EMPLOYING EDUCATIONAL VIDEO IN SPEECH-LANGUAGE TELEREHABILITATION WITH CHILDREN: INSIGHTS FROM INTERVIEWS WITH PARENTS

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Abstract

Video has been recognized as an important mean for delivery of speech-language therapies, particularly when used in telepractice settings. It can be used in video conferencing setup for synchronous communication of the speech-language therapist and the patients, or employed as educational video artefacts which contain speech therapies that can be remotely accessed by patients at their convenient time.

This paper discusses the design of educational videos for telerehabilitation of pediatric speech disorder (dyslalia) and presents results of a qualitative part of the pilot study. First, it presents how principles of multimedia learning were applied in the design of instructional videos aimed at the treatment of dyslalia. Second, it describes research results from empirical pilot study conducted with five children with dyslalia and their parents who used the videos. Quantitative data about the quality of the video design were collected from the parents by means of the post-use questionnaire and in this paper are briefly reported. The main emphasis of the paper is on presenting qualitative data about parents' experiences, impressions and observation of interactions while employing videos with their children. Feedback gained from the interviews provides important insights into the interactions of children with video artefacts and suggests additional guidelines for designing online instructional videos aimed at preschool children who need speech-language treatments.

Keywords: Video, multimedia learning, speech-language therapy, telerehabilitation, telepractice, interview.

1   INTRODUCTION

Telerehabilitation has been considered a subdiscipline of telemedicine [1] that includes delivery of medical services to remote patients by usage of information-communication technology (ICT). Lately it has emerged into a broader area of telehealth. While telehealth includes variety of health care and health promotion activities like education, advice, reminders, interventions, and monitoring of interventions [2], telerehabilitation involves the delivery of therapeutic rehabilitation interventions using ICT [3]. Advantages of telerehabilitation have been recognized in many fields such as physical therapy, intensive care, audiology or speech-language pathology etc.

Speech-language pathology (SLP) is a field that has been using technology for delivery of speech-language therapies since 1970s [4]. A telephone and the postal mail are nowadays supplemented by the computers, smartphones or tablets, broadband internet and advanced multimedia technologies, that support the usage of various applications not only for the speech-language treatments but also for the assessment and diagnosis as well as for the management of SLP practice. Communication software, online collaboration environments, web services, game applications, e-learning systems, expert systems are among applications which can be used in SLP telerehabilitation.

While some of applications and technologies are advanced and not always easy to use, video is the technology that has become very accessible and ubiquitous in everyday life. Its usage has spread particularly with the introduction of mobile phones that have video recording features, as well as with popularity of services like YouTube or Skype. Nowadays even a little child is able to record a video clip or to browse and play the videos on the smartphone.

Video has been recognized as an important mean for delivery of speech-language therapies in telepractice settings as well [5, 6]. In the previous work conducted by Plantak Vukovac et al. [5] research results had shown that video usage is on the top of preferred activities offered in SLP online service. Communication with the therapist via video link is the most preferred activity for SLP clients, followed by the video demonstration of a particular therapy (video exercise). Therapists have also indicated communication with the clients via video link as highly preferred activity.

However, there are no researches on the efficiency of video usage in SLP telerehabilitation or recommendations on how to design a video artefact aimed at specific audience that needs speech-language treatments. There are recommendations on technical aspects of recording and delivering video online for successful SLP telepractice (e.g. [6]), but most recommendations on video design exist in the research studies conducted in educational and e-learning fields. For example, there are researches on how to integrate educational video during multimedia lecture to achieve efficient learning [7], or how textual information in the video design influence learners' attention and comprehension [8].

In order to investigate the particularities of video as a mean for delivery of speech-language treatments to the patients, a research team has initiated a pilot study on the design of SLP educational video artefacts. The intent of the pilot study was to explore the quality of educational videos prepared for telerehabilitation of pediatric speech disorder (dyslalia) and to discover how videos were used by parents and children in their home environment.

The aim of this paper is to first present how video artefacts have been designed in accordance with the principles of the cognitive theory of multimedia learning [9] and subsequently employed in telerehabilitation of dyslalia. Second, it describes research results of the pilot study about the quality of video design that was examined by the post-use questionnaire. Responses were collected by web questionnaire from the parents who used the videos together with their children who were diagnosed with dyslalia. Finally, the focus of this paper is on the results gained from the qualitative part of the pilot study on parents' experiences, impressions and observation of interactions while employing videos with their children.

2   RESEARCH METHODOLOGY

Prior conducting an empirical pilot study, design and development of educational video artefacts for the therapy of pediatric speech sound disorder took place. The design of videos has been done in cooperation with two speech therapists, and in accordance with the principles of the cognitive theory of multimedia learning (CTML) that reduces extraneous cognitive load [9, 10].

The pilot study involved sequential mixed-method approach to inspect the quality of educational video artefacts employed in SLP telerehabilitation. The sequential mixed-method approach is used "when researcher seeks to elaborate on or expand on the findings of one method with another method" [11 p.14]. The first quantitative phase of the study involved data collection using a survey method for which an instrument for measuring the quality of educational video artefacts has been created. The design of aforementioned instrument is described in [12]. The second phase included qualitative data collection using interviews. While the purpose of the quantitative method was to collect opinions from parents about the perceived quality of educational videos used in speech-language telerehabilitation, the purpose of employing the qualitative method was to further examine video characteristics in order to inform future video design and to discover how parents and children have interacted with the videos. A study has been conducted at the Faculty of Organization and Informatics of the University of Zagreb, Croatia.

2.1   Video design of the therapy for pediatric speech sound disorder

As already mentioned in the *Introduction*, there are no recommendations on how to design video artefacts for online SLP sessions to achieve high-quality video that will support user engagement and help the patients in the rehabilitation process of their disorders. In the literature about the speech telepractice sessions there is only a guideline for the short video length and recommendations about the services for delivering video online [6].

In general, video quality can be viewed from technical, pedagogical and users' aspects and usually include various stakeholders, e.g. product developers, video encoding experts, executives, consumers, finance and marketing experts [13]. Every stakeholder can have his/her own perspective on the features of high quality video, which can influence the design of video artefact.

For the purpose of the study on the quality of educational videos in telerehabilitation of pediatric speech disorder (dyslalia), our research team took a standpoint that the design of videos should be accurate and instructive enough to be easily used online by both parents and children with dyslalia, and also should foster effective rehabilitation process. Although the rationale for the design of video artefacts is already explained in [12], to place the design in the context of the qualitative findings presented in this paper, it is necessary to introduce design principles applied in the study.

Dyslalia is a disorder for which the therapy is feasible to be prepared in the form of educational video. It is a speech sound disorder that is manifested as sound or phoneme that is not produced, not produced correctly, or not used correctly. It is often present in a native language of preschool or early years school child, but sometimes in adult age as well. In order to treat dyslalia, a speech therapist shows to the patient a set of exercises with the sound that need to be corrected in all positions in the word: at the beginning, in the middle, at the end and close to a vowel/consonant. E.g. some of the exercises for the sound S would be "sa", "se", "si, "so", su", while words in English language would be the "sun", "whistle", "bus", "smoke" etc. The patient repeats after the therapist, paying attention to the therapist's face expressions (mouth, teeth and tongue positions) while producing a required sound or word. Also, he/she needs to exercise at home until the next appointment with the speech therapist.

For the purpose of video design for this study, a speech therapist who was a research team member, has suggested preparation of the educational videos for the sound S upon the availability of the test participants with that sound disorder. Videos have been recorded with two therapists: one who acted as a demonstrator, and one who took a role of a narrator who explained pronunciation of the sound S. Three cameras were set up in order to record all the necessary details using different close-up shots: *enface* close-up, *enface* extreme close-up and *profile* extreme close-up of the mouth, teeth and tongue positions. Altogether, twelve videos with exercises have been recorded to cover all necessary combinations with the sound S. For the purpose of the empirical pilot study, three videos have been further edited: 1) video with demonstration of the sound S at the beginning of the word, 2) video with repeating exercise of the sound S at the beginning of the word, and 3) video with demonstration of errors and correction of errors when pronouncing the sound S at the beginning of the word.

In order to provide theoretical background for the design of video in the post-production phase, relevant literature on the design of learning materials has been consulted. Majority of the guidelines that have been applied in SLP video design follow the principles from the cognitive theory of multimedia learning (CTML) developed by Richard Mayer [9]. Main assumptions of the theory are: 1) *dual-channel* assumption about the visual and auditory channel in humans for processing visual and verbal input, respectively, 2) *limited-capacity* assumption about limited amount of information that human can process in each channel at one time, and 3) *active-processing* assumption about the need for active learning which happens when humans actively pay attention, organize incoming information and integrate them with other knowledge. These assumptions also fit into the process of children learning, particularly when they learn to speak: children need to receive information by both visual and verbal channels; their capacity to receive information is limited (otherwise cognitive load could occur), and also they need to be actively engaged: to pay attention, to observe, to memorize and to repeat.

Mayer and his associates have conducted a series of experiments to explore the influence of media on meaningful learning designed according to the principles of multimedia learning. In one of his experiments, Mayer [14] proved the importance of convergence of individual types of media such as auditory narration with visual animation to promote meaningful learning. In another study, Mayer and Moreno proposed nine ways for reducing cognitive load in multimedia learning [15]. Cognitive load happens when total intended processing of information exceeds the learner's cognitive capacity. One of the manifestations of the cognitive load is an incidental processing load which happens when an extraneous material, such us background music, is added into an instructional presentation, so a human mind should process essential information together with an unnecessary extraneous one.

In order to reduce extraneous cognitive load, five principles have been integrated into design of the educational videos for SLP therapy during video editing phase: *coherence principle, signaling principle, redundancy principle, spatial contiguity principle* and *temporal contiguity principle,* as further described in [12]. In addition, cognitions from Bouki et al. [16] about the *redundancy principle* has been applied, who had discovered that concurrent video/animation and on-screen text are not redundant information "if the textual information, handled by the visual channel, does not conflict with the auditory information, handled by the auditory channel".

Fig. 1 illustrates how CTML principles for reducing cognitive load were applied in videos for treatment of dyslalia disorder. Logical parts of every edited video were the following: introductory part with copyright information and the project's logo; title of the video; announcement part narrated by the demonstrator who explains the content of the video; the main content with a demonstration or exercise shown in various close-up shots; the demonstrator's wrap up with the announcement about the next video; and scrolling credits part at the end of the video. Short cheerful intro guitar music was added at the beginning of the video in order to call for attention. Short calming closure guitar music was added during the credit part at the end of all videos. The duration of the videos was 2:11, 1:36 and 1:51 minutes without the credit part at the end of the video that lasted 25 seconds.

A) **Coherence principle** – in order to exclude extraneous words, sound or graphics which could distract the viewer, design elements like logo graphic and intro/closure music were not added throughout the video, but only at the beginning and/or the end of the videos.

This screenshot presents the moment when a demonstrator announce the exercise at the beginning of the video.

B) **Signaling principle** – in order to highlight essential words or movements, visual signaling was provided in the form of arrows, accented text or other visual clues.

The signaling principle is also present on the screenshots C.1 and D.

C) **Redundancy principle** – in order to exclude redundant captions from narrated animation, concurrent video/animation and on-screen texts were avoided most of the time.

Violation of the principle was done in two cases, both for the reason to allow parents pausing of the video playback in key position moments:

1) transcribed narration was placed next to the narrator's face in order to give additional information to parents on how to produce a specific sound or position of mouth, following the recommendation from [16]; and

2) *Enface* extreme close-up and *profile* extreme close-up were placed in the same scene, to show position of mouth, teeth or tongue from the different views.
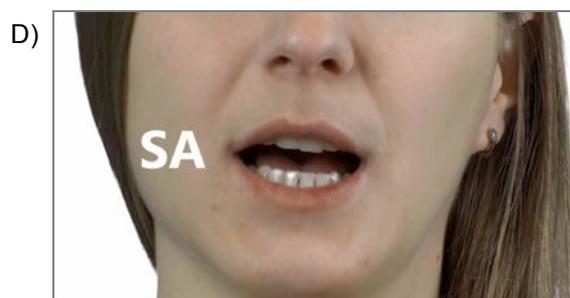
D) **Spatial contiguity principle** – in order to place essential words next to the corresponding graphics, visual clues and letters are presented near the corresponding parts of the video.

E)

(no screenshot)
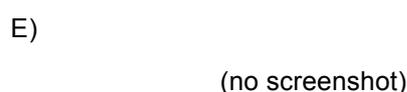
Temporal contiguity principle – in order to present the corresponding words and pictures simultaneously, the narrator simultaneously explains the demonstration of the position of mouth or tongue.

Fig. 1. CTML principles for reducing cognitive load applied in the video design
for treatment of pediatric speech sound disorder

2.2 Data collection in the pilot study

Speech therapists have recruited children with dyslalia disorder on the sound S during their first SLP session. The therapists have explained the study goals to parents of the children and asked for an informed consent from parents about participation of their children in the study. Parents of nine children have agreed to join the study and have filled out the initial web questionnaire about their usage of ICT and preferences regarding SLP therapies provided online.

All parents-participants were instructed to practice pronunciation with a child on classical way at least for 2-3 days before accessing online SLP therapy. A few days after the first SLP session parents have received an e-mail from the research leader with the instructions on how to access video therapies and assess their quality after usage of videos with the children.

The video artefacts have been uploaded into the e-learning system and parents should logged-in with the unique user name in order to access the videos. The system contained short information about the content of the videos and a link to the post-use web questionnaire. The questionnaire was composed of 110 close-ended questions designed for measuring facets of 20 quality attributes of video artefacts employed in SLP therapies. One open-ended question has been added at the end of the questionnaire. Design of the questionnaire and its attributes has been further reported in [12].

For the qualitative part of the study eight questions have been prepared for the semi-structured interviews that have been conducted with the parents during their second visit to SLP therapist.

3 RESEARCH RESULTS

3.1 Results from the quantitative data analysis

Only five parents have accessed online SLP therapy with their children. All children were male and ranged in age from five to eight (M = 5.40, SD = 1.517). All of them were diagnosed with dyslalia disorder, one of them also had undeveloped speech disorder, and one of them also had stuttering.

In the questionnaire on the use of ICT and their preferences regarding online SLP therapies, the majority of parents (4 out of 5) have revealed their readiness to perform occasional online therapies at their homes. All pilot study participants have agreed they would like to use it in the form of video artefacts. Other findings about participants of the study are reported in [12].

Regarding the quality of assessed video artefacts, participants have agreed that edited videos were of very high quality. Their answers were grouped around 20 quality attributes and were scored on a four-point Likert scale (1 – strongly agree, 4 – strongly disagree). The mean value for each quality attribute is illustrated in the Fig. 2. The lower mean value, the better is the result for the quality attribute.
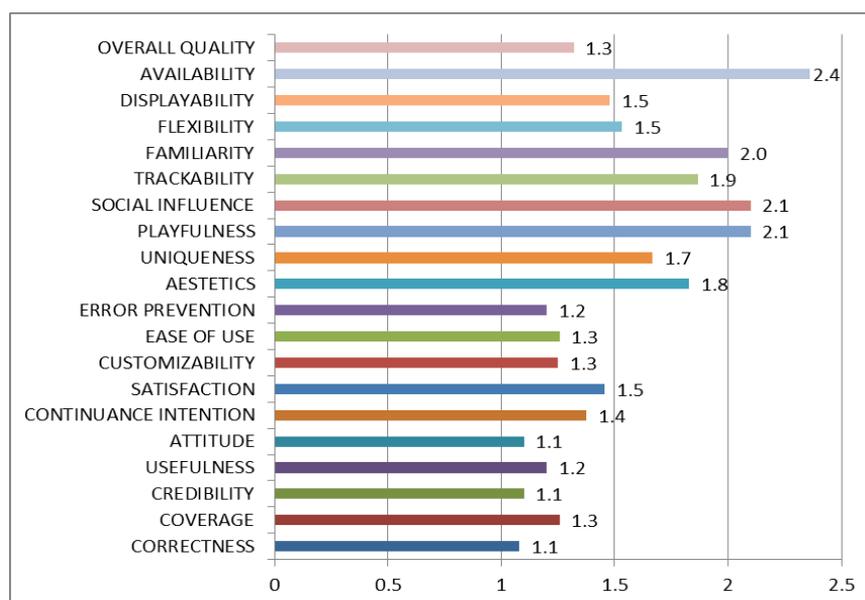

Fig. 2. Quality attributes of video artefacts for treatment for dyslalia disorder

Participants of the pilot study have assessed the overall quality of videos as 1.3, which means that the most of them strongly agreed that video artefacts are professionally prepared and the content is well explained which enables the user to repeat the exercise correctly.

Among the quality attributes that received the best scores are: *correctness* (e.g. video artefacts precisely and clearly display how to pronounce particular sounds), *credibility* (e.g. the content of video artefacts is trustworthy and reliable), *attitude* (e.g. the use of videos in SLP therapy is a great idea that users are looking forward to), *usefulness* (e.g. videos are very useful and efficient for exercising without the therapist) and *error prevention* (e.g. videos support the user to correctly perform the exercise without making errors in pronouncing a particular sound).

At the other hand, the worst score was for the attribute *availability*, which means that some participants disagreed that video artefacts are available to everyone and every time they need them. The reason for that lies in the fact that users need to log-in to the web system in order to access the videos. Some attributes that were not received the highest score by all pilot participants are the following ones: *playfulness* (e.g. video artefacts are funny and successfully absorb patients' attention during longer period of time), *social influence* (e.g. decision to use videos for the purpose of rehabilitating speech disorders is influenced by other people) and *familiarity* (e.g. online therapy with the use of video artefacts do not differ significantly from "classical" SLP therapy).

A full report on the quantitative research results of the study is given in [12].

At the end of the questionnaire respondents could provide additional comments about video artefacts. Two parents took that opportunity and expressed their opinions.

- One male respondent commented on the technical aspect of the videos: *enface* close-up shot without the demonstrator's shoulders made him feel uncomfortable. Also, he didn't like much video appearance and esthetics which seem to him a little bit old-fashioned. Finally, he noticed a lower sound quality of the third video. The respondent didn't provide any feedback about his child behaviour nor provided child's comments while watching the videos.

- One female respondent commented on ambiguity of several questions in the questionnaire. She has also noticed a low sound quality of the third video. However, this parent commented on a child's reactions while watching the videos: a child didn't like much intro and closure music of the videos and has asked her to read him the title of the video (the title was only written but not narrated). Also, at one moment it was obvious that the child was bored.

Those answers were the trigger to conduct the follow-up interviews in order to gain more insights into the interactions of children with video artefacts. The answers are presented in the next chapter.

3.2   Results from the qualitative data analysis

Three parents that participated in the quantitative part of the study have agreed to be interviewed and provide additional opinions and insights about the quality of video artefacts. All of them were mothers of five years old preschoolers.

The first respondent, whose code name throughout this case study will be Ella, was an experienced ICT user who regularly uses a desktop computer and a smartphone. She consumes the internet almost every day to browse the web, to send e-mails, to make online purchases and internet banking, for e-learning etc. The mean score of her assessment of the quality of video artefacts by web questionnaire was 1.51 (SD = 0.70) where the value 1 meant *strongly agree* (evidenced in 59.1% of her answers) and the value 2 meant *agree* with the quality item (evidenced in 32.7% of her answers). She also provided 6.7% answers with the value 3 (*do not agree*) and 1.8% answers with the value 4 (*strongly do not agree*). For example, she did not agree that background intro music in video was pleasant, that usage of SLP video artefacts is funny and that she wants to use videos after the treatment is finished. She strongly did not agree that videos are available without access to the internet and without the need to log-in to the system.

The second respondent, whose code name throughout this case study will be Jane, was occasional ICT user who uses only a desktop computer and access the internet several times per month for browsing the web. Her mean score for the assessment of the quality of video artefacts was 1.03 (SD = 0.16), which suggests that she did not approach to evaluation critically. She evaluated majority of items (97.3%) with the highest score (1 or *strongly agree*) and only 3 items or 2.7% out of 110 with the value 2 (*agree*): that is easy to navigate videos; that videos are attractive, and that videos are visually

appealing. Answers with the value 3 and 4 were not provided, which might reflect her lack of experience in using videos and ICT in general.

The third respondent, whose code name throughout this case study will be Anna, was very experienced ICT user who uses a plethora of information and communication technologies (laptop, tablet, smartphone, web camera, headset, digital camera). She uses the internet on a daily basis for the activities as Ella, but also uses services like Dropbox, Google Drive, and YouTube for video upload. The mean score of her assessment of the quality of video artefacts was 1.58 (SD = 0.63), with almost equal dispersion of the answers with the value 1 (*strongly agree*) which was evidenced in 47.3% of her answers, and the value 2 (*agree*) which was evidenced in 49.1% of her answers. Two answers were provided with the value 3 (*do not agree*) for the following items: background intro music in video was pleasant and usage of SLP video artefacts is exciting. Also, two answers were provided with the value 4 (*strongly do not agree*) for the same items as Ella did.

The individual interviews with Ella and Jane were conducted face-to-face in the SLP office during their second visit to the therapist with their children, which happened approximately three weeks after the first visit. The interview with Anna was conducted by the telephone due to the lack of time during SLP appointment. Anna provided the most elaborated answers to the interview questions, which might be due to her high experience in consuming ICT and particularly the video, but also due to the fact that the interview was not done face-to-face. The interview consisted of eight semi-structured questions, of which five questions were about the design of videos. Answers to those five questions are presented in the remainder of this section.

The first question asked respondents to elaborate which characteristics of the video were the most appealing to parent and a child. While Ella's and Jane's answers were very brief (*short and accurate videos*, and *precise explanation, pronunciation and display of mouth opening*, respectively), Anna confirmed that videos were accurate with a lot of details, and specified it further:

> *There were detailed guidelines in the videos, for me in the form of the text, and for the kid in the form of the arrows which he recognized, and although he doesn't read yet, it was clear to him what to do.* (Anna)

This feedback from Anna supports the decision to apply the signalling principle in the video design and violate the redundancy principle with written narration placed next to the narrator's face.

The second question was about drawbacks of the video design and suggestions how to overcome them. Jane hasn't found any shortcomings nor had any suggestions for enhancing the video design. This is in line with her scores provided in the questionnaire. Ella's opinion was the same as Jane's one; she also added that the videos were interested and even a younger son has watched them as well. Anna perceived two drawbacks, one regarding video design, and one regarding technical aspect of the video:

> *Personally, I found drawback in the titles of the videos: there was only a written title displayed and my kid was curious about the text, and has asked me to read it, so I read it to him. It would be great that the title is narrated as well, not just written. Also, I noticed a low quality sound in one video, I think it was the third one, some sort of metal sound... that should be fixed.* (Anna)

This feedback from Anna about written title suggests that redundancy expressed in concurrent written and narrated text is crucial for design of videos aimed at audience of different age. It seems that redundancy adds value in videos of such type, however it is unknown does this produce extraneous cognitive load.

The third question asked respondents to elaborate how long the parent and the child have watched the videos during one session.

> (The kid is sitting in the mother's lap). *He watched with me the whole video, every video... he watched carefully for 5 to 10 minutes.* (Jane)

> *In the beginning, we watched every video twice, for three days. Later we have continued the exercise by our own.* (Ella)

> *For the first time watching, it was a little bit longer, about 15 minutes, and later it was shorter, about 5-10 minutes. During that first time we watched all three videos because I noticed that my kid incorrectly pronounce the sound S... he pushed the thong outside (*the mouth*), so we practiced with the third video.* (Anna)

Provided answers suggests that videos are used in very short period of time and this is also present in the classical SLP therapy with preschool children.

The forth question explored the process of watching the videos and if the child and how often he loses attention. All three parents have indicated that for the first time watching their kids were very concentrated but during later sessions they have lost attention.

> *He lost attention while watching the video (*for the second, third time*); I had to warn him at least 3-4 times during a session to watch the video.* (Jane)

> *He watched very carefully, especially at the beginning when the intro sound appeared. When he saw the title, he asked me "Mum, read it". He looked very interested when the therapist was speaking or showing the drill – he watched her and followed her instructions, but when there was only a text on the screen, he turn out the look and play with his hands... He watched carefully the third video when he needed to put the hands on the head and the chin; he repeated after the therapist and was very proud by saying "I followed her". He didn't lose attention while watching the videos for the first time, but during the second time I noticed he was bored. After the third or the fourth time I stopped to play him the videos because he already knew what to do.* (Anna)

Provided answers suggests that videos should be designed to motivate the viewer to repeat the exercise.

The final question asked respondents how many times a child have watched the videos after the parent has filled out the questionnaire about the quality of the video. Anna and Ella have responded that it was approximately one or two additional times. Jane's son has watched the video only once after that.

> *I noticed that he is not interested any more... he already knew the drill and even repeated the exercise during the day by himself* (without the video). *He also put the hands on the head and the chin and correctly repeated the sound.* (Anna)

The final answer suggests that when a child learns the exercise with video he/she is able to repeat the exercise by himself/herself and loses interest to watch video again.

4 CONCLUSIONS AND FUTURE WORKS

This paper presented additional research results gained from the qualitative part of the pilot study on the design of educational video artefacts employed in speech-language telerehabilitation of dyslalia.

First, the paper described video design and production that have been prepared in accordance with the principles of the cognitive theory of multimedia learning that reduces extraneous cognitive load. This approach was chosen because of the similarities of online learning that applies video artefacts and learning that happens during the SLP therapy. CTML principles that were applied in videos were the coherence, signaling, redundancy, spatial contiguity, and temporal contiguity principle. However, the redundancy principle was violated in several parts of the video artefacts, since the artefacts were designed with concurrent video, narration and on-screen text due to the fact that videos will be observed both by a child who cannot read, and a parent who might need additional written instructions on how to produce a particular sound.

The quality of video artefacts created for dyslalia online treatment was inspected in sequential mixed-method approach. Quantitative evaluation was conducted with 110 items implemented in a web questionnaire. Five parents who used video artefacts with their children, who were diagnosed with dyslalia in the pilot study, agreed that evaluated videos were of very high quality. Some aspects of the quality were less favorable, like visual appeal, the quality of audio, entertaining factor or availability of videos without the need to log-in.

However, the answers provided during qualitative part of the study that employed the interviews with the parents that participated in the quantitative evaluation, shed additional light to the design of videos created for dyslalia online treatment. Three mothers with their 5-year-old boys helped us to reveal interesting facts about their children interactions with video artefacts. All three have noticed a lot of engagement during first-time interaction with the videos, but also have experienced children's loss of attention.

Also, feedback gained from one mother revealed the need to design educational video artefacts for both children and adults (caregivers). The children need interesting and motivating video scenes that will retain attention and fulfil the purpose (e.g. rehabilitation of a particular sound) while the caregivers need an instructable content that will help them in guiding the process of rehabilitation.

This research suggests that principles of multimedia learning for reducing cognitive load are not applicable on the whole in the design of SLP video treatments since adults and children have different needs. For example, according to redundancy principle of CTML, redundancy manifested with concurrent video/animation, narrated animation and on-screen texts should be avoided, but it is necessary to be applied in online SLP design since adult users need clear and detailed written instructions, and children need narrative instructions. Reaction of a child observed in this research supports this assumption. There is also a question on how to deal with beginning readers: do we need to design a text for them or only for the adults?

Short music intros or sound effects, although might act as a distraction for adults, call for attention and support child engagement. However, careful selection of music that is appealing to children should be provided in order not to provoke an opposite effect.

Children attention span is another issue that needs to be taken into account when designing SLP video artefacts. Short time span is usual in preschool kids and that also applies to their engagement in speech-language treatment, whether classical or online. Since research results have shown that children lost interest after several interactions with video artefacts, there is the question is it rationale to invest a lot of time and efforts into production and post-production of videos. Or the same effect could be achieved with the non-edited video recorded with a smartphone? What about the entertaining aspect of video artefacts or online SLP therapy in general?

Taking into account that reported findings emerged from an empirical pilot study that was limited in the numbers of participants, additional research should be conducted to provide answers to these and some other questions.

The results of the qualitative pilot study have revealed several directions for further research: 1) redesign of video artefacts and production in different production styles; 2) measuring the efficiency of online SLP therapy of dyslalia employing educational videos of different production styles; 3) observation of children interactions with educational SLP videos in controlled environment.

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