quantity, as some interviews were joined up to four participants, while some were only individual interviews. The less-represented interviews therefore lacked the possibility to further discuss the questions among the participants, which resulted in shorter and less informative interviews. Moreover, some universities were less represented by the number of participants than others, possibly missing out on important information and insights regarding the given institution.

Since this research focuses on the teachers' perspectives only, it might be one-sided and miss important aspects of the researched problem. The findings come from the pedagogical point of view and understand the challenges and their solutions through their lens. Each theme in this chapter is shaped by this strict point of view and could be viewed in a different light if the participants were constituting of different groups, such as students, language service providers, or employers.

Due to the limitations, the chapter does not have the ambition to present absolute and complete data about RI training before and during the COVID-19 pandemic in Slovakia. Despite this, the author believes that the collected data create a complex enough image of the research problem to point towards general tendencies.

5. Participants

For the selection of participants, convenience sampling was used, as the choice of participants was intentional – university teachers that teach interpreting subjects at Slovak universities. In Slovakia, interpreter training is being offered on master's level by 5 universities in 5 study programs. Four of these programs are directly focused on translation and interpreting (in a joint study program): Comenius University in Bratislava, Constantine the Philosopher University in Nitra, Matej Bel University, and University of Prešov. The fifth program is philological – English Language in European Institutions and Economy – offered at the Pavol Jozef Šafárik University in Košice.

On the websites of the respective universities', the lists of all subjects offered within the institution could be found. The lists included the names and email addresses of the teachers for the corresponding subjects. Based on this information, a database of teachers for each university was created and the teachers were then addressed via email. No remuneration was offered for participation at the interviews. Throughout the seven interviews, a total of 15 university teachers participated. They will be referred to as participant 1 – 15 (P1 – P15).

Out of 15 participants, 3 of them have up to 5 years of teaching interpreting experience, 3 have up to 10 years, 3 of them have 10 to 15 years of experience, 1 has up to 20 years, and 5 of them have 20 or more years of experience. 7 of them do not interpret professionally or they do it very irregularly. The remaining 8 interpret more regularly, with 4 of them interpreting for the European Institutions, while the other 4 work in a private sector.

In terms of the working languages of individual participants, the following were represented: 7 participants were working with English language during their interpreting seminars. German language was equally represented with 7 participants. Then there were less represented languages, with Russian language being taught by 2 participants, Spanish language also by 2 and French by 1 participant. The languages covered by the participants are representative of the languages offered within the study programs; however, some smaller languages that are offered at only one or two universities are not present among the participants.

For the interview responses, it may be relevant whether the participants are involved in interpreting research in addition to teaching. Engagement in the research connected with interpreting varies within the participants. 5 of them said that they actively engage in the research of interpreting. 5 others mentioned that interpreting is not their main research point, but they sometimes conduct their own research or co-author a publication focused on interpreting research. The other 5 do not engage in interpreting research at all and have a different focus.

6. Results

In the following section, the results of the qualitative thematical analysis of the participants' answers will be presented. The analysis is divided into 2 topics (according to the topics in Interview protocol in Appendix 1) and 15 themes that were identified. Figure 2 presents the overview of the topics and themes associated with them. Some of the themes are not presented in a chronological order according to the questions from the interview protocol. This is caused by the semi-structured format of the interviews, as some participants in their speeches strayed from the given theme and already started covering a different one or mentioned a completely new one that may or may not have been relevant for this study.

Figure 2. Overview of the topics and themes

Topic	Theme	Corresponding question
Topic 1: Pre-pandemic era	Theme 1.1: Absence of RI in training before the COVID-19	Topic 1, Question 2
	Theme 1.2: Reason for the absence of RI in training	Topic 1, Question 6
	Theme 1.3: Telephone interpreting training	Topic 1, Question 3
	Theme 1.4: Video interpreting as a part of on-site training	Topic 1, Question 3
Topic 2: Pandemic era	Theme 2.1: Unpreparedness for remote education	Topic 2, Question 1
	Theme 2.2: Education during the first weeks of the pandemic restrictions	Topic 2, Question 1
	Theme 2.3: Transition to online classes	Topic 2, Question 1
	Theme 2.4: Videoconferencing platforms used during online classes	Topic 2, Question 2
	Theme 2.4.1: Microsoft Teams	
	Theme 2.4.2: Discord	
	Theme 2.4.3: Zoom	
	Theme 2.4.4: i-Lab	
	Theme 2.5: Rise of RI during the pandemic	Topic 2, Question 4
	Theme 2.6: Students' experience with RI during the pandemic	Topic 2, Question 3
	Theme 2.7: RI in the interpreters' training during the pandemic	Topic 2, Question 5

Topic 1: Pre-pandemic era

The first topic presented after the participants' introduction was the presence of RI in the curricula before the COVID-19 pandemic. The presence of RI, its quantity, and form in the university training were the main focus points of this topic. For the specific questions, see Appendix 1 (Topic 1, Question 1 to 6).

Theme 1.1: Absence of RI in training before the COVID-19

Topic 1, Question 2: The answers from the participants (P1 – P15) point out to almost complete absence of preparation for RI at Slovak universities before the COVID-19 pandemic. With the exception of one participant (P6), all participants (n = 14) agreed that RI was not part of the curricula before the pandemic in any way and it was not covered either theoretically or practically. P6 agreed that RI was not part of the curricula but occasionally tried telephone interpreting with the students as a form of experimentation.

"I can speak for our entire department and tell that RI was not part of the training in any way," (P3, group interview).[3]

Theme 1.2: Reason for the absence of RI in the educational process

Topic 1, Question 6: Participants generally agreed that *RI was not a popular type of interpreting at the time*, therefore they did not see the need to include it in their classes. According to them, RI was seen as an emergency solution for situations when on-site interpreting could not be done. Additionally, it was being used only in specific settings, such as healthcare and community contexts. Institutions that the P4 was working for insisted on interpreting only on-site.

"Before the pandemic, RI was not a big deal. No one really thought about including it in the training," (P5, individual interview).

Theme 1.3: Telephone interpreting training

Topic 1, Question 3: P6 was the only one who offered some way of preparation for RI during classes. P6 have tried *telephone interpreting* with the students a few times per semester as some form of experimenting. Such exercises were considered more as a curiosity rather than a systematic attempt to train for RI. The reason for experimenting with telephone interpreting is that the given

---

[3]   Literal translation from Slovak to English done by the author of this chapter. This also applies to all further quotations from the interviews.

interpreting subject focused on community interpreting, in which telephone interpreting is relatively common.

"I have tried telephone interpreting from a different room with the students a couple of times as an experimentation. I think it was enriching, but it was more of a curiosity to make the class interesting," (P6, group interview).

Theme 1.4: Video interpreting as a part of regular training

Topic 1, Question 3: When thinking about the inclusion of RI in classes, P6 mentioned that within regular on-site classes, students are often *interpreting a pre-recorded speech* that is played on the monitors. This is true for all the participants. P6 explained that this kind of activity could also be partially connected with RI, as it simulates the remote setting where the interpreter and the speaker are geographically in a different place. Even though this setting is not intentional for the training of RI, it can be seen as a certain modality of RI and as a first step towards RI for the students.

"This was the closest to the feeling of interpreting remotely. The fact that the speaker is not physically present in the classroom," (P6, group interview).

Topic 2: Pandemic era

The second topic was dedicated to the transition of education from the universities to online space with the onset of the COVID-19 pandemic in March 2020. The biggest changes, challenges, usage of software tools, and overall workflow of online education were the main focus points. For the specific questions, see Appendix 1 (Topic 2, Question 1 to 6).

Theme 2.1: Unpreparedness for remote education

Topic 2, Question 1: All participants (n = 15) admitted that the pandemic restrictions caught them *unprepared*. According to them, it was difficult to adapt to the new reality and provide a high-quality education during this time. It was a new situation for everyone, both for teachers and students. The educational process did not naturally shift to online space from one day to another. Rather, it took a longer time, spanning from weeks to months, based on the specific participant or the institution they worked for.

Theme 2.2: Education during the first weeks of the pandemic restrictions

Topic 2, Question 1: The Slovak government initially informed about the pandemic restrictions in early March 2020, informing the public that the restrictions would last two weeks. Based on this information, teachers did not try to come up with solutions and decided to wait for the return to the class. But soon it became apparent that the restrictions would last longer.

During the first weeks of the pandemic restrictions, there were *no online classes*. Instead, teachers were handing out assignments for the students to complete on their own and to send them back to the teacher. Regarding interpreting subjects, teachers were sending out pre-recorded speeches either by themselves or by some other speaker. The students then had to record themselves interpreting these speeches. This recording would be then sent to the teacher or uploaded to an online storage for the teacher to listen to. This was not ideal, since there was no guarantee that the students would not listen to the speech before interpreting and even restarting the recording if they made a mistake. P3 (group interview) described this process as *archaic*: "the teaching was done using archaic methods, such as sending emails back and forth or uploading assignments to an online storage, and that includes both translation and interpreting classes."

Theme 2.3: Transition to online classes

Topic 2, Question 1: After the initial two weeks, when it became clear that the restrictions would be in place for much longer, a more active approach had to be taken. At the end of March and beginning of April 2020, teachers *started using videoconferencing software to organize classes* in regular times according to the students' timetables. The exact implementation date of online meetings varied both between the universities and teachers. The participants were not used to online meetings with their students and described the online classes as *awkward and less interactive*, since students were reluctant to speak. As P7 (group interview) remarked, online education was difficult on its own, but teaching interpreting classes was even harder, because it has its specifics, including the increased need for interactivity and the requirement of multiple channels.

Theme 2.4: Videoconferencing platforms used during online classes

Topic 2, Question 2: The videoconferencing platforms varied not only between the universities, but also within the teachers, as *each teacher could choose a tool of their own preference*. There were already multiple videoconferencing platforms used by the general public, but the pandemic restrictions facilitated their growth

and encouraged their developers to update them further to meet the growing demands.

Theme 2.4.1: Microsoft Teams

Microsoft Teams was the most popular software tool for organizing interpreting classes during the pandemic era among the participants, with teachers (n = 11) using it across four out of five universities in Slovakia. At one of the universities, all participants (n = 5) agreed that they started using Microsoft Teams. P5 explained that the choice was based on the *already owned licenses* for the software, as the whole university had access to the Microsoft package, including for example Microsoft Word or Excel that are commonly used by the students throughout their studies. These participants used Microsoft Teams for all their classes, including translation and theory focused subjects. The interpreting classes, however, were the most difficult to organize, since the platform evolved gradually and did not include all the functionalities it has today, such as breakout rooms. P2 could not even play the audio of a recording for the students to interpret at the beginning of April 2020, and each student had to play it by themselves locally on their device. Microsoft Teams was overall manageable for the training of consecutive interpreting but due to the lack of multichannel communication, simultaneous interpreting training was hard to organize.

"We have started with Microsoft Teams, especially for consecutive interpreting, but we soon realized that Teams is not suitable for simultaneous interpreting," (P10, group interview).

Theme 2.4.2: Discord

Teachers at a different university started online classes with their *university's internal videoconferencing platform*. Similarly to Microsoft Teams, this platform was not suitable for the training of simultaneous interpreting, because it did not include multichannel communication. As a result, participants switched to *Discord* after a few weeks, where they simulated interpreting booths by creating virtual channels that the students could join to. The *virtual booths* allowed the students to interpret without disturbing the others. The teacher could then switch between the booths and listen to the student for a certain amount of time before moving on to another. One downside, however, was that switching of the teacher to the given virtual booth would give away a sound cue to the student, which could be disturbing for them and create additional stress, knowing the teacher is now listening to them. P9 mentioned that if the student knew that the teacher was not listening to them, it could have negatively influenced their motivation to interpret

on a high level. Another problem with Discord was that each student had to start the recorded speech by themselves, which meant that there could have been delays among the students. The teacher would then be unsure which part of the speech is being interpreted. P8 described a tedious workaround to tackle this issue – the teacher and the students would log in to the university's internal videoconferencing platform where the teacher would play the audio file of the recording for everyone to listen to. At the same time, everyone would be connected to Discord in the virtual booths where the students could interpret without disturbing others. Apart from holding classes, Discord was also useful as a *social network* where the students and the teacher could share files and announcements.

"Discord was designed for communication, it had its channels, where you could contact and chat with people, react to various things, share videos, gifs, links, and it also had rooms for communication," (P8, group interview).

Theme 2.4.3: Zoom

Zoom as popular videoconferencing software during the pandemic was mentioned by one participant. The participant was using the extended paid license of the software where the *interpreting module* was included. The interpreting module in Zoom acted similarly to the virtual booths in Discord. One advantage was that the sound cue was not present there and the students could interpret without being interrupted by other students or the teacher.

"Without the paid licence, you can use the breakout rooms as the interpreting booth, but the sound cue would be present when joining. With the interpreting module that came with the paid version, this was solved," (P6, group interview).

Theme 2.4.4: i-Lab

During the winter semester of 2020, two teachers from two Slovak universities came up with the idea to *create a dedicated platform for interpreting training* that would simulate an interpreting classroom laboratory with virtual interpreting booths. A company called Contest started developing such platform for them.[4] Its development was financed by the faculty of one of these universities, or faculties of both universities. Participants were unsure about the exact details regarding financing. Three participants (P5, P10, P13) referred to this platform during the interviews as *i-nest*. Today, the platform is called *i-Lab*, while i-nest is a physical studio by the same company that provides the environment for simultaneous RI with real interpreting booths and professional equipment

---

[4]   The company among other activities develops interpreting consoles in Slovakia.

for interpreters.[5] The hub can be rented and is located in Bratislava, Slovakia. It is unclear whether the participants mixed up the names of these two entities or whether the platform was later renamed. Moving forward, the platform will be referred to as i-Lab.

The teachers from the two universities that initiated the development of i-Lab then used it until the return to the on-site training in March 2022. However, two participants from one of these universities stated that they are *unfamiliar with this platform even though they were working at the same university*. An explanation could be that they were working at a different department, and therefore were not in contact with the ones that were using i-Lab.

The platform was specifically designed for simultaneous interpreting training, fixing some issues that were present in other commercial non-educational platforms. However, at the beginning, i-Lab itself had various problems. P5 mentioned some of the initial problems, such as the platform not functioning at all, trouble with the recorded speeches, or the site being overloaded.

"The site had to be often refreshed and sometimes the students could not hear the recording I was playing. There were a lot of additional variables that made the platform quite unreliable at the beginning," (P5, individual interview).

Five participants confirmed such difficulties and added that the platform had *relatively high hardware requirements* and was supported only on Mozilla Firefox internet browser.[6] This resulted in malfunctioning of the platform for many students, either completely not working or crashing frequently, while some functions did not work or took a long time to load. Another issue was that only one group of students at any given time was able to use the platform. If another teacher and their students wanted to start using the platform, they were not able to, until the previous group had already finished and logged off.

As time went on, i-Lab got better, and it was being used throughout the pandemic by 7 participants of two Slovak universities, as it was a dedicated platform for teaching interpreting, unlike other commercial software solutions like Microsoft Teams, Zoom, or Discord that were primarily aimed at videoconferencing.

Figure 3. represents the used platforms for the training of RI during the pandemic in Slovakia.

---

[5] https://www.contest.sk/en/products/#i-lab-virtual-interpreting-laboratory (Accessed on: 12 June 2025).

[6] Even though the requirements could have changed, the current ones are listed on the developer's website: https://www.contest.sk/en/products/#i-lab-virtual-interpreting-laboratory:~:text=Minimum%20technical%20requirements (Accessed on: 09 June 2025).

Figure 3. Platforms used during the pandemic

Platform	Microsoft Teams	i-Lab	Discord	Internal videoconferencing system	Zoom
Number of participants using it	11	7	4	3	1
Advantages	Licenses already owned by the university (selectively) Text channels can be used even outside the class Storage for materials Breakout rooms	Dedicated environment for training simultaneous interpreting Similar functions like on a real interpreting console Virtual interpreting booths	Free to use Text channels can be used even outside the class Storage for materials Virtual interpreting booths	Licenses already owned by the university (selectively) Ability to play audio in a workaround situation	Built-in interpreting module Breakout rooms
Disadvantages	Missing features early on	Paid license High hardware requirements Initial technical issues Can be only used by one group at a time	Sound cue when joining the booth	Inability to create virtual booth Does not include multichannel communication	Module available only with a paid license
Reason for using	Already owned licenses	Tailored platform for interpreting training	Ability to create virtual booths	Already owned licenses	Familiarity with the platform

Theme 2.5: Rise of RI during the pandemic

Topic 2, Question 4: The COVID-19 pandemic acted as a catalyst for RI, moving almost all forms of communication to the online space (Nimdzi 2023). As some of the participants were practicing interpreters (n = 8), the changes in interpreting market, especially connected to RI, were the main focus.

All practicing participants (n = 8) confirmed *the shift from on-site contracts to remote settings during the pandemic*. The same clients they have worked for approached them with RI contracts, as the pandemic restrictions heavily prohibited face-to-face meetings. For many of the interpreters, RI was a new experience. The participants that are not actively interpreting (n = 7) also witnessed the rise of RI, as some of them were asked by the clients they used to work for in the past to provide it. In such a scenario, the contract was usually forwarded to an active colleague. Participants from two universities who interpret only occasionally remarked that they have *experienced RI during various online events organized by their universities* (student conferences and discussions) or other institutions both as an active interpreter and as a passive participant. The participants confirmed the notion that the pandemic accelerated the growth of RI in Slovakia.

"The pandemic encouraged people to organize events online, as more people could attend in comparison to on-site event, and that also increased the demand for interpreting," (P8, group interview).

Theme 2.6 Students' experience with RI during the pandemic

Topic 2, Question 3: Connected to the previous theme of RI rise in the market, this theme explores the rise of RI within the events that the students had the chance to partake in, usually as an extracurricular activity.

Participants from two universities mentioned that some of their students who were more invested in interpreting had the chance to experience RI firsthand by *interpreting at students' conferences and discussions* to gain experience. There are some students' associations (most notably the association called *Sa zobuď!*) that organize various events, such as discussions or conferences, in which students voluntarily interpret remotely.[7] These activities were usually not remunerated and the only reward for the students was that the work counted towards compulsory practice which they had to complete during their studies (the practice could be obtained by various activities, both translation and interpreting ones).

---

[7] https://www.sazobud.sk. (Accessed on: 12 June 2025).

Apart from experience with RI from the events organized by themselves, some students had the chance to try RI during other occasions. P10 managed to arrange practice for some students by letting them *remotely interpret for various volunteer organizations at online conferences and meetings* on Zoom. The participant went further to explain that they would meet with the students beforehand online or in-person, depending on the current pandemic situation, and described the basic functionalities of the software tool that would be used, as well as point out potential technical problems that might occur. Such activities were based on a voluntary basis and only a few students took up the offer. The students' experience with RI was therefore unsystematic and included only a small selection of initiative students.

"Our students had the opportunity to try RI at a conference that we were organizing. There were only a couple of speakers," (P11, group interview).

Theme 2.7: Incorporation of RI in the interpreters' training during the pandemic

Topic 2, Question 5: This theme deals with the presence of RI in the interpreter training during the pandemic. The form of the training was inherently remote and carried out using various platforms. However, these aspects were in place out of necessity and the teachers tried to simulate on-site interpreting training as much as possible. Regarding the additional inclusion of RI during classes, such as covering theoretical aspects or working with different platforms, all participants agreed that it was not covered intentionally or systematically.

However, *participants who had experience with RI shared their insights with the students* and discussed their own contracts, talking about what the setting looked like, what were the main problems etc. The aim of the discussions was to bring the students' attention to the potential issues that might occur in remote settings and how to handle them or even prevent them. P10 explains that such talks did not have a structure of a theoretical lecture, but rather it was a discussion, as the students were asking questions and sharing their opinions and experience as well.

Apart from different geographical location and the usage of videoconferencing platforms, *RI was covered only empirically during the pandemic* – through shared details of the participants' contracts or description of the functionalities of popular videoconferencing tools. P11 commented that preparation for RI was not present globally or systematically during the pandemic, and it was on a voluntary basis in the form of interpreting at online events, limited for the students who inclined towards interpreting and proactively wanted to gain more experience.

"When it comes to the inclusion of RI in the training, it was exclusively in the form of talking with the students. We have talked about the quality of sound, quality of the internet connection and so on, since we were still meeting online," (P10, group interview).

7. Conclusion

The onset of the COVID-19 pandemic in 2020 enabled RI to become the dominant form of interpreting, since face-to-face meetings were heavily limited to contain the spread of the disease. RI was being used even before the pandemic (Nimdzi 2023), but the universities in Slovakia hardly registered its importance. Research question 1 dealt with the presence of RI in interpreter training before the pandemic. The lack of preparation for RI before 2020 is evident from the near-total absence of systematic theoretical or practical training. While there were occasional experiments with telephone interpreting (mentioned by one participant), these efforts were isolated and not embedded within curricular structures.

Research question 2 dealt with the changes caused by the onset of the pandemic restrictions. The pandemic moved almost all communication to videoconferencing platforms, for which the interpreting training programs in Slovakia were not prepared. Teachers and institutions were forced to improvise, resorting to a wide range of platforms such as Microsoft Teams, Discord, Zoom, and internal videoconferencing platforms. Alongside videoconferencing platforms, teachers were using various Moodle courses for better organization of the classes. The lack of a unified approach reflected institutional fragmentation, as the choice of platform for the online classes was up to the teacher. At the same time, teachers were often unaware about good practices by their colleagues from the same university. In this context, teachers from two Slovak universities cooperated and attempted to develop a more structured response by launching the i-Lab platform, dedicated to interpreters' training. Despite initial technical limitations, the platform was effective for interpreter training in remote settings. However, the use of this tool remained selective and did not translate into a universally adopted teaching method across universities or even within the teachers of one university. Using the same platform would ensure equal preparation for all students and would make the educational process easier for teachers using non-specialized platforms. On the other hand, using different platforms, even within one university, can increase the students' flexibility. By working with multiple platforms, the students are able to experience more situations and potential issues for which they will be prepared for in the future.

Across all five universities, the pedagogical response during the pandemic remained predominantly empirical and reactive. Teachers relied on their own experience rather than a theoretically grounded methodology.

Interestingly, student initiative has been one of the more promising developments. Students have organized events and discussions, often including RI elements, thereby compensating for the gaps in university training. Such efforts point to both a growing awareness of the relevance of RI and a strong interest in acquiring such skills by the students. Teachers from various universities were often assisting with

the preparation for the events, either preparing the students for RI or helping them with administrative tasks. Their cooperation shows the willingness to innovate and prepare the students for real-life situations, even if only in the form of extracurricular activities in this case. However, the results of the survey by Perez and Hodáková (2021) show that many students did not take the opportunity to interpret out of fear they were not sufficiently prepared.

Even though online training of future interpreters during the pandemic simulated the remote modalities, the teachers did not take advantage of it and instead tried to simulate the regular classroom they were used to working in. It is true that just by having the training online, many aspects of RI were inherently present, such as the isolation of the interpreter, usage of various technology, tackling technical issues etc., but the opportunity to push the training one step further towards RI was not seized. The teachers did not systematically cover the theory of RI, nor did they systematically work with multiple videoconferencing platforms to demonstrate the advantages and disadvantages of each. Additionally, teachers have not experimented with various remote modalities, such as creating simulated situations or role-playing. Instead, teachers treated the remote training as a replacement of the regular classroom. This is confirmed by the teachers' remarks about the return to the classroom after the lift of the pandemic restrictions, as all of them agreed that they were relieved to return to the pre-pandemic style of training. However, the feeling of relief could also be connected with the isolation after teaching from their homes for many months.

Challenges and positive practices highlighted in this chapter influenced the later post-pandemic era both in the training practices and in the development of the interpreting profession. When it comes to the training, the teachers and students got used to working with popular videoconferencing platforms and are now open to attend various events that are held online. Similarly, shortly after the pandemic, certain seminars were held in a hybrid mode, where most of the students would be present in class and a few students who could not attend the class primarily for health reasons were joining online via certain video-conferencing platform that they were used to working with from the pandemic. At two Slovak universities, theory of RI is now covered alongside other modalities of interpreting, even though the coverage is not extensive (more about the presence of RI in the interpreter training after the pandemic in Slovakia will be published in another chapter). The development in the interpreting profession can be seen in the presence of RI even after the lift of the pandemic restrictions, as the market has not returned to its pre-pandemic state, but rather naturally evolved to include remote scenarios. The videoconferencing platforms also remain in use, with new ones, especially the ones dedicated to remote simultaneous interpreting, being developed and updated. The pandemic undoubtedly fuelled the technological growth and

even people who were previously not exposed to the new developments were now forced to interact with them. This has generally led to a larger engagement and interest in technology, which could have been the impetus for the adoption of artificial intelligence and various tools used in interpreting. It is expected that technology will only get better and become more and more specialized and tailored to the specific needs of the individual parties involved (not only) in the interpreting process, thus making the experience more convenient for everyone, but at the cost of having to keep up with all the important developments and learning how to effectively work with them.

The teaching practices during the COVID-19 pandemic could be the inspiration for the setup of online training if another potential future state of emergency occurs. The lessons learnt during the pandemic include the need for a private and distraction-free environment, quality microphones, and stable internet connection. A survey by Perez and Hodáková (2021) pointed out that unstable internet connection and issues with technical equipment were very stressful for students, who felt angry that their work was interrupted or they have missed parts of the classes; however, the students reported that later on many of these issues were solved and they have learnt to better manage negative situations. The findings underline the importance of solid technical equipment and the ability to conduct troubleshooting in remote settings.

When it comes to the communication channel, interpreting seminars focused on consecutive interpreting can be taught using non-specialized videoconferencing platforms, but simultaneous interpreting is problematic due to the need for a multichannel communication. Even though this can be resolved by including interpreting modules, breakout rooms or separate channels, it is still an improvised solution. A stable and reliable study environment is important to make the training effective. The development of the platform i-Lab was a good initiative in this regard and could have a potential for the future use as well. However, this platform was designed to simulate the on-site conditions and provide space for training simultaneous interpreting in an online environment rather than offering training for RI. Should it occur again that the training would shift to the online space for a longer period of time, it might be beneficial to take advantage of the remoteness and dedicate portions of the learning time to RI training by using specialized platforms dedicated to simultaneous RI, as well as to try simulations and role-play during the seminars.

It is important to carefully observe the new reality and assess whether the interpreter training programs in Slovakia should adapt in some ways, and if yes, how exactly. Should RI become a part of the interpreter training, the following activities can be implemented to reshape the program design: include the theory of RI during lectures where all students of the given year are present despite their

studied language combination, since these theoretical lectures are often held in Slovak as a common language; include the theory of RI for the specific languages that the students are studying during seminars (certain languages can be used in different contexts in RI, for example English would be mostly used in conference settings, while Ukrainian in community settings); include a practical showcase of various videoconferencing platforms and specialized remote simultaneous interpreting platforms during seminars so that students know how to work with them and how to conduct basic troubleshooting; introduce arbitrary obstacles during the interpreting at the seminars, such as lowering or increasing the microphone volume of the speaker, lowering the quality of sound and/or video of the speaker, creating noise that would distract the students; have the students interpret pre-recorded speeches where something unexpected happens, such as the speaker leaving the room to let their dog out etc.; include simulated situations and role-play in which the students would be assigned certain roles and they would play out a potential scenario while being located in different rooms or at least not having a direct sight of each other; include workshops and lectures by industry professionals who are providing RI services. The implementation of these suggestions is dependent on the possibilities of the given institution – how much space can be dedicated to RI, whether hardware and software equipment is present, whether the teachers are acquainted enough with RI to teach it etc. Based on these factors, only one or a few suggestions might be implemented into the training, but as the teachers expressed during the interviews, including RI would be beneficial for the students.

The teachers were also asked about RI in post-pandemic and contemporary training (see Topic 3 and 4 in the Interview protocol) but due to the scope of the answers, the results will be published in another chapter.

The relevancy of this chapter lies in the fact that it explores the interpreter training and the position of RI in Slovakia during an influential era that shaped today's interpreting market. The results provide a better understanding of current trends and enable more accurate prediction about future developments.

References

AIIC. 2020. *Reference Guide to Remote Simultaneous Interpreting*. [Online] Available from: https://aiic.ch/wp-content/uploads/2020/05/aiic-ch-reference-guide-to-rsi.pdf. [Accessed: 30th May 2020].

Ammour, Houria Ait. 2021. Onsite Interpreting versus Remote Interpreting in the COVID-19 World. *Applied Linguistics*. [Online] 5 (9). 339-344. Available from: https://asjp.cerist.dz/en/downArticlepdf/658/5/1/155638. [Accessed: 30th May 2020].

Birčák, Andrej. 2024. Interpreters' Perception of Remote Interpreting Services in Slovakia. In Eva Verebová, Lenka Žitňanská, Andrej Birčák and Andrej Zahorák (eds.), *Tradition and Innovation in Translation Studies Research XII: Bridging Cultures and Communities through Translation Studies*, 227-256. Nitra: Constantine the Philosopher University in Nitra.

Braun, Sabine. 2015. Remote Interpreting. In Holly Mikkelson (ed.), *Routledge Handbook of Interpreting*, 352-370. London and New York: Routledge. https://doi.org/10.4324/9781315311258-16

Braun, Sabine. 2019. Technology and Interpreting. In Minako O'Hagan (ed.), *Routledge Handbook of Translation and Technology*, 271-288. London and New York: Routledge.

Cabrera Méndez, Gabriel. 2018. Parties, factors and instrumentalities involved. In Amalia Amato, Nicoletta Spinolo, Maria Jesús González Rodríguez (eds.), *Handbook of Remote Interpreting*, 53-64. Bologna: University of Bologna.

Cheung, Andrew K. F. 2022. COVID-19 and Interpreting. *INContext Studies in Translation and Interculturalism*. [Online] 2 (2). 9-13. Available from: https://doi.org/10.54754/incontext.v2i2.26. [Accessed: 28th May 2025].

Djovčoš, Martin and Pavol Šveda. 2022. Translation and interpretation in the time of the COVID-19 pandemic: A case study from Slovakia. *Stridon Journal of Studies in Translation and Interpreting*. [Online] 2 (2). 25-43. Available from: https://doi.org/10.4312/stridon.2.2.25-43. [Accessed: 20th May 2025].

Djovčoš, Martin and Pavol Šveda. 2023. *Premeny prekladu a tlmočenia*. Bratislava: Comenius University.

Downie, Jonathan. 2020. *Remote Interpreting: A personal position*. [Online] Available from: https://integritylanguages.co.uk/2020/03/02/remote-interpreting-a-personal-position/. [Accessed: 2nd March 2020].

Fantinuoli, Claudio (ed.) 2018. *Interpreting and Technology*. Berlin: Language Science Press.

Hoyte-West, Antony. 2022. No longer elite? Observations on conference interpreting, COVID-19, and the status of the post-pandemic profession. *Orbis Linguarum*. [Online] 20 (1). 71-77. Available from: https://www.researchgate.net/publication/358770586_No_longer_elite_Observations_on_conference_interpreting_COVID-19_and_the_status_of_the_post-pandemic_profession. [Accessed: 12th July 2025]. https://doi.org/10.37708/ezs.swu.bg.v20i1.9

Interprefy. 2025. *The Remote Simultaneous Interpretation Guide*. [Online] Available from: https://resources.interprefy.com/remote-simultaneous-interpretation-guide. [Accessed: 23rd July 2025].

Ko, Leong. 2021. The need for long-term empirical studies in remote interpreting research: a case study of telephone interpreting. *Linguistica Antverpiensia, New Series – Themes in Translation Studies*. [Online] 5. 325-338. Available from: https://doi.org/10.52034/lanstts.v5i.167. [Accessed: 14th March 2025].

Liu, Kanglong and Andrew K. F. Cheung (eds.) 2022. *Translation and Interpreting in the Age of COVID-19*. Cham: Springer. https://doi.org/10.1007/978-981-19-6680-4

Nimdzi Insights. 2025. *The 2023 Nimdzi Interpreting Index: The Ranking of the Top 34 Largest Interpreting Service Providers*. [Online] Available from: https://www.nimdzi.com/interpreting-index-top-interpreting-companies/#state-of-theinterpreting-market. [Accessed: 23rd July 2025].

Perez, Emília and Soňa Hodáková. 2021. Translator and interpreter training during the COVID-19 pandemic: Procedural, technical and psychosocial factors in remote training. *Current Trends in Translation Teaching and Learning E*. [Online] 8. 276-312. Available from: https://doi.org/10.51287/cttle20219. [Accessed: 30th October 2025].

Spinolo, Nicoletta. 2022. Remote interpreting. In *Encyclopedia of Translation and Interpreting (ENTI)*. [Online] Zenodo. Available from: https://doi.org/10.5281/zenodo.6370665. [Accessed: 24th April 2025].

Teague, Molly. 2024. *The Growing Need for Video Remote Interpreting in Today's Industries*. [Online] Available from: https://www.morningtrans.com/the-growing-need-for-video-remote-interpreting-in-todays-industries/. [Accessed: 21st November 2024].

Yuan, Lu and Binhua Wang. 2024. Eye-tracking the processing of visual input of live transcripts in remote simultaneous interpreting: preliminary findings. Forum 22 (1). 118-144. https://doi.org/10.1075/forum.00038.yua

Appendix 1 (Protocol of semi-structured interviews with university teachers of interpreting courses)

Topics and questions (Translated from Slovak into English)

Introduction:

Interviewer introduces themselves and explains the aim of the interview, the procedure, data collection, and expectations about the interviews and the handling of data.

Introduction of the participants

- How much experience do you have with professional interpreting?
- How long have you been a university teacher?
- What courses (interpreting or otherwise) do you teach?
- What are your working languages?
- Are you an active interpreter yourself?
- Do you engage in research related to interpreting?

Topic 1: Pre-pandemic era

- Question 1: Describe how the interpreting courses were carried out before the COVID-19 pandemic (class activities, structure of the seminars, evaluation methods etc.).
- Question 2: Was remote interpreting being taught during the classes before the pandemic in any way?
- Question 3: If yes, how exactly was it being taught? (methods, activities, theory)
- Question 4: If yes, how much space was dedicated to remote interpreting?
- Question 5: If yes, what platforms were being used and how were they financed?
- Question 6: If not, what were the reasons?

Topic 2: Pandemic era

- Question 1: What were the main differences in teaching interpreting classes after the pandemic started?
- Question 2: What platforms have you been using during this era?
- Question 3: What were the advantages and disadvantages of remote education?
- Question 4: What were the reactions of the students on the remote education?
- Question 5: Have you noticed the rise of remote interpreting during this era?
- Question 6: If yes, have you reflected on this in any way during the interpreting classes?

Topic 3: Post-pandemic era

- What has changed after the return to face-to-face education compared to the pre-pandemic era?
- Is remote interpreting being taught in interpreting seminars today?
- If yes, how exactly is it being taught? (methods, activities, theory, requirements)
- If yes, what software tools are being used and how are they financed?
- If not, do you intend to implement it in the future?

Topic 4: Additional aspects of remote interpreting

- Do you think remote interpreting requires new or different competencies compared to on-site interpreting? (Is there a different type of load in students or professional interpreters?)
- How much space should be dedicated to the training of remote interpreting at Slovak universities? (Do you think it should be implemented in the curricula?)

Thank you and end of the interview.

Appendix 2 (Coding example)

…

I can try to <u>start</u> and you can fill in the gaps if I forget something. But you can see, we are all <u>more or less in the same boat, more or less synchronized</u>, even though we are in different departments. We started teaching on Microsoft Teams first, because it was a chaos at the beginning. We mainly taught consecutive interpreting through Teams. It turned out that Teams is not sufficient for simultaneous interpreting or rather, it does not allow teaching in the same way as in the physical booths. That is why [REDACTED] and I came up with the idea of the <u>i</u>-nest virtual laboratory, which was developed for us by a company called Contest. It was basically like a virtual booth where we could teach simultaneous interpreting as if we were <u>actually in</u> a booth. The image of the students was positioned as if they were in the booths. And we had the same possibilities as we do with the real booths, which made teaching interpreting, especially simultaneous interpreting, much easier overall. Consecutive interpreting was not such a problem. <u>i</u>-nest had its problems. It had significant requirements or demands on technology, especially on the students' software equipment. It often happened that students crashed, that some functions didn't work, or it took a while longer for everyone to get into the virtual booths and so on. It wasn't completely problem-free, but at least it was a way to teach students simultaneous interpreting in a quasi or pseudo-real mode. I don't think it was negative, I think it was extremely positive, because we had to get moving and start thinking completely differently than we had before. Focusing on other aspects as well. On aspects of sound, stress, and so on. Several studies have been conducted about this. Several articles about measuring stress and so on. For us, it was like an interesting research laboratory, or even a new research situation, to see if we could actually meet the expectations and requirements of students, which became apparent after the pandemic or at the end of the first wave of the pandemic… Sorry, at the end of the second wave, as a very useful thing, because online interpreting began to be used on a large scale, platforms like Kudo and <u>Interactio</u> were created and, of course, Zoom began to be used extensively. Kudo and <u>Interactio</u> were expensive software solutions in an