



CASE STUDY OF LONG- AND SHORT- TERM ABSENCES USING TELEPRESENCE ROBOTS

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Case Studies at a School in Latvia: Four Use Cases

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Peter in basketball training camp

Pēteris is a student in 11th grade. He is an active sportsman. Outside school, he plays basketball; he plays in a junior league. He often takes part in training camps and competitions at home and abroad. As he is one of the best players on the team, he gets to go to competitions quite often. So he often misses school. Peter is hard-working; he tries to do all his homework between practice and games, but he doesn't always succeed. When he hasn't learned the material, it is harder to do the assignments; it takes more time because he has to search for tutorials or videos on the internet. This time, Peter connects to the lessons with the help of a telepresence robot when he is not training or playing games. While he had the robot available for a week, in the end he used only three days as his schedule was quite full with the trainings. However, he appreciated this opportunity, despite some technical problems. He was active, engaged with the audience:

“I participated actively in the lesson, but I had a little problem with asking the teacher questions about the topic (1. I had to be careful when I asked questions not to disturb the lesson 2. I couldn't show the teacher my notes). During breaks I talked with my classmates, sometimes also just used telephone and did nothing else.” Most of the classmates liked the presence of the robot as it was something new in their school. Some said it was cool to have something like this for their classmate. Most of the teachers liked this opportunity, but still some answered that this was surprising and also a bit disturbing, because it is something new to them and some of them did not feel comfortable. Despite the fact, that teachers were told that they are not recorded, one teacher pointed out that she still had a bit weird



Figure 1: Peter is participating on the robot in the classroom

feeling. But the majority acknowledged that it is amazing opportunity to be in the classroom. And teachers stressed that this is a way better than a zoom. In this case teachers almost did not do anything special.

Andrew after a car accident

Andris is a 10th grade student. He was injured in a road accident and underwent several surgeries to help him walk again. As a result, he was unable to attend school for several months. While Andrew was still in the hospital, his teacher suggested using a telepresence robot for studying, which would allow him not only to study but also to socialize, as being in the hospital alone was boring and sad at the same time. With the robot, Andrew could connect to the class—both to study and to talk to his classmates during breaks. Although he was only able to participate for 20–30 minutes at first, after a while, he was able to participate for the whole day. When Andrew was discharged from the hospital, he continued to connect to the robot and learn when he was at home.

After his experience with the robot, he stated in the questionnaire that he felt good and present, however teachers noted that he did not participate so much. We just must take into account that he could not sit more that 15-20 minutes when he started to use the robot. And after that he used it more. He tried to use the robot as much as he can, but still was not so active during the lessons. He felt present, but as he was tired and did not feel well, he did not participate actively in the lesson, just listened. These results suggest that the inclusion of children with an illness in the classroom has to be coordinated with the respective healthcare experts and possibly adapted on a day-to-day basis depending on the child's current status. In the questionnaire his classmates pointed out that most of them would be happy to try a robot to be present, but some pointed out that they would not want to join lessons via robot because they would like to rest from the school and if they are sick/ill, they would rather rest than study.

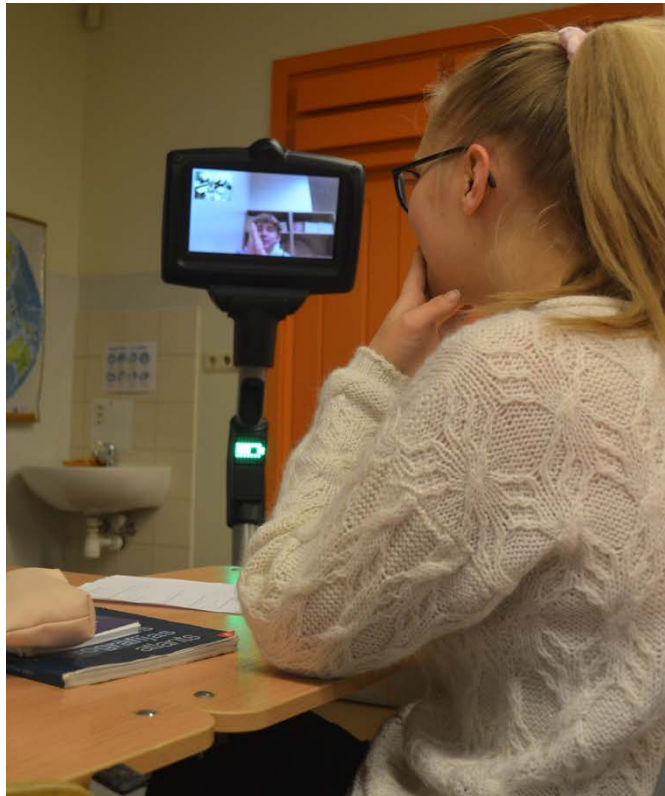


Figure 2: Andrew chats with another student

Also some obstacles were identified: in his school every lesson takes place in another room. Therefore, it was challenging to move the robot around the school. But two classmates were assigned as buddies, and they were given a key to use the elevator when necessary. Furthermore, not all classes were adjusted to the robot in the beginning, but afterwards they got used to the robot, they knew how to move furniture to make robot “walk” comfortably. As in the hospital wifi strength was not so good, he kept freezing quite frequently in the beginning. When he was at home, the signal strength was good, so the signal was good.



Figure 3: Andrew participates in the classroom

John takes part in the student parliament elections

John is an active 10th grade student who is taking part in the Student Parliament elections this school year. He wants to become president of the Student Parliament. Unfortunately, on the day of the elections, he has to be in another city, where he is having a networking event with students from another country. Since he cannot be at school at the time, he joins the elections and takes part in debates and election campaigning, traveling around the school and talking to the students. He managed to win the elections and become President of the Student Parliament. As there is a photo shoot and he is not at school, he still gets in the picture because he logs on and follows the events at school with the help of a telepresence robot.



Figure 4: John campaigning on the robot



Figure 5: The campaign picture with the candidate on the robot

Elizabeth attends chemotherapy

Elizabeth is 11 years old. She lives in a small town. At the moment, Elisabeth cannot attend school for health reasons, but she works hard on her homework and school assignments. She is currently having chemotherapy. She often has to travel to the capital for manipulation at the hospital and then returns home. In order to be able to follow her studies successfully, it is decided that a telepresence robot will be used for teaching. The classroom is really small, but very cozy and all classmates are welcoming and understanding. Elizabeth participates diligently in all her lessons, and actively studies and talks with her classmates.

She piloted the robot for three weeks. During the first week of the piloting, she was still at the hospital having her treatment, afterwards she joined from home. She used the robot as much as possible, she was so happy to be in the classroom. As she was feeling tired after the chemo, she

did as much as she could, however she often felt tired and couldn't keep up with the workload as long as the others in the classroom.

The only lessons she did not participate was sports and nature sciences, because these lessons happened in other buildings or outside. As the robot was kept in their classroom, which is located on the third floor (without elevator), it was difficult to get this robot to these lessons. Therefore, it was decided that the robot stays in the same classroom (as all other lessons they have in this classroom) and a small hall all the time.

During the first day students came to the robot and told this girl to get well soon – it was so heartwarming. None had told them to do it. They just came one by one to the robot, said hello to the girl who was on the other side of the robot and wished her nice things!

In the end everyone in the class was sad that robot has to leave. The teacher and children said that they are so used to the robot and their classmate. But they were very optimistic about the fact that they would like to have such a robot in their municipality. Therefore they started to collect different documents and asked for extra information and contacts.

In the very beginning teacher was a bit stressed. First of all she feared that someone might record her lesson or that she is not good enough with computers and tools, but after a conversation with her and a training on the robot, she was not so stressed anymore. And she admitted that this is better opportunity for youngsters to join classroom than zoom. And easier, because she just puts the robot on a charger and switches on/off. The only thing is that she had to remember that the girl is online, so she must write bigger letters on the blackboard.

The girl enjoyed piloting the robot a lot. This was an opportunity to be in the classroom for her, to chat with classmates, to feel as a part of the class and be present.



Figure 6: Elisabeth is participating in the classroom

Just to add that I attended each school, talked with the involved parents, youngsters, teachers, school directors, IT specialists and even classmates. In the classroom I allowed classmates to try out robot by themselves – as an opportunity to step into the shoes of the remote robot pilot. They knew me, and they knew that they can call me any time. I explained everything. In my opinion, this personal approach was extremely important, because they felt safe. They knew whom to refer to. And usually I spent 1-2 days in the school, showed how the robot works, I was there just in case technical issues occurred.