

TALLINN UNIVERSITY OF TECHNOLOGY

School of Information Technologies

Nele Labi IVGM163317

**PROVISION OF COUNSELLING SERVICES
FROM DISTANCE –
A MODEL FOR ONLINE VIDEO
EDUCATIONAL COUNSELLING**

Master's thesis

Supervisor: Regina Sirendi, MSc

Tallinn 2018

TALLINNA TEHNIKAÜLIKOOL

Infotehnoloogia teaduskond

Nele Labi IVGM163317

**NÕUSTAMISTEENUSTE PAKKUMINE
DISTANTSILT – MUDEL
ÕPPENÕUSTAMISEKS VIDEO
VAHENDUSEL**

Magistritöö

Juhendaja: Regina Sirendi, teadusmagister

Tallinn 2018

Author`s declaration of originality

I hereby certify that I am the sole author of this thesis. All the used materials, references to the literature and the work of others have been referred to. This thesis has not been presented for examination anywhere else.

Author: Nele Labi

06.05.2018

Abstract

The aim and main research question of this Master's thesis is how to do design online video educational counselling services. The question is based on the current situation in video counselling, where despite the viewpoint of the counsellors and stakeholders that using video as a channel for counselling can deliver positive effects; and despite the availability of video connection tools, there are only very few attempts to provide educational counselling from distance. The focus of the research is on identifying and overcoming the barriers that counsellors experience when providing educational counselling with video communication tools.

Counselling requires communication between the client and the counsellor, unlike in many services, which have been introduced as e-services already, counselling in its full extent cannot be performed without on-time presence of the service provider. Other e-channels (like *chat*, e-mails or forums) can be used for questions, answers and receiving advice, but the full counselling procedure requires, among others, defining the problem, evaluation, implementation and stabilization. All these stages cannot be achieved without immediate communication. The prerequisite of counselling is a trusting relationship between the client and the counsellor. For this distinctness video counselling service cannot be described in full extent as an e-service. There are not many frameworks, studies or theories to support the process of introducing a video service.

The author analyses theories of counselling and service design, gives overview of literature, and through qualitative in-depth interviews presents the current situation of video counselling in Estonia. The main target group of the research were the educational counsellors as they present the key role in the process. The opinions of stakeholders and one parent with a video counselling experience are also counted when answering the sub-questions of the thesis. The focus of the research is on defining and overcoming the barriers of video counselling. Through identifying, systematizing and providing possible solutions to the barriers the author presents goal and role models for the video counselling service and designs a prototype, which counts the technical barriers of the current situation in providing educational counselling from distance.

This Master's thesis contains the following sections: theoretical part, literature overview, two illustrative case studies, an analysis of interviews and a preview of the solution prototype. The thesis finishes with conclusions and suggestions for future research.

This thesis is written in English and is 102 pages long, including 7 chapters, 13 figures and 11 tables.

Annotatsioon

Nõustamisteenuste pakkumine distantsilt – mudel õppenõustamiseks video vahendusel

Magistritöö eesmärk ja peamine uurimisküsimus on kuidas disainida video õppenõustamise teenust. Teema baseerub olukorrale, kus hoolimata õppenõustajate ja huvipoolte arusaamast, et video nõustamisega kaasneks positiivset mõju, ning hoolimata videosuhtlust võimaldavate tehnoloogiliste vahendite kättesaadavusest on Eestis vaid vähesed juhud, kus õppenõustamisteenust on osutatud video vahendust. Seetõttu on uurimuse keskmes barjäärid õppenõustamisteenuse osutamisel video vahendusel.

Nõustamine, erinevalt paljudest teenustest, mis juba on kättesaadavad ka veebivahendusel, eeldab kliendi ja nõustaja vahelist otsesuhtlust. Nõustamine tervikliku protsessina vajab nõustaja reaalses olemasolu ja reageerimist. Teiste veebikanalite kaudu (nagu *chat*, e-kirjad või foorumid) saab esitada küsimusi, vastata, anda nõu, ent nõustamise terviklik protsess kätkeb endas teiste seas ka probleemi defineerimist, hindamist, valitud meetodi rakendamist ning olukorra stabiliseerimist. Kõiki neid etappe ei saa läbi viia ilma vahetu kommunikatsioonita. Nõustamise eelduseks on usalduslik suhe kliendi ja nõustaja vahel. Selle olulise erisuse tõttu ei saa video nõustamist kõigis detailides kirjeldada kui e-teenust, mida saab automatiseerida, standardiseerida ja tarbida iseteenindusest. Videonõustamise disainimiseks ei ole magistritööautori teada spetsiaalseid raamistikke, teooriaid ega uuringuid.

Töö autor analüüsis nõustamise ja teenuse disaini teooriaid, annab töös ülevaate teemakajastusest arengukavades ja strateegiates ning hetkeolukorrast seoses videonõustamisega Eestis. Uurimuse peamiseks sihtrühmaks on õppenõustamise spetsialistid – eripedagoogid, logopeedid, psühholoogid ja ka karjäärinõustajad, sest neil on video nõustamises täita võtmeroll. Teiste huvipoolte, sh lapsevanema arvamused on samuti kaasatud töö uurimisküsimustele vastuste leidmisesse. Töö fookus on videonõustamisteenuse osutamise barjääride leidmisel ning neile lahenduste pakkumisel. Koos takistuste identifitseerimise, klassifitseerimise ja lahenduste süstematiseerimisega pakub autor välja teenuse eesmärgi ja rolli mudelid ning tehnoloogilist laadi lahenduste presenteerimiseks esitab teenuse prototüübi. Töö lõpus

esitab autor kokkuvõtte järeldustest ning ettepanekud edasisteks uurimusteks antud teemal.

Lõputöö on kirjutatud inglise keeles ning sisaldab teksti 102 leheküljel, 7 peatükki, 13 joonist, 11 tabelit.

List of abbreviations and terms

ADR	Action Design Research
AOM	Agent-Oriented Modelling
BPM	Business Process Modelling
BUA	Basic Schools and Upper Secondary Schools Act
EC	European Commission
EP	European Parliament
MoEC	Ministry of Economic Affairs and Communications
MoER	Ministry of Education and Research
MoI	Ministry of Interior Affairs
NEET	Not in Employment, Education or Training
RK	Riigikogu (Estonian Parliament)
SEN	Special educational need
TAM	Technology Acceptance Model

Table of contents

Author`s declaration of originality	2
Abstract.....	3
Annotatsioon.....	5
List of abbreviations and terms	7
Table of contents	8
List of figures	11
List of tables	12
1. Introduction	13
1.1 Research questions.....	14
1.2 Methodology.....	16
1.2.1 Interviews	17
1.2.2 Case studies	19
1.2.3 Modelling tools	19
1.3 Outline of the thesis	22
2. Theory and background	24
2.1 Counselling	24
2.1.1 E-counselling.....	25
2.1.2 Video-counselling	26
2.1.3 Educational counselling	27
2.1.4 Educational counselling process	28
2.1.5 Educational counselling resources	29
2.2 Designing services	30
2.2.1 Services in e-governance.....	32
2.2.2 Distinction between e-services and video services	34
2.2.3 Barriers in service provision	37

3. Literature review	41
3.1 Video counselling in development plans and strategies in Estonia	41
3.2 Video counselling possibilities in other countries	42
4. Case studies and interviews	45
4.1.1 Case-study 1: Feedback and counselling for parent	45
4.1.2 Case-study 2: Pedagogical-psychological evaluation of a child.....	46
4.2 Interviews.....	47
5. Results and discussion	51
5.1 Research question 1: How could online services be used for counselling?.....	52
5.1.1 Location.....	53
5.1.2 Time	54
5.1.3 Target group	55
5.2 Research question 2: What are the barriers for not using video online counselling services widely in Estonia?	57
5.2.1 Lack of awareness	57
5.2.2 Technological barrier	58
5.2.3 Lack of skills	59
5.2.4 Lack of user-friendliness	59
5.2.5 Availability.....	60
5.2.6 Workplace and organizational inflexibility.....	61
5.2.7 Lack of trust (security and privacy)	62
5.2.8 Interoperability	63
5.2.9 Other counselling procedure related obstacles.....	63
5.3 Research question 3: How to overcome the barriers in providing online video counselling services?	65
5.4 Research question 4: What are the requirements for the video counselling service to work and achieve the goal of trust?	68
5.4.1 Expectations for technical features	68

5.4.2 Expectations for the process.....	69
5.4.3 Need for training	69
6. Prototype.....	75
7. Conclusions	79
7.1 Main findings of the thesis.....	80
7.2 Future research.....	82
References	83
Appendices	89
Appendix 1. Questionnaire for counsellors	89
Appendix 2. Questionnaire for the parent.....	91
Appendix 3. Questions to stakeholders.....	92
Appendix 4. Internet search outcomes for e-counselling terms in Estonian.....	93
Appendix 5. Explanation of internet search outcomes	94
Appendix 6. A simplified overview of the counselling process	97
Appendix 7. Clients view for introduction of the video educational counselling service	98
Appendix 8. Clients view after logging into video counselling session.....	99
Appendix 9. Clients view during exercises	100
Appendix 10. Counsellors view after logging in	101
Appendix 11. The counsellors view during using an evaluation tool.....	102

List of figures

Figure 1. The original Technology Acceptance Model

Figure 2. Double Diamond model

Figure 3. B.C. Service Design Model

Figure 4. Public e-service with two-way communication between counsellor and client

Figure 5. Flow-chart for case of feedback and counselling a parent over video channel

Figure 6. Presentation of statistical data from client information system

Figure 7. Goal model for the video counselling process

Figure 8. Video counselling process according to the prototype

Figure 9. Clients view for introduction of the video educational counselling service

Figure 10. Clients view after logging into video counselling session

Figure 11. Clients view during exercises

Figure 12. Counsellors view after logging in

Figure 13. Counsellors view during using an evaluation tool

List of tables

Table 1. Counsellors with video counselling experience in the Rajaleidja network

Table 2. Possibility to perform counselling stages through different channels

Table 3. Categories of barriers for video educational counselling tool

Table 4. List of interviewees

Table 5. Barriers in the video counselling process

Table 6. Possible solutions/hedging for the barriers in the video counselling process

Table 7. Counsellor role model

Table 8. Parent role model

Table 9. Child role model

Table 10. Role model of video counselling tool IS manager

Table 11. Role model of educational counselling process owner

1. Introduction

Acknowledging the importance of counselling has grown within the society. Not long-ago counselling was considered as giving advice after a problem appeared, however, today more people recognise it as a preventive method. Today we identify many different types of counselling – psychological, pedagogical, medical, juridical, etc. (Roland, 1993, 18). Counselling has become increasingly more popular and has been even taken for granted – for example the presence of counselling services in universities or for the parents of new-borns. Some counselling services are written in laws and stated as duties for the state or local governments, for instance the Preschool Child Care Institutions Act §22 states the obligation for pedagogues in preschool institutions to provide educational counselling (RK, 1999), the Social Welfare Act §44 states the responsibility of local government in providing debt counselling service (RK, 2015), and the Basic Schools and Upper Secondary Schools Act §37 states the responsibility to provide speech therapy in schools (RK, 2010) etc.

Over the last years attention has been paid on the lack of counsellors – of psychologists, speech therapists, and even career counsellors and pedagogues. The overall lack of labour force expresses most acutely in occupations where a high volume of necessary employees and high qualification requirements meet. There is a lack of counselling specialists in Tallinn, however, the situation is even worse for rural areas. There is no visible short-term solution to overcome the scarcity of specialists, but at the same time mental health is in the focus of our society, studies show the importance of early intervention and even the financial effects of early intervention (EC, 2016).

One possible solution to alleviate this problem could be providing counselling using electronic channels. Estonian National reform program ESTONIA 2020 foresees a goal to improve service availability by rising public service efficiency and introducing e-solutions (Government Office, 2011, 35). The goals of introducing video counselling are greater efficiency, better and timely access to the service. With these goals together with introduction of a new channel video counselling contributes to e-Government. (Scholl, 2007, 21, Eds. Scholl, 2010, 3) Estonia has a strong policy on developing e-services, but counselling has been on the side-picture of this rapid development.

Probably the main reason is that people prefer the humanly contact in cases they need to open up, share their most intimate feelings, and express their problems. In most public services people care for the end-result, not the process itself. The clerk as a person is not of high interest for the client when receiving permits, registering applications, etc. So, depersonalising most public services has not been very complicated, if not even a bonus. However, depersonalising counsellors, such as psychologists, medical personnel, or teachers, is at least a challenge. Therefore, one solution is to keep the personal approach, but bring it to another medium – introduce a human contact through technology, e.g. online video solutions. Video calls and conferencing are already increasingly popular in personal and professional relations. One possibility is to introduce a similar approach as a counselling service. Video communication technology has been available for years, but video services are not very widespread in Estonia. At the same time, it has several obvious benefits to it, starting with minimising transportation costs and saving time. Counselling service depends on the counsellors, the author suggests that there are some obstacles related to counselling by using video technology. Surprisingly, to the best of authors knowledge, almost no research has been done in the field of video counselling.

Therefore, the aim of this Master's Thesis is to define the essence, discuss the efficiency, and identify the barriers for providing counselling as a video service. In the focus of the research are the counsellors, as they are the key in providing this possibility to their clients. As an outcome the author introduces a solution prototype to video educational counselling service, which can be used as an input to programming or procurement for the video counselling tool.

1.1 Research questions

Based on the goal to provide adequate on-time counselling services for all students and youth in need, the author considers video counselling to be one solution to assure service provision under the circumstances, where on one hand, there is a lack of specialists and on the other hand, there are potential clients located over great distances, living on island or even abroad. However, technological possibility to provide video counselling has been available for many years but it still has not developed into a general practice and instead is a very infrequent solution among a few practitioners, who have tested the opportunity in cases of long distances and/or transportation

obstacles. The possibility to use video communication technology is not enough for video counselling service to develop and expand. In order to support wider use of this service, the field requires better understanding of the situation, obstacles and a solutions for providing educational counselling as a video service. Therefor the main research question of the thesis is:

How to design online video educational services?

The author has selected four sub-questions to support answering the main question:

SQ1 How could online video services be used for counselling?

This sub-question has a goal of finding out all the possibilities, benefits of the video counselling service. Answers to this question help to define motivation to develop video counselling services as well as provide better targeting.

SQ2 What are the barriers for not using video online counselling services widely in Estonia?

As technological solutions for using video tools for counselling have been available for many years (*e.g. Skype*), there clearly are barriers for not using the possibilities. Whether the obstacles are of emotional, technological or procedural in essence is an important input to designing solution(s) that would have greater probability to find wider acceptance and use.

SQ3 How to overcome the barriers in providing online video counselling services?

Once the obstacles are defined, the author seeks solutions to overcome or at least hedge them and for that the focus of the thesis lays greatly on finding obstacles in the service provision and providing solutions to them.

SQ4 What are the requirements for the service to work and achieve the goal of trust?

As the goal of this thesis is to provide a solution prototype for video educational counselling, which takes into consideration following aspects: the target group's needs; the scope of the possibilities of the service; already realised and potential obstacles; possible solutions to the obstacles. For that the author needs to define requirements for the video counselling tool in order to enhance the trust of the users.

1.2 Methodology

The thesis is built on qualitative research, which focuses on social aspects and the conclusions are drawn for and applied for a technical solution. The main research method is case study research that is supported by qualitative research methodologies, such as conducting interviews and literature review.

Qualitative research methodology allows collecting descriptive data, people's own words and interpretations, and records of people's behaviour. Furthermore, it has been used in diverse applied areas of inquiry including counselling (Taylor et al., 2015, 3-7). The topic of the thesis includes different aspects, but in most part relies on the experience of the few counsellors with video counselling experience and as there is no available quantitative data about the subject, the author finds qualitative research method to be the most useful for the purpose of the thesis.

There are limitations for qualitative research, which have been considered. Due to author's personal role in the field special attention is needed for the following limitations (Anderson, 2010, 2-3):

- Research quality is heavily dependent on the individual skills of the researcher and more easily influenced by the researcher's personal biases and idiosyncrasies;
- The researcher's presence during data gathering, which is often unavoidable in qualitative research, can affect the subjects' responses;
- Issues of anonymity and confidentiality can present problems when presenting findings.

Also, as the number of counsellors with the experience is limited, the volume of data gathered is highly dependent on any single response, and the use of case studies may not be sufficient for generalization. However, as the service is not well-known or widely used and the subject is very delicate for the clients and also for the reason that the author has personal experience in the field, the author committed to qualitative research.

The author of the thesis has been working in the field of study and career counselling for four years (not as a counsellor) and is currently responsible for counselling service provision all over Estonia as the head of the network of Rajaleidja centres, which is the biggest network of counselling service providers in Estonia. Electronic and video

counselling have been identified in the network among the development goals and e-counselling is already introduced as an instant chat-service. With the personal connection in the field the author considered using Action Design Research (ADR) and compared the scope of the thesis, which is to compose the first prototype for the service with the scope of ADR. As ADR includes alfa and beta testing within main users and end users, the author did not find ADR to be suitable, as the thesis would only address stage one of the four stages of ADR (problem formulation; building, intervention and evaluation; reflection and learning; formalisation of learning). (Sein et al., 2011) Finding a fully compatible methodology (especially for modelling) turned out to be surprisingly difficult, as the widely used theories suitable for e-services development have some restrictions when it comes to video service development, which in essence has some deviations from e-service and may tend to fall towards a communication technology. Governments tend to invest more in e-services and less in communication technologies (Li & Feeney, 2014, 2) and this might have influenced the theoretical background to be more inclined to e-services. To overcome the lack of fully compatible methodology, the author has combined different methods and theories.

1.2.1 Interviews

Interviews were conducted with seven counsellors, who have experience with video counselling, and one parent. The average length of interviews was ~30 minutes, and they were conducted in March 2018.

The main target group for interviews were counsellors, who are the main focus of the thesis, as in video services the lead role is held by the counsellor. To find counsellors with video counselling experience author addressed the heads of Rajaleidja centres. Nine counsellors with such experience were identified and listed in Table 1:

Table 1. Counsellors with video counselling experience in the Rajaleidja network

Location	Occupation	Participation in interview
Ida-Virumaa	Special educational teacher	Yes
Ida-Virumaa	Career counsellor	Yes
Hiumaa	Psychologist	Yes
Saaremaa	Psychologist	Yes
Saaremaa	Career counsellor	Yes

Saaremaa	Special educational teacher	No
Saaremaa	Speech therapist	Yes
Tallinn	Speech therapist	Yes
Tallinn	Speech therapist	No

The author had the opportunity to interview one client (parent) of educational counselling session held with a video solution. The mother of a 7-year old daughter was willing to give feedback of the experience where her child was evaluated over *Skype*. As educational counselling concerns delicate issues with children and as all of the previous experiences of counsellors were several months or even years before the interviews and as video for counselling is still only very rarely used, it was not possible to include more clients with experience of video counselling. To overcome this deficit the author included several questions regarding client expectations and afterthoughts to the interviews with the counsellors. As understanding clients' feelings is an important task of counsellors, their answers regarding clients' perception of the video counselling service are valued by the author. This insight is particularly relevant, as the focus of the thesis is on counsellors as the use of video counselling possibility depends foremost on them.

The questionnaires for interviews with the counsellors and the parent were drawn to support answering the sub questions 1, 2 and 4 of the thesis. Sub-question 3 is not included directly, as the counsellors themselves were not directly addressed in providing (technical) solutions to the obstacles they have encountered. However, some solutions were offered during interviews. These were all accounted by the author. The questionnaire for the client was based on the same structure as the counsellors, with minor exceptions. Questionnaires are annexed (Appendices 1, 2 and 3).

Interviews were held over *Skype* (only two with video connection, the rest with voice connection, because the author did not want to risk the quality of the interviews), recorded with the permission of the interviewees. Interviews were analysed using the sub-themes (overview, evaluation of the tool, process, assisting tools, personal attitude and motivation, client feedback, pros and cons and expectations) with the focus of the sub-questions. Recordings are digitally stored by the author.

As educational counselling is a responsibility set under the Ministry of Education and Research (*hereinafter MoER*), and is currently delegated to Foundation Innove, representatives of the ministry and the board of the foundation were included as stakeholders. Instead of interviews a short open questionnaire was prepared for representatives to gather their positions regarding the standpoint of necessity after such solution, its potential efficiency and role in the possible development of educational counselling through video channel.

1.2.2 Case studies

Case studies are presented on the basis of interviews with the aim to illustrate different situations together with the scope of technological capabilities needed for using video solutions, and to explain and visualize the *as-is* situations.

The author selected two situations for case studies. The selection criteria were to present one situation where counselling over video is relatively easy according to the interviewees and another more complex situation where the already available tools (*e.g. Skype*) lack necessary functions for successful counselling.

The selected cases are:

- 1) One session during a counselling process with a familiar adult client (giving feedback);
- 2) The first counselling session where the counsellor evaluates the child's educational development.

1.2.3 Modelling tools

Designing a service has different phases and change actors play a strategic role in innovation and transition processes (Joore & Brezet, 2015, 1). According to the Design Council study there are main similarities, which can be divided into four distinct phases: Discovery, Define, Develop and Deliver, also known as the Double Diamond design process model (Design Council, 2007, 10). Modelling tools are selected to support the Discovery phase of the process with the aim to understand and systematize the goals of the agents.

Finding a fully compatible theory and tool for modelling video counselling has been the most difficult part of this thesis, because most of the modelling tools and theories do not apply in full extent for video e-services, for its main difference instead of *program-to-*

person is *person-to-person* solution and therefore goals like automatization, self-service principle or clients full control over the service are not pursued.

Although the author detected a research gap in this field, there are several theories that are useful to support the development, so the author combined together **agent-oriented modelling (AOM)** for showing goals and roles of the agents, added contextual approaches within already existing processes designed according to **Business Process Modelling (BPM)**. The barriers, (which have significant importance, because the possibility to provide video counselling has been available for more than 10 years) are addressed according to the **model of technology acceptance (TAM)**. To combine the theories and present the outcome a solution prototype is presented by the author.

For presenting goals and roles and motivation the author uses agent-oriented modelling methodology (Sterling & Taveter, 2009). It is important to emphasize, that the video counselling tool is not an agent (it is not autonomous for it has no use without the counsellor), therefore the video counselling tool is not presented as an agent in the goals model.

Agent-oriented modelling is a suitable methodology for a wide range of multi-agent systems and suitable for video counselling modelling as it deals with both macro- and micro-level aspects. (Wooldridge et al., 1999, 1) That provides the means for representing the organisational structure of any kind of system and the interactions between the entities involved (Grau et al., 2006, 1). Bastos and Ribeiro (2005, 30) substantiate agent-oriented technology in multi-agent systems by four characteristics:

- The domain involves intrinsic distribution of data, problem-solving capabilities and responsibilities;
- It is necessary to maintain the autonomy of the sub-parts, without losing organisational structure;
- The interactions are complex, including negotiation, information sharing and coordination;
- The problem solution cannot be completely described a priori, due to the possibilities of real-time perturbations in the environment (e.g. equipment failures), and the natural dynamic of the business process.

Sterling and Taveter have defined AOM as a software engineering methodology that uses a notion of agent in all stages of its software engineering process (Sterling & Taveter, 2009, 339). The Agent in AOM may be defined in different ways: Sterling and Taveter refer to agent as an “entity that performs a specific activity in an environment of which it is aware and that can respond to changes” (*ibid.*, 7), or “a physical object that can act in the environment, perceive events, and reason” (*ibid.*, 339). Agents in multi-agent systems interact, adapt, are autonomous, etc. (Kulesza et al., 2005, 63). For modelling, agents can be described with goals and roles, which are the models the author will create for the agents and for the video counselling tool. Due to some deviations in some parts of the definitions used in AOM and how they apply to the video counselling tool, small amendments are made in the models. Goal model is additionally complemented with emotional goals (Miller et al., 2015). Emotional goals are added to the goal model as emotions are accepted in the field of design as influencers of users’ perceptions of systems and inadequate consideration of requirements are significant factors of software project failure (Miller et al., 2015, 1). Furthermore, counsellors’ emotional standpoints towards video counselling were presented during the interviews, therefore, the author considers it necessary to address emotional goals for main agents, who in case of video counselling are the counsellors, parents and children.

The focus of the thesis is to create a video counselling model, which in essence is a part of a multi-agent system, but the tool itself differs from usual interpretation of an agent, and therefore at the centre of the system is not the tool, but (another) agent - the counsellor. The author accompanies AOM models with a business process model to show the multitude and the relation of different already existing agents in the process, where the video counselling tool would be used. A business process is the combination of a set of activities within an enterprise with a structure describing their logic and dependence, with the objective to produce a desired result. A business process model can provide a comprehensive understanding of a process (Aguilar-Saven, 2004, 129). There are many process modelling techniques – flow chart technique produces a formalized graphic representation of a process logic sequence, where operations, flow direction and equipment are presented. The main characteristic of the flow chart is its flexibility, the weakness are the unclear boundaries. (Aguilar-Saven, 2004, 133-134)

The Technology Acceptance model (TAM), first introduced by Davis in 1989, shows how users come to accept and use technology. TAM posits that perceived usefulness and perceived ease of use, together with attitude determine the behavioural intention to use IT. (Raitoharju, 2007, 22) Perceived usefulness (the degree to which a person believes that using a particular system would enhance his or her job performance) and perceived ease of use (the degree to which a person believes that using a particular system would be free of effort) combine different factors that affect user's decisions regarding certain technologies. (Davis, 1989, 320) Figure 1 shows the original TAM proposed by Fred Davis in 1986, where X1, X2 and X3 represent different system design characteristics (Chuttur, 2009, 2). Research on barriers and solutions which are based on the barriers will define the characteristics for the video counselling tool and affect use of the possibility.

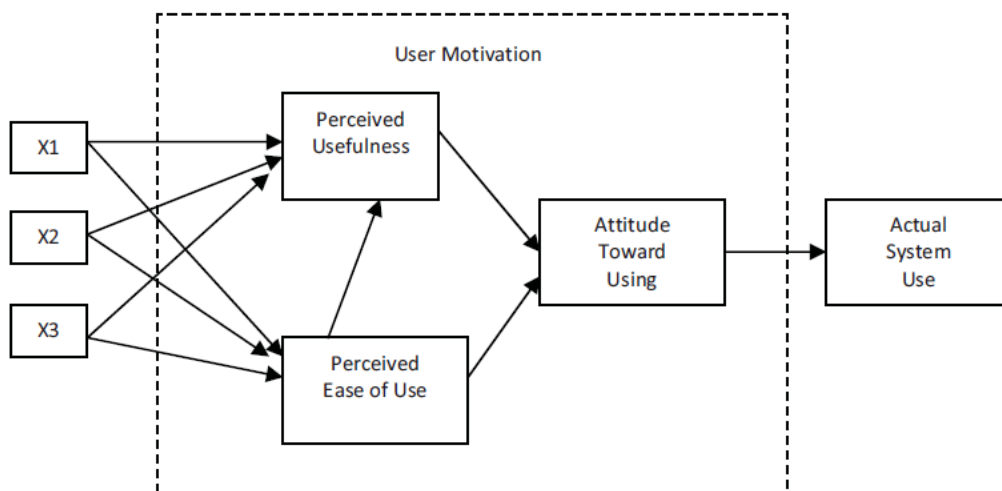


Figure 1. The original Technology Acceptance Model

TAM has had many expansions, but the original approach is sufficient in this thesis, for the main reason for using TAM is showing how resolving the obstacles identified by the counsellors can affect the use of video counselling tool.

The thesis is complemented with a solution prototype of the video counselling tool.

1.3 Outline of the thesis

Chapter 1 provides an introduction to the topic of the thesis and describes motivation for choosing the subject. Research question and sub-questions are defined to give

structure to the issue. Introduction to the chosen methodologies is presented together with reasoning for choosing them.

Chapter 2 provides overview of theoretical background of counselling and service design.

Chapter 3 presents literature overview of the strategies and laws concerning the topic. A short overview of current situation regarding video counselling in other European countries is also presented.

Chapter 4 presents two case studies, which are chosen to illustrate the current possibilities to use video technology for counselling. Case studies are based on information retrieved from the interviews. A general overview of the interviews is also presented in chapter 4, however the content overview and of the interviews is presented together with analysis in the 5th chapter.

Chapter 5 combines the content of the interviews and analysis. Overview and analysis is structured according to the research questions. In the analysis of the final sub-question the author presents the analysis outcomes through goals and roles models and renewed process.

Chapter 6 presents an overview of the solution prototype, which is built based on the conclusions, and keeping in mind the goals and roles of the actors in the process.

Chapter 7 combines the conclusions of the thesis and propositions for future research.

Appendices give overview of the questionnaires and other illustrating materials, which support the thesis.

2. Theory and background

2.1 Counselling

A widespread conception of counselling is that counselling is giving advice, preferably from specialist to client. This understanding is supported by most dictionaries, which explain the word „counselling“ as giving advice (Roland, 1993, 18), and is also supported by the Estonian Orthology Dictionary (EKI, 2018). On the other hand, this understanding is not supported by most of the counsellors themselves. The British Association for Counselling defines counselling as follows: *“Counselling is the skilled and principled use of relationships to develop self-knowledge, emotional acceptance and growth, and personal resources. [...] Counselling may be concerned with addressing and resolving specific problems, making decisions, coping with crisis, working through feelings or inner conflict or improving relationships with others. The counsellors’ role is to facilitate the clients work in ways that respect the clients’ values, personal resources and capacity for self-determination.”* (Roland, 1993, 18)

Counsellors in Estonia can explain the process as a conversation between the counsellor and the counselee, where the counsellor uses his/her professional skills and knowledge to focus on the counselee’s problem or as a relationship between two people who interact as equal partners (Riiklik Eksamikeskus, 2010, 7 and 13). Nancy Roland in “Counselling in General Practice” goes as far as defining counselling through what it is not: “So, it (*counselling*) is not giving advice or information, persuasion or discipline.” (Roland, 1993, 18)

Although the author is aware of the more widespread understanding of counselling, in this Master’s thesis counselling is referred to as a **process and a relationship between two people, where the counsellor defines and focuses on the counselee’s problem by using counselling skills systematically**. Counselling in this thesis is not conceived as giving information or advice or answers, as these actions can be performed by using traditional and/or impersonalized ways, such as sending e-mails, writing articles online or via automatic e-services. Although these actions are as important and valued as the person-to-person contact, they are not addressed in this thesis for these means and channels are already available and widespread.

To support this choice of interpretation of the meaning of “counselling” the author brings in the concept of *trust* in the counselling process. Proving to be trustworthy to the client is the first step a counsellor needs to establish before moving on to further stages of counselling (Heppner & Claiborn, 1989, 366). The British Association for Counselling presents trust(-worthiness) in the first place in the Ethical Guidelines for researching counselling and psychotherapy as follows: “*The distinctive ethical dimension of counselling and psychotherapy is the trust placed by clients in practitioners. This trust is not only essential to achieving the client’s aspirations but also for the practitioner to establish the quality of relationship and interaction that makes the work possible.*” (Bond, 2006, 10)

As a relationship can appear only between two persons, client’s values, personal resources etc. cannot be respected unless specified, and trust in a counselling relationship is important, the constitute in this thesis is that (at least in some counselling situations) the counselee needs to establish a personal relationship with the counsellor to open and share personal information and feelings. These counselling situations are traditionally held in counselling rooms, sometimes also referred to as “*the couch sessions*”.

2.1.1 E-counselling

Already in 2015, a large proportion (69%) of respondents to Nielsen online survey thought that *face-to-face* interactions are being replaced with electronic ones (The Nielsen Company, 2015, 2). The impact of technological advances on the development of delivery of human services including counselling, is considerable and growing. (Martin et al., 2015, cited in Johnson, 2017, 38)

In defining e-counselling it is important to clarify whether e-counselling is a new, separate service, which differs from traditional counselling or a channel (delivery option) to deliver traditional counselling. “E-counselling is a broad term used to describe the use of electronic communication via the internet/online network for the purpose of providing counselling services” (Johnson, 2017, 39). Features and methods of online counselling involve e-mail, chat, instant messaging, web message boards, forums, and to a limited extent video conferencing (Baker & Ray, 2011, 342). As we can see, there are several channels for delivering online counselling. In addition to the

choice of channel we need to consider the differences of the counselling process while using different channels. Usual stages defined in a counselling process are (Riiklik Eksamikeskus, 2010, 11):

- 1) Creating a relationship;
- 2) Defining the problem;
- 3) Designing the approach to tackle the problem;
- 4) Implementation of the approach;
- 5) Evaluation;
- 6) Stabilizing the achieved outcome.

Not all stages can be applied through all the above-mentioned channels as presented in Table 2.

Table 2. Possibility to perform counselling stages through different channels

Stages Channels	Relation- ship building	Defining the problem	Designing approach	Implemen- tation	Evaluation	Stabilizing
Face-to-face	√	√	√	√	√	√
E-mail		√	√		√	√
Chat	√	√	√		√	
Forum		√				
Phone	√	√	√	√*	√	√
Video	√	√	√	√**	√	√

* depends on the selected approach, is difficult due to the lack of information of the counsees emotions

** depends on the selected approach

2.1.2 Video-counselling

As the term *video-counselling* or *video counselling* is not defined clearly enough in academic resources, the author proposes a definition here: **video counselling is the counselling process between counselee(s) and a counselling specialist(s), who are in different physical locations and interact through digital channels which provide simultaneous video and audio broadcast to both the counsellor(s) and the counselee(s).**

To understand the perception of e- or web- or online or video counselling in Estonia, the author conducted Internet searches and analysed the outcomes. A conclusion based on first-hand search outcomes is that e-counselling in Estonia is mainly introduced as anything performed with computer, including e-mails and forums. Most of the search

outcomes for Estonian counterpart to e-counselling (*e-nõustamine*) or web-counselling (*veebinõustamine*) give outcomes to sites which provide opportunities to send questions with e-mails and expect answers within some days (Appendices 4 and 5). “E-counselling” (*e-nõustamine*) search gives only two outcomes, which can be taken into consideration as counselling on-time and online, so that all the stages of counselling can be performed. At the time of writing the thesis, there is only one search outcome to video counselling (*videonõustamine*) and that is a bank counselling service with specially designed environment, which is also nominated as innovation (Sibold, 2017).

2.1.3 Educational counselling

The focus of this thesis is to design an online video educational counselling service, so an understanding of educational counselling is the main necessity. Educational counselling (in Estonian: *õppenõustamine*) as a term is not widely spread in other countries, but somewhat known in Estonia. Educational counselling is counselling by special educational specialists, such as speech therapists, special pedagogues, social pedagogues and psychologists, for children, youth, their parents and teachers with the goal to identify the child’s abilities and development opportunities, and the prevention and resolution of problems related to learning behaviour (Foundation Innove, 2018a). In this thesis career counselling is included in educational counselling services because through the objective of integrated services, career counselling is often an important part of educational counselling, especially when student’s low motivation is the issue.

The author selected educational counselling service as a test-bed for the video counselling for several reasons:

- a) The principle of inclusive education, that Estonia follows, means that children with special educational needs can pursue their studies in any school, including the small and remote rural schools which may not be able to find local special educational specialists, but are still required to provide all necessary opportunities for supporting the development of students, including educational counselling (BUA, §37, s2);
- b) The author is currently responsible for managing the Estonian network of Rajaleidja (Pathfinder) centres, which is the biggest network of educational counselling providers in Estonia and the vision of introducing video counselling

as a new channel has been in the focus of the network, therefore the author had the opportunity to research the so-far experiences with the service;

- c) Lack of labour force is strongest among specialists, necessity of labour force in the educational sector is higher than average (MoEC, 2013d, 3). At the same time number share of children with special educational needs is rising (Vainküla, 2014). Therefore, the existing personnel need to be able to be more efficient in service provision. One possibility is to reduce the time for travelling to remote areas. To maintain equal opportunities and achieve more efficiency introduction of video counselling can be a solution.
- d) Right to education is inarguable. It is stated in the Universal Declaration of Human Rights article 26 (United Nations, 1948, 7). Estonia is among the countries implementing inclusive education (BUA § 6 lg 1), which means that all students (also the ones with special educational needs) can go to school close to home. (MoER, 2018). Inclusive education is stated to be the most efficient means to overcome discrimination, to create open communities and to reach the state where education is available for everyone (UNESCO, 1994, 12). It is thoroughly supported also by the United Nations and European Commission. In order for all students to be able to study in local schools, support mechanisms are necessary. Basic Education and Upper Secondary Schools Act (*hereinafter BUA*) §37 foresees that all schools need to provide psychological, special educational, social-pedagogical and speech therapy counselling if necessary. Without necessary services students may fall out of school and maintain very low education, which not only causes lower incomes, but is also in close relation with health risks, risk behaviour etc. The early abruption of studies causes costs or reduces revenues not only for the individual, but for the society (through less taxes, higher need for social benefits, higher crime rate, less citizen activity, etc). (MoER, 2016, 3)

2.1.4 Educational counselling process

The authors work and personal experience in the field has shown that the process of educational counselling depends on the case. The selection of the field, the selection of approach, duration, and number of persons included in the process rises with the severity of the problem. There can be one-time cases with just one specialist and one

counselee included where one session is enough to overcome the challenges, or complex cases, which include several specialists, different approaches, different evaluations carried out and many counselling sessions, possibly with different people surrounding the child.

The process of a simple learning disability counselling may include only one counselling session with the student and/or the parent. A simplified overview of educational counselling process is annexed (Appendix 6).

The process of a more complex issue requires different specialists, several counselling (incl. individual and group counselling) sessions with different counterparties. A complex case may last up to a year (including follow-up), include 3-5 different counsellors and besides counselling may involve round-table or other methods in cases where counterparties do not agree with each other or are discontented with any of the proposed approaches.

Stages of counselling cases:

- 1) Making an appointment, defining the issue;
- 2) Selecting the suitable specialist pending on the issue;
- 3) Preparing for the session;
- 4) Evaluation of the child;
- 5) Involvement of other specialists;
- 6) Additional evaluations of the child by the included specialists;
- 7) Preliminary feedback to the counterparties;
- 8) Counselling of the counterparties (parents, teachers) (can be several sessions);
- 9) Coming to agreement between all the counterparties;
- 10) Execution of the selected measure;
- 11) Continuing counselling sessions in difficult cases through-out the execution of the selected measure;
- 12) Follow-up.

2.1.5 Educational counselling resources

The lack of qualified labour force in Estonia is addressed often (counsellors need to have a master's degree in their respective field). Regarding qualified counsellors one of the main solutions often referred to in the case of lack of labour force - employing from

abroad, is not applicable in case of educational counsellors because of the limitation of Estonian language speakers abroad. In evaluating and counselling children's development and pedagogical-psychological readiness, the need for fluent Estonian is an inescapable factor (with some extent of exception among Russian speaking and immigrant populations). To illustrate the lack of counsellors in Estonia Estonian Teacher's Magazine gave the issue a full attention in December 2017. Approximately half of the vacancies for counsellors are not filled and the solutions to increase the teaching of counsellors are time consuming, if possible at all. The lack of counsellors affects children in at least half of the schools and kindergartens, but challenges in speech or psychology need to be addressed as early as possible (Vapper, 2017). According to the Estonian Education Information System (EHIS) there are 355 special education teachers, 595 speech therapists, 184 psychologists, and 274 social-pedagogues working in kindergartens, schools and vocational education institutions. The number of children and youth in these institutions is ~232 000. As an illustration there is one school psychologist per 1227 children and students. (Haridussilm, 2018) Rajaleidja centres employ altogether 92 educational counselling specialists and additionally 74 career specialists (Foundation Innove, 2018b).

The location of counsellors is concentrated to major settlements, small rural schools may look for counsellors for years without any success. The number of children with educational special needs (*hereinafter SEN*) has been growing over the years (Vainküla, 2014). At the same time the number of SEN children is higher in rural areas and parents with SEN children tend to consider smaller schools (Pärnapuu, 2018). According to a study conducted by Praxis in 2011, 46% of schools and kindergartens consider the access to counselling services insufficient (Praxis, 2011, 18).

Over time educational special needs tend to deepen and counselling takes more time and finances or may not be as sufficient at all. When due to the lack of specialists constant counselling in schools and kindergartens is not always possible, help can be provided with counselling parents and teachers to help the children. (Foundation Innove, 2018c)

2.2 Designing services

Designers may use different approaches when designing services. One way to systematize them is the Double Diamond model, which divides the phases as Discovery,

Define, Develop and Deliver. In the Discovery phase insight into the problem is provided. It is the start of the project. In the Definition phase possibilities identified in the first phase are discussed – their importance and feasibility. In the Development phase solutions or concepts are created, prototyped and tested. In the Delivery phase the resulting project is finalised and launched. (Design Council, 2018) Figure 2 illustrates the Double Diamond model.

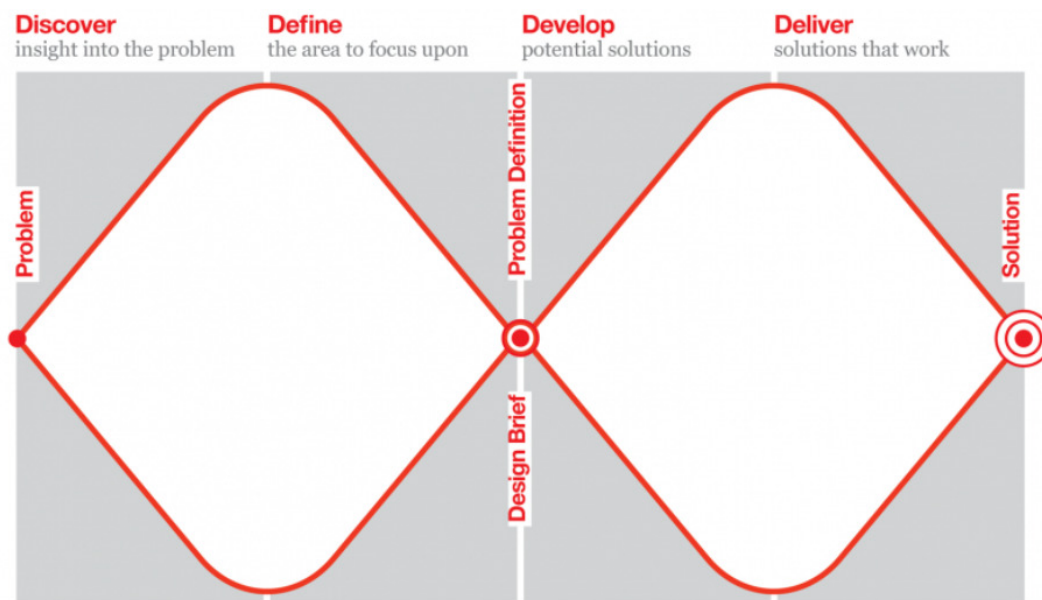


Figure 2. Double Diamond model

Another Service Design Model is proposed by British Columbia Government, where service design is seen as an important feature for citizen engagement. The model has six phases: Alignment, Discovery, Opportunity, Prototype and Test, Roadmap and Implement (in the alignment phase commitment, accountability and funding needs to be confirmed. Discovery means understanding of the current state of service delivery. In the phase of Opportunity strategic direction for future opportunities is established. In the fourth phase tangible ideas need to be tested and risks managed. Roadmap is created for communication and Implementation makes services usable for clients. (British Columbia, 2018). Figure 3 shows the stages of the Service Design Model proposed by British Columbia Government.

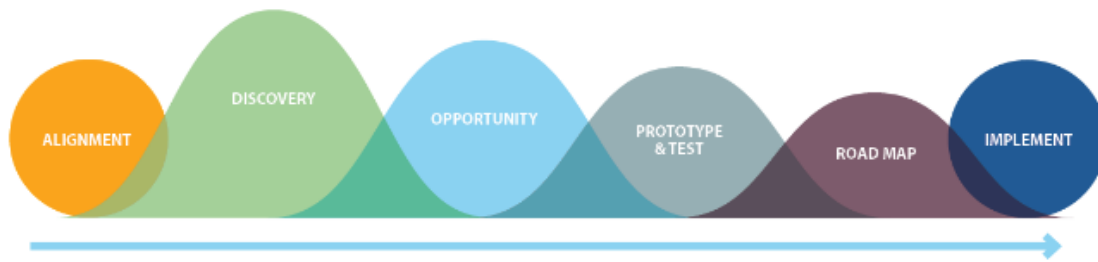


Figure 3. B.C. Service Design Model

In this Master's thesis the design phases are carried out until prototyping. Testing and Implementation/Delivery can be propositions for future research.

Designing a service aims to make empathic connections with the future users of a service (Segelström, 2009, 3). According to Segelström et al. Parker and Heapy highlight the aspect of engaging people at the point of delivery through dialogue (Parker, S.& Heapy, J., 2006, 14, Segelström et al., 2009, 3). Delivery point engagement of users is not possible in this research; however, engagement of counsellors is crucial in all four phases of Double Diamond model or any other service design approach.

For designing the video service, the author needs to define the requirements. Requirements engineering proposes identifying system boundaries as one of the most important goals. Identifying system boundaries affects identification of stakeholders, user classes, goals and tasks, scenarios and use cases. Stakeholders include clients, developers and users. Users are not homogenous, which raises the need to identify the needs of different users. Goals are the objectives, that a system or a service needs to meet. Goal-oriented requirements develop together with the process. Additionally, it is important to pay attention not only to the articulated needs of the users, but to the tasks they perform. For this purpose, case-studies can be used for describing the requirements. (Nuseibeh & Easterbrook, 2000, 3)

2.2.1 Services in e-governance

To identify the responsibility of decisions of developing video counselling services in the education sector, we should detect the origin of these services and their essence. Views on the scope, volume, necessity or efficiency of public services depend on the school of thought, but either Weberian, Neo-Weberian or New Public Management, all

agree in the basics that a public service is provided by the state/government. Educational counselling, which is a rather new service in the education sector (first school psychologist started working in Estonia around 1977 (Paavel, 2007, 1), is organized differently in different countries: in many Nordic countries the responsibility lays solely on local governments, in some countries strong private sector has developed (i.e. Netherlands), but to the author's knowledge, none of the European countries organize all educational counselling centrally from state government. In Estonia, the Education Act regulates in §4, that the state and the local governments shall ensure that everyone in Estonia has the opportunity to fulfil the obligation to attend school. According to BUA §46 the school owner needs to create opportunities to provide required support for students. Therefore, we can identify educational support in Estonia as a **public service**.

Estonia has set in the National Reform Programme ESTONIA 2020 a goal to improve public services: "An internal (re-)organisation of the public sector and more efficient services and e-solutions ensure the availability of high quality services that meet the needs of users across Estonia" (Government Office, 2011, 35). According to the Estonian Public Services Green Paper the National Audit Office of Estonia, as well as Tallinn City Council state that public services can be divided: adoption of favourable administrative decisions, and the so-called real public services, like waste management or medical help. Direct public service according to the Tallinn City Council is a service, where the user obtains a service personally or through authorized person after applying for the service. (MoEC, 2013d, 5) In this context, video counselling can be regarded as a **direct public service**.

The provision of (direct) public services by the government brings us to the concept of e-government, which has been defined variously. The generic term refers to services from agencies of local, state and federal governments using information technology with aims to support government operations, engage citizens and provide services, (Palvia & Sharma, 2017, 1). World Bank adds the aims of better delivery, improved interactions, and citizen empowerment, which result in **greater convenience and cost reductions** (*ibid.*), which are also the aims of video counselling services. Estonian Information System Authority has introduced the handbook for designing user-friendly

e-services, where the importance of **adding to organisational goals** is added to designing good e-services (MoEC, 2014, 10).

A video connection tool can be used more widely than just providing government services to citizens, it can also support networking between different concerned parties of a particular child, as different educational institutions, local governments or social security or medical institutions may be involved. The service shows possibilities for more than being only a *government-to-citizen* service, therefore it can support e-government in its varieties of engaging stakeholders and service providers.

At the same time the blame to governments all over the world is that it costs too much, delivers too little, is not sufficiently responsive or accountable (Heeks, 2001, 3). These shortcomings are addressed with reforms of good governance, and e-governance is perceived as a key policy to support the good governance agenda, as decades of proof of IT investments in the private sector have led to increased productivity (Madon, 2009, 53). Goldstein et al. add that a service organization can only deliver after integrating investments in numerous assets, processes, people and materials (Goldstein et al., 2002, 1).

2.2.2 Distinction between e-services and video services

Estonian progress in introducing e-government is widely known, different indexes and articles nominate Estonia among the accelerators, among the very top etc (Institute of Digital Government, 2017, 1; EC, 2016). E-government has different definitions: for instance, the European Parliament emphasises the public authorities' use of information and communication technologies to improve public services (EP, 2015, 1). Estonian Information Society Development Plan 2020 foresees an activity to enhance accessibility to services through different channels focusing on mobile and digital channels (MoEC, 2013a, 30), guidelines for developing and measuring and policies support introduction of new e-services. Nevertheless, so far, educational counselling is not included in the e-services available online in Estonia. Among the reasons is that counselling is not a service, which can be fully automated and impersonalized, because of:

- a) The role of the counsellor as a partner in the relationship and the basis of trust of the counselee;

- b) The individuality of the relationship and the outcome;
- c) The importance of the process itself (not just the outcome).

E-services can be a one-way communication from public agency to citizen or a two-way communication between them (Goldkuhl & Röstlinger, 2010, 2). Video counselling requires two-way communication, as presented in figure 4:

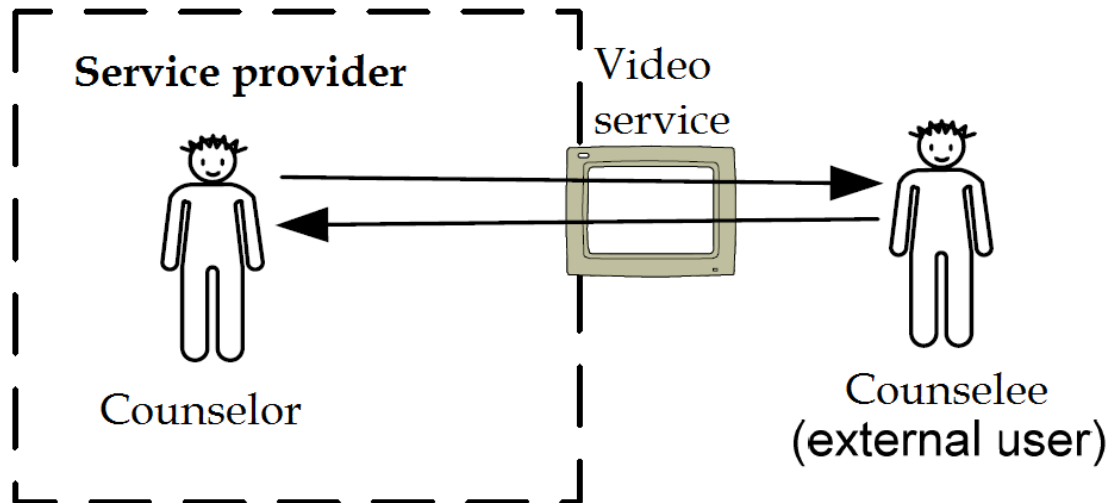


Figure 4. Public e-service with two-way communication between counsellor and client (based on Goldkuhl & Röstlinger, 2010).

Li and Feeney distinguish between two different e-government technologies: e-services, which enable electronic delivery of services, and communication technologies, which enable one- and two-way communication with citizens (Li & Feeney, 2014, 2). Video counselling tool can be positioned between these two technologies for it is not merely a channel for communication, but channel for delivering a service.

To explain why video educational counselling is not provided as an e-service and to find a framework for developing it, the author needs to clarify the essence of e-services, their classification and primary goals of design.

There are numerous definitions for e-services, some to generalize their essence, some to identify characteristics or clarify their production process. Many of the definitions include words such as “services”, “internet”, telecommunication”, “(trans)action” or “activity” (Kvasnicova et al., 2016, 193). Estonian e-service guidebook defines e-service as an Internet environment, where services and possibilities for transactions (such as looking at and transmitting data in an electronic environment) are provided to

identified users (MoEC, 2014, 4). Video counselling takes place in an Internet environment, it has the characteristics of a service (intangibility, heterogeneity, inseparability, perishability) (Parry et al., 2011, 2) and it involves transaction (of information) and activity (evaluation process, counselling or feedback). In this sense video educational counselling adapts to the definition of e-services, however there is an additional point in understanding what an e-service is, and that is not often included in the definitions. Venkatesh brings out the aspect that is crucial for video services: “Advances in the Internet technologies have led to the popularity of technology-based **self-services** (Venkatesh et al., 2012, 1). All e-services are usually expected to be at least to some extent *self-services*, meaning that the client can start the service any time and hopefully can finish it by him/herself, in some cases at some point service providers must intervene, but these sub-processes do not need to be simultaneous. As the counselee is not able to counsel him/herself, we cannot develop counselling as a self-service.

The goals for developing e-services in general are to perform fast services with lower administrative burden (Poliitikauuringute keskus Praxis, 2013, 6). The goal for introducing video educational counselling is to speed up service accessibility, but it has no goal on its own to reducing administrative burden. In general, reducing administrative burden would be a positive turnout, but it could occur only due to changing the process, not from introducing a new channel.

Due to the essence, goal and process of counselling, guidelines for developing e-services cannot be implemented in full extent, but as there are no guidelines for designing video services, the author uses principles provided in the Guidebook for developing e-services in public sector (MoEC, 2014) with some concessions. As counselling is not (yet) modelled into a stage where it can be performed by automatic process, the need for the relationship between distinct counterparts in this relationship remains, and therefore the principles such as e-self-service and automatization are unsuitable when designing, executing, and measuring counselling services.

The guidebook for developing e-services in Estonia proposes following principles for organisation and users. Organizational objectives: positive imago, public information, e-self-service environment and effectiveness. Clients’ perspective: automatization, simplicity, control over the service, availability, standardisation, security, availability of

different services from one location, positive emotion and specific solution for specialists. (MoEC, 2014, 9).

Following an overview of the principles used and reasoning is provided (based on MoEC, 2014).

From organizational perspective **positive imago** and the **provision of information** are fully applicable principles. The principle of **e-self-service environment** is not applicable, because counselling cannot be performed as a self-service. However, information about the service needs to be available and up-to-date. The principle of **effectivity** (Internet first, digital-by-default, and push-and-pull strategy) is partly applicable, because contact with the counselee remains important and is without doubt most vivid in *face-to-face* contact. However, in such cases where *face-to-face* contact is difficult or impossible, the whole organisation needs to contribute to provision of online services.

From the client's perspective **simplicity, standard solutions, secure environment** and the goal of **positive emotion** are fully applicable. For the security of the environment additional dimension will be added by the counsellors. Full automatization is not applicable, because without the counsellor counselling cannot take place. **Control over the service** is applicable partly, for control over the service remains in the hands of the counsellors, at the same time the counselee needs to feel secure and understand how to use the video counselling tool. **Accessibility** is also partly implementable– the service needs to be accessible from any geographical location but remains dependent on the availability of the counsellor - also the requirements for the user's device(s) remain (need for a microphone and a camera). The principle of accessibility from one side is applicable, but because during the process counselling may take place over different channels (*face-to-face*, video, telephone) a partial development is also possible and necessary.

2.2.3 Barriers in service provision

Video counselling shows promise to improve service accessibility, its idea is generally supported with government strategies and it contributes to good governance. Despite the availability of technological solutions, it is still not widely used. The theory of acceptance of technology suggests that behavioural intention to use technology is

combined of different aspects, which can be combined into perceived usefulness and perceived ease of use (Raitoharju, 2007, 23). As the availability of video educational counselling depends in the first hand on the intentions of the counsellors, and they, although there is a possibility, do not tend to provide service via video, the author needs to define the barriers for that.

The Green Paper for organization of public services defines people's problems for using public services to three categories (MoEC, 2013b, 6-8):

- Awareness and abilities;
- Geographical, technological or other barrier to appropriate channels for service delivery;
- Lack of user-friendliness and availability.

Davison et al. list the barriers for adopting new technologies (Davison et al., 2005, 282):

- Privacy;
- Security;
- Insufficient technical knowledge, both among citizens and service providers (government employees).

European Commission study for overcoming obstacles to improving European public services differentiates 7 obstacles (EC, 2007, 4):

- Leadership failures (slow progress in e-government may result in the lack of adequate leadership);
- Financial inhibitors (inappropriate cost-benefit analysis);
- Digital divides and choices (inequalities in skills and access can limit take-up of e-government);
- Poor coordination;
- Workplace and organizational inflexibility;
- Lack of trust (heightened fears about inadequate security privacy safeguards);
- Poor technical design (interoperability blockages).

As video counselling is operational in Estonia during the preparation of the thesis only in private banking, yet there have been several attempts to introduce it, but no research, the author selected a similar field for comparison - telemedicine. Telemedicine by definition means provision of healthcare services by using information communication

technologies (ICTs) in the form where the practitioner and the patient or two practitioners have different locations and when data and information are forwarded securely in form of text, sound, pictures, etc. for prevention, diagnoses, therapy, and observation (Praxis, 2014, 5). Video educational counselling applies in this context as diagnoses and therapy vary from practitioner to patient. Praxis research on telemedicine in Estonia describes one applicable case (for the comparison in this thesis) in Estonia – VIRTU (Virtual elderly care services on the Baltic Islands) (project-based solution, not operational today) where following barriers were defined:

- Local governments inability in setting up service centres;
- Different stakeholders (local governments) different approaches and prices for the services;
- Unclear choices for choosing technology;
- Unclear financial sustainability.

Among measuring and financing barriers the research on telemedicine in Estonia classifies barriers for practicing telemedicine (Praxis, 2014, 52-65):

- 1) Technological infrastructure, interoperability and data exchange
 - a) Communication and infrastructure of the service (reliability, sufficient and stabile internet connection;
 - b) Interoperability between different information systems data exchange technical standards.
- 2) Labour force (practitioners and training)
 - a. Need for training (computer skills and re-training profession-wise);
 - b. Changing working procedures;
 - c. Lack of knowledge of the possibilities.

As categories of barriers recur with minor differences, the author combined the sources and identified eight different categories to define the potential barriers of video educational counselling tool. An additional open category is added for cases where the author defines barriers which are content specific and cannot be placed under any of the previous categories.

The categories of barriers of video educational counselling are presented in Table 3. The categories are used by the author further on for systematising input and provide answer to the sub-question about the obstacles.

Table 3. Categories of barriers for video educational counselling tool

Categories of barriers	
1.	Lack of awareness/knowledge
2.	Technological barrier (concerning devices, connection)
3.	Lack of skills
4.	Lack of user-friendliness
5.	Availability
6.	Workplace and organizational inflexibility
7.	Lack of trust (questionable security and privacy)
8.	Interoperability
9.	Content specific (typical only for the specific service and not categorized above)

3. Literature review

3.1 Video counselling in development plans and strategies in Estonia

As one important target group for video educational counselling services would be people living in rural areas, the crucial strategy is Estonia's regional development strategy for 2014-2020. It foresees that central government and local governments need to ensure sufficient and equitable access to high quality services to all social groups and central government is responsible for assuring sufficient administrative and financial capabilities of local governments for provision of sufficient access to services. It emphasises the importance and role of the centres of activity areas in ensuring necessary services for hinterlands. (MoI, 2014, 21)

Digital Agenda 2020 for Estonia foresees availability of most commonly used services for everybody and everywhere in Estonia. Distance-services are emphasized in connection with healthcare and social services, it also foresees access to internet for all inhabitants of Estonia Development of information society shall not undermine the users' sense of security; and opportunities offered by information society will be taken into account in the shaping of all sectorial policies, bearing in mind that the adoption of ICT improves the competitiveness of all branches of economy. (MoEC, 2013c, 15 and 19)

The Digital Agenda 2020 brings out the need to improve user-friendliness of public services by enhancing services through different channels (MoEC, 2013c, 33). The development and use of e-services requires access to the Internet and Estonian Digital Agenda 2020 brings out the positive influence of broadband coverage to regions, where it was previously absent and due to which also services as telemedicine or real-time virtual learning can be made possible (MoEC, 2013c, 7). The Agenda also acknowledges one of the challenges of the public sector – limited capability in taking full advantage of ICT as there are still many services that are either inconvenient or belong to the “paper world” i.e. new technology is taken up without re-designing processes according to technological possibilities. This has negative impact on user satisfaction, availability, and efficiency (MoEC, 2013c, 10).

Estonian Lifelong Learning Strategy 2020 foresees a digital focus in lifelong learning, however it mainly focuses on digital learning resources (MoER, 2014, 14).

Foundation Innove is implementing the program for provision of career services and educational counselling through the network of Rajaleidja centres. Important activity to achieve foundations goals for 2020 are set in the development plan: *“We will support the student and the teacher in using digital devices in education [...] We shall deliver our services electronically, by expanding integrated services, introducing cross-border counselling and train speech therapists and other specialists to help families who have moved abroad over video services”*. (Foundation Innove, 2016, 4)

The indications for the need to provide services more efficiently and improve availability can be found in all strategies in Estonia. Constraining the range with provision of services over video channels, using new channels for counselling or even further - to develop educational counselling services over video channels, narrows down the coverage in strategies, but the direction in relevant strategies and development plans is strongly pro ICT, wider range of channels and the benefits that better access and use of ICT will bring to users and to economy. Foundation Innove, who currently is responsible for developing educational counselling services, has clearly identified the mission to be able to deliver services cross-border and abroad over video solutions.

3.2 Video counselling possibilities in other countries

Educational counselling is organized very differently in different countries. In September 2017 Estonia hosted an international conference on ICT in Guidance. Countries participating provided country reports for the workshops of the conference. Reports were presented by the members of EuroGuidance and ELGPN networks (*EuroGuidance is a European Union initiative, which operates in about 35 countries as a network of national resource and information centres for guidance; ELGPN is The European Lifelong Guidance Policy Network*) (EuroGuidance, 2018; ELGPN, 2018) and are retrieved from Foundation Innove intranet. According to the reports almost all countries in Europe provide educational and career related tools and information online (incl. *chat*-service in many countries), for career guidance there are interactive services available for finding schools or jobs, but implications on provision of guidance or counselling over video solutions were presented only in the report of Denmark.

- *“Denmark has a state funded eGuidance system (eVejledning), which provides guidance services via online chat, telephone, e-mail, social media and webinars/digital meetings. Digital meetings channel is employed to provide collective guidance to a group of clients. It includes webinars given to entire classrooms along with their teachers as well as digital meetings to which different clients across Denmark who share common interests (e.g. students about to complete upper secondary education and interested in choosing and applying for admission to a higher education institution) are invited to attend via distance participation (<https://www.ug.dk/evejledning/digitale-oplaeg-workshops-og-faelleschat>)”*
- In the country report of Poland, the approach to ICT in guidance is presented followingly: *“It is widely recognised that the ICT tools have great potential for making access to lifelong guidance services cheaper, creating innovative service delivery. On the other hand, the use of ICT should be seen as complementing rather than replacing the traditional forms of guidance“.*
- Country report of Finland: *„The online services mainly provide information and advice, not so much professional eGuidance”.*
- Country report from Austria: *“The online educational counselling is part of the Austrian Educational Counselling Service and is funded by the European Social Fund and the Federal Ministry of Education. The offers of education counselling in Austria are aimed at adults who have questions about education, training and occupations. [...] Currently, the consultation is by mail or chat. Source and more details: www.bildungsberatung-online.at”*
- According to the report from Ireland Government funding is made available to fund the development and provision of ICT resources for counsellors: handbook, webinars etc.

The background paper compiled based on country reports adds that: *“Perceived developments as new ways of service delivery emphasise that the successful integration of existing and emerging technologies in career services is not only dependent on the skills and technical facilities available but also on practitioners’ willingness to accept the changes that new technology may bring to service delivery”* (European Guidance Week 2017, 2017, 30-31).

Although there is not much information of educational counselling provided as a public service over video solutions, there are many private companies providing video counselling on line, some of the biggest private video counselling providers are *Better Help*, *Psychology today*, *eHomecounseling* etc. These tend to be more of mental and psychological counselling, none of them provide educational counselling and child evaluation.

4. Case studies and interviews

4.1 Case-studies

To visualize the cases presented through the interviews the author compiled based on the interviews two short descriptions of different cases. The first case is accompanied with a process chart. Case studies together with process schemes are presented to illustrate the use of video counselling tool.

4.1.1 Case-study 1: Feedback and counselling for parent

The client (parent) has made an appointment with the counsellor and visited with the child the centre where the first meeting between the client and the counsellor took place. During the visit the counsellor used several evaluation tools, observed the child, asked questions from the parent. The session is long, because test results are border-line and analysing them in concurrence of the circumstances to come up with suitable practical program for this child, takes time, also the mother is very upset and needs more support. After suggesting first calming approaches the counsellor suggests a time for a new meeting. Due to long distance between the client and the counsellor the counsellor suggests video counselling session. The parent agrees.

For the video counselling session, the counsellor asks the parent contact name in *Skype* and sends a *friend invitation*. The counsellor uses *Business Skype*, the parent uses *Skype*. It takes some adjusting before the two programs are compatible and the session may start.

During the session the counsellor wants to show the parent some exercises for the child, because *Skype* does not allow screen sharing, the counsellor asks for the clients' e-mail address and sends them there. Although there are some technical difficulties, the session fulfils the aim – the parent gets advice and is reassured by the counsellor. The parent is pleased with the possibility that saved time and expenses. They agree, that in case of further questions the parent can contact the counsellor again.

Figure 5 presents the flow-chart for the case of feedback and counselling a parent using currently available video communication technology.

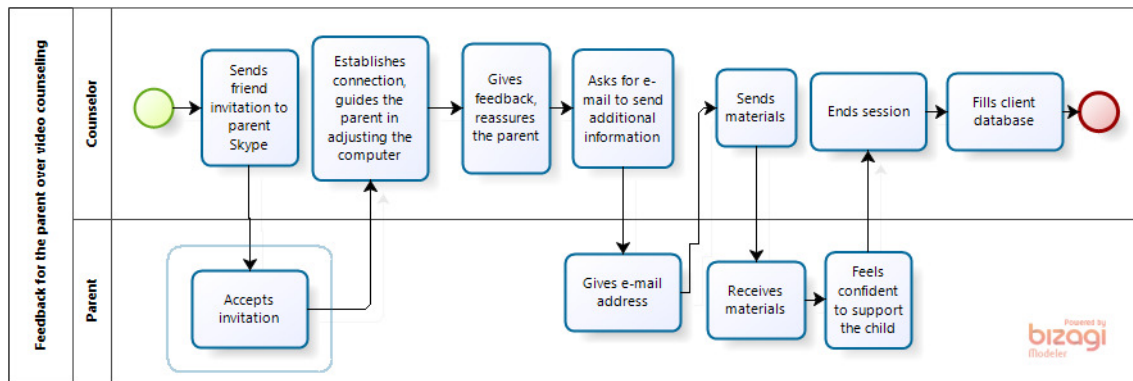


Figure 5. Flow-chart for case of feedback and counselling a parent over video channel

4.1.2 Case-study 2: Pedagogical-psychological evaluation of a child

The parent contacts the counsellor and requests counselling for a 7-year-old child, who according to the parent has difficulties with writing. The parent asks if it is possible to have the appointment over the Internet, because they live on a small island and transportation for a 1-hour session is very burdensome and expensive. The counsellor asks about access to a computer with a microphone and camera and a good Internet connection, the parent promises that connection is good and that she has taken video calls before. The counsellor explains the need for e-anamnesis and a written approval from the parent for processing personal data of the child. The parent agrees to pre-fill and send the documents. The counsellor takes an e-mail address and forwards necessary document forms. The parent fills them and sends back.

The counsellor assesses the e-anamnesis and prepares three different exercises as digital files and sends them to the parent, with the question whether it is possible for the parent to print them out just in case the child is not co-operational over video tools. The parent prints the exercises.

The counsellor sends a *friend invitation* to the parent, the parent accepts. The counsellor establishes connection. Viewing the room, the counsellor asks to adjust lightning before talking to the child, then asks the parent to invite the child to the computer.

At first the child does not want to talk to a stranger on the screen, but the counsellor uses special techniques and establishes a relationship with the child. The child is willing to play some games of drawing and writing, which mother has printed out.

During the session the counsellor lacks some information on which words and pictures on the paper exercises are easier, and which are harder for the child, because the counsellor only sees the child on the screen, not the paper on the table before the child. The counsellor notices problems with holding the pen and how easily child is tired from the exercises. The counsellor concludes that she would have to use another evaluation tool, but she has not got one available as a digital tool and she has to use the exercises prepared. Although the counsellor would have wanted to take another test, the child is tired and not willing to interact anymore. The parent tries to help the child in solving the exercise, but that is not useful in evaluation of the child.

Counsellor draws the first conclusions, explains them to the parent and consults her. Then the counsellor asks whether the parent accepts that the counsellor makes contact with the child's teacher to give better support to the child. The parent agrees, next counselling session is agreed after two weeks.

4.2 Interviews

The author conducted:

- Interviews with 7 educational counselling specialists, among them one group interview;
- One interview with a client (a parent, whose child was evaluated through using video).

To find counsellors who have experience with video counselling the author addressed the Rajaleidja network managers to seek out which centres have this kind of experience. Responses came from Saaremaa, Hiiumaa and Ida-Virumaa Rajaleidja centres. In total Rajaleidja centres (in 16 locations) employ around 160 different counsellors. Four counsellors from Saaremaa, two from Ida-Virumaa and one from Hiiumaa had video counselling experience, all of them were willing to participate in interviews, although with one counsellor from Saaremaa a suitable time was not found. Instead a group interview was held with the other three counsellors from Saaremaa, as they shared an experience of video counselling with Ruhnu island. Only ~2,5% of all the Rajaleidja counselling specialists are known to have experience with video counselling, and as the Rajaleidja network has been active for 42 months at the time of the interviews and altogether there have been ~117 thousand counselling sessions, only ~0,013% of the

sessions have been held using video solutions. A print-screen of the statistical data from Foundation Innove client information system is presented in Figure 6: the number of individual counselling sessions held by Rajaleidja counsellors during 01.09.2014-28.02.2018: total 117 366.

		Kokku
Individuaalsed nõustamised		
Kordade arv		117366
Juhtumite arv		76008

Figure 6. Presentation of statistical data from client information system

As most of educational counsellors work in educational establishments locally, the author concludes that their necessities and therefore also experience to provide video counselling is even lower. The interest toward video counselling service, however, has risen from two small rural schools from Southern-Estonia, who have asked to pilot e-speech therapy, which is planned to be provided by Foundation Innove starting from fall 2018 (information retrieved from Foundation Innove 2018 internal memo). Additionally, two specialists from Tallinn headquarters also had the experience, and one gave an interview. The list of interviewees is presented in Table 4.

Table 4. List of interviewees

Location	Field	Type of interview	Video counselling experience		
			nr of video counselling sessions held	channel	type of counselling
Hiiumaa	psychologist	Individual interview	2	Skype	1 session during a longer process, 1 adult, 1 youth
Tallinn	speech therapist	Individual interview	2	Skype Business, (plans to test Gruveo)	evaluation of child
Tallinn	parent, attended speech therapy	Individual interview	1	video conference	evaluation of child
Ida-Virumaa	special pedagogue	Individual interview	3-4	Skype	counselling of adults
Ida-Virumaa	career counsellor	Individual interview	3	Skype, Skype	personality test feedback to

				<i>Business</i>	youth
Saaremaa	speech therapist	Group interview	1	<i>Skype</i>	evaluation of child
Saaremaa	career counsellor	Group interview	2	<i>Skype</i>	youth, one-time counselling
Saaremaa	psychologist	Group interview	1	<i>Skype</i>	group counselling of teachers

In the analysis all interviewees are given codes from Interviewee1 to Interviewee8 in a random order.

Counsellors have different experiences with video counselling. Most of them have one or two experiences, only one have used video conferencing technology, all the others used *Skype*. Motivation for trying video counselling was mainly out of necessity (long distance), one out of curiosity and one fulfilled the task given by her department manager.

All counselors expressed readiness to provide video counselling for adults (parents, teachers), but expressed different opinions regarding children, especially the evaluation part. All counsellors expressed their first choice for counselling to be *face-to-face* and video only as a necessity. All of them identified possible positive effects of video counselling possibility, but also expressed several limitations and difficulties. Also solutions for addressing the obstacles were offered by the counselors and also by the parent.

The detailed outcomes of the interviews are presented combined together with analysis in the chapter 5.

In addition to the interviews with the counsellors and the parent, the author asked the members of the board of Foundation Innove and the head of the Ministry of Education and Research e-services department three open response questions via e-mail. The questions asked were about their opinion on whether and for whom video counselling would be useful for, what would be beneficial in providing counselling over video and who according to their opinion is responsible for developing video counselling tools, if at all.

All three presented opinions on the usefulness of the service and suggested different possible target groups and types of counselling that could be held over video – for example curriculum counselling for schools or addiction counselling.

According to stakeholders, besides financial (concerning transport and costs for premises), human resource and time-related criteria of usefulness video counselling may have positive effects on regional employment; through electronic channels quality control and client feedback may be organized with less effort; services could transcend state borders. Learning possibilities for new counsellors could improve (in case the client approves of course).

Responsibility for developing video counselling tools should be the same as provision of the corresponding services as video is just one channel among others. As currently Foundation Innove is responsible for methodological development of educational counselling services, according to the board members development of new channels is also responsibility of the foundation.

5. Results and discussion

In this chapter the author combines the content of the interviews and analysis. Overview and analyse are structured according to the sub-questions of the research. For structuring barriers, the criteria proposed in section 2.2.3, are used. In the analysis of the final sub-question the author presents analysis outcomes through goals and roles models and renewed process.

First, the author can conclude, **that video counselling is not widespread among educational counsellors**. The interviews support this conclusion, as the counsellors explain their motivation for conducting the video counselling session as a necessity that appeared during counselling cases, mostly due to wide distance between them and the client.

Interviewee2: *“People were in remote areas and the only option was this (author: video counselling) and I just had to give feedback over Skype”*.

Interviewee8: *“It has been only when I’m not able to find suitable time with the client. Working here on the island, and when the client happens to be on mainland and we need to finish some process... These have been the cases.”*

Counsellors expressed their first choice for service provision to be *face-to-face*.

Interviewee8: *“Personal preference – face-to-face. But after that- it so much depends on the issue and what is more suitable for the client”*.

Interviewee5: *“In case of psychological counselling, I think video counselling has more negative sides to it. It is better when clients are physically present, we can discuss. With the bigger group and different opinions, it is more difficult to reach conclusions over video”*.

At the same time all **counsellors expressed the need for developing video counselling service** as this:

- Is a new channel for providing counselling;
- Reduces costs (for transportation);
- Is a good solution for remote areas;

- Is a good possibility for youth, who are demotivated and need counselling immediately wherever they are;
- Makes services more easily accessible for people from any location;
- Is time-efficient;

Separately a target group of families who have moved abroad was brought up, as they have no other possibilities for educational counselling services.

Another general conclusion, before attending sub-questions of the thesis, is that all of the counsellors interviewed felt that **they are ready to provide video counselling for adults** (that is to counsel parents and teachers on how to support children/students). For doing that there aren't many obstacles, just need for some time to practice and through that maybe additional needs will arrive but are not foreseen for now. However, for the whole process, which includes evaluation of the child/student before counselling adults on how to support that child/student, more development for the service is needed as the current tools (mainly *Skype*) do not provide necessary features and that there are very few evaluation and methodical tools online.

5.1 Research question 1: How could online services be used for counselling?

In this section the author will focus on the sub-question 1. To find answers to the question "how?" target group, time, and location should be considered. For input the author used information mostly gathered from the descriptions of the experiences of the counsellors and the parent and input from subthemes of pros and cons, personal attitude and client feedback.

The main reason for conducting video counselling comes from long distances between the counsellor and the counselee. All the counsellors prefer *face-to-face* counselling if possible, video counselling is seen as a "*spare option*" or as a solution brought on by the "*pressure of circumstances*".

Interviewee8: "*I haven't used video counselling as a special method, it's more like an emergency solution, if there is no other possibility.*"

Interviewee4: *“It has been more like pressure of circumstances, if it is not possible to meet, for example the island of Ruhnu, or when the client lives on mainland, but insists on talking to me, but we cannot physically come together”.*

However, all of them bring out that it could be an option for at least one of the followings:

- a) First meeting;
- b) Feedback (on evaluation outcomes) meeting;
- c) As one stage;
- d) General option for clients from rural areas or abroad.

5.1.1 Location

All counsellors and the client expressed the usefulness of video counselling option in case of longer distances, oversees (islands) or abroad.

Interviewee4: *“The island of Ruhnu is a suitable and flexible place – they know that transport issues occur, and they need to have their plan-B”.*

The client (parent) also said that video counselling is convenient also for the reason, that she does not have to waste time on driving between the school to get her child on time to bring her to the centre, find parking place etc. One counsellor had experience with counselling a client from one Rajaleidja centre to another (this was under the circumstances, where the centre where the client was, didn't have the necessary specialist), but she did express her opinion, that this is not a sustainable solution.

Interviewee7: *“When the client has to physically come to any centre for video counselling, then it's not worth it”.*

Interviewee8 explained that the location of the client is important, as they need the client to feel secure and have a quiet, undisturbed location. An obstacle for the counsellors was that in case of video counselling they cannot control/provide the environment.

Interviewee5: *“With the Ruhnu island counselling – the room was quite dark, I didn’t see very well, we had to move, bustle around”*.

As a conclusion: video counselling service is important for rural areas and for families, who have moved abroad temporarily, but can be used also in urban areas as one possibility. The service should be available from any location the client is.

5.1.2 Time

By “time” the author means the point in the counselling process and the aim of the question is to specify the most suitable stages(s) for offering video counselling as an option; and define (if there are) unsuitable stages in the process.

Counsellors had different positions on when is the best time to propose video counselling:

Interviewee8: *“It would be a good solution for the first meeting”*.

Interviewee2: *“It is suitable for giving feedback on tests”*.

Interviewee6: *“From the point of speech therapy, I think it’s maybe better if video counselling is used as a continuous counselling, when I have discussed the possibilities and also the negative sides of video counselling”*.

Interviewee5: *“Maybe for follow-up activities, they are not so demanding, and not so long. We could save driving-time”*.

A point where video counselling is unsuitable process-wise, was not defined, only that video counselling is sometimes more difficult and demanding for the counsellor.

Interviewee5: *“I sent exercises beforehand to the parent that she would print them out, because I understood with my first video counselling that I can’t use the computer so that we would have the same screen. With video counselling I need to think everything through really carefully, because a screen sets a limit to many things and changes the counselling”*.

Interviewee1: *“What is difficult when using video for counselling – is to perceive that immediate emotion, and body language that you can feel when you are right there*

alongside the child. [...] When I talk with a parent, who is in the same room with me, I understand immediately from body language, when he or she is not agreeing with something, with video I might lack that information.”

As evaluation needs additional digitalized tools that were brought up by all counsellors, and in most cases evaluation takes place in the beginning of the process, it is possible to conclude that it is easier to start *face-to-face* if possible and then move on to video. Starting with *face-to-face* session also solves the issue of security as the counsellors already know the client.

5.1.3 Target group

The issue of possible target groups actually comes from the questions regarding usefulness and the reverse outcome of the question about for whom the service is not suitable and is also specified under the sub-question 2 (obstacles), but as identifying the target group is essential in service design (MoEC, 2014, 25), the conclusion is that firstly the video counselling service should be intended **for adults** (parents and teachers) and with some restraints also for the **children (possibly starting from age 4, but preferably after 3rd or even 7th grade)/youth.**

Interviewee7: *“I suggested exercises that are fillable online. It turned out that IT-skills of the child are not on such levels to actually be able to solve the exercises online. The child was 6 years old. Children under 3 years might not even be able to understand the concept of video picture, they just will not receive it or communicate with someone on the screen. It depends so much on the child, some ADHD (author: attention deficit hyperactivity disorder) may run away, some are drawn to the computer”.*

Interviewee3: *“I doubt that it (author: video counselling) will not suite in case of ADHD, I’m not sure about autistic children – a problem may arise, it depends on the child, I’m not so optimistic there. But in case of learning difficulties, where intellectual capabilities are not affected I’m still quite optimistic”.*

Interviewee 6: *“Pre-school children – I don` t think it is suitable for them”.*

Extra target group is NEET (*Not in Employment, Education or Training*) youth, who require counselling as and where they are and youth who are very active and can't find the time to physically come somewhere.

Interviewee2: *"I think that one target group are the youth in impasse, who may just have a moment of interest, but if I don't have time at the exact moment? Youth nowadays generally expect everything at once"*.

Interviewee4: *"For career counselling – NEET youth could be a very good solution. I also think of youth who are not so active – more stay-at-home and friendly with computers. For them it could be a good solution, because they don't leave home very easily and it takes a lot of time and counselling before. And maybe those who are very active, who have many interests and no free time, the "super-active" youth, they could then save time and access counselling from home"*.

Also, families living in rural/hard to reach areas (like small islands) or families, who have moved temporarily abroad and people living in smaller islands.

Interviewee7: *"I think a target group are Estonians living abroad. They just don't have any other possibilities"*.

Interviewee7: *"These parents from the island of Hiiumaa – they had a very difficult child and they really wanted a speech therapists consultation. Well, if the possibilities are speech therapist over Skype or nothing at all, then Skype is of course considerably better option."*

To answer the research question of where and why video educational counselling could be used the author concludes following:

- 1) The solution must be available from anywhere the clients may be.
- 2) The main target groups are people who live in rural areas or abroad, NEET youth or very busy people, who have difficulties finding time. The first focus should be on adults, as the preparedness of counsellors is better for them, but following children and youth, with some exceptions of age and mental development.
- 3) The reasons to develop video educational counselling tools are: cost saving, time saving, and better access to the service. Additionally, in wider scope video

counselling may add to regional employment, quality of services and training to counsellors. It also supports national strategies for regional development, educational support and service provision enhancement. It can save costs and time of both employees and the clients.

- 4) An additional option to access services will be positively taken especially by people living in remote areas.

5.2 Research question 2: What are the barriers for not using video online counselling services widely in Estonia?

As different barriers were brought up throughout the interviews in context with different questions, the analysis is systematized not following the questions, but the categories of barriers summarized in paragraph 2.2.3. The same categories are later on used for analysing possible solutions.

5.2.1 Lack of awareness

Cases discussed with counsellors during the interviews were born out of actual necessity – either the client had moved during the counselling process, *face-to-face* contact with the client was impossible (storm in case of an island) or very long distance and difficulties to find suitable time or out of personal interest of the counsellor.

Interviewee6: *“I offered to use video counselling, because this year is e-counselling year for speech therapists, then I wanted to try. Now I have tried a few times and understand better what is good what are the challenges”.*

Clients do not tend to seek video counselling possibilities, but there also has not been any advertising of the possibility.

Interviewee2: *“We have always proposed, for example in vocational schools and everywhere else, that we understand that you have to participate your traineeships in different places, but we can still provide Skype counselling. So, we have informed the youth, but they prefer to come over or even more they prefer that we go to the school”.*

Interviewee4: *“Next stage after when we have all the necessary tools is advertising, that we have this good possibility, today we don’t exactly promote this, only in cases when there is acute need for distance counselling.”*

Interviewee7: *“Some specialists have told me that they have suggested Skype counselling, but parents have preferred to come to the centre. I think we need to “sell” this opportunity more”.*

5.2.2 Technological barrier

Three counsellors brought out that **internet connection failure** is one risk for video counselling. It either has failed without ever starting or the poor quality of the connection forced the counsellor to end the session.

Interviewee8: *“There was one instance, where the connection was so bad, that I had to cancel the session in the middle, because I had to ask everything twice like “did you say “trust” or “no trust”?””*

So far, the program counsellors have been using is *Skype*. Two counsellors said that it is not always sure that the client has the **necessary program installed** and operational. Operating with *Skype* using *friend requests* in a counsellor-client relationship was brought up in interview 2.

Regarding devices computer or access to it has not been a problem.

Interviewee6: *“Nowadays a computer is usually available, I offer the possibility to use Skype for counselling. If it is possible, then we can agree on the time”.*

Interviewee4: *“I can’t remember any case where I have suggested, and the client has said that he/she has no possibilities for that. With whom I have offered the possibility, Skype-counselling has been like a natural choice”.*

In one case the client had the possibility to use the school’s computer.

As the sample was so small and as in most cases the clients themselves had asked for an online solution, then it is important to take to account that if the service is provided more widely, problems regarding access or capability to use a computer might occur.

5.2.3 Lack of skills

The author asked the counsellors for their personal readiness to provide video counselling and what would they need in order to provide more video counselling. Lack of skills was mentioned in all interviews, but with a different emphasis. Lack of skills of the counsellors can be regarding **IT-skills** or not knowing the full range of the **possibilities of the programs** or not knowing all **programs available for counselling**

Interviewee7: *“Skype is a bit “yesterday”, but at that moment there was no doubt that we had to use it. It is important though to make sure before the session, that it works – computers, cameras etc. For example, sound was very weak at one point. There is another video platform Gruevo, I think we could use a training to understand what the possibilities are there”.*

Spare time is an important factor for starting to use something new – there is a need for **time to practice**.

Interviewee7: *“Most important is the time factor. I wish I had time to try it without any new assignments. We must try what works what doesn’t and it takes time”.*

Interviewee4 expressed that youth may not have skills to download necessary program for video counselling: *“If we could have something that doesn’t need to be downloaded! This is difficult for youth and also for us. I wish it could be just in the web”.*

Although this is not directly an issue of skills, it is important to mention that the client said that the child was not willing to participate in video counselling at first, and that she needed to persuade her child. In relation to skills, it means that parents need to understand the procedure well enough to explain it to their children.

5.2.4 Lack of user-friendliness

As the tested program so far has been *Skype* and in one case video conference technology, user-friendliness was considered by the counsellors based on their experience with these programs.

There is a need for **sharing and splitting the screen** (seeing **two pictures simultaneously**) – to see what and how the child is doing at the same time. *Skype* does

not provide such possibilities. Two of the counsellors brought out that it is necessary also to see HOW the child performs the task, not only the outcome and *Skype* does not provide a solution for that.

Interviewee6: *“I sent exercises beforehand to the parent that she would print them out, because I understood with my first video counselling that I can’t use the computer so that we would have the same screen”*.

Interviewee7: *“When the child development is accordance with age, then it is not that important – I didn’t miss screen sharing in this case, but I think that it is important. For example, when there are issues with writing – I need to see how the child holds the pencil and at the same time see the exercise”*; *“In one case the parent shared the screen so that I could see how the child was doing and the parent had to struggle with it”*.

Interviewee2 brought out that using *Skype* needs a **friend invitation**, which is not the best solution in counsellor-client relationship.

5.2.5 Availability

Availability as a barrier for the clients didn’t come up in any of the interviews. All the counsellors said that they were willing to provide video counselling already, especially with adults (parents, teachers).

Interviewee7: *“That is a new additional possibility for the parents after all!”*

For evaluation of children some work needs to be done, like digitalising more evaluation tools, providing a form for e-anamnesis etc. But even then, some availability issues remain, as **video does not suit all the clients** – small children and children with mental disabilities may not be able to interact with computer screens. Four counsellors brought out limitations or difficulties with small children - in some cases skills cannot be enhanced with training, for example with very small children.

Interviewee7: *“I had prepared several drawing exercises. But drawing with a mouse... it is quite a challenge for a grown-up, not to mention for child. So, the child draw with a pencil on a paper.”* Regarding children it does not suite every child, so we have to ask the parent beforehand whether the child will communicate with video, is the child’s evaluation in accordance with age. Parents evaluation of their own child’s abilities are

not always objective. For example, in one case the parent promised that child understands everything, but during the session when I asked to show pictures of a dog or a horse, the child was not capable in distinguishing them and it turned out that the child didn't understand words".

Interviewees 1 and 3 brought up that many of the children, who come to counselling, may have mental disabilities and that we need to consider that they cannot interact with a computer, sometimes they cannot look at the screen.

5.2.6 Workplace and organizational inflexibility

None of the counsellors brought up a procedural obstacle or a barrier that arises from rules or regulations. However, two of the barriers can be seen as a lack of organizational support.

Lack of digitalised evaluation tools is brought up by all the counsellors.

Interviewee4: *"I really missed my usual tools – some cards and other means. There's a lack of available digital tools. Often the need for a certain tool appears during the session and then although I tried to prepare especially for this client, I didn't have the necessary tool already prepared for online. The tools should be arranged so that I can simultaneously share them. I think we desperately need tools like that – available, sharable".*

Interviewee7: *"If the child is actually here in the room, I have a cupboard full of different tools. To feel confident online, I would need "a cupboard" online. So that if one does not interest the child, I could easily change the tools. I have started to collect them".*

In interview 8 the counsellor said that *"It might turn out that to evaluate the child's behaviour it is necessary to observe the child in a specific environment (his/her classroom etc). If that appears during the case which is entirely held on video and the counsellor might live at a long distance, there will be a need to switch the counsellor, which is not a good solution during a case."*

Interviewee1: *"I wish we could have this online environment, where I just chose a tool, open it and let the child fill it right there."*

The organization needs to plan to introduce a new channel thoroughly, leaving enough time for the counsellors to adapt:

Interviewee7: *“The most important is the time-factor. I wish I had the time to practice.”*

5.2.7 Lack of trust (security and privacy)

Need for identification of the client was not seen as an important feature in general, only in case of feedback for testing results with no previous *face-to-face* contact with the client. Five counsellors said, that they knew the client before the video counselling session, video (picture) helps to make sure, who is on the other side.

Interviewee2: *“For counselling it is very important to see whom you’re talking with. At least for me it is”.*

Interviewee4 specified that: *“For what reason someone else would try to participate? It seems very unlikely - counselling is not an exam, where you need to prove something and send someone smarter than you. It is about you. I cannot imagine, that this (author: session would be participated by someone else then the one agreed with) could happen”.*

Interviewee1: *“When the parent volunteers and wants to attend a counselling session, why should I suspect, that he or she is not who they claim to be and even more – why should it matter to me. Some issue of trust remains anyway. Our business is not so that we need to excessively control everything, there’s no bank transfer.”*

However **previous knowledge about the client** was brought up.

Interviewee7: *“We did a previous e-anamnesis. It was a questionnaire about the child – what worries the parents, have they been to some other specialists before etc. It is important to know before the counselling session what the challenges of the child. I need to know the parents’ questions, so I can prepare”.*

The client felt that it is important **to know about the counsellor** – what are his/her qualifications, methods etc.

Technological security of the video channels was not clear but is important for the counsellors:

Interviewee8: *“I’m not sure about security”*.

5.2.8 Interoperability

During testing the counsellors have not tried using different systems at the same time. As there aren’t enough digitalized evaluation tools, they used print-out tasks in some cases (Interviewees 6 and 7). One interoperability issue was brought up:

Interviewee6 explained that *Skype* and *Business Skype* (which has more features and is available for counsellors) do not always connect.

5.2.9 Other counselling procedure related obstacles

Four obstacles were brought up by the counsellors which cannot be placed under the categories of pre-defined barriers, because they are directly related to video counselling by its nature:

Interviewee1 claims that **possibilities to calm the child are bounded**: *„Well, calming down the child – it’s different when he/she sits beside you and the child sees with whom he/she is dealing with and it’s not through a machine - it fosters communication“*.

In interview 2 it was brought up that there might be an **unknown influence in the room** with the client and counsellor might not know and could not steer the situation: *“Maybe the youngsters who live in dormitories, don’t feel secure. With the girl, who was my third video counselee, there was a moment when someone came to the computer class she was at, and she momentarily “closed up”. The client needs to feel secure and absolute privacy”*.

Interviewee7: *“The child was happy, interested and really wanted to solve the exercises. The **parent was more frustrated**.”* One risk is that parent wants to help the child.

Interviewee3: *“How to stay neutral, I’m not sure that all mothers can remain neutral there on the other side of the screen together with their child, but this is important.”*

Interviewee5: “In case of psychological counselling I think that there are more negative sides to it. As a psychologist I observe **HOW the child does something**, see persistence, restlessness, where the child needs help, where the child asks help. Over video I would miss that. With current tools I cannot see both the exercise and the child simultaneously. With psychological counselling there are more aspects, and it`s better to be in the same space.”

Interviewee1: “What is difficult when using video for counselling – is to **perceive that immediate emotion, and body language** that you can feel when you are right there alongside the child.”

An overview of the obstacles is presented in the following Table 5.

Table 5. Obstacles in the video counselling process

1. Awareness	We have provided <i>Skype</i> counselling, but usually students want a <i>face-to-face</i> contact
	Need for advertising
2. Technological barrier	The internet connection might fail at a crucial moment; or not start at all.
	The connection is unstable and alters the course of the session (need to repeat everything, missing some words, some moments).
	It is important to see how the child performs certain exercises, not only the outcome. Impossible with current available tools.
3. Lack of skills	Childs IT-skills may not be sufficient – for example drawing with mouse.
	Counsellors IT-skills are insufficient.
	The client may not know how to install, use specific program (<i>Skype</i>).
	The client might not have the necessary program (<i>Skype</i>).
	Unsuitable for very young children and for children with mental disabilities (who are important client segments for educational counsellors).
4. Lack of user-friendliness	Impossible to share the screen.
	<i>Skype</i> needs <i>friends invitation</i> .
6. Workplace and organizational inflexibility	Lack of digitalized evaluation tools and methodical devices. Often the need for a specific tool turns out during the session and then the counsellor has not prepared it online.
	It might turn out that to evaluate the child`s behaviour it is necessary to observe the child in a specific environment (his/her classroom etc). If that appears during the case which is entirely held on video and the counsellor might live at a long distance, there will be a need to switch the counsellor, which is not a good solution during a case.

7. Lack of trust (security, privacy)	Uncertainty whether the client has understood, agrees (lack of visual information like body language etc).
	Not sure about the security.
8. Interoperability	<i>Skype</i> and Business <i>Skype</i> do not connect always.
9. Other counselling process related barriers	Possibilities to calm a child are bounded.
	There might be an unknown influence in the room with the client and counsellor might not know and could not steer the situation.
	Parent has hard time not to influence the child during the evaluation (wants to help).
	Emotions, body language are not that easily identifiable, but they are especially important sources of information for psychologists.

5.3 Research question 3: How to overcome the barriers in providing online video counselling services?

Solutions were brought out by the counsellors themselves for some of the identified obstacles. Some of the proposed solutions may solve multiple barriers.

- Interviewee3: *“Maybe before the session a couple of suggestions and information for the parent”*.
- Interviewee3 and 7: Test-call possibility to be sure that the connection is possible.
- For the connectivity pre-call possibility was proposed together with a hedging by Interviewee7: *“We need to have phone numbers so that in case of connection failure we can call and end the session and propose a new time”*.
- For enough previous information a need for e-anamnesis was proposed by Interviewee7.
- Interviewee7: *“When the child’s IT-skills are not sufficient “we can ask the parent to print out the tasks, if possible, if not in some tasks the parent might even draw some tasks on paper and help like that”*.
- When counsellors IT-skills are insufficient we can organize training, “sharing of experience” and “time to practice” was suggested by three counsellors.
- Interviewees1 and 7: For the lack of digitalized tools “We can put up our digitalized work in a tool-bank.
- Interviewees 2, 4, 7, 8: There should be a possibility to share the screen and to have two views simultaneously: of the task and another one of the child.

- Interviewee2: The solution should be online and work without the need to be installed.

Following the author has combined the solutions provided directly by the counsellors and the parent during the interviews together with less direct solutions from interviewees with the authors own suggestions to address the full scope of obstacles defined. In the following table the solutions are divided in to categories of process development, training or IT-development. An overview of possible solutions categorised according to the author of the idea and the type of solution is presented in Table 6.

Table 6. Possible solutions/hedging for the obstacles in the video counselling process

Category of the barrier	Problem	Solution/hedging	Author of the solution	Solution type
1. Lack of awareness	Clients are not aware of video counselling possibility	Advertising	Interviewees	Process development
2. Technological barrier	The internet connection might fail at a crucial moment; or not start at all.	1) Pre-call. 2) Previously shared phone numbers	Interviewees	IT-development / Process development
	The connection is unstable and alters the course of the session (need to repeat everything, missing some words, some moments).	1) Pre-call. 2) Previously shared phone numbers	Interviewees	IT-development / Process development
	It is important to see HOW the child performs certain exercises, not only the outcome. Impossible with current available tools.	Screen sharing and splitting option so that simultaneously the child and the exercise are visible to the counsellor.	Interviewee	IT-development
3. Lack of skills	Childs IT-skills may not be sufficient – for example drawing with mouse.	Printouts	Interviewees	Process development
	Counsellors IT-skills are insufficient.	Training, practice, coaching	Interviewees	Training
	The client may not know how to install, use specific program (<i>Skype</i>).	The solution must be online and work in any browser without installing.	Author	IT-development
	The client might not have the necessary program (<i>Skype</i>).			
	Unsuitable for very young children and for children with mental disabilities (who are important client segments for educational counsellors).	If <i>face-to-face</i> is impossible, there needs to be pre-session for the parent to get him/her to help along the process.	Interviewee	Process development
4. Lack of	Impossible to share the screen.	Screen sharing and	Interviewee	IT-

user-friendliness		splitting option so that simultaneously the child and the exercise are visible to the counsellor.		development
	<i>Skype needs friends invitation.</i>	The solution shall not be invitation based, ensure through identification that the right client is in the session with the right counsellor. Can be code based or ID-based.	Author	IT-development
6. Workplace and organizational inflexibility	It might turn out that to evaluate the child's behaviour it is necessary to observe the child in a specific environment (his/her classroom etc). If that appears during the case which is entirely held on video and the counsellor might live at a long distance, there will be a need to switch the counsellor, which is not a good solution during a case.	e-anamnesis	Author	IT-development
	Lack of digitalized evaluation tools and methodical devices. Often the need for a specific tool turns out during the session and then the counsellor has not prepared it online.	Need for a easily fillable exercise and tool bank which is available within the video connection tool	Interviewee	IT-development
7. Lack of trust (security, privacy)	Uncertainty whether the client has understood, agrees.	Experience, possibly training of counsellors	Author	Training
	Not sure about the security.	Service provider has to ensure security; inform parents about the possible risks; remain as impersonal as possible during the session.	Author	Process development
8. Interoperability	<i>Skype</i> and Business <i>Skype</i> do not connect always.	The solution must be online and work in any browser without installing.	Interviewee	IT-development
9. Other	Possibilities to calm a child are bounded.	A training of suitable methods	Author	Training
	There might be an unknown influence in the room with the client and counsellor might not know and could not steer the situation.	Explain and ask the client	Author	Process development
	Parent has hard time not to influence the child during the evaluation (wants to help).	Explain to parents how important it is to let the child be independent during the session	Author	Process development

	Emotions, body language are not that easily identifiable, but they are especially important sources of information for psychologists.	A short need-to-know for the parents before the session (suggestions for lightning, room etc)	Interviewee	Process development
--	---	---	-------------	---------------------

From this barrier-solution table the author mainly focuses on the solutions regarding IT-development as this is the focus of the thesis, however process related solutions and training are just as important and need to be considered when preparing the adoption process to introduce a new service channel in the organisation.

5.4 Research question 4: What are the requirements for the video counselling service to work and achieve the goal of trust?

Expected requirements for the video counselling tool and process gathered by the author from all of the interviews:

5.4.1 Expectations for technical features

- 1) The video counselling tool should be online, not a downloadable program, as often clients nor the counsellors cannot download different programs;
- 2) Test-call possibility for testing the connection;
- 3) Possibility to share the screen;
- 4) Possibility to split the screen for seeing both the exercise and the child behaviour/emotions at the same time;
- 5) Need for an online “shelf” with good systematization of digitalised evaluation and methodical tools present and usable within the video counselling tool;
- 6) Counsellors access to evaluation tools needs to be personalized by profession and personal qualification, which determines access to certified evaluation tools;
- 7) Client identification – this gave out different answers as some interviewees expressed the importance of it, but most gave the answer as if they have already met the client, it is not necessary or even if they have not met, then what would be the persons interest to receive counselling regarding someone else’s child, so different possibilities for logging into to the session need to be available:
 - 6.1) ID-card or mobile ID log in possibility;
 - 6.2) Code-based access. During registration every client is given a code to log in to the right counselling session, as at the same time different sessions may be held in the video counselling tool. The code is sent via

SMS to the client during the registration and directly before the session as a reminder. As video connection may fail during the session, the counsellors expressed the need to be able to call the client immediately to end the session and agree on the next activities, so phone number is required, and this ensures access to a correct phone number.

- 8) The tool needs to be secure because delicate personal information is discussed;
- 9) Simplicity is required because IT-skills of clients and counsellors may not be sufficient.

5.4.2 Expectations for the process

- 10) Necessity for e-anamnesis;
- 11) Availability of an introductory description and video for the client, of what and how is going to happen;
- 12) Need for marketing of the service;
- 13) Frequently Asked Questions for the client;
- 14) Introduction of the counsellors;
- 15) Secure, silent, private, well-lit room for the client – set of recommendations for the client;
- 16) Parents support if the counselling is held with a child – recommendations for the client;
- 17) Experience sharing opportunities (e.g. co-vision) for the counsellors;
- 18) New channel introduction plan that considers reasonable amount of time for counsellors for getting used to the new tool.

5.4.3 Need for training

- 19) Further training for counselling methods more suitable for video counselling;
- 20) IT-skills training for counsellors (including introduction of possible video communication technologies and their possibilities).

5.4.4 Goal and role models and the renewed process

Based on the expectations the author provides a goal model with three main agents. Important to recall, that the video connection tool is not seen as an agent, but a channel. The goal model is complemented with emotional goals.

The main goal of introducing a video educational counselling tool is through maintaining the general objective of counselling to provide an opportunity to provide and receive the service without having to physically go to the same location. Through that users can save time and money. As the key-actor in the process is the counsellor, the goal model is designed firstly to present the goals of the counsellor. Counselling however cannot take place without the client, therefore parents and the child's goals need to be presented. Sterling and Taveter (2009, 66) define different goals for models - functional and quality goals. Functional goal is represented as "Provide educational counselling over video channel", it has sub-goals for evaluation, providing information of the evaluation outcomes, counselling the parent to understand and accept the situation and giving advice to deal with the situation. Although Information System manager (*herein after IS manager*) and process owner have important parts in the process, the author knowingly does not present them directly in the goal model, for they are supporting the video counselling process, not participating in it. Therefore, process owners and IS managers main goal is to provide conditions for the counsellors and counselees to accomplish their goals.

Figure 7 is based on Sterling & Taveter theory and presents a goal model for agents in video educational counselling process (Sterling & Taveter, 2009). A deviation from Sterling & Taveter original approach is showing a differentiating main goal for process owner and IS manager. Emotional goals of the users are added based on Miller et al. (Miller et al, 2015)

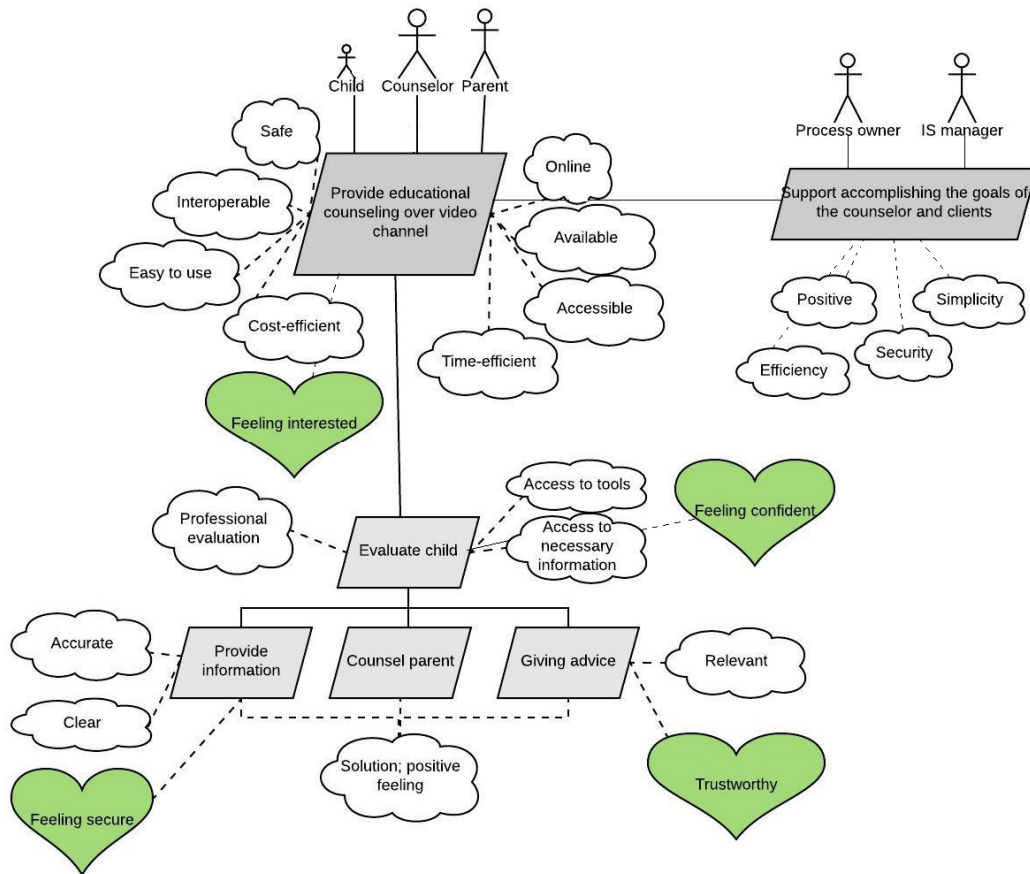


Figure 7. Goal model for the video counseling process

Roles for the process are retrieved from the goals of the agents (Sterling & Taveter, 2009, 68). Role models consist of four elements: role name, description, responsibilities and constraints, a role model enlists the responsibilities, but does not define the order (ibid., 73). Followingly role models for counsellor, parent, child, process owner and IS are presented in tables 7 – 11.

Table 7. Counsellor role model

Role name	Counsellor
Description	Evaluator, counsellor and based on evaluation outcomes advice giver
Responsibilities	Prepare for video counselling Establish video connection Establish trusting relationship and secure environment Guarantee data protection Use appropriate evaluation tools Make evaluation interesting to the child Provide information about evaluation outcomes Cooperate with other stakeholders (for example teacher), when necessary and with the consent from parent Suggest relevant measures to overcome the challenges
Constraints	Must have access to computer with internet connection, camera and microphone Must have access to digital evaluation tools Must be qualified to use selected evaluation tools

Table 8. Parent role model

Role name	Parent
Description	Seeker of help in supporting a child with educational challenges
Responsibilities	Fill the form of e-anamnesis before counselling Test the connection before counselling Provide information Prepare the room and the child Support the child during the session
Constraints	Must have access to computer with internet connection, camera and microphone Must have a secure and private room

Table 9. Child role model

Role name	Child
Description	Participator in evaluation
Responsibilities	Communicate with the counsellor Take up exercises provided by the counsellor
Constraints	Need to be able to look at a screen Need to be able to communicate with someone behind the screen

Table 10. Role model of video counselling tool IS manager

Role name	IS manager
Description	Provider of video counselling tool

Responsibilities	Ensure video counselling tool availability Ensure toolbox availability Provide secure connection Provide user support
Constraints	Follow data protection and other laws and organizational regulations

Table 11. Role model of educational counselling process owner

Role name	Educational counselling process owner
Description	Provider of means to the process
Responsibilities	Manage service provision Organize advertising Organize training Guarantee data protection Communicate with stakeholders
Constraints	Follow laws and rules, keep developments within the budget

After taking into consideration goals, roles, barriers and possible solutions the video counselling process would have some changes and following steps, presented in figure 8:

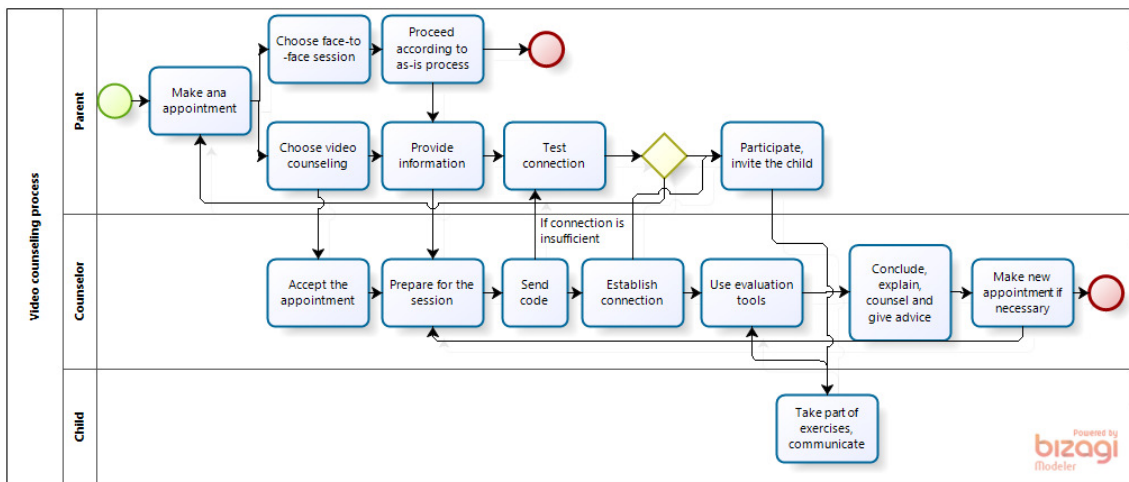


Figure 8. Video counseling process according to the prototype

To end this chapter for providing answer to the sub-question of what are the requirements for the video educational counseling service to work and how to achieve the goal of trust, the author returns to the theory of technology acceptance. When first introducing the theory in 1989, Davis stressed the significance of the finding that usefulness has stronger connection with actual use of the systems than ease of use. He explains it: “users are driven to adopt an application primarily because of the functions

it performs for them, and secondarily, on how easy or hard it is to get the system to perform those functions”. (Davis, 1989, 333)

The usefulness of video counselling as an idea is eminent to counsellors, stakeholders. But the use of such possibility has not been high. At the same time using *Skype* is popular all over the world, and the counsellors themselves use *Skype* on daily basis (also the interviews were conducted with *Skype*). From that the logic follows that current technological solutions lack usefulness for counselling. The most repeatedly mentioned deficiencies regarding functionalities of the current system were:

- 1) Lack of digital evaluation tools available online or within the video counseling tool;
- 2) Inability to retrieve necessary information for evaluation (need to see simultaneously two pictures – the task and the child during taking the task);
- 3) Possibility to present instant information on the screen.

In order to contribute to the wider use of video counseling, the prototype needs to create more usefulness:

- 1) provide storage and distribution for evaluation tools;
- 2) provide solution to split the screen for two different simultaneous pictures;
- 3) possibility to share the screen/send immediate information.

6. Prototype

The prototype is developed by considering all barriers and possible solutions to them, keeping in mind the goals and roles for the agents. Client view and counsellor view are different for they have different roles within the process. The visual design of the prototype is not final but applied only to the extent where it helps to understand different functions of the video counselling tool. All views are also annexed for better visibility (Appendices 7-11).

Figure 9 presents the clients view after clicking on video counselling button on the usual webpage for the service provider. Information is divided to four sections:

- Explanation on *how video educational counselling is conducted*. Besides text, videos showing the procedure are provided.
- The *What do I need* section provides information on what devices (computer, microphone, camera) and connectivity are necessary for the service.
- The section *Before video counselling session* includes short description of the room, lightning etc. and recommendations for parents to prepare the children.
- Below all the counsellors are listed together with pictures, professions. By clicking on the counsellors “business card” further introduction of the counsellor is presented together with experience, specialising and methods preferred by the counsellor.
- On the right corner is a possibility for the clients to test their devices and connection suitability for video counselling.
- *Make an appointment* button takes to registration form. While registering an appointment the client may choose whether to identify with ID-card or mobile-ID or use the possibility of receiving a log-in code.
- The chosen identification form is the basis for sending information. The information can be added with answering questions (e-anamnesis) or sending documents, which are sent directly to the client’s case in the client information system the counsellors use on daily basis. If the client chooses code-based entry, the code is sent directly after the registration to the client’s mobile phone and again as a remainder before the session.
- Chat-based helpline is usable for questions and help.



Figure 9. Clients view for introduction of the video educational counselling service

Figure 10 shows the first view after the client has logged into the session. Most of the screen is showing live-stream of the counsellor, whose “business card” is shown and clickable on the right corner of the window. Clients own video stream is in the left corner of the screen. The number of participant is taking part of the video session is visible throughout the session. Both live-stream windows are size-adjustable. On the right side of the screen is a chat-bar through which the counsellor can send exercises or other materials for the client. All windows are closable, for leaving the session a *Back* function is also available. Microphone can be turned on and off, on the screen.

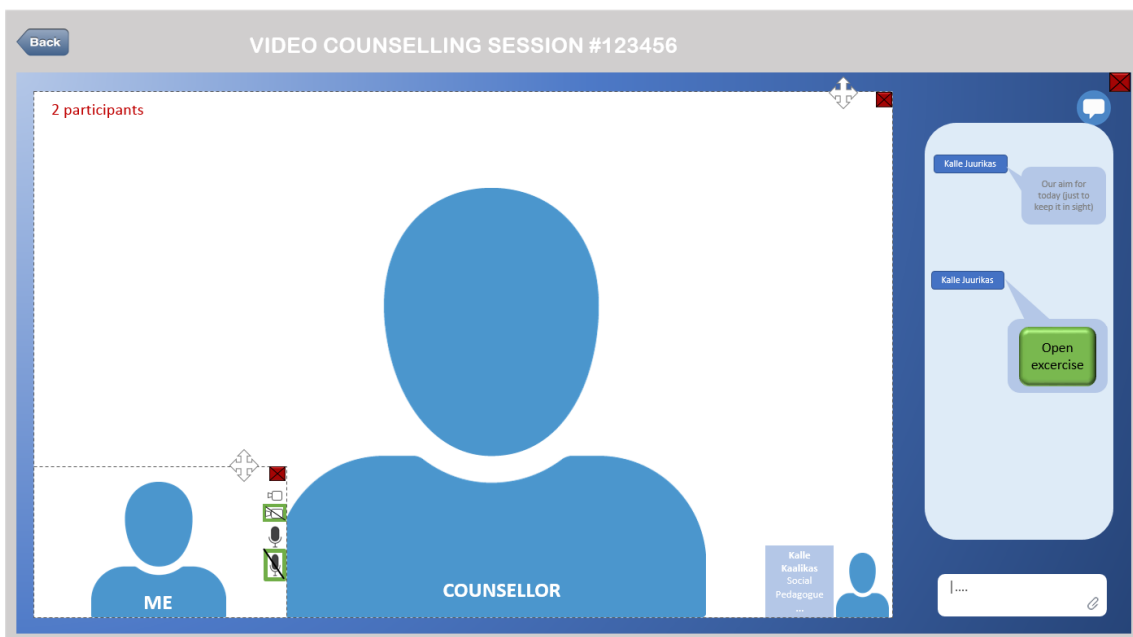


Figure 10. Clients view after logging into video counselling session

Figure 11 presents the clients view after accepting the exercise sent by the counsellor. The size of window for the exercise and livestream windows can be adjusted by the client. The exercise window is interactive.

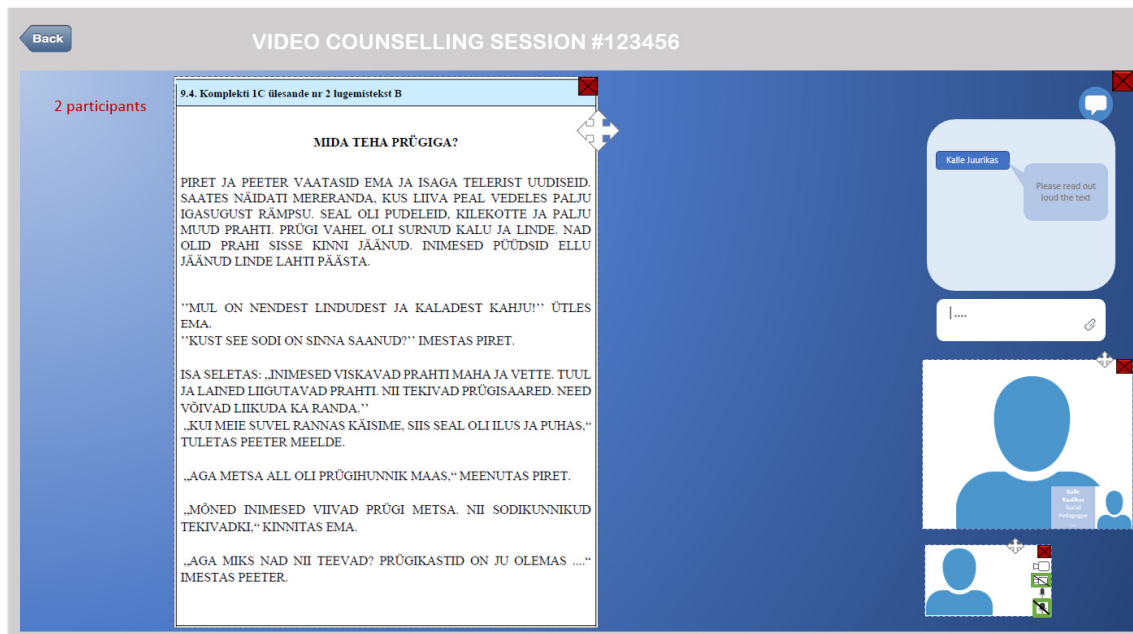


Figure 11. Clients view during exercises (exercise retrieved from Foundation Innove, 2017, 67)

Figure 12 shows the view of the counsellor after logging in to the session. Live-stream windows have the same functionalities as for the client. Additionally, a toolbox of digitalised evaluation and methodical tools is on the screen. Toolbox is adjusted based on the counsellors' profession and qualification. Tools can be searched with typing, using favourites or scroll alphabetically.

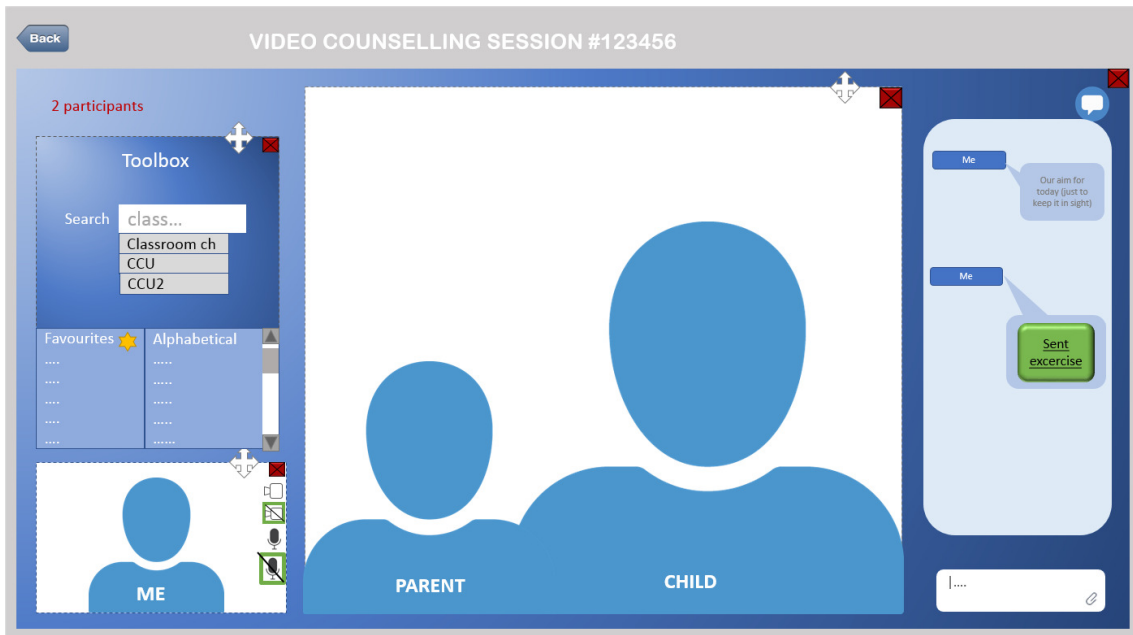


Figure 12. Counsellors view after logging in

Figure 13 shows the counsellors view during the time the client (child) is solving the exercise. Again, all windows are size-adjustable and separately closable.

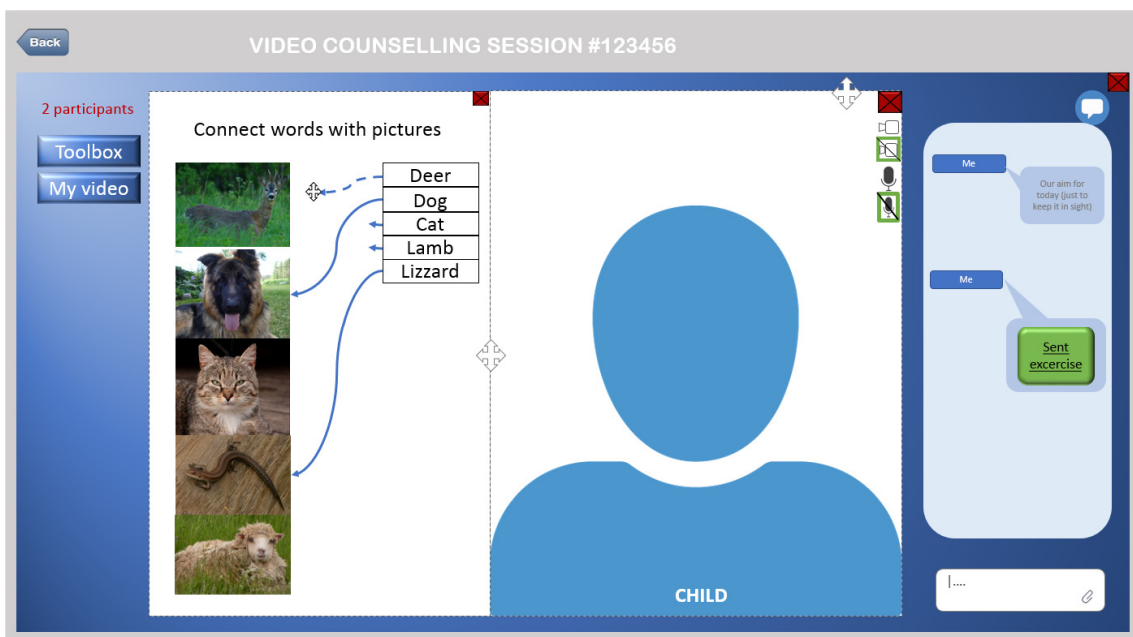


Figure 13. The counsellors view during using an evaluation tool

7. Conclusions

Educational counselling, which is stated by the Basic Schools and Upper Secondary Schools Act, is an important service that supports implementation of inclusive education. Over the last years lack of counselling specialists has received attention, in rural areas providing efficient counselling is increasingly difficult. One possible solution for hedging this situation is to provide counselling through electronic channels. Counselling is based on the trust between the counsellor and the client, sharing feelings and delicate issues needs personal approach. For this reason, an automated e-self-service is not applicable, but a possible solution could be video counselling. Video communication technology has been available for many years, but video counselling has been attempted only in a few cases in Estonia.

The author is currently responsible for educational counselling provision in Foundation Innove Rajaleidja centres and introducing e-counselling is one of the goals for the foundation. The aim to introduce video counselling is supported by development plan of the foundation and usefulness of this possibility is recognized among counsellors.

This Master's thesis aim was to provide an answer to the question on *how to design online video educational services*. To answer the main research question, the author used qualitative research and focused on the counsellors, who have the key role in educational counselling. Interviews are supported with theory and background information, literature review and illustrated with case-studies. The aim of the thesis was to define reasons, identify barriers in video educational counselling provision, provide solutions for the identified barriers and prepare requirements list for modelling video educational counselling service.

The outcome of this thesis can be used as an input for procurement or in-house development for any institution that is providing educational counselling; or even any counselling services and has the goal to improve access to this service. The outcomes will be used for service development within Foundation Innove starting with e-speech therapy.

7.1 Main findings of the thesis

The interviews with counsellors and questionnaires from stakeholders present the notion of the usefulness of the idea of providing educational counselling service using video communication technology. Video counselling is not so much a separate service, then it is a new channel for providing the already existing service in the current form. Although it is a service brought to e-environment, it does not fully correspond to criteria usually used to develop e-services, because it has a strong dependency on the person providing the service. This dependency creates the situation, where the video counselling tool cannot fully be considered as an *Agent* with self-awareness, neither can the solution be an e-self-service environment for the client, because the client cannot achieve full autonomy with video counselling, it will always depend on the presence, willingness and skills of the counsellor.

The counsellors, who are the key actors in the process, have encountered challenges during their first attempts with video counselling, some of these challenges are hard to overcome with the currently available tools. Counselling needs prior evaluation in which visual aspects have important role – body language, expressions and information on exactly to what, where and when a client reacts, give important input to evaluation which is the constitute of the counselling process. There are many different evaluation and methodical tools used by counsellors, most of these are not online. By removing or at least hedging these challenges by enabling better use of the screen and providing environment for online evaluation tools, video counselling can achieve more usefulness by the counsellors and through that we can increase the availability of the video counselling service.

The conducted research helped to answer the following questions:

The first sub-question of the thesis was: **How could online video services be used for counselling.** Based on the research outcomes clients in general may benefit just from having some counselling sessions over video, but some target groups may use it as the only possibility (inhabitants of smaller islands, families who have temporarily moved abroad, NEET youth). The benefits from using video counselling can be:

1. Financial in terms of saving costs,
2. Improving resource usefulness,
3. Saving time,

4. Improving access to public services,
5. Serve as an input to regional development and contribute to training of the counsellors.

There are clear reasons for stakeholders to develop solutions to improve access to counselling services. The counsellors define separate target groups for the service and understand the benefits that video counselling can bring. The technology of video services provided online is neither new nor complicated, however concerning counselling we can say – it is not yet available through video. Reason for that are the limitations that the currently available video technology tools set on counselling service.

The second research question aimed to define these barriers. Based on the outcomes retrieved from interviews, the author identified 20 obstacles that are classified into nine categories of barriers the author composed for video educational counselling:

1. Lack of awareness,
2. Technological barrier,
3. Lack of skills,
4. Lack of user-friendliness,
5. Availability,
6. Workplace and organizational inflexibility,
7. Lack of trust,
8. Interoperability,
9. Content specific barriers.

Only for the category 5 (availability) no specific obstacle was revealed from the research.

The third sub-question was **how to overcome the obstacles in providing online video counselling services.** To answer that question, the author analysed the defined obstacles and added solutions suggested by the interviewees and provided additional solutions based on background research. These possible solutions are systematised by their essence to be either:

1. Process development,
2. Training-need or
3. IT-related development.

Possible solutions serve as an input to the fourth sub-question: **what are the requirements for the service to work and achieve the goal of trust?** The requirements for the service are presented in three categories of expectations:

1. Expectations for technical features,
2. Expectations for the process,
3. Need for training.

To answer the main research question **how to design online video educational services** the author has provided goal and roles models, process model and a solution prototype.

7.2 Future research

As the field of video counselling is not thoroughly researched the author sees several possibilities and needs for future research. To improve the video counselling tool prototype further research could be done by analysing the private world-wide e-counselling service providers. Further comparison on video service barriers can be done by comparing counselling with medical sector services. While introducing the video counselling tool, action design research could be used for modelling and analysis. After wider implementation in-depth analysis of the usability and effects of using video counselling, including client feedback on satisfaction and its connection with service access and used channels, could be very useful for further developments.

References

- Aguilar-Saven, R.S. (2004). Business process modelling: Review and framework. *International Journal of Production Economics Vol 90, Issue 2*. Retrieved in March 2018 from <https://www.sciencedirect.com/science/article/pii/S0925527303001026>
- Anderson, C. (2010). Presenting and Evaluating Qualitative Research. *American Journal of Pharmaceutical Education. Volume 74, No. 8*. Retrieved in March 2018 from: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2987281/>
- Baker, K.D., Ray, M. (2011). Online counselling: The good, the bad, and the possibilities. *Counseling Psychology Quarterly Vol 24, Issue 4*.
- Bastos, R.M and Ribeiro, M.B. (2005). MASUP: An Agent-Oriented Modeling Process for Information Systems. Eds. Choren, R. Lucena, C., Garcia, A, Romanovsky, A. Software Engineering for Multi-Agent Systems III. *Springer-Verlag Berlin Heidelberg*.
- Bond, T. (2006). Ethical Guidelines for researching Counselling and psychotherapy. *Counselling and psychotherapy research Vol 4, No 2*. Retrieved in March 2018 from <https://onlinelibrary.wiley.com/doi/full/10.1080/14733140412331383893>
- British Columbia. (2018). Website of British Columbia Province Government in Canada. Retrieved from <https://www2.gov.bc.ca/assets/gov/british-columbians-our-governments/services-policies-for-government/service-experience-digital-delivery/service-design-model.pdf>
- Chuttur, M.Y. (2009). Overview of the Technology Acceptance Model: Origins, Developments and Future Directions. Indiana University, USA. *Sprouts: Working papers on Information Systems, 9 (37)*. Retrieved in April 2018 from <http://test.woland.me/pdfjs/pdf.js/test/pdfs/TAMReview.pdf>
- Davis, F.D. (1989). Perceived usefulness, Perceived Ease of Use, and User acceptance of Information technology. *MIS Quarterly, Vol 13, No.3*. Retrieved from https://www.jstor.org/stable/249008?newaccount=true&read-now=1&seq=2#page_scan_tab_contents
- Davison, R.M, Wagner, C & Ma, L.C.K. (2005). From government to e-government: a transition model. *Information Technology and People, Vol 18, Issue 3*. Retrieved from <https://www.emeraldinsight.com/doi/abs/10.1108/09593840510615888>
- Design Council. (2007). Eleven Lessons: Managing Design in Eleven Global Companies. Desk Research Report. London. A study of the design process. London. Retrieved from https://www.designcouncil.org.uk/sites/default/files/asset/document/ElevenLessons_DeskResearchReport_0.pdf
- Design Council. (2018). Website of Design Council in United Kingdom. Retrieved from <https://www.designcouncil.org.uk/news-opinion/design-process-what-double-diamond>
- ELGPN. (2018). ELGPN website. Retrieved April 28, 2017 from <http://www.elgpn.eu/about-us>

- EC. European Commission. (2007). Breaking Barriers to e-Government. *DG Information Society and Media*. Retrieved from https://www.oii.ox.ac.uk/archive/downloads/research/egovbarriers/deliverables/solutions_report/Solutions_for_eGovernment.pdf
- EC. European Commission. (2013). Recommendation. Investing in Children: breaking the cycle of disadvantage (2013/112/EU). Official Journal of the European Union. L59/5. Retrieved from <https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:32013H0112&from=ET>
- EC. European Commission. (2016). eGovernment Benchmark 2016. A Turning point for eGovernment development in Europe? Final Insight Report, vol 1.
- EKI. Eesti Keele Instituut. (2018). Eesti keele seletav sõnaraamat. Retrieved from <http://www.eki.ee/dict/ekss/index.cgi?Q=n%C3%B5ustama&F=M>
- EuroGuidance. (2018). Euroguidance website. Retrieved April 28, 2017 from <https://www.euroguidance.eu/about-us>
- European Guidance Week 2017. (2017). EU Presidency Conference on Lifelong Guidance Policy and Practice background paper. Retrieved 28 April, 2018 from http://haridusinfo.innove.ee/UserFiles/Karj%C3%A4%C3%A4riteenused/EUpresidency_conference_discussion_paper_22092017.docx.pdf
- EP. European Parliament. (2015). Using technology to improve public services and democratic participation. *European Parliamentary Research Service*. Author Ron Davies. Retrieved from https://ec.europa.eu/futurium/en/system/files/ged/eprs_ida2015565890_en.pdf
- Foundation Innove. (2016). Innove Arengukava 2016-2020. Retrieved from https://www.innove.ee/wp-content/uploads/2017/07/SA-Innove_Arengukava_2016-2020.pdf
- Foundation Innove. (2017). Abimaterjal 1.-2. Kooliastme õpilaste suulise ja kirjaliku kõne oskuste kirjeldamiseks eesti keele õppeaine põhjal. *SA Innove*. Tallinn.
- Foundation Innove. (2018a). Õppenõustamine. Retrieved in March 2018, from: <https://www.innove.ee/rajaleidja/oppenoustamine/>
- Foundation Innove. (2018b). Kontaktid. Retrieved in March 2018, from: <https://www.innove.ee/kontaktid/>
- Foundation Innove. (2018c). Rajaleidja, õppenõustamine. Retrieved in March 2018, from <https://rajaleidja.innove.ee/oppenoustamine/>
- Goldkuhl, G. & Röstlinger, A. (2010). Development of public e-services – a method outline. Research Group VITS. Linköping University. Paper accepted to the 7th Scandinavian Workshop on E-Government. Retrieved from <https://pdfs.semanticscholar.org/12bd/eb46cdfc5c2e915e10fb0f9ae828b5fa7b7f.pdf> (22.04.2018)

- Goldstein, S.N., Johnston, R., Duffy, J. & Rao, J. (2002). The service concept: the missing link in service design research. *Journal of Operations Management*, Vol 20.
- Government Office. (2011). National Reform program ESTONIA 2020. Retrieved from https://www.valitsus.ee/sites/default/files/content-editors/arengukavad/eesti2020_tekstiosa_2017-2020.pdf
- Grau et al. Grau, G., Cares, C., Franch, X. Navarrete, F.J. (2006). A Comparative Analysis of i*Agent-Oriented Modelling Techniques. In *Proceedings of the Eighteenth International Conference on Software Engineering and Knowledge Engineering (SEKE'06)*. San Francisco.
- HaridusSilm. (2018). Statistika. Retrieved in in April 28, 2018 from <https://www.haridussilm.ee/>
- Heeks, R. 2001. Understanding e-Governance for Development. Institute for Development Policy and Management, University of Manchester: Institute for Development Policy and Management. *Working Paper No. 11*.
- Heppner, P.P, Claiborn, C.D. (1989). Social Influence Research in Counseling: A Review and Critique. *Journal of Counseling Psychology* 36(3). Retrieved from <http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.1006.9454&rep=rep1&type=pdf>
- Institute of Digital Government at Waseda University. (2017). The 13th WASEDA – IAC. International Digital Government Rankings 2017 Report. Tokyo. Retrieved from http://iacio.org/pdf/2017_Digital-Government_Ranking_Press_Release.pdf
- Johnson, M.J. (2017). E-Counselling: A Review of Practices and Ethical Considerations. University of New Brunswick. *Antistasis*, Vol 7, No 1. Retrieved in March 2018 from <https://journals.lib.unb.ca/index.php/antistasis/article/view/25160>
- Joore, P. & Brezet, H. (2015). A Multilevel Design Model: the mutual relationship between Product-service system development and societal change processes. *Journal of Cleaner Production*, Vol 97, 15. Retrieved from <https://www.sciencedirect.com/science/article/pii/S0959652614006313#bib15>
- Kulesza et al. Kulesza, U., Garcia, A., Lucena, C., Alencar, P. (2005). A Generative Approach for Multi-agent System Development. Eds. Choren, R., Garcia, A., Lucena, C., Romanovsky. *Software Engineering for Multi-Agent Systems III*. Springer-Verlag Berlin Heidelberg.
- Kvasnicova, T., Kremenova, I., & Fabus, J. (2016). From an analysis of e-services definitions and classifications to the proposal of new e-service classification. *Procedia Economics and Finance* 39.
- Li, M. & Feeney, M.K. (2014). Adoption of Electronic Technologies in Local U.S. Governments: Distinguishing Between E-Services and Communication Technologies. *American Review of Public Administration*, vol 44 (1).

- Madon, S. (2009). E-Governance for Development. In: e-Governance for Development. Technology, Work and Globalization. *Palgrave Macmillan*. London. Retrieved from https://link.springer.com/chapter/10.1057/9780230250499_4
- Miller et al. Miller, T., Pedell, S., Lopez-Lorca, A.A., Mendoza, A., Sterling, L., Keirnan, A. (2015). Emotion-led modelling for people-oriented requirements engineering: the case study of emergency systems. *ResearchGate*. Retrieved from https://www.researchgate.net/publication/281455579_Emotion-led_modelling_for_people-oriented_requirements_engineering_the_case_study_of_emergency_systems
- MoEC. Ministry of Economic Affairs. (2013a). Estonian Information Society development plan 2020. Retrieved from https://www.valitsus.ee/sites/default/files/content-editors/arengukavad/eesti_infouhiskonna_arengukava_2020_0.pdf
- MoEC. Ministry of Economic Affairs and Communications. (2013b). Avalike teenuste korraldamise roheline raamat. Retrieved from https://www.mkm.ee/sites/default/files/avalike_teenuste_korraldamise_roheline_raamat.pdf
- MoEC. Ministry of Economic Affairs and Communications. (2013c). Digital Agenda 2020. Retrieved from https://www.mkm.ee/sites/default/files/digital_agenda_2020_estonia_engf.pdf
- MoEC. Ministry of Economic Affairs and Communications. (2013d). Tööjõuvajaduse prognoos aastani 2020. Retrieved from: https://www.mkm.ee/sites/default/files/toojouvajaduse_prognoos_aastani_2020_luhikirjeldus.pdf
- MoEC. Ministry of Economic Affairs and Communications. (2014). Kasutajasõbralike e-teenuste disainimine Maanteeameti näitel. Käsiraamat avalikule sektorile. Ziraff. Retrieved from https://www.ria.ee/public/publikatsioonid/E-teenuste_disainimise_kasiraamat.pdf
- MoER. Ministry of Education and Research. (2014). Lifelong Learning Strategy 2020. Retrieved from https://www.hm.ee/sites/default/files/estonian_lifelong_strategy.pdf
- MoER. Ministry of Education and Research. (2016). Madala haridustasemega noored. Haridus- ja Teadusministeerium. Retrieved from https://www.hm.ee/sites/default/files/haridusmin_madala_haridustasemega_noorte_osak_aal.pdf
- MoER. Ministry of Education and Research (2018). Hariduslike erivajadustega õpilane. Retrieved from: <https://www.hm.ee/et/tegevused/alus-pohi-ja-keskharidus/hariduslike-erivajadustega-opilane>
- MoI. Ministry of Internal Affairs. (2014). Regional Development Strategy 2014-2020. Retrieved from https://www.siseministeerium.ee/sites/default/files/dokumendid/eesti_regionaalarengu_strateegia_2014-2020.pdf

- The Nielsen Company. (2015) Screen wars slide share, Retrieved from <https://www.slideshare.net/aidelisagutierrez/nielsen-globaldigitallandscape-report-march-2015>
- Nuseibeh, B. & Easterbrook, S. (2000). Requirements engineering: a roadmap. *Proceedings of the Conference on the Future of Software Engineering*. Limerick Ireland.
- Paavel, H. (2007). Eesti Koolipsühholoogide Ühing – mis ja milleks? *Haridus 1-2/2007*.
- Palvia, S.C.J. & Sharma, S.S. (2017). E-Government and E-Governance: Definitions/Domain Framework and Status around the World. *Int. Conf. E-Gov. 3,1-12*. Retrieved from https://www.researchgate.net/publication/268411808_E-Government_and_E-Governance_DefinitionsDomain_Framework_and_Status_around_the_World
- Parry, G., Newnes, L. & Huang, X. (2011). Goods, Products and Services. Eds. Macintyre, M. et al. (2011) Service Design and Delivery, *Service Science: Research and Innovations in the Service Economy*. Springer New York Dordrecht Heidelberg London.
- Poliitikauuringute Keskus Praxis. (2011). Õppenõustamisteenustega rahulolu ja nende kättesaadavus. *Riiklik Eksami-ja Kvalifikatsioonikeskus*. Tartu. Retrieved from <http://www.praxis.ee/wp-content/uploads/2014/03/2011-Oppenoustamisteenustega-rahulolu-ja-kattesaadavus.pdf>
- Poliitikauuringute keskus Praxis. (2013). E-teenuste kasutamise tulemuslikkus ja mõju. Uuringu aruanne. Tallinn. Retrieved from <http://www.praxis.ee/tood/e-teenuste-kasutamise-tulemuslikkus-ja-moju/>.
- Poliitikauuringute keskus Praxis. (2014). Telemeditsiini laialdasem rakendamine Eestis. Uuringuaruanne. Retrieved from http://rahvatervis.ut.ee/bitstream/1/6004/2/Praxis2014_uuringuaruanne.pdf
- Pärnapuu, P. (2018, March 2). Kaasava hariduse luhtumine ja tuhanded abita lapsed. *Õpetajate leht*. Retrieved from <http://opleht.ee/2018/03/kaasava-hariduse-luhtumine-ja-tuhanded-abita-lapsed/>
- Raitoharju, R. (2007). Information Technology Acceptance in the Finnish Social and Healthcare Sector. *Turun Kauppakorkeakoulun julkaisuja*. Tampere.
- RK. Riigikogu. (2010). Basic School and Upper Secondary Schools Act. Retrieved from <https://www.riigiteataja.ee/en/eli/501022018002/consolide>
- RK. Riigikogu. (1999). Preschool Child Institutions Act. Retrieved from <https://www.riigiteataja.ee/en/eli/529012018008/consolide>
- RK. Riigikogu. (2015). Social Welfare Act. Retrieved from <https://www.riigiteataja.ee/en/eli/509042018002/consolide>
- Riiklik Eksamikeskus. (2010). Nõustamise alused. Abimaterjal õppenõustamiskeskustele. Retrieved from http://www.eatl.ee/wp/wp-content/uploads/Noustamise_alused.pdf
- Roland, N. (1993). What is counselling? Eds. Corney, R & Jenkins, R. *Counselling in General Practice*. Routledge. Chapter 3.

- Scholl, H.J. (2010). Electronic Government. In Scholl, H.J. (2010). E-Government Information, technology and transformation. *Routledge*. New York
- Segelström, F., Raijmakers, B. & Holmlid, S. (2009). Thinking and Doing Ethnography in Service Design. Linköping University, Department of Computer and Information Science. Sweden.
- Sein et al., Sein, M.K., Henfridsson, O., Purao, S. Rossi, M. & Lidgren, R. (2011). Action Design Research. *MIS Quarterly*, Vol 35 No. 2
- Sibold, G. (2017). Maksuameti ja LHV ühisteenus sai pangaliidu innovatsioonipreemia. *Geenius*, 16.06.2017. Retrieved from <https://geenius.ee/uudis/maksuameti-ja-lhv-uhisteenus-sai-pangaliidu-innovatsioonipreemia/>
- Sterling, L.S., & Taveter, K. (2009). The Agent-Oriented Modeling. Cambridge, MA: *The MIT Press*.
- Taylor et al. Taylor, S. J., Bogdan, R. & DeVault, M. (2015). Introduction to Qualitative Research Methods. *John Wiley and Sons, Inc. Hoboken*. New Jersey.
- United Nations. (1948). Universal Declaration of Human Rights. *UNESCO*. Retrieved from: <http://www.un.org/en/universal-declaration-human-rights>
- United Nations. (1994). The Salamanca Statement and Framework for Action on special needs education. *United Nations*. Retrieved from: http://www.unesco.org/education/pdf/SALAMA_E.PDF
- Vainküla, K. (2014). Rakvere hammustaja. *Eesti Ekspress*, No 48. (26.11.2014). Retrieved in from: <https://dea.digar.ee/cgi-bin/dea?a=d&d=eestiekspress20141126.2.11.2&st=1&l=en>
- Vapper, T. (2017, December 8). Kust leida logopeede? *Õpetajate leht*. Retrieved from <http://opleht.ee/2017/12/kust-leida-logopeede/>
- Venkatesh, V., Chan, F.K.Y. & Thong, J.Y.L. (2012). Designing e-government services: Key service attributes and citizens' preference structures. *Journal of Operations management*, Vol 30. Issues 1-2. Retrieved from <https://www.sciencedirect.com/science/article/abs/pii/S0272696311001100>
- Wooldridge, M., Jennings, N.R. & Kinny, D. (1999). A methodology for agent-oriented analysis and design. *Proceedings of the third annual conference on Autonomous Agents*. Retrieved from <http://www.cs.ox.ac.uk/people/michael.wooldridge/pubs/agents99.pdf>

Appendices

Appendix 1. Questionnaire for counsellors

Overview

Name, occupation, experience in the field

1.1 Please describe your experience with video counselling (SQ1)

1.2 The volume, duration, time of the experience? (SQ1)

1.3 The essence (first contact, counselling, evaluation or evaluation feedback etc) of the experience (SQ1)

1.4 Which were the target group(s)? (SQ1)

1.5 Is the experience only from your last occupation or also from previous? If so, please describe. (SQ1)

Evaluation of the tool

2.1 Which tool of communication did you use? Why? (SQ1)

2.2 How do you assess this tool? What about it was comfortable, what aspects would need development? (SQ2)

Process

3.1 How was the agreement for video counselling reached with the client? (SQ1, SQ4)

3.2 Did you explore the clients' preparedness for video counselling regarding skills, equipment and connection? How? (SQ4)

Assisting tools

4.1 Did you use any other tools pre or during the counselling session? If yes, then which? (SQ2)

4.2 Did you had to exchange some materials during the session? How did you do it? (SQ2)

4.3 Were you confident that the client on the other side is the person you were supposed to counsel? (SQ2, SQ4)

4.4 Do you find identification to be a necessary aspect for video counselling? Why? (SQ2, SQ4)

Personal attitude and motivation

5.1 How would you differentiate video counselling from *face-to-face* counselling? What are the differences? (SQ2)

5.2 What motivated you to try video counselling? (SQ1)

5.3 How do you evaluate your own preparedness to conduct video counselling? (SQ1, SQ2)

5.4 What do you see as the benefits of video counselling? Why? (SQ1)

5.5 What do you see as boundaries and constraints to video counselling? (SQ2)

5.6 Do you feel that video counselling needs to be further developed? If yes, then for whom this would be beneficial? How? (SQ1)

5.7 In which circumstances and for which target groups do you think video counselling is not suitable? Why? (SQ1)

Client feedback

- 6.1 Which expression did you get from the client? How do you think they felt during the video session? How did the video session differentiate from the clients' perspective? (SQ1, SQ2)
- 6.2 Did you receive client feedback from the video session? If yes, then what did they say? (SQ1, SQ2)

Pros and cons

- 7.1 To summarise what do you feel went well with this experience? (SQ1)
- 7.2 What could be better? (SQ2, SQ4)

Expectations

- 8.1 What would you need in order to continue with providing video counselling to your clients? (SQ4)
- 8.2 What would you need for personal and professional support? (SQ4)
- 8.3 What kind of support would you need technologically? How do you feel video counselling process and technology should be like? (SQ4)

Extra

- 9.1 Would you like to add something else? (SQ1, SQ2, SQ3, SQ4)

Appendix 2. Questionnaire for the parent

Experience

- 1.1 Please describe your experience with video counselling (SQ1, SQ2)
- 1.2 How did you reach the decision to try video for counselling? (SQ4)
- 1.3 Were you agree right away? Why? (SQ4)

The technological aspect of the experience

- 2.1 What was the communication technology you used? (SQ4)
- 2.2 What is your opinion of this tool? What was good about it, what would you change? (SQ2, SQ4)
- 2.3 Were there any other web-based tools that were used during the counselling? If so, then please describe. (SQ2, SQ4)

Personal attitude

- 3.1 What motivated you to try video counselling? (SQ1)
- 3.2 Have you done it before, somewhere else? In what circumstances? (SQ2)
- 3.3 How prepared you are for trying something like this? (SQ2)
- 3.4 How do you think – is video counselling an important service? (SQ1)
- 3.5 Do you think it is suitable for everyone? Please explain. (SQ1, SQ2, SQ4)

Conclusions

- 4.1 How did you feel after the video session? (SQ1, SQ2, SQ4)
- 4.2 In your opinion - was it useful? Please explain. (SQ1, SQ4)
- 4.3 Would you agree to try it again? (SQ2, SQ1, SQ4)
- 4.4 AS a summary – what do you think went well with this experience? (SQ1, SQ4)
- 4.5 And what would you change? (SQ2)

Expectations

- 5.1 How would you describe a perfect video counselling? (How would the tool and the process look) (SQ4)

Appendix 3. Questions to stakeholders

Questions to the stakeholders were sent with e-mails and shortened to maximum with the aim to receive general attitude towards video counselling, their opinion on the usefulness and responsibility. Therefore, only three questions were sent:

Q1: According to your opinion – why and for whom video counselling could be provided?

Q2: What could be the benefits of providing counselling with video communication?

Q3: Who (which authority) should develop video counselling service?

Appendix 4. Internet search outcomes for e-counselling terms in Estonian

E-Nõustamine - Eesti Seksuaaltervise Liit

<https://www.estl.ee/enõustamine> ▼ Translate this page

Eesti SeksuaalTervise Liit.

E Nõustamine - Eesti Seksuaaltervise Liit

<https://www.estl.ee/enõustamine25> ▼ Translate this page

Eesti SeksuaalTervise Liit.

E-nõustamine, e-psühholoog? - DELFI Naistekas

<naistekas.delfi.ee/foorum/read.php?15,3726225> ▼ Translate this page

Tere, Kas keegi teab, kus saaks Internetis e-nõustamist ehk pöörduda psühholoogi poole e-posti teel, et sel moel oma murele lahendust otsida? Oleksin väga tänulik mõne abistava lingi või vihje eest!

E-nõustamine - Perekeskus Sina ja Mina

<www.sinamina.ee/e-noustamine> ▼ Translate this page

Tere tulemast! 2017. aastal ei jätkka me e-nõustamisteenuse pakkumisega, küll aga on huvilistel võimalik uurida siiani küsitud küsimusi ja spetsialistide vastuseid iseenda seisundi, paarisuhte ja laste kasvatamisega seotud teemadel. Küsimustele on vastanud Perekeskus Sina ja Mina nõustajad Meelike Saarna, Auli ...

Seksuaaltervisealane ja psühholoogiline nõustamine nüüd ka Skype'i ...

<www.terviseinfo.ee/.../4425-seksuaaltervisealane-ja-psuhholoogilin...> ▼ Translate this page

Oct 16, 2015 - Eesti Seksuaaltervise Liidu Seksuaaltervise Kliinik pakub nüüdsest seksuaaltervisealast ja psühholoogilist nõustamise teenust ka Skype'i teel. Skype'i teel toimuv e-nõustamise teenus pakub seksuaaltervise vallas nii meditsiinilist kui ka psühholoogilist abi. E-nõustamise teenust saab tellida naiste- ja ...

E-nõustamine – Raseduskriisi nõustamine

<rasedus.ee/noustamine/e-noustamine> ▼ Translate this page

Sellel lehel on Sul võimalus suhelda www.rasedus.ee raseduskriisi nõustajatega. Saad kirjutada kirj: või esitada küsimusi raseduse, sünnituse, abordi, lähedaste suhete ja paljude teiste sind huvitavate teemade või probleemide kohta. Sa ei ole oma mures üksil! Sinu küsimustele ja kirjale vastavad ämmaemand ja ...

e-nõustamine – MTÜ Partnerlus

<www.partnerlus.ee/tag/e-noustamine/> ▼ Translate this page

Jun 2, 2009 - MTÜ Partnerlus poolt välja töötatud projekti üldeesmärk on: Kagu-Eesti töötute aktiviseerimine, koolitamine ja nõustamine nende ettevõtlikkuse tõstmiseks ja tööturule naasmiseks töötaja või tööandjana. Projekti tegevused: – E-nõustamis- ja koolituskeskkonna loomine ja käivitamine; – E-nõustajate ...

E-nõustamine - Avaleht

<integratsiooniinfo.ee/et/e-noustamine> ▼ Translate this page

E-nõustamine. Vastame teie lõimumisalasale küsimusele kolme tööpäeva jooksul. Palun esitage oma küsimus e-posti teel info@integratsiooniinfo.ee ja jätke oma kontaktid, mille kaudu saaksime teile vastata. Integratsiooni Sihtasutus nõustaja aitab Sul leida vastused Eestis elamist pudutavate teemade kohta nagu:.

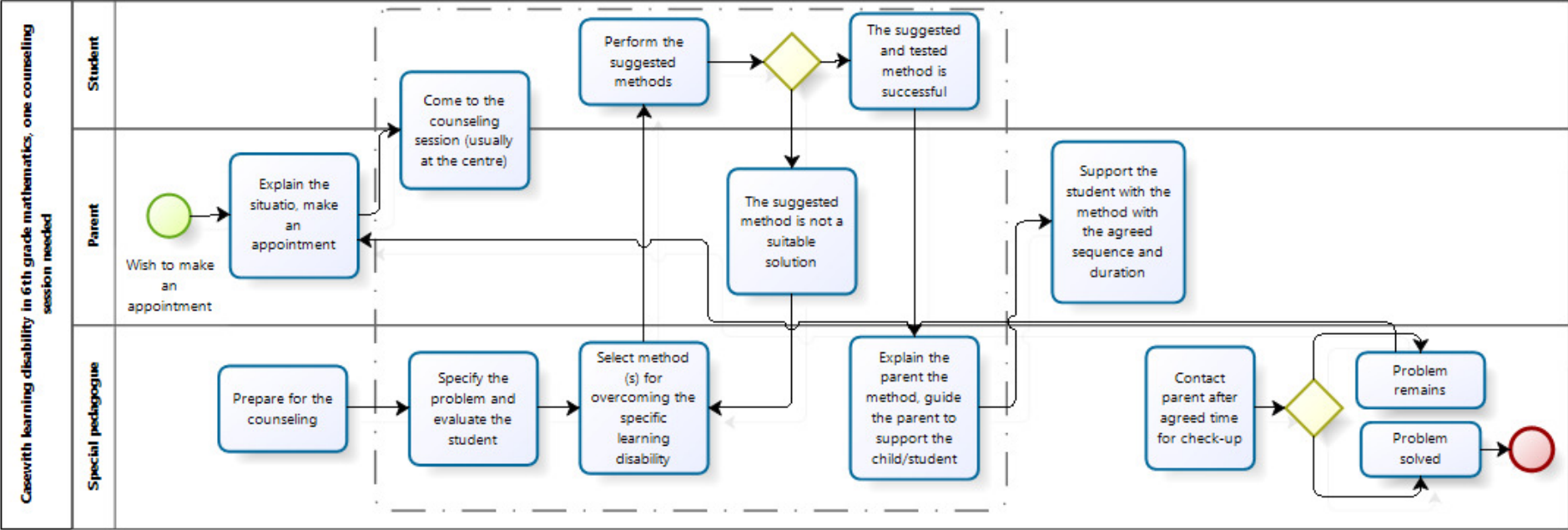
Appendix 5. Explanation of internet search outcomes

Search outcome for “e-nõustamine” from www-google.com, Estonian	Translation/explanation in English	Actual provision canal for counseling according to the website	Authors comment
E-Nõustamine – Eesti Seksuaaltervise Liit https://www.estl.ee/enõustamine	E-counselling- Estonian Sexual Health Association	Service is no longer active	Not active
E-nõustamine, e-psühholoog? - DELFI Naistekas naistekas.delfi.ee/foorum/read.php?15,3726225 Tere, Kas keegi teab, kus saaks Internetis e-nõustamist ehk pöörduda psühholoogi poole e-posti teel	E-counselling, e-psychologist? A question in a forum of where to find e-counselling (psychology) in the form of e-mail	Recommends www.lahendus.net	Lahendus.net is an e-mail service.
E-nõustamine – Perekeskus Sina ja Mina www.sinamina.ee/e-noustamine Tere tulemast! 2017. aastal ei jätkame e-nõustamisteenuse pakkumisega, küll aga on huvilistel võimalik uurida siiani küsitud küsimusi ja spetsialistide vastuseid	E-counselling- family centre Sina ja Mina (You and Me). Announcement that e-counselling is no longer provided in 2017, but previous questions and answers will be available.	The previous counseling how ever was questions and answers, not counseling as a process	Not counseling service according to the definition used in the thesis
Seksuaaltervisealane ja psühholoogiline nõustamine nüüd ka Skype'i ... www.terviseinfo.ee/.../4425-seksuaaltervisealane-ja-psuhholoogilin... Okt 16, 2015 - Eesti Seksuaaltervise Liidu Seksuaaltervise Kliinik pakub nüüdsest seksuaaltervisealast ja psühholoogilist nõustamise teenust ka Skype'i teel. Skype'i teel toimuv e-nõustamise teenus pakub seksuaaltervise vallas nii meditsiinilist kui ka psühholoogilist abi. E-nõustamise teenust saab tellida naiste- ja ...	Sexual Health and Psychological counselling now (Oct 16, 2015) available in Skype	E-counselling service is for adults who have questions regarding sexual health or psychology. In cases the patient can't or won't go to the appointment physically, Skype counselling may be a solution. It can be also anonymous.	Video counselling
E-nõustamine – Raseduskriisi nõustamine rasedus.ee/noustamine/e-noustamine Sellel lehel on Sul võimalus suhelda www.rasedus.ee raseduskriisi nõustajatega. Saad kirjutada kirja või esitada küsimusi	E-counselling – Pregnancy crisis counselling. A website where you can interact with counsellors by sending a question or e-mail	A possibility to send anonymous questions or register to individual(face-to-face) counselling.	Not counseling service according to the definition used in the thesis

<p>e-nõustamine – MTÜ Partnerlus www.partnerlus.ee/tag/e-noustamine/ Jun 2, 2009 - MTÜ Partnerlus poolt välja töötatud projekti üldeesmärk on: Kagu-Eesti töötute aktiveerimine (...). Projekti tegevused: – E-nõustamis- ja koolituskeskkonna loomine ja käivitamine; – E-nõustajate ...</p>	<p>Jun 2, 2019, NGO Partnerlus is implementing a project with an aim to activate unemployed people. Activities: creation of e-counselling and training environment;</p>	<p>No longer active</p>	<p>Not active</p>
<p>Küsi nõustajalt - Peaasi.ee peaasi.ee/kysi-noustajalt/ Küsi nõustajalt. Sul on vaimse tervisega seotud küsimus, mure või kahtlus? (...) Kirjuta Peaasi.ee e-nõustajatele! Nõustajad on kogemustega vaimse tervise spetsialistid ja vastavad kahe päeva jooksul.</p>	<p>Ask the counsellor peaasi.ee In case of questions, worries or doubts write to e-counsellor, who will answer within two days</p>	<p>Possibility to send question or call</p>	<p>Not counseling service according to the definition used in the thesis</p>
<p>e-nõustamine - Võlaabi www.volaabi.ee/et/e-noustamine Kaasaegne, kiire õigusabi meie kiiresti arenevas ühiskonnas, (...) kiireim ja odavam viis kasutada Võlaabi juristide poolt pakutavat e-nõustamist. Võlaabi juristidega saate suhelda otse internetis.</p>	<p>Debt counselling by lawyers with direct contact in internet.</p>	<p>Counselling is provided with e-mail</p>	<p>Not counseling service according to the definition used in the thesis</p>
<p>E-nõustamine - Avaleht integratsiooniinfo.ee/et/e-noustamine E-nõustamine. Vastame teie lõimumisalasele küsimusele kolme tööpäeva jooksul. Palun esitage oma küsimus e-posti teel info@integratsiooniinfo.ee</p>	<p>E-counselling for integration. We will answer your questions within 3 working days. Please send your e-mail to...</p>	<p>Questions will be answered within 3 working days</p>	<p>Not counseling service according to the definition used in the thesis</p>
<p>Search outcome for “videonõustamine” from www.google.com, Estonian</p>	<p>Translation/explanation in English</p>	<p>Actual provision canal for counselling according to the website</p>	<p>Authors comment</p>
<p>SEB Videonõustamine - Eesti Pangaliit www.pangaliit.ee/et/kasulik/...2017/87.../410-seb-videonoustamine Videonõustamise tehnilist lahendust pakub Ericsson AB, kes töötab välja SEB Grupile sobivaima video-audio nõustamise keskkonna.</p>	<p>Special technological environment provided by Ericsson AB for banking counselling.</p>	<p>The only outcome for, and also priced as an innovation nominee,</p>	<p>Video counselling</p>
<p>Search outcome for “veebinõustamine” (web-counselling) from www.google.com, Estonian</p>	<p>Translation/explanation in English</p>	<p>Actual provision canal for counselling according to the website</p>	<p>Authors comment</p>

<p>Veebinõustamine enesetunne.ee <i>enesetunne.ee/noor/abi-voimalused/veebinouustamine/</i> Veebinõustamise all mõistetakse nõustamist interneti vahendusel. See võib toimuda nn. online nõustamisena (näiteks <i>Skype</i> vahendusel, jututoas), foorumipostitustele ja kirjadele vastamise vormis või spetsiaalsetes küsimus-vastus rubriikides.</p>	<p>Information site for mental health. Explains that web counselling can be either in forums, through e-mails or online (like in <i>Skype</i>).</p>	<p>Provides forums and chat-based sites; no channels for video counselling</p>	<p>Not counseling service according to the definition used in the thesis</p>
<p>Veebinõustamine - IUSTUS õigusbüroo www.iustus.ee/veebinouustamine/ Veebinõustamine on kaasaegne ja kiire juriidilise õigusabi vorm, mille puhul klient saab õigusabi e-posti vahendusel. Veebinõustamise teenustasu on</p>	<p>Web-counselling is a contemporary and fast form of juridical assistance. The client receives assistance with e-mail. Service fee is</p>	<p>Fee-for-service e-mail</p>	<p>Not counseling service according to the definition used in the thesis</p>
<p>Mugav ja kiire veebinõustamine - EMSA õigusbüroo emsalaw.ee/veebinouustamine/ Veebinõustamine on kaasaegne, mugav ja kiire õigusabi vorm, kus klient saab õigusabi eelkõige e-posti vahendusel. Veebinõustamise teenustasu on</p>	<p>Web-counselling is a contemporary and fast form of juridical assistance. The client receives assistance with e-mail. Service fee is</p>	<p>Fee-for-service e-mail</p>	<p>Not counseling service according to the definition used in the thesis</p>

Appendix 6. A simplified overview of the counselling process



Appendix 7. Clients view for introduction of the video educational counselling service

The screenshot displays a user interface for a video counselling service. At the top, a blue header contains a 'Back' button and the title 'VIDEO COUNSELLING'. The main content area is divided into three columns: 'How does it work?' with two video player thumbnails, 'What do I need?' with a list of five items, and 'Before video counselling session' with a list of five items. A 'Meet our counsellors' section at the bottom features a horizontal scroll of profiles for Mari Maasilikas, Jüri Juurikas, Kati Kadakas, Harri Heeringas, Mati Mustikas, and Kalle Kaalikas. On the right side, there are three blue buttons: 'Test connection', 'Make an appointment', and 'Send information', each with a red question mark. Below these is a white 'Enter code' button with a red question mark, followed by the text 'or log in with ID-card or mobile-ID'. Logos for 'KAART' and 'MOBIIL-ID' are shown. At the bottom right, a chat icon and a dashed box containing the text 'How can we help you?' are visible.

VIDEO COUNSELLING

Back

How does it work?

What do I need?

Before video counselling session

1.
2.
3.
4.
5.

Meet our counsellors

Mari Maasilikas
Speech therapist

Jüri Juurikas
Social pedagogue

Kati Kadakas
Psychologist

Harri Heeringas
Speech therapist

Mati Mustikas
Speech therapist

Kalle Kaalikas
Social Pedagogue

Test connection ?

Make an appointment ?

Send information ?

Enter code ?

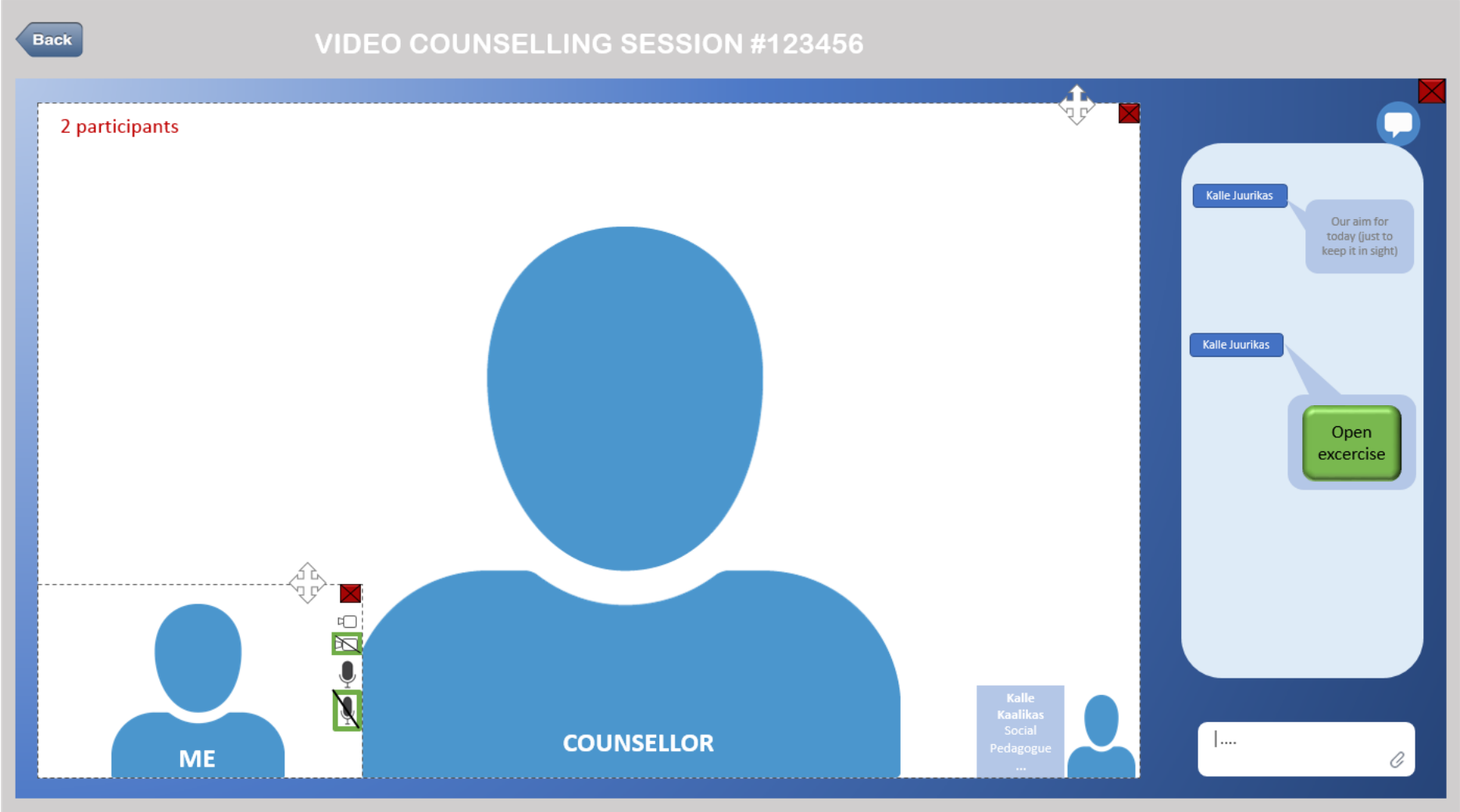
or log in with ID-card or mobile-ID

KAART

MOBIIL-ID

How can we help you?

Appendix 8. Clients view after logging into video counselling session



Appendix 9. Clients view during exercises (exercise retrieved from Foundation Innove, 2017, 67)

The screenshot displays a video counselling session interface. At the top left, there is a 'Back' button. The main title is 'VIDEO COUNSELLING SESSION #123456'. On the left side, it indicates '2 participants'. The central area shows a document titled '9.4. Komplekti 1C ülesande nr 2 lugemistekst B' with the heading 'MIDA TEHA PRÜGIGA?'. The text in the document describes a scene where a mother and father find dead birds and fish on a beach, and a social pedagogist explains the cause of the deaths. On the right side, there is a chat window with a message from 'Kalle Juurikas' saying 'Please read out loud the text'. Below the chat is a text input field and a list of participants, including 'Kalle Juurikas, Social Pedagogist'.

Back

VIDEO COUNSELLING SESSION #123456

2 participants

9.4. Komplekti 1C ülesande nr 2 lugemistekst B

MIDA TEHA PRÜGIGA?

PIRET JA PEETER VAATASID EMA JA ISAGA TELERIST UUDISEID. SAATES NÄIDATI MERERANDA, KUS LIIVA PEAL VEDELES PALJU IGASUGUST RÄMPSU. SEAL OLI PUDELEID, KILEKOTTE JA PALJU MUUD PRAHTI. PRÜGI VAHEL OLI SURNUD KALU JA LINDE. NAD OLID PRAHI SISSE KINNI JÄÄNUD. INIMESED PÜÜDSID ELLU JÄÄNUD LINDE LAHTI PÄÄSTA.

“MUL ON NENDEST LINDUDEST JA KALADEST KAHJU!” ÜTLES EMA.
“KUST SEE SODI ON SINNA SAANUD?” IMESTAS PIRET.

ISA SELETAS: „INIMESED VISKAVAD PRAHTI MAHA JA VETTE. TUUL JA LAINED LIIGUTAVAD PRAHTI. NII TEKIVAD PRÜGISAARED. NEED VÕIVAD LIIKUDA KA RANDA.”
„KUI MEIE SUVEL RANNAS KÄISIME, SIIS SEAL OLI ILUS JA PUHAS.“ TULETAS PEETER MEELDE.

„AGA METSA ALL OLI PRÜGIHUNNIK MAAS.“ MEENUTAS PIRET.

„MÕNED INIMESED VIIVAD PRÜGI METSA. NII SODIKUNNIKUD TEKIVADKI.“ KINNITAS EMA.

„AGA MIKS NAD NII TEEVAD? PRÜGIKASTID ON JU OLEMAS“ IMESTAS PEETER.

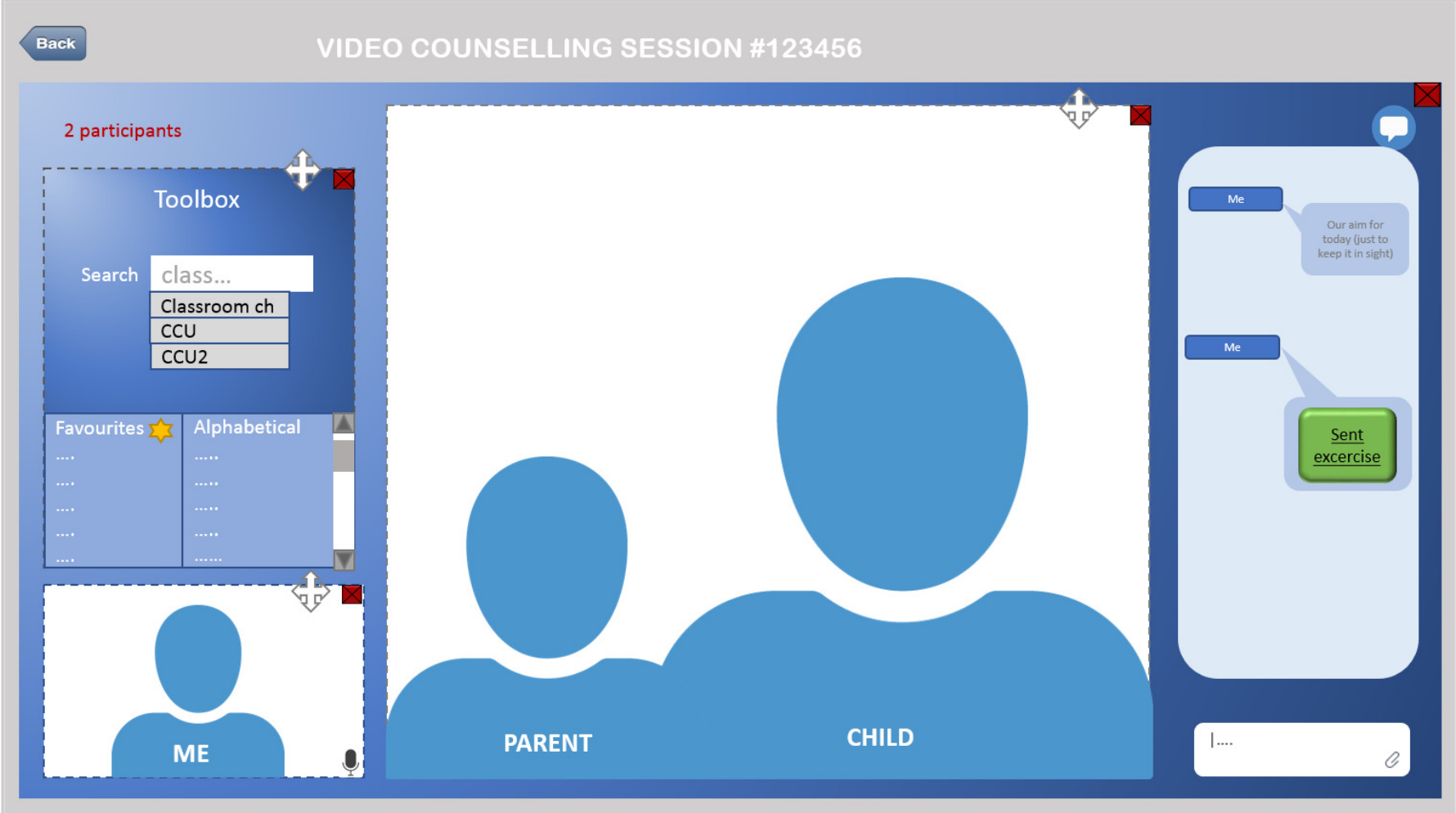
Kalle Juurikas

Please read out loud the text

|....

Kalle Juurikas
Social Pedagogist

Appendix 10. Counsellors view after logging in



Appendix 11. The counsellors view during using an evaluation tool

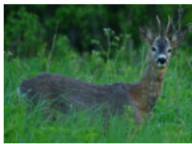




Back VIDEO COUNSELLING SESSION #123456

2 participants

Toolbox

My video

Connect words with pictures

	Deer
	Dog
	Cat
	Lamb
	Lizzard

CHILD

Me: Our aim for today (just to keep it in sight)

Me: **Sent exercise**

|... e