

Research brief: What we know about the impact of AV1 on children with long-term illness and absence

Every child, without any exception whatsoever, is entitled to receive education (UN declaration, 1959).

Effects of absence on mental health and on school performance: In Europe alone, more than 500 000 children¹ with long-term illness² are unable to attend school for extended periods of time. The research is crystal clear: school absence resulting from illness is a problem with major educational and social consequences. The absence is correlated with grade retention, achievement gaps and dropout rates. Not least, disconnection from peers due to illness have profound effects on children's social and emotional wellbeing (Gilmour et al, 2015; Hopkins et al, 2014; Ginsburg et al, 2014; Clic Sargent, 2012; Shiu, 2001). "Reducing the risk of disengagement during periods of absence" is being described as "critical in avoiding premature school leaving and educational underachievements for these students (Hopkins et al, 2014)".

How AV1 and telepresence solutions help reconnect children with peers and education:

The importance of maintaining school connection in mitigating the known educational and social problems is frequently highlighted in the literature (See for example: Gilmour et al, 2015; Hopkins et al, 2014; Dockett, 2004; Shiu, 2004), and new types of information and communication technologies (ICT) are described as one of the most promising prospects for connecting students with significant illness or injury with school (Gilmour, 2015; Hopkins et al, 2014).



Recent research demonstrates that new ICT in the form of Telepresence Solutions, like AV1, increase the efforts of home/hospital teachers, particularly by enabling peer social interaction. All studies referenced here demonstrate that to the children the bigger prize is the fact that telepresence solutions, like AV1, enable the children to stay socially connected with their peers and engaged in school work (Soares, 2017; Newhart, 2016; Thommesen, 2017; Breivik, 2017, Jones et al, 2009). The first trials specifically examining the use of AV1 (Thommesen, 2017; Breivik, 2017; Børsting & Culén, 2016) on children and young adults suffering from ME/CFS showed "huge potential of the avatar" and "lessons learned most certainly generalize to many of those suffering from ME/CFS (Børsting & Culén, 2016)". Amongst other, research fellow, Jorun Børsting, can tell that: ***"One of the students recovered during the period of my study and expressed that it was easier returning to school due to using the robot"***.

Observations on the users of AV1: As of April 2018 more than 450 children in Germany, France, the UK, the Netherlands, Switzerland, Romania, Norway, Sweden, Denmark and Belgium are using AV1 actively. Their age range from 6 to 25³. To this date, AV1 has been part of 15 pilot studies and tested on a large variety of diagnoses including ME/CFS, cancer, cerebral palsy, anxiety, tick-borne illnesses, gastroschisis (gastrointestinal illness) and rare conditions including autoimmune diseases and Ehlers-danlos syndrome. However, common for all children using AV1 is that their diagnose has resulted in absence from their everyday lives.

¹ Children between the age of 6 and 19. The summer of 2016 No Isolation spent months going through research on the prevalence of different illnesses and talking to health care professionals, NGOs and patient organisations. Most likely it is a conservative estimate as we know that there are many we have not been able to include due to children not having received a diagnosis, or perhaps because they suffer from undocumented mental health problems.

² Our definition of long-term illness relates to absence from school. We have decided to only include students who very likely are absent for 2 months or more from school due to their illness. That excludes for example children that have a long-term illness, e.g. many types of cancers, but still can be present at school.

³ Source: Media articles, due to privacy reasons No Isolation does not store the age of children using AV1.

Breda municipality in the Netherlands who has tested five AV1s with children with various diagnoses concluded that AV1 can fit any individual situation. Amongst other Breda can tell that one high sensitive student was gradually integrated back in regular education because of AV1 (Breda, 2018).

What No Isolation wants to know and what we are currently working on: Peer-reviewed research articles, master thesis, testimonials from our pilot partners referenced here, are all evidence that children benefit from AV1 in a variety of ways. AV1 connects them with friends and they are more engaged in school work, which again makes it easier returning to school after periods of absence.

As such, the evidence suggests that AV1 reduces the chance of these children feeling lonely. However, No Isolation wants to know more about the effects of AV1 on loneliness, social isolation and wellbeing, and are currently working on implementing a loneliness survey in the AV1 app.

Other more resource intensive projects include controlled studies where one group of children/young adults use AV1 and one group doesn't. Such studies could examine closer if: AV1 makes it easier returning to school – both socially and educationally. If AV1 hinders school refusal after periods of absence, and what impact AV1 has on the health conditions of children that stay socially connected versus those that don't. We receive a lot of interest from universities that want to examine the effects of AV1 and below is an overview of ongoing research projects examining the effects of AV1.

AV1 is part of the following research

University	Structure and topic	Outcome
University of Oslo	Associate professor Alma Culén and research fellow Jorun Børsting from the Institute of Informatics at The University of Oslo are researching the effects of AV1 on eight children with ME/CFS. The project started with the first pilot test round of AV1 in the spring of 2016, and is still running.	1 peer-reviewed article (Børsting & Culén, 2016) and 1 scientific book chapter (Børsting, 2017) published. 1 more article to be published in 2018
Oslo Metropolitan University (OsloMet) & Consumption Research Norway (SIFO) & The University of Oslo	OsloMet has initiated an interdisciplinary research group of 13 people based at the Faculty of Social Sciences. The research group will do longitudinal studies of AV1 targeting people in social isolation, researching the (long-term) effects and the ability of technology to secure social inclusion. The research topics will be diverse and interdisciplinary.	Target of 4 peer-reviewed research articles by 2020
Kristiania University College & Norwegian University of Life Sciences (NMBU)	Kristiania University College has initiated a research group of 3 professors and 2 master students. Exploring how AV1 co-creates value for their users and investigates implementation challenges as the robot is brought to market in various geographical locations in Norway.	The research is to be published as a conference paper (2018/2019) and 1-2 peer-reviewed research articles (2020/2021)
The University of Aix-Marseille	CONTRACT FINALIZATION. The impact of AV1 on loneliness and the impact of loneliness on health in case of long-term illness.	The planned start is April 2018. The first results are expected to be presented at Innov'in'Med in November 2018

What we can't accurately know due to privacy etc.

No Isolation takes the privacy of its users and customers extremely seriously. Thus, No Isolation does not gather personal data on the children using AV1. Because of this, we cannot precisely tell how the 400 users are divided between the different diagnoses, what the most frequent age is etc.

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