**Aalto University
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Master's Programme in Information Networks

What makes students motivated and engaged in online courses?

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Abstract

Online courses have become a major part of studying. After returning from full online education to face-to-face education, we have now the perfect time to reflect on what has worked and what has not worked regarding online courses. It is also time to weigh which topics need live attendance and which parts work better remotely.

The aim of this study is to find out what could be improved in online lectures and what should be considered when planning an online course. Ten students from ten different Universities were interviewed, to find out what makes them engaged and motivated or vice versa during online courses. The interviews were conducted as semi-structured expert interviews. The thoughts of these students were compared to what was found in literature, to answer the research questions.

The interviews were analysed with the help of ATLAS.ti. Six main categories of engagement methods in online courses were formed: expectations of the course, clarity, community in class, structure and design of lectures, exercise types, and support. The main findings indicate that regardless of the field, students wish for more clarity in course structures. Two other important notes were that practical exercises and realizing, how the course connects to the real world is motivating. In addition, the lecturer's presence and presentation skills have a big impact on engagement.

Keywords online courses, online lectures, engagement in online courses

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Tiivistelmä

Verkkokursseista on tullut merkittävä osa opiskelua. Palattuamme läsnäopetukseen täyden etäopiskelun jälkeen, on täydellinen aika pohtia, mikä verkkokurssien osalta on toiminut ja mikä ei. On myös ajankohtaista punnita, mitkä aiheet vaativat fyysistä läsnäoloa ja mitkä kurssin osat puolestaan toimivat paremmin verkossa.

Tämän tutkimuksen tavoitteena on selvittää, mitä etäluennoissa voitaisiin parantaa ja mitä tulisi ottaa huomioon verkkokurssia suunniteltaessa. Haastattelin kymmentä opiskelijaa kymmenestä eri korkeakoulusta selvittääkseni, mitkä asiat heitä verkkokursseissa innostavat ja motivoivat, ja mitkä eivät. Haastattelut suoritettiin puolistrukturoituina asiantuntijahaastatteluina. Tutkimuskysymyksien vastaamiseksi kyseessä olevien opiskelijoiden ajatuksia verrattiin kirjallisuuskatsauksessa löytyneisiin asioihin.

Haastatteluja analysoitiin ATLAS.ti:n avulla. Sitouttamismenetelmiä verkkokursseja varten muodostui kuusi: kurssin odotukset, selkeys, yhteisöllisyys, luentojen rakenne ja ulkoasu, tehtävätyypit sekä tuen saanti kurssin aikana. Tutkimuksen tulokset osoittavat, että opiskelijat kaipaavat enemmän selkeyttä kurssirakenteisiin, alasta riippumatta. Kaksi muuta tärkeää huomiota olivat, että käytännönläheiset harjoitukset ja ymmärrys kurssin linkittymisestä todelliseen maailmaan parantavat motivaatiota. Lisäksi luennoitsijan läsnäololla ja esiintymistaidoilla on merkittävä vaikutus katsojan kiinnostuksen ylläpitämiseen.

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Writing a master's thesis was one of my favorite projects during my studies. The freedom to work on your own pace, conduct interviews and just focus on getting one big thing done. It came quite natural to me. Although it felt natural, it taught me a lot. A lot about research as work, how much of valuable research people have done, yet how much of it stays in the shadows. However, the most relevant finding was probably the fact that I liked it.

One major reason for the smoothness of this project was the support of my advisor, Tomi Kauppinen. Thank you for saying that writing a master's thesis shouldn't be taken too seriously. Thank you for not making it seem more complicated than it actually is. Your help and support was irreplaceable.

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Contents

1. Introduction

1.1 Background

Online learning is not a phenomenon due to the pandemic as seen in the timeline below, but the bar of it was set higher than ever in 2020 when we rapidly moved from in-class learning to remote learning. A new kind of competence was required from educators; from mastering new platforms to developing motivation on the web. (Hakala, Kairikko & Friman, 2021.) As Clark and Mayer (2016) say, simply presenting information is not the only job of an instructor. It has not been easy, and the expectations of students have unfortunately not been fulfilled. The plans for distance learning of many educational institutions, which were meant to be implemented over months or years, had to be taken into use within a few days. (Daniel, 2020.) Analyzing the pandemic years from the viewpoint of education, now plays a big role in improving distance learning and the new normal (Hakala et al., 2021).
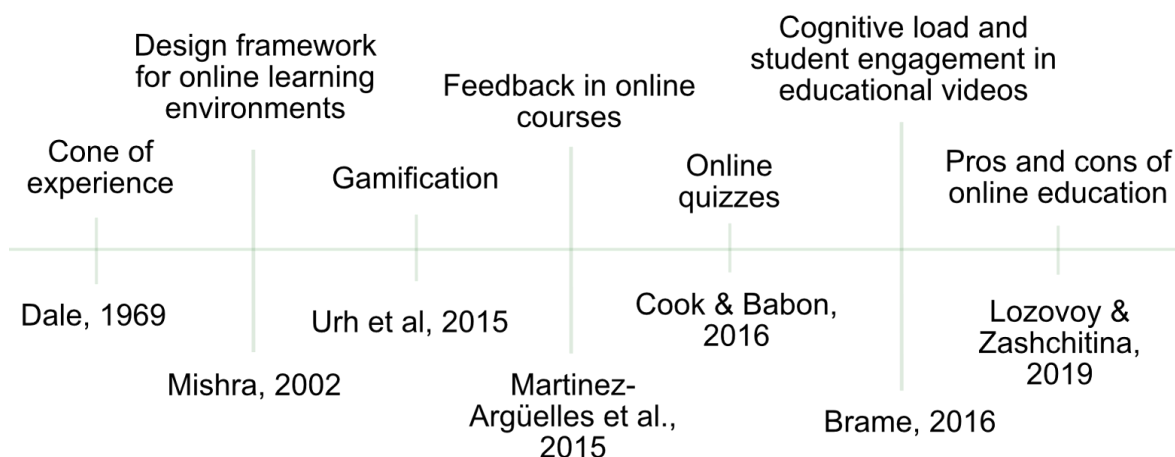
Figure 1. Timeline of some of the findings in literature.

With this thesis I will look for ways to improve online courses. How to structure an online course? What motivates students during courses? How to keep students engaged during remote lectures or pre-recorded videos? What more can be done to ensure student engagement during online courses and lectures?

This is a very important topic, since online education has lowered the studying motivation of many students as said in the interviews of this thesis. From my own experience, online courses often lack a clear structure, and the quality of online lectures varies a lot, although they are often the main information-delivery mechanism in online courses (Brame, 2016). At its best, online education can open opportunities for faster and more accessible learning, but also help teachers with their workload. On top of that, globalization in many ways has for a while been a common topic. Remote education can allow attendance from all over the world, giving online courses the chance to provide a rich environment of collaboration (Khan et al., 2017).

The word engaging comes up a lot in this thesis. Here the definition of engaging is something that draws positive attention or interest to itself. An engaging online course would hereby be a course that has a design, which motivates the students to learn more and get focused with the topic. Engaged learning involves active cognitive processes like creating, problem solving, reasoning, decision making and evaluation, that motivate students to learn due to the learning environments and activities (Kearsley & Shneiderman, 1998). In addition, Clark and Mayer (2016) describe engagement as meaningful psychological interaction between the learner and the learning environment.

1.2 Objectives and research questions

The objective of this thesis is to find guidelines for how to structure an online course, in order to make it more engaging. This dilemma is tackled by interviewing students and comparing the answers with what was found in literature. There are two research questions to research the topic:

1) Which elements make online lectures engaging?

2) What should be noticed when creating an online course?

The first question helps to understand what kind of elements make one focused and interested in online lectures. The second and leading research question aims to guide the future creators of online courses for better design, structure and content choices.

1.3 Scope and limitations

This thesis is limited to focus on the design and structural aspects of online courses. It looks into online courses in general, not a specific field. It does not include technical instructions of the recommended elements. This study also leaves out the accessibility of materials since it is such a wide topic and could not be properly argued in this size of a research.

The collection of data occurred through interviewing students. I decided to leave out educators, because of two reasons. First, I was more interested in finding out the students' perspectives of this topic and second, including the viewpoints of educators would have expanded this master's thesis too much.

1.4 Structure

This thesis begins with a literature review, giving a thorough insight of what online courses look like now, what advantages and disadvantages online courses have and what has already been found regarding online lectures. Secondly, the study and used research methods are described, following with the findings of collected data. In the fifth chapter, all the above will be analyzed to answer the research questions. The possible future areas for research are discussed, following with the conclusion and the limitations of the study.

2. Literature review

Already in 1987 Chickering and Gamson named seven principles to help improve education: contact between students and faculty, student reciprocity and cooperation, prompt feedback, time on task, active learning techniques, communication of high expectations and respect for diverse talents and ways of learning. According to literature these principles should be applied also in online education. Additionally, Khan et al. (2017) name six elements that should be taken into consideration within online courses: integration of design elements, accessibility of materials, value of interdisciplinary collaboration, development of community among students and faculty, encouraging valuable discussion and use of effective assessment methods. In the following chapters these and other additional aspects are discussed to get a sense of what a good educational online course could look like.

2.1 Engagement in courses and educational videos

There are many ways to engage students in courses, whether they are done completely online, hybrid or in class. Brame (2016) names three elements that provide a solid base for the development of video as an effective educational tool: student engagement, active learning and cognitive load. Engagement can be divided into two categories. First, behavioural engagement, which means any actions taken by the learner during learning, such as creating written or oral summaries of lesson materials, underlining text, playing a game or contributing a discussion. Second, psychological engagement, meaning the mental activities during learning, like mentally organizing the material into a coherent structure or connecting new content with previous knowledge. These two forms of engagement can of course complement each other or be mixed. (Clark & Mayer, 2016.) Table 1 shows examples of behavioural and psychological engagement. In online learning in particular behavioural engagement means actions like clicking on a screen object, contributing to an online discussion, writing in a textbox, underlining text or playing a game (Fiorella & Mayer, 2015).

Behavioural engagement	Psychological engagement
Summarising = creating written or oral summaries of a lesson's material	Attending to relevant material
	Mentally organising material into coherent structures
Mapping = creating spatial representations of a lesson's key ideas	Integrating material with relevant prior knowledge
Drawing = creating drawings that depict a lesson's key material	
Imagining = imagining a drawing that depict a lesson's key material	
Self-testing = giving yourself practice test on a lesson's material	
Self-explaining = creating written or oral explanations of for you confusing parts of a lesson	
Teaching = explaining a lesson's material to others	
Enacting = acting out a lesson's material	

Table 1. Behavioural engagement (Fiorella & Mayer, 2015) and psychological engagement (Clark and Mayer, 2016).

An important factor is that people are more likely to understand material when they can engage in active learning (Clark & Mayer, 2016). The importance of active learning is nothing new. Back in 1991 Bonwell and Eison named general characteristics to describe active learning:

- Students are involved in more than listening.
- Less emphasis is placed on transmitting information and more on developing students' skills.
- Students are involved in higher-order thinking (analysis, synthesis, evaluation).
- Greater emphasis is placed on students' exploration of their own attitudes and values.

Khan et al. (2017) argue that in online courses it is critical to include active learning through discussions, assignments and assessments to enhance student engagement. In addition, Pearl Jacobs (2014) highlights the importance of group projects, since they may help with a challenge that is often faced especially in online courses: students not feeling connected with the institution and educational environment. He also lists the many beneficial skills that group work can teach, such as critical thinking, problem solving and interpersonal skills. Also Khan et al. (2017) talk about the importance of community in online learning. Making a student engaged with a course should start from the very beginning by clearly stating the expectations for example through a pre-recorded welcome to the course video, where students can virtually meet the person from which they are about to learn. (Khan et al., 2017.)

It is also essential to provide for instance one written page describing where to find course materials and how to use them, since another very important aspect within engagement in online courses, that does not fall into previously mentioned categories, is access to materials. "It is essential for the student to feel comfortable and valued in the course to be actively engaged in the activities of the course." (Khan et al., 2017.) If students are just trying to pass the course or get the right answers without actually learning, it might be due to a lack of clear objectives and instructions or a lack of learning tasks' relevance to real-world situations (Lim, 2004). Lessons should be designed around authentic work tasks or problems (Clark & Mayer, 2016).

Villalba & Romiszowski (2001) talk about three learning theories that have been widely used and explored to provide guidance for teaching: behaviourism, cognitivism and constructivism. The idea behind behaviourism is that behaviour is a function of interaction with the environment, and learning is achieved through frequent response to appropriate behaviour and immediate confirmation of appropriate behaviour. In cognitivism it is

believed that information is built upon existing knowledge structures. Relevant processing activities are stimulated, and specific strategies are taught to ensure that the learner efficiently uses the information or solves the problem. Constructivism understands learning as interpretative and emergent, and under control of the learner. (Villalba & Romiszowski, 2001.) In figure 2 you can see how Mishra (2002) has connected these to online learning.
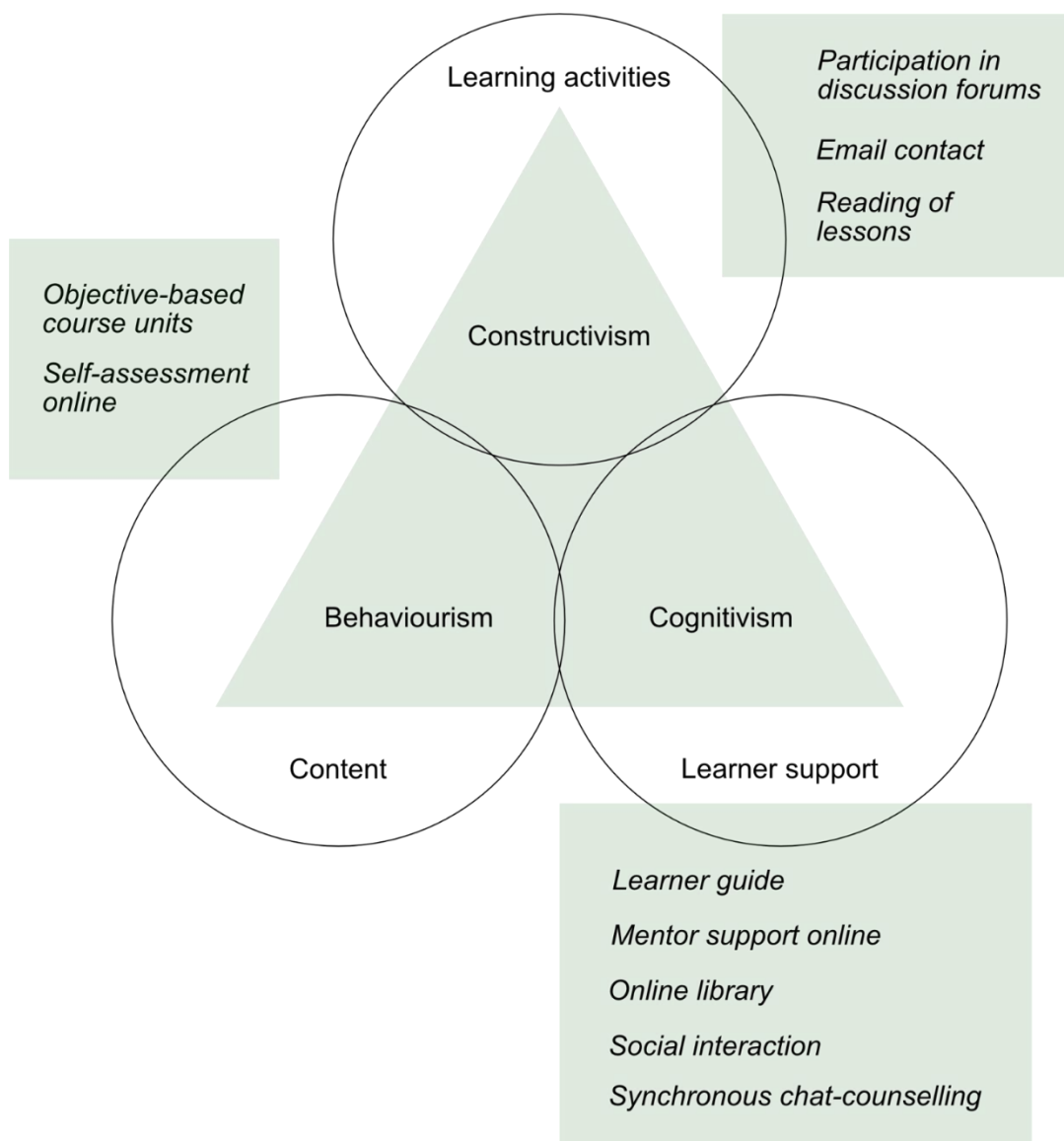

Figure 2. Design framework for online learning environments. (Mishra, 2002.)

Brame (2016) writes that cognitive load theory should be studied before designing educational materials and experiences. The cognitive load theory suggests that any learning experience has three components as seen in table 2: intrinsic load, germane load and extraneous load. These loads are based on the model that memory has several components. Sensory memory collects information from the environment but is transitory. Therefore, selected information from sensory memory is transformed for temporary storage and processing to working memory. However, working memory is very limited and instructors should aim to minimize extraneous cognitive load that can block unnecessary space. (Brame, 2016.)

Intrinsic load	Complexity of new information. Low intrinsic load vs. high intrinsic load. For example in learning languages, the vocabulary would be low intrinsic load and the grammar high intrinsic load due to its many levels of connectivity and conditional relationships.
Germane load	Processing of new information by connecting it to previous knowledge. For example comparing, analysing and elucidating the steps necessary in order to reach the desired learning outcome.
Extraneous load	Cognitive effort that does not help the learner towards the desired learning outcome. For example confusing instructions or unnecessary extra information.

Table 2. Cognitive load theory (Brame, 2016).

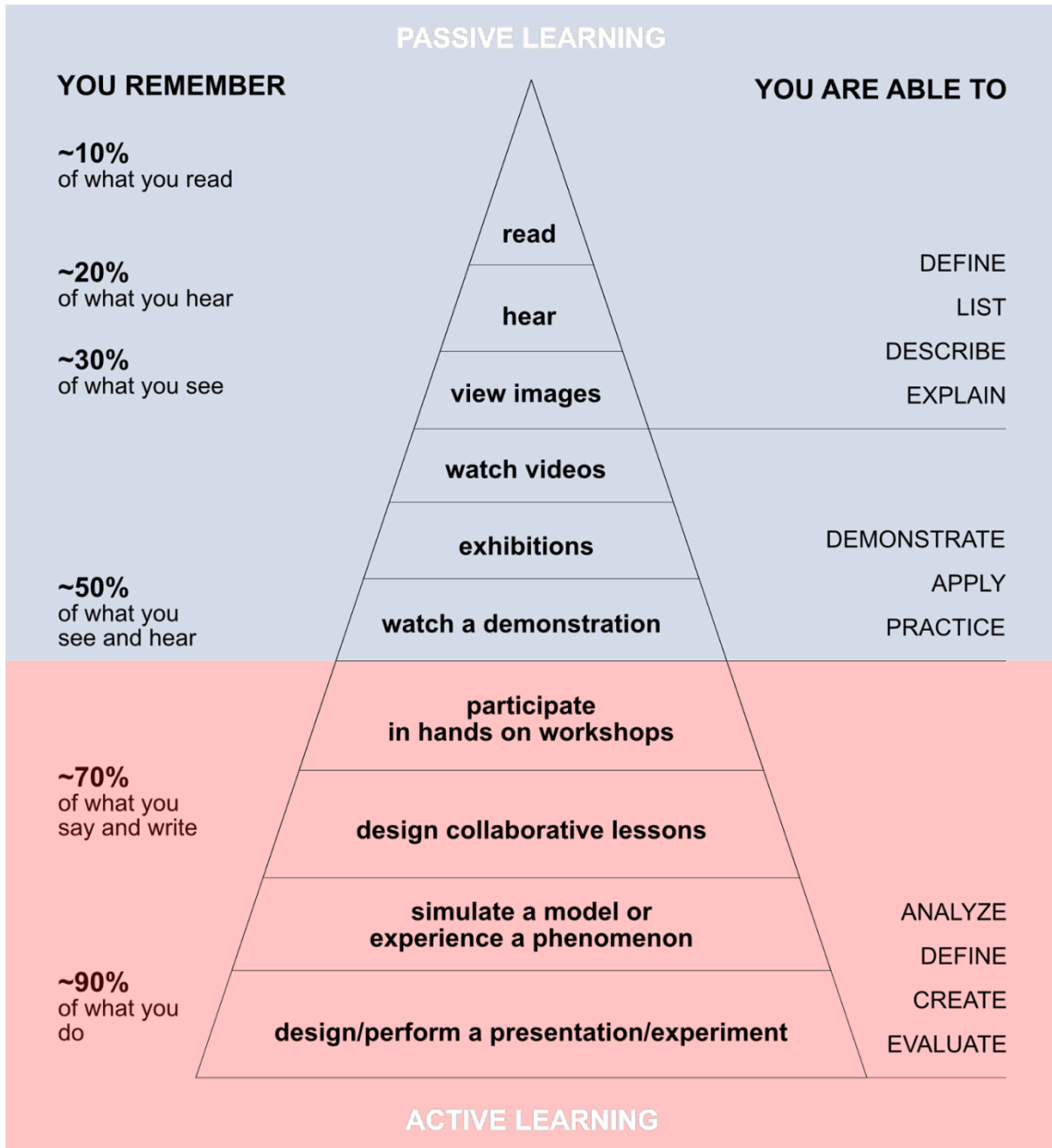In addition, Dale's (1969) cone of experience is a widely cited representation of learning processes.

Figure 3. Cone of Experience. (Dale, 1969.)

2.2 Visual and structural elements in online lectures and videos

There are two ways in which video provides information: visual and auditory. Using both can lead either to an overwhelming experience or a very successful end result. To reach the latter, table 3 shows important design factors. (Brame, 2016).

Recommendation	Examples
Use signalling to highlight important information.	Keywords on screen highlighting important elements. Changes in colour or contrast to emphasise organisation of information. Brief out-of-video text explaining purpose and context for video.
Use segmenting to chunk information.	Short videos (max. 6 minutes). Chapters or click-forward questions within videos.
Use weeding to eliminate extraneous information.	Eliminating music. Eliminating complex backgrounds.
Match modality by using auditory and visual channels to express complementary information.	Khan Academy-style tutorial videos that illustrate and explain phenomena. Narrated animations.

Table 3. Cognitive load in maximising student learning from educational videos (Brame, 2016).

Also Clark & Mayer (2016) write about eliminating extraneous information. They recommend avoiding extra words that are often added for interest, for elaboration or for technical depth. These nice to know pieces of trivia may just distract from learning the main information. (Clark & Mayer, 2016.)

Brecht (2012) wrote about his empirical examination on the instructional value of pre-recorded online video lectures. The case was a classroom course where the videos were an optional addition for supporting learning. Three different video designs were tested, which all had a slower, more step-by-step tempo than the classroom lectures. Design 1 was the simplest and it was created with Microsoft's Word, PowerPoint and Excel software, with additional elements like keyboard writing to the screen, screen scrolling and pointer movement. Brecht (2012) argues that the additional elements might have caused the end result's screen instability problems. He also thinks that the first design only focused on transferring classroom lecture content to online and did not consider designing videos as a unique learning resource. In design 2 this was considered better. As certain technical changes made it work better technically, some elements regarding design were also replanned and added. For example, colours, gradients and page spacing were upgraded, which were argued to increase visual interest and ease of viewing. In addition, graphics, animations, sounds and music clips were included for commanding viewers' attention through the videos. However, some students commented that these strongly presented relief and change-of-pace elements like graphics and sounds, disturbed their study concentration. Therefore, in design 3 some of those elements were reduced and they were changed from strong to subtle in order to not interrupt a viewer's attention as much. (Brecht, 2012.)

For the recommended design elements to work, students need to watch the videos, which means that student engagement is a very important factor when creating educational videos. Table 4 introduces four ways in which student engagement can be increased.

Recommendation	Examples
<u>Keep each video brief</u> to increase the percentage of each video watched by students, and to decrease mind wandering.	Multiple videos for a lesson, each max. 6 minutes long.
<u>Use conversational language</u> to create a sense of social partnership between student and instructor.	Placing the student in the lesson by using "your" instead of "the" during explanation. The use of "I" to indicate the narrator's perspective
<u>Speak relatively quickly and with enthusiasm</u> to increase the percentage of each video watched by students, and to increase the sense of social partnership between student and instructor.	Speaking rates in the 185-254 word per minute range. Expressions of instructor excitement, such as "I love the next elegant" or "Consider how the cell solves this tricky problem of needing to regulate three genes in sequence; it's really cool."
<u>Create and/or package videos</u> to emphasise relevance to the course in which they are used.	Videos created specifically for the class in which they are going to be used, with instructor narration explaining links to previous material. Explanatory texts to place videos in course.

Table 4. Student engagement in maximising student learning from educational videos (Brame, 2016).

The third important element that Brame (2016) names for creating efficient educational videos is active learning. Table 5 includes strategies for promoting active learning in educational videos.

Recommendation	Examples
Package videos with interactive questions to improve memory by a testing effect and improve student self-assessment.	Integrate questions into videos. Follow short videos with interactive questions.
Use interactive features that give students control to increase student ownership.	Create "chapters" within a video.
Use guiding questions to improve student self-assessment.	
Make video part of a larger homework assignment to increase student motivation and student self-assessment.	Package videos with series of questions or problems that ask students to apply the concepts from the videos.

Table 5. Active learning in maximizing student learning from educational videos (Brame, 2016).

Clark and Mayer (2016) talk about Fiorella and Mayer's (2015) eight engagement strategies in their book and use them in reviewing two additional engagement methods: including graphics with text and asking learners to engage in supported drawing. Their recommendation is to accompany text with relevant, simple graphics like animation, video or photos, and ask students to generate drawings from provided elements, instead of sketching something on a blank paper. Including multimedia presentations can encourage learners to engage in active learning by mentally representing the material in words and pictures, and by mentally making connections between the pictorial and verbal representations.

However, like Brecht (2012), Clark and Mayer (2016) point out that too much is too much. Based on research and cognitive theory they recommend to always speak rather than write whenever a graphic should be the main source of information. If viewers must simultaneously process graphics and the accompanying printed words, they might experience an overload of their visual channel and pay less attention to the graphics that were chosen to be in focus. Nevertheless, in case a section does not contain graphics, the information should always be presented in both spoken and written form, since there is a common belief that some people prefer visual learning styles, while others learn better by listening. (Clark & Mayer, 2016.)

Butcher (2006) tested the differences between a simple diagram of a human heart and a realistic diagram of the same topic as seen in figure 4. He had 74 undergraduates from the University of Colorado, who all read the same simple text about the heart and circulatory system. As an outcome, students who had studied by reading the text and seeing the simple drawing had gained a better understanding of how the heart works, compared to the participants who had learned with text and the detailed drawing. (Butcher, 2006).
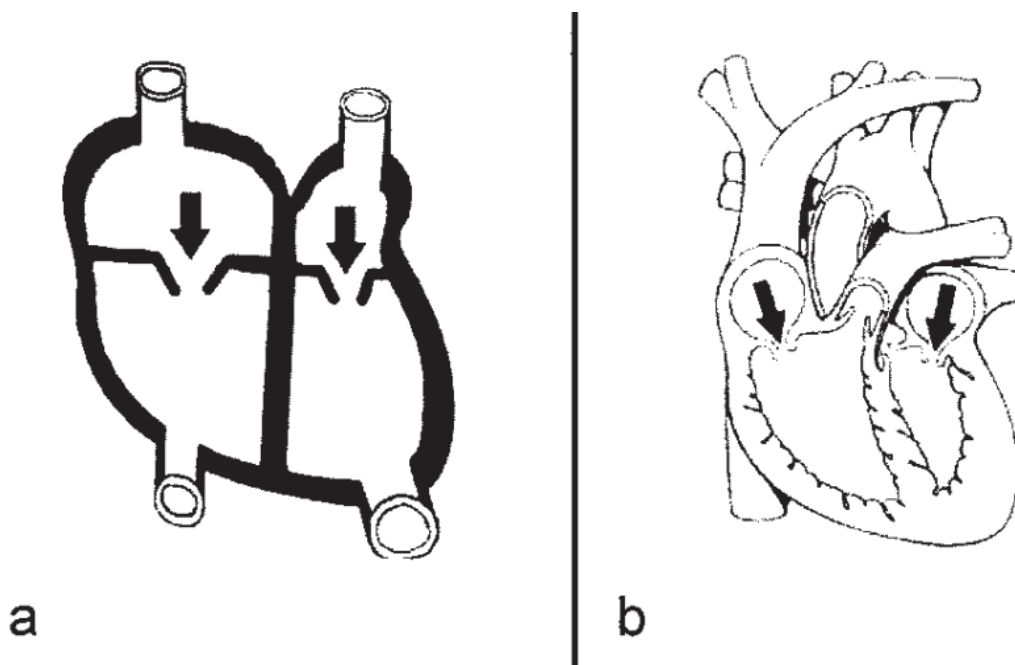

Figure 4. a: A simplified diagram, depicting blood flow from the atria into the ventricles. b: A detailed diagram, depicting the same process. (Butcher, 2006.)

2.3 Quizzes

Quizzes are another type of commonly used learning tool. There are for example multiple choice quizzes, open-ended questions, true/false questions and fill in the blanks. Amongst other researchers Cook & Babon (2016) found in their study that online quizzes enhance active learning, are an effective mechanism for motivating students to get engaged with the material, and relatively time efficient from educators' point of view.

Liang (2019) proposes the use of pre- and post-lecture quizzes as a tool to promote metacognitive activities in students' minds, which is an essential component of active learning, and raise their consciousness of the learning process. Pre-lecture quizzes force students to reflect on their prior knowledge and assumptions of the topic in question. They also increase engagement and motivation in learning, and work as a so-called cognitive hook. Post-lecture quizzes on the other hand raise students' awareness of the learning process. They drive students to actively reflect on their understanding of the content and enhance interest in the following topics. From a teacher's point of view, this pair of quizzes shows how the lecture affected students' mental model of the learning content. In the study that Liang (2019) writes about, the same set of questions were used in both the pre- and post-lecture quizzes, which either confirms the prior knowledge to be correct or replaces the incorrect thoughts with new knowledge learned during the lecture. (Liang, 2019.)

Nuci, Tahir, Wang & Imran (2021) ended up with similar results as Liang (2019), but also tested the effect of in-lecture quizzes in the middle of lectures. They executed a four-month investigation as part of a human-computer interaction course. The findings show that having systematic online quizzes increases students' engagement, motivation and exam performance, especially when using a game-based platform. Systematic online quizzes also have a positive impact on the class dynamics and the interactivity between professors and students. (Nuci et al., 2021.)

As well as video design, quiz design includes various important points. Like previously mentioned in visuals, simplicity is key also in quizzes. The questions should be designed to be of moderate difficulty so that they can be easily answered by students who have studied the assigned reading. That eliminates the need of giving the correct answers in

other forms than broadly going through them at the following lecture. This also makes it possible to reuse the quiz questions, which again decreases the workload of the responsible teacher. (Cook & Babon, 2016.)

2.4 Gamification

"Gamification desires to combine intrinsic motivation with extrinsic one in order to raise motivation and engagement." (Muntean, 2011.) Gamification can be easily used in e-learning since their content is usually linear. In this case more focus should be put on exercises while the theoretical means are there to help solving the problems. Gamification does not have to mean creating a game. It means to make learning more fun and engaging. (Muntean, 2011.) Urh, Vukovic, Jereb & Pintar (2015) present a model, seen in figure 5, which introduces how gamification can be applied in e-learning.

Dawood (2016) discusses the cognitive and social motivational affordances of gamification in e-learning environments. Integrating different game mechanics like seen in figure 5 can promote social interaction between students and enhance cognitive course content connection. Furthermore, well planned gamification may affect students cognitively, socially and emotionally. Storylines, visual elements and clear goals are effective techniques in gamifying courses. For example, engaging students with problem-solving tasks that include a storyline appears to motivate students to search for cues that help solving the problem. Having clear goals and dividing them into sub-goals can make the main task more achievable and motivative to reach, and again enhance cognitive engagement with the assignment. (Dawood, 2016.) Clearly displaying a student's progress and current status of activities gives motivation for further work. Additionally, positive feedback of success raises its receiver's self-esteem and motivation. (Urh et al., 2015.)

ELEMENTS OF GAMIFICATION IN E-LEARNING

Rule-based system
Clear and meaningful goals
Small tasks
Immediate feedback
Positive reinforcements
Rewards for accomplishing tasks
Mesuarable progressive challenge
Stroy behind
Voluntary participation

GAME MECHANICS

Points
Badges
Levels
Challenges
Virtual goods
Leaderboards
Gifts
...

GAME DYNAMICS

Rewards
Status
Achievements
Self-expressions
Competition
Altruism
...

EFFECTS OF GAMIFICATION ON STUDENTS IN E-LEARNING

Motivation
Engagement
Satisfaction
Effectiveness
Efficiency
Knowledge acquisition
State of "flow"
...

Figure 5. The model for introduction of gamification into the field of e-learning. (Urh et.al., 2015.)

2.5 Feedback

From a student's point of view, it is even more important to get feedback in online courses than face-to-face learning. Martinez-Argüelles, Plana, Hintzmann, Batalla-Busquets & Badia (2015) had 183 students answer a survey regarding receiving feedback in e-learning. The results show opinions about many dimensions of feedback: the agents that take part in the feedback process, the space of virtual communication where the feedback

processes take place, the moment of feedback and the extension and form of feedback. Figure 6 shows how the students valued different aspects of feedback. In general, it can be said that students give more importance to the quality and personalization of feedback than the amount or moment of it. It is highly valued to receive comments from a tutor since it makes it easier to contact the staff for further questions. Implementing feedback has a clear motivational effect over students and making it personal can cause a student to feel more accompanied during the learning process and reduce the feeling of loneliness which is a common phenomenon in online education. (Martinez-Argüelles et al., 2015.)
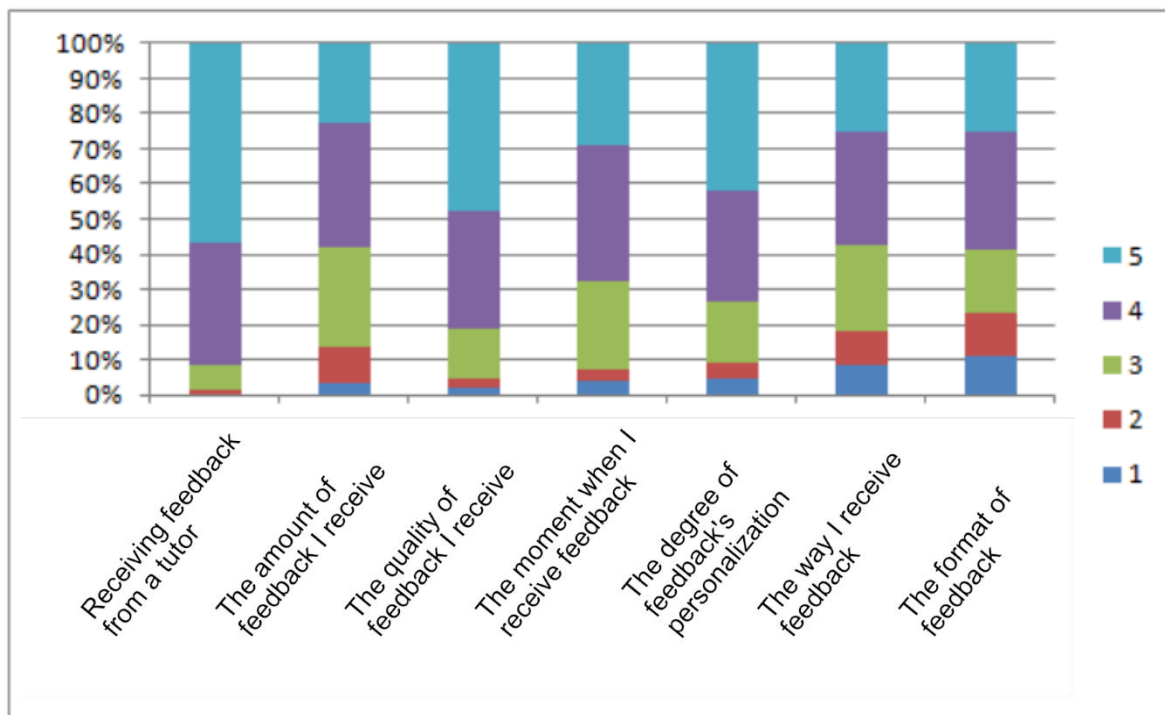
Scale: 1 minimum to 5 maximum

Figure 6. Value importance of the shown aspects. (Martinez-Argüelles et al., 2015.)

2.6 Advantages and disadvantages of online courses

The effects of online courses need to be evaluated from a few perspectives. Both the final recipient's as well as the online education provider's experiences should be considered in different categories according to essential characteristics. (Lozovoy & Zashchitina, 2019.) In table 6 advantages and disadvantages from the final recipient's point of view are described in four categories.

	Advantages	Disadvantages
Personal level	Development of autonomy in learning activities. Development of self-analysis skills. Reflection of results. Skills of orientation in educational content. Organisation of individual cognitive activities.	Need for a high motivation. Lack of physical contact, feelings of isolation. Impossibility of socialisation.
Social level	Freedom to choose the time, space and other most favourable conditions for studying. Flexible scheduling. Possibility to combine study with work and/or other activities.	Absence of daily external timetable. Lack of routine.
Educational level	Availability of feedback and direct online monitoring. Opportunities of individualization of the educational process.	Difficulty of training in professions with a practical focus.
Technological level	Quick access to materials.	Lack of a proper level of formation of information.

Table 6. Advantages and disadvantages of online education from the final recipient's point of view (Lozovoy & Zashchitina, 2019).

An important point is that the listed notes of table 6 can be seen from two different sides. When Lozovoy & Zashchitina (2019) view for example flexible scheduling and self-orientation in educational content as advantages, Rasheed, Kasmin & Abdullah (2020) on the other hand categorize various subcategories of self-regulation as challenges. For instance, procrastination, online help-seeking, limited preparation before class and poor time management are some of the challenges that students face in online learning. In addition, there are many more challenges regarding technological aspects than shown in table 6. Some of them are challenges in handling different user interfaces, learning new technology by adult learners, technological distraction from overly complex technology, confusion about seeking appropriate online help and poor understanding of directions and expectations in online learning. (Rasheed, Kasmin & Abdullah, 2020.)

The pros and cons from the online education provider's side are different. Here they are considered from the perspective of the goals of higher education institutions, creating and implementing online courses and programs. (Lozovoy & Zashchitina, 2019.) Lozovoy & Zashchitina (2019) list the following advantages:

- Testing existing online courses and programs is free and in the case of a positive experience, the course can be offered at the university full-time.
- Testing free online courses before offering similar courses as a paid product, allows bettering the final product for additional income in the future.
- Promotion of a university's brand and values, by offering free courses on popular online course providers like Coursera and EdX.
- Reaching the reputation of a university that is innovative, open and receptive to new technologies.

The disadvantages on the other hand include the following:

- The need to train teachers for them to be able to work effectively in digital environments.
- The availability of necessary software and hardware.
- Legal issues.
- The need for a pricing policy to balance the costs of the implementation of online education.

(Lozovoy & Zashchitina, 2019.)

3. Methodology

3.1 Research approach

This research aims to understand how students experience certain parts of online education at this moment in time and therefore follows an interpretive qualitative research model. Interviews with students, conducted by myself, are the primary instrument of data collection and analysis, which perfectly falls into this type of research. (Merriam, 2002.) Gathering information about a certain topic makes this an expert interview. All the interviewees are students and therefore have the best knowledge to answer this study's questions. Expert interviews are not strict in the formality and can be conducted online, in person or over the phone. The suitable amount for interviewees varies a lot. It can be from 5 to 50, as long as you feel like you have gotten enough information. (Bachelor Print.)

The interviews were conducted as semi-structured interviews, which allow a more conversational atmosphere with a blend of closed- and open-ended questions. It also leaves room for follow-up questions like why or how. Closed-ended questions were used more, because they may be used as quantitative points of reference, but at the same time allow the interviewer to ask open-ended follow-up questions. This method was chosen, because of the nature of the topic. The aim was to understand the independent thoughts of each interviewed student. On the other hand, I as a researcher wanted to challenge myself and conduct semi-structured interviews that require many social skills. The final outline for the interviews were formed after two sets of feedback from my colleagues and thesis advisor. (Adams, 2015.)

I conducted a pilot interview to confirm the interview setting. As the pilot interview worked as planned, it was used in this study just like any other of the interviews. The interviews began with a few extra easy questions that started a comfortable chat, following with more relevant, but still non-threatening questions. When asking about positive and negative qualities of a certain thing, I always started with the positives. "Starting with positives allows those people who might be reluctant to voice criticisms to share their complaints later because they already offered some praise. Another advantage of this approach is that some people, once they adopt a harsh critical tone, find it difficult to say anything

good, as if they fear they would be contradicting themselves or minimising the seriousness of their grievance." (Adams, 2015.)

I am interested in how the interview results correspond with what was found in literature and will use the findings from literature to draw conclusions and form the end product of this thesis. Using literature that framed the study is a common manner in basic interpretive qualitative study and does not change the nature of this thesis (Merriam, 2002). Phenomenology as a school of philosophical thought focuses on the essence or structure of an experience. As a researcher I have my own hypotheses of how students feel about the topic, but to understand the experiences of my interviewees I have to put aside my personal beliefs. (Merriam, 2002.)

3.2 Data collection

For this thesis I interviewed ten students from ten different Universities. Six of them were located in Finland and the remaining four in other parts of the world. There were both bachelor's and master's level students as well as students with exchange semester experiences. I conducted the interviews in Finnish or in English, either live or through Zoom, whichever worked best for the interviewee. The interviews lasted from 14 to 35 minutes and were voice recorded with the agreement of every interviewee. The interview questions can be seen in the appendices.

Nine of the ten interviewees were from my own contacts, including friends and acquaintances. There weren't any differences in the flow of conversation between friends, acquaintances or the one who I had never seen before. All the interviewees said at the end that they felt very comfortable about telling their honest thoughts and enjoyed the questions. My goal choosing the interviewees was to find as many different schools as possible, including schools outside of Finland. I also wanted to get a variety in the level of studies and at least one who had started University remotely. I reached these goals well, as seen in table 7.
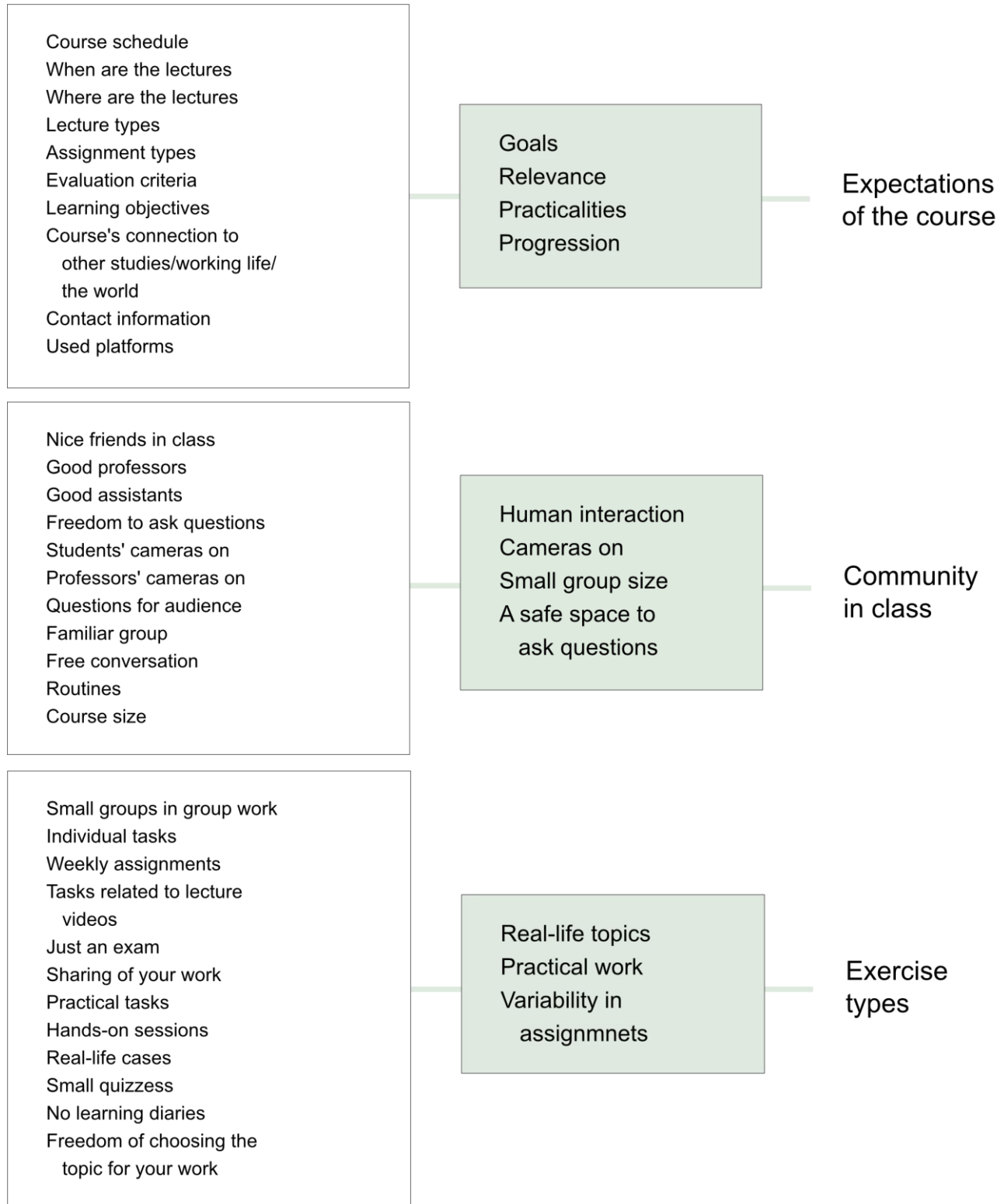
School	Level of studies	Duration
Aalto University, School of Business	Bachelor	24:14
Aalto University, School of Engineering	Master	20:23
Aalto University, School of Science	Master	17:48
Copenhagen Business School	Bachelor	17:15
Jyväskylä University, School of Business and Economics	Master	29:47
Metropolia University of Applied Sciences	Bachelor	14:11
Peking University, Law School	Master	21:41
Technical University Darmstadt	Master	24:31
University of Helsinki, Faculty of Law	Master	34:25
University of West Florida, Bachelor of Arts	Bachelor	21:08

Table 7. Characteristics of the interviews.

3.2 Data analysis

The Gioia methodology was used for analyzing the collected interview data (Gioia et al., 2013). The interviews were transcribed in the language of the conducted interview, but the further analysis was done in Finnish. The text files were copied into the qualitative data-analysis software called ATLAS.ti, which is one of the most useful qualitative data analysis tools (Lewis, 2004). The transcribing and first-order coding were an ongoing process throughout the interviewing period. After all the interviews were done, 23 second-order codes were formed. Furthermore, the second-order themes were categorized into six second-order "aggregate dimensions". (Gioia et al., 2013.) An overview of the data structure can be seen below in table 8. Throughout the data analysis project, valuable

citations were marked. The citations used in the next chapter were translated into English in case that wasn't their original language.

Course schedule
When are the lectures
Where are the lectures
Lecture types
Assignment types
Evaluation criteria
Learning objectives
Course's connection to
   other studies/working life/
   the world
Contact information
Used platforms
	Goals
	Relevance
	Practicalities
	Progression
		Expectations
		of the course

Nice friends in class Good professors Good assistants Freedom to ask questions Students' cameras on Professors' cameras on Questions for audience Familiar group Free conversation Routines Course size	Human interaction Cameras on Small group size A safe space to ask questions	Community in class

Small groups in group work
Individual tasks
Weekly assignments
Tasks related to lecture
   videos
Just an exam
Sharing of your work
Practical tasks
Hands-on sessions
Real-life cases
Small quizzess
No learning diaries
Freedom of choosing the
   topic for your work
	Real-life topics
	Practical work
	Variability in
	   assignmnets
		Exercise
		types

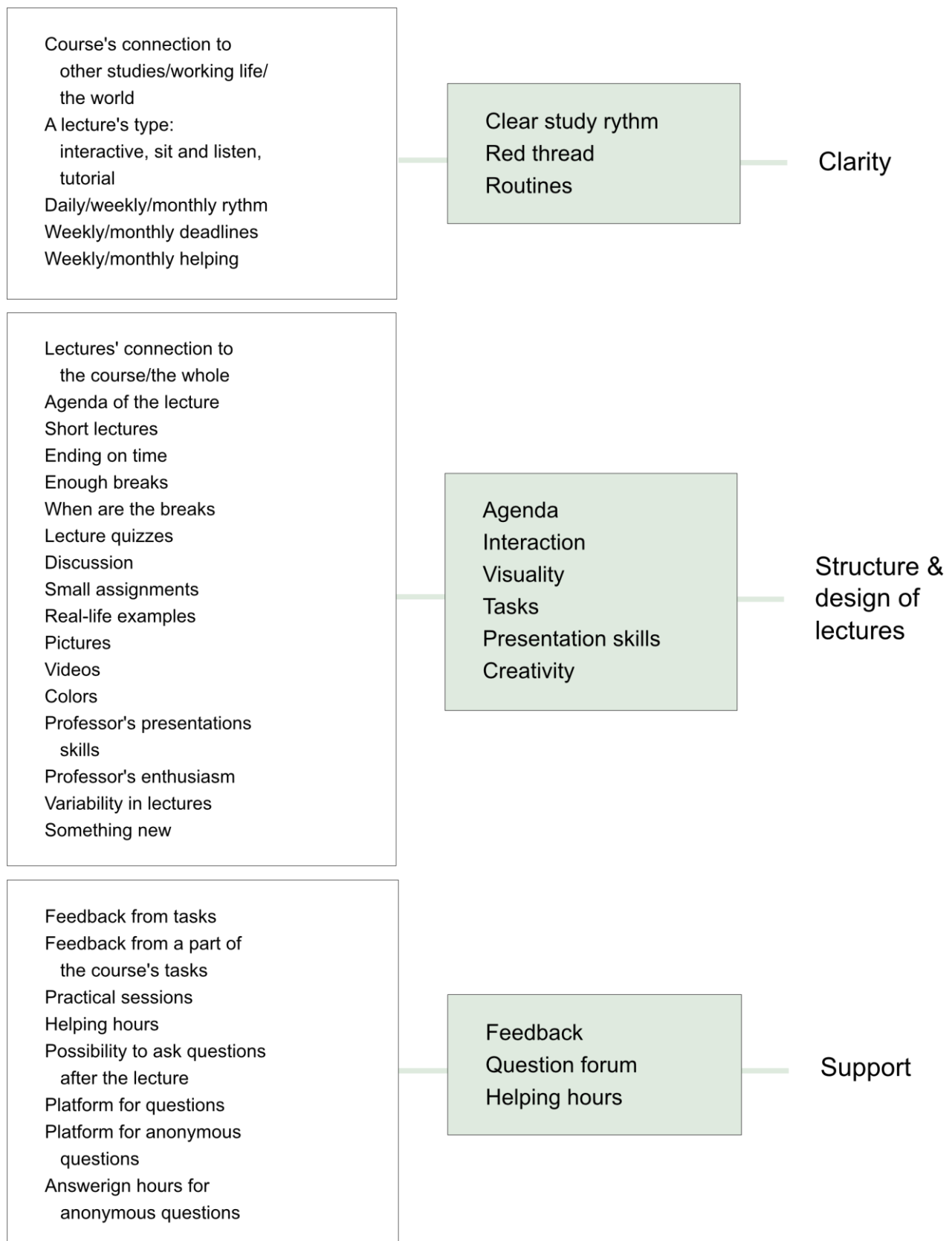| Course's connection to other studies/working life/ the world A lecture's type: interactive, sit and listen, tutorial Daily/weekly/monthly rythm Weekly/monthly deadlines Weekly/monthly helping	Clear study rythm Red thread Routines	Clarity
Lectures' connection to the course/the whole Agenda of the lecture Short lectures Ending on time Enough breaks When are the breaks Lecture quizzes Discussion Small assignments Real-life examples Pictures Videos Colors Professor's presentations skills Professor's enthusiasm Variability in lectures Something new	Agenda Interaction Visuality Tasks Presentation skills Creativity	Structure & design of lectures
Feedback from tasks Feedback from a part of the course's tasks Practical sessions Helping hours Possibility to ask questions after the lecture Platform for questions Platform for anonymous questions Answerign hours for anonymous questions	Feedback Question forum Helping hours	Support

Table 8. Overview of the data structure. Descriptive codes, second order codes, aggregate dimensions.

4. Findings

The interviews resulted in promising findings. First of all, they confirmed both my preliminary thoughts and findings from literature, and at the same time gave new ideas and viewpoints about how to design online learning. Based on these interviews as well as literature, I have divided the engagement methods of an online course into six topics: expectations of the course, clarity, community in class, structure and design of lectures, exercise types, and support. In this section I will go through the interviewees' thoughts in these categories and additionally in one more, "other thoughts". This part includes anonymized quotes of the interviews.

Expectations of the course

All students interviewed hoped to get to know the schedule, exercise types and evaluation criteria of the course at the very beginning of a new class. Additional popular wishes were to talk about the goals of the course as well as how it connects to the world or other studies. "*It is nice when the red thread of the course starts to form immediately.*"

"*I am not interested in digging out the practicalities of a course somewhere in the first lecture's PowerPoint slides, I want it as a pdf on the course's homepage. Ideally there would be one platform for every course and you would find the general information always in the same place, regardless of the course.*" This was a popular opinion. Students want to be able to easily go check what for example the schedule or evaluation criteria for the course were. The interviewee from the University of West Florida told that they always get a one to ten pages long syllabus that includes all general information of the course, for instance what study materials you need to have, what is expected of the students, the professors and assistants' information, and weekly topics.

Clarity

When asking about the best online course experiences or ideal online course structures, everyone named the word clarity at some point. Regardless of what kind of course it is,

programming, law, arts and so on, it can be a very good experience if it is clear to all what needs to be done and when.

Five of the students named as their favourite online course experiences courses that had a weekly studying rhythm. "*In this course everything was very clear. The professor had created weekly modules on the schools' common platform, where you could see exactly what you need to complete by the end of that week.*" Many students also said it to be important to upload recordings of live online lectures somewhere where they are easy to access, because it gives you the chance to go back on certain topics.

Students who had used various platforms during their studies, no matter during the whole course or just one lecture, named that kind of course as one of the best ones, if it was clearly communicated how to use the platform. In that case it created motivation, because it was something new and interesting. However, everything other than normal zoom lectures and online readings were seen as negative in case it was unclear how to use them or too much time went to technical aspects. Again, it could be said that the used platform does not matter, if it is easy to use and clearly communicated to everyone.

Community in class

How do you think that the feeling of community could be improved in online courses? This question got various answers. Some thought that there is no way and two even said that they don't think there has been a feeling of community at all on online courses. However, their answers to other questions revealed what makes them feel connected to a course. The most frequent answer was "*cameras on during lectures*". Although almost all the interviewees talked about their love-hate relationship with the requirement of keeping cameras on during online lectures, they ended up saying that seeing who you are studying with always creates a more engaging atmosphere, especially if the lecture includes breakout rooms. However, there was one answer for the mentioned question that I found to be very apt: determining the type of the remote lecture. Is it a lecture where you are supposed to be present, cameras on and ready for conversation or is it a lecture that you can just listen to during breakfast? Creating routines and operating models was also named by a couple students to increase the feeling of community. "*Breakout rooms are variable, on smaller courses they work, on mass lectures not. There should be clear times*

and assignments for breakout rooms. Ideally a warmup question in the beginning of the lecture. A repetitive structure that creates so-called routines for the course. For example, if everyone knows that the point of a certain lecture is always to talk about things together then people really do that. But random conversations during mass lectures are always a bit unnerving."

Another common answer was the size of a course. Smaller courses were argued to be more engaging, because it makes it less stressful to ask and answer questions, and easier to get help. This kind of setting creates a more open atmosphere for interaction during a lecture, which again was named to increase the feeling of community. When asking about things in face-to-face classes that would also be nice to have in online courses, the most popular answer was the ease of communication. "*The freedom of conversation. On online courses it sometimes feels like when you raise your hand you should have something very complete and perfect to say. In live classes it is often more chill and the professor and students are in a way more equal.*" Another answer was "*Whenever a lecture is finished, we can go up to the professor or the assistant and ask questions or give feedback or something, which is usually not possible in online lectures, because it usually just ends immediately.*"

Structure and design of lectures

"*The agenda of the lecture and maybe some summary of where we are on the course's timeline and how the lecture connects to the previous and following lecture, and what its' role in the whole is.*" This was one answer for the elements of an ideal online lecture. Additionally, one said that it would be nice to see the number of the current slide, to kind of know at all times how much there is left. It was said to help focus, as well as knowing when there are going to be breaks. Enough breaks were mentioned many times within multiple questions, along with ending the lecture on time. Shorter online lectures in general were in favour. One student argued for one of her favourite online course experiences like this: "*The teacher was very good, the pre-recorded lecture videos were just under 10 minutes long. They were very well summarized, it was like watching YouTube videos. They were very visual and clear, which kept the focus and interest going. In addition, the course had longer live workshops that were based more on discussions.*"

The visuality of lectures was mentioned by every interviewee. Not too much text on slides. Preferably colours, diagrams, photos or videos used. One student hoped for some variety during online lectures: "*Slides are a good element, but it would be nice to sometimes use other platforms as well, that allow some interaction for instance. It doesn't necessarily have to be the way that one person shares their screen. What if students together would create something during the lecture instead. Just something a little more versatile than browsing through PowerPoint slides.*"

Interaction and discussions during online lectures were also talked about a lot. As mentioned earlier in the "community in class" part, it is not something that needs to be present at every lecture, but having it as part of a course makes the whole more engaging. Discussions are usually carried out in breakout rooms, which sometimes works and sometimes not. "*I don't like when students are tried to be involved or activated just because it belongs to some good methods of teaching.*" Furthermore, it was argued that if there is a good reason for discussion and interaction, and it is fulfilled well, then it makes the lecture a lot nicer. The following comment regarding language courses was in my opinion very interesting, because they are usually based on communication: "*We used DingTalk, which allowed a kind of hybrid mode. The teacher was lecturing live, but students didn't have cameras on, because there was another chat for answering questions and sending voice messages as a pronunciation exercise. It lowered the pressure of keeping cameras on non-stop, but was still very interactive, because the chat was answered all the time.*"

Other interaction methods as discussions were mentioned as well: "*One course had pre-recorded video lectures, with 2-3 multiple choice questions every five minutes. You were allowed to try them many times, but you had to answer correctly in order to continue the videos. The course did actually not have lectures, but the professor had created these 15-20 minute videos from the week's study material.*" Additionally: "*The professor used a method called peer instruction in his assignments. Basically we have 15 minutes per question. He asks a question and each of us thinks about the answer ourselves, it's usually a multiple-choice question. Then we vote using an app and then afterwards we have the same questions with the same answers, but we are allowed to talk about them with other students. Then we vote again and usually at the second vote everyone has*

voted the correct answer. It also promotes the spirit of sharing information, because sometimes people tend to be very possessive of what they know."

Another quality that makes a lecture more engaging, which was mentioned by 9 out of 10 interviewees was the lecturer's presentation skills. A clear style of speaking and good language skills play a big role in keeping the viewer interested. If the teacher seems motivated it often motivates the students as well. It is also helpful if the lecturer's camera is on, in both live and pre-recorded online lectures. "*It always helps to focus if you can see the professor's or teacher's face at the same time with slides.*" In my opinion the following comment was very precise: "*I feel like giving a lecture is kind of leading, which is of course not easy.*"

Exercise types

9 out of 10 students said that they learn best when they have routines and have to hand in exercises throughout a course. One interviewee who has mostly had courses with only an exam at the end commented that "*A couple courses have had optional weekly assignments for a bonus for your final grade. That is really cool because it motivates to work throughout the course and not just for the final exam during the last two weeks.*" Another answer: "*History of legal theory has been one of my favourite courses. We had a weekly 1500 word essay of the topic that was coming up next. That helped to keep up and people were able to nicely answer the teacher's questions during class. The teacher was also very interactive. Very interesting topics. You had to hand in seven essays, from which two were randomly picked for grading. Of course it would have been nice to get feedback from more, but that was good for the teacher.*"

Multiple students wished for more hands-on activities during courses. Meaning either workshops or practical assignments in groups for example. "*It depends on the topic of course, but my favourites are practical tasks. For example, in law courses, we were given a hypothetical case and then argue either for or against it, and practice argumentation by writing and speaking in front of the class as well.*" Group work just as break out rooms is at its best a very good element, but at its worst it can take out the whole motivation for a course. While asking about assignments that help and not help, many interviewees replied with group work to both, just with different arguments. If there is group work, many of the

interviewees wished for them to be in maximum four person groups and having the same groups throughout the course. Especially online it is more important to have a dedicated group, because it is already more difficult to have a good conversation in zoom than face to face. If you know the people you are supposed to chat with online, it makes the conversation flow easier.

The topics of assignments were also discussed. No matter if it is an individual or a group task, real-life cases motivate more. One student named their favourite course to have been one that was strongly based on a real-life case and not a made-up situation. For many of the part tasks, they had to visit actual companies' websites.

Support

"*Support from professors or assistants and their approachability.*" This was an answer to whether there is anything in face-to-face classes that would be nice to have in online education as well. Another student said right at the beginning of the interview that they have not gotten enough support during online courses. Additionally, one student answered the following to the question of most successful online courses: "*We coded with R, the tasks were fun and in case you had problems with them, you could go to these sessions where you got individual help in breakout rooms. Many remote courses have not had this opportunity.*" It was pointed out that many courses have some kind of helping hours, but for some reason there are not as many assistants to help as in the face-to-face equivalent.

Other thoughts

There was some comparison between live online lectures and pre-recorded lecture videos. Two students argued that if the topic is something technical or very theoretical, it is nicer to have them as pre-recorded videos, since it allows you to move in your own phase, make notes and google something in between for instance. However, they have to have some following exercises or another reason why to watch them. "*I would have not watched the videos at all, if there weren't tasks related to them. So watching them must involve getting some points or, for example, two slack exercises.*"

Towards the end I asked about the interviewees' hobbies, what makes them motivating and if there has been any similar motivational elements used on an online course. All who had sports or music hobbies had similar motivators: the good feeling after doing sports, nice people to do it with and noticing your own development. Competing, goals, good coaches, being fully present in the moment and combining exercise and meeting with a friend were also mentioned. Many students couldn't come up with a course that would have included these kinds of elements. The ones who did, answered that a really good lecturer can be compared to a good coach, having good friends on the same courses makes them more motivated and some games, even a Kahoot quiz, adds some fun as a competitive task. "*Now that you ask, programming and bouldering have something in common. It's like problem solving. It is very straightforward, either you pass or you don't.*"
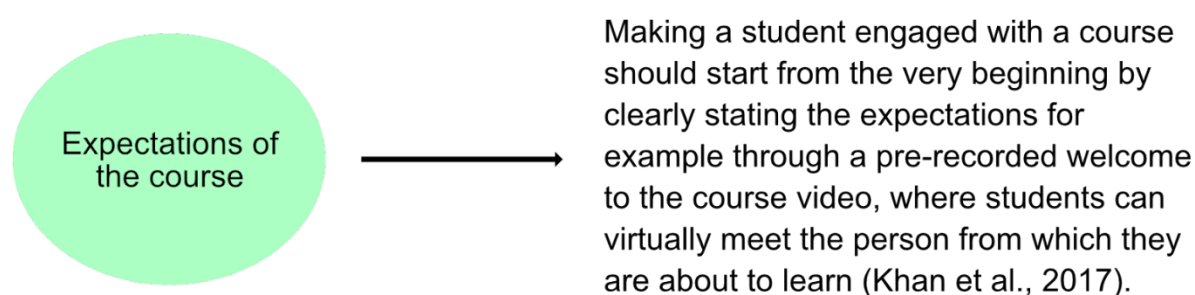
Almost all the interviewees said that in general they would like to receive more feedback from course assignments and final tests. "*It's a shame that you rarely get feedback on assignments at University. In many courses, assignments are handed in only at the end and you never get feedback, so you can't really know what you did wrong and learn.*"
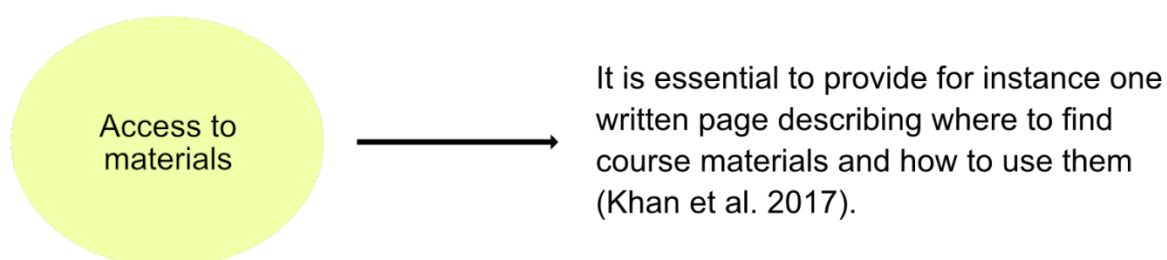
5. Discussions and future work

The literature review and the interview results have a lot of similarities, but also some interesting differences. In this section I will discuss how they could be combined into one guideline for more engaging online courses, as well as what could be studied in the future.
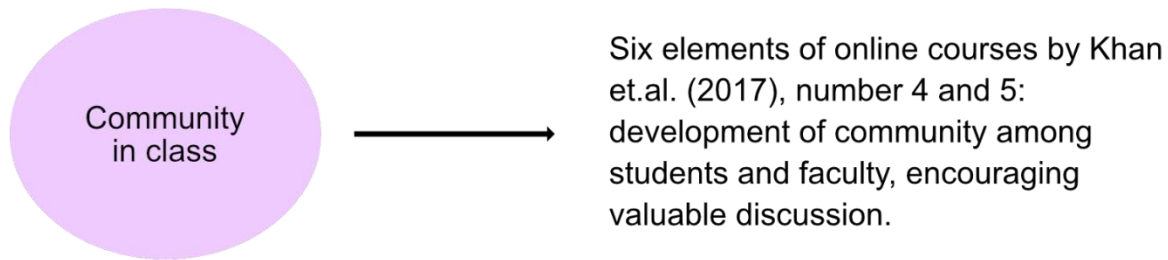
5.1 Discussion

According to literature I found six essential categories that increase engagement in online courses. These can be seen in the figure below.

Expectations of the course → Making a student engaged with a course should start from the very beginning by clearly stating the expectations for example through a pre-recorded welcome to the course video, where students can virtually meet the person from which they are about to learn (Khan et al., 2017).

Seven principles by Chickering & Gamson (1987), number 6: communication of high expectations.

Access to materials → It is essential to provide for instance one written page describing where to find course materials and how to use them (Khan et al. 2017).

Community
in class

Six elements of online courses by Khan et.al. (2017), number 4 and 5: development of community among students and faculty, encouraging valuable discussion.

Seven principles by Chickering & Gamson (1987), number 1: contact between students and faculty.
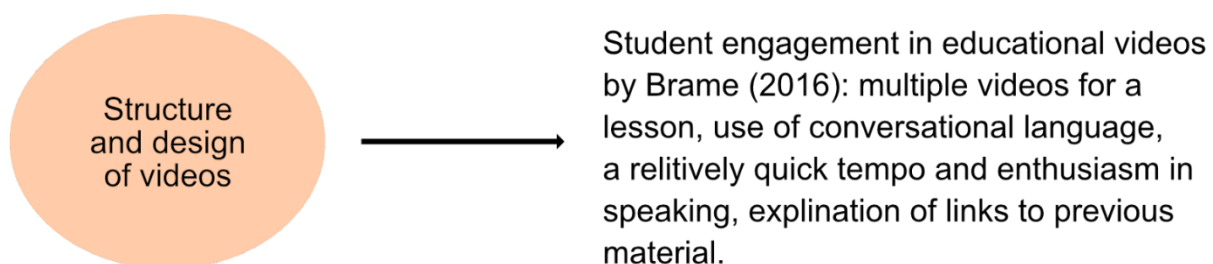
Two forms of engagement by Clark & Mayer (2016), number 1: behavioural engagement.

Group projects (Jacobs, 2014).

Systematic online quizzes have a positive impact on the interactivity between professors and students (Nuci, Tahir, Wang & Imran, 2021).

Integrating different game mechanics can promote social interaction between students (Dawood, 2016).

It is highly valued to receive comments from a tutor, since it makes it easier to contact the staff for further questions. Making the feedback personal can cause a student to feel more accompanied during the learning process and reduce the feeling of loneliness. (Martinez-Argüelles et.al., 2015.)

Structure
and design
of videos

Student engagement in educational videos by Brame (2016): multiple videos for a lesson, use of conversational language, a relitively quick tempo and enthusiasm in speaking, explination of links to previous material.
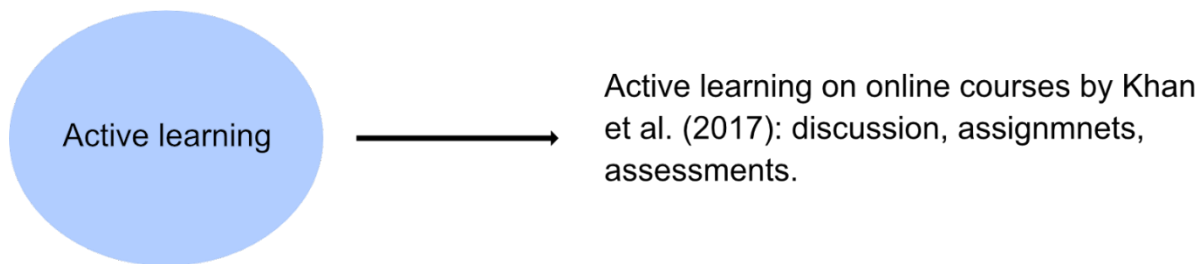
4 design factors by Brame (2016): signalling, segmenting, weeding and matching modality.

Active learning in educational videos by Brame (2016): use of questions, use of interactive features, making video part of a larger homework assignment.

Avoid extra words and information. Use graphcs. (Clark & Mayer, 2016.)

Avoid unnecessary additional elements. Use colors, gradients and page spacing to increase visual interest and ease of viewing (Brecht, 2012).

Gamifiction (Dawood, 2016 & Muntean, 2011).

Active learning → Active learning on online courses by Khan et al. (2017): discussion, assignmnets, assessments.

Active learning by Bonwell & Eison (2016): students are involved in more than listening, less emphasis is placed on transmitting information and more on developing students' skills, students are involved in higher-order thinking, greater emphasis is placed on students' exploration of their own attitudes and values.

Group projects (Jacobs, 2014)

Online quizzes (Cook & Babon, 2016).

Pre- and post-lecture quizzes (Liang, 2019).

Feedback → From a student's point of view it is even more important to get feedback in online courses than face-to-face learning (Martinez-Argüelles et.al., 2015).
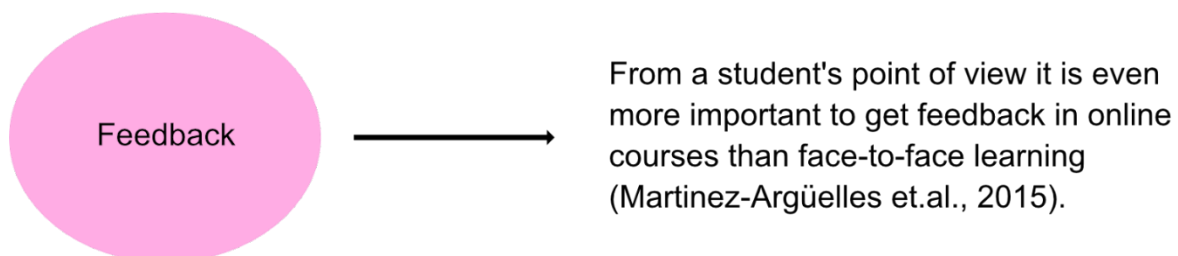
Figure 7. Six points to increase engagement in online courses.

Being clear about the expectations of a course was mentioned as an important factor in both the literature and interviews. In the interviews the viewpoint was more about what the students can expect from the course, whereas in the literature it was more about setting expectations for the students to reach. However, some interviewees said that they want to know the evaluation criteria in the very beginning, which in other words sets the expectations for students. Khan et al. (2017) stated that student engagement should start from the very beginning. This also came out strongly in the interviews. You need to get a good sense of the upcoming course in order to get motivated to participate properly. In addition to what I found in previous studies, three interviewees underlined the importance of getting the course expectations and practicalities in a written form, that can also be found in a certain place throughout the course. On the other hand, Khan et al. (2017) recommended providing written information on where to find course materials and how to use them, which falls into the category of course practicalities. As one of the students said, they always get a one to ten page syllabus with all the essential information about the course in question.

The next factor in the interviews was clarity. Students feel engaged in the course if they know exactly when and what to do. This wasn't directly talked about in the literature, however Khan et al. (2017) recommended explaining how to use course materials and Nuci et al. (2021) mentioned systematic online quizzes. Clarity is often a missing factor in courses from my point of view as a student as well. Sometimes it feels like teachers focus more on the lectures, when in fact the assignments are what teaches things the most for many students, according to the interviews. In addition, clear deadlines are what keep the studying rhythm going, even though many students have a love-hate relationship with them. Not one student from the interviews said that deadlines aren't good. As one of the interviewees said, teaching a course has a lot of similarities with leadership. According to Covey (2007) one of a great leader's definitions is to be able to clarify purpose and more precisely "define a clear and compelling purpose that people will want to offer their best to achieve".

Creating a community in class was an important topic in both the interviews and the literature. In the interviews students mentioned that it is not something that needs to be forced to have a successful course. What is essential on the other hand, is creating a safe space for questions and receiving help from the course staff, as mentioned in the literature

as well. Getting to know other students and having fun as a group is all plus, but if it doesn't suit the topic of the class, it doesn't have to be forced. One thing that was mentioned in the interviews, is that getting to know a couple people is enough. Having good conversations with a familiar small group or working as a group throughout the course can create enough of a feeling of community.

The literature and the interviews had mostly similar opinions about the structure and design of lectures. It was a surprise for me, how nine out of ten students mentioned the presentation skills of a lecturer to have such a big impact on motivation to follow a lecture. Brame (2016) recommended to use conversational language, have a relatively quick tempo and use enthusiasm in speaking. In addition to enthusiasm the interviewees mentioned interaction towards the viewers and good language skills. Unfortunately, poor English skills, even if it is not the speaker's mother tongue, has a decreasing impact on engagement. What comes to the visual aspects of a lecture, it is quite clear that a lot of black and white PowerPoint slides isn't the most engaging option. Clark & Mayer (2016) as well as Brecht (2012) advice to avoid extra words, information or elements. At the same time, they recommend using for example graphics and colours, which were also wished for by the students. Brame's (2016) statement of explaining links to previous material was also confirmed in the interviews. Keeping lectures short wasn't mentioned by as many students as I would have thought. However, many students had liked the courses that had shorter lectures, and it was said that there should be enough breaks and that there is no need to forcefully extend lectures. In addition to literature, it was mentioned in the interviews that it would be nice to briefly go through the agenda of the lecture and if it is an interactive or more of a sit back and listen kind of session.

Literature used the term active learning, meaning that students should be involved in more than just listening. Cook & Baboon (2016) and Liang suggested quizzes that were also mentioned by multiple students in the interviews. Jacobs (2014) mentioned group projects, which were discussed in the interviews as well. Again, the students said that if it is a clear and well organized group task, it is nice, but it doesn't have to be present in every course. Moreover, the interviewees wished for more practical assignments that are linked to real life situations, as well as something continuous throughout the course.

Support and feedback was the last topic of the literature review and the interviews. Martinez-Argüelles et al. (2015) found out in their study that receiving feedback in online courses is very important for students. The interviewees agreed, although they underlined more the importance of practical sessions and helping hours. Having these also links to the feeling of community.

Gamification was its own topic in the literature review. The interviewed students, on the other hand, didn't especially talk about it. Some mentioned some good experiences of gamification in classes, but it wasn't mentioned by anyone in their ideal structure of an online course. With that being said, it is a nice plus, but not necessary in every course.

5.2 Answering research questions

Based on this discussion, the interviews, and the literature, I have created the following table to answer the first research question "Which elements make online lectures engaging?".

Interviews	Literature
Beginning Agenda of the lecture. A summary of the current stand on the courses timeline. How the lecture connects to previous and following lectures. When there are gonna be breaks.	Explination of links to previous material (Brame, 2016).

Structure	
Logical and planned.	Multiple videos for a lesson, max. 6 minutes if pre-recorded. (Brame, 2016).
Live-lectures for discussion based teaching, pre-recorded for theoretical matters.	A balance between intrinsic load, germane load and extraneous load (Brame, 2016).
Short and ending on time.	
Enough breaks.	
Visuality	
Colors.	Colors, gradients and page spacing (Brecht, 2012).
Photos and videos.	Highlighted keywords and changes in contrast (Brame, 2016).
Not too much text.	
Something else than PorwerPoint slides for variety.	Graphics (Clark & Mayer, 2016).
	No extra words, information or other unnecessary elements (Clark & Mayer, 2016 & Brecht, 2012).
	You remember around 30% of what you see and only around 20% of what you hear (Dale, 1969).
Interaction	
Make it clear, whether students are expected to be active on the lecture or not.	Use of questions (Brame, 2016).
Create routines to make it more natural to have discussions online.	Gamification (Dawood, 2016 & Muntean, 2011).
	Discussion (Khan et al., 2017).

If breakout rooms, have clear instructions and time limits. If a lot of groupwork and discussions during lectures, it would be nice to always have the same group. Short quizzes during lectures. Questions to think about. Creating something together during the lecture.	Pre- and post-lecture quizzes (Liang, 2019).
Other Cameras on. Lecturers face visible at all times. Lecturers language and presentation skills. Slides' numbers visible. Real-life examples. Recordings of live lectures.	Use of conversational language (Brame, 2016). A relatively quick tempo and enthusiasm in speaking (Brame, 2016). Pre-recorded videos part of a larger home assignment (Brame, 2016). Lessons designed around authentic work tasks or problems (Clark & Mayer, 2016). You remember around 90% of what you do (Dale, 1969). Behavioural engagement (Fiorella & Mayer, 2015).

Table 9. Elements to make online lectures engaging.

Next you can see a checklist that shows what should be considered while creating an online course, and thereby answers the second research question, "What should be noticed when creating an online course?".

PLANNING AN ONLINE COURSE

☐ The rythm and routines for the course. Does it have for example weekly modules? Come up with a clear plan for when and what is going to be covered and expected from the students.

☐ The type of lectures. Are they interactive or do students just listen? Not every lecture needs to be the same. Think about whether the topic could be covered as more of an instructional pre-recorded video or would it be useful to have conversations during the class. Come up with a clear plan for when live attendance and interaction is required from the students.

☐ The duration of lectures. Not every lecture needs to be the same length. Pre-recorded lectures can be in just six minute long chapters, whereas live lectures need to have time for conversations.

☐ Individual assignments. When do the students need to hand in assignments? Come up with a clear plan for when and what the students need to do individually. Routines and clear instructions are good.

☐ Group work. Is it necessary? Not every course needs to include group tasks. Think about if a group assignment really adds something to the learning process. If yes, plan clear instructions for it.

☐ Final exam. Is it necessary? Think about if the course can be completed by continuous work and not one exam.

☐ Evaluation criteria. Come up with a clear plan for how much each part of the course is worth.

☐ Extra engagement elements. Are there any new or old less used elements that you could try or use during the course? Not every course needs to follow the same form. Think about for example if it would be possible to gamify something, spice up the traditional lecture slides or use real life situations in assignments. It is allowed to try and explore things in teaching.

BEGINNING OF AN ONLINE COURSE

☐ A written form including the course schedule, expecations, practicalities and other necessary information, that can be found in a certain place throughout the course.

☐ A pre-recored or live introduction to the course, that explains the goals of the course and how it is linked to other studies and the world.

ONLINE LECTURES

☐ Presentation skills. The lecturer's enthusiasm, speaking skills and ability to notice the audience have a big impact on motivation to follow the lecture.

☐ Visuality. Build the lecture to be visually pleasing and easy to follow. Avoid too much text and unnecessary additional elements. Use colors and graphics.

☐ Interaction. Depending on the lecture type, think about how much and what kind of interaction would be suitable. For example small or big conversations, quizzes, polls, games, group work or individual work.

☐ Technical things. Make sure that your mic and webcamera have a good quality. If you plan to show something online or divide students into breakout rooms, prepare it so that it goes smoothly.

SUPPORT AND FEEDBACK

☐ Make it easy to get support from the course staff. Depending on the course, it can be for example scheduled helping hours, questions and answers forum or staying online after a lecture.

☐ Provide a possibility for the students to receive feedback from at least something they have done during the course.

Table 10. Things to notice when creating an online course.

5.3 Future work

With 10 students, it cannot be said that all opinions came across. Validating a study like this should include many more, however I am happy with the variety of the interviewees. In the future it would be interesting to interview students from one field or University and actually improve their online or other courses, because many of the findings don't necessarily concern only online education. To get a good sense of what has and has not worked in individual institutions would give the opportunity to compare them and learn from each other. Before making any final decisions, teachers should be interviewed as well, to find out what their thoughts on the topic are and what kind of knowledge or tools they would need in order to make improvements.

Additionally, it would be useful to interview postgraduates or open university students about this topic, because they might have another viewpoint to studying. For so-called full-time students, community and friends are one of the most important parts of studying, whereas postgraduates or open university students might look at it from more of a practical view. Therefore, I think that they might pay attention to different things in online courses than full-time students.

6. Conclusion

The purpose of this study was to discover how students have felt about online courses and how they could be improved. After interviewing 10 students from 10 different institutions, we came across valuable opinions and viewpoints. Including schools from different fields as well as outside of Finland was a good choice, since every building has different strengths. I would like to highlight three points that are not affected by the department of education. First, any topic can be made into a good online course, if it has a clear structure. Second, doing practical things and realizing how the course connects to the real world is motivating. Third, a lecturer's presence has a big impact on engagement.

The interviews and the literature pointed out a lot of similar thoughts, making the answers to the research questions more valid. Putting the tips into practice requires input from both teachers and institutions. Many of the suggestions can be made individually at a course, like providing a more thorough course plan or improving your presentation skills. However, institutions should think about what they require from their online courses and how they could help their educators to reach the goals.

Now that schools have been getting back to in class teaching, there is a good opportunity to think about if a course should be fully remote, fully in class or hybrid. Usually, a course does not need interaction throughout the semester, so why not create high quality educational videos for the parts that don't need live presence? There are multiple other things to weigh, but now that we have experienced fully online education, we should be better at naming what works in what environments.

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8. Appendices

Appendix 1: Interview questions

- Name of your school, level of your studies?

Warmup
1. How has online studying been for you?
2. What have you enjoyed, what have you not enjoyed?

Course structure
1. What are the first things you wish to know when attending a new course?
2. What kind of tasks help you in learning? Any kind, online or traditional.
3. What kind of assignments do you not enjoy?
4. How do you think that the feeling of community could be improved in online courses?
5. What have been the best online courses you have attended? Why?

Video lectures
1. How do you feel about live and pre-recorded online lectures?
2. Have you noticed any elements that make an online lecture more interesting and easier to follow? Either one, pre-recorded or live online lectures.
3. What makes you unengaged during online lectures?
4. Is there anything in face-to-face classes that you wish was also used in online lectures?

Ending
1. What are your hobbies or free time activities, and what makes them motivating?
2. Have you experienced any motivational elements on online courses similar to what makes your hobbies motivating?
3. Can you describe the structure of your ideal online course?
4. Can you describe the design of your ideal video lecture?
5. Anything else?