Evaluation

Education Alliance Finland

The Education Alliance Finland Evaluation Process

All EAF certified products can be found on www.educationalliancefinland.com

classroom.cloud

Cloud-based classroom management and teaching platform for schools

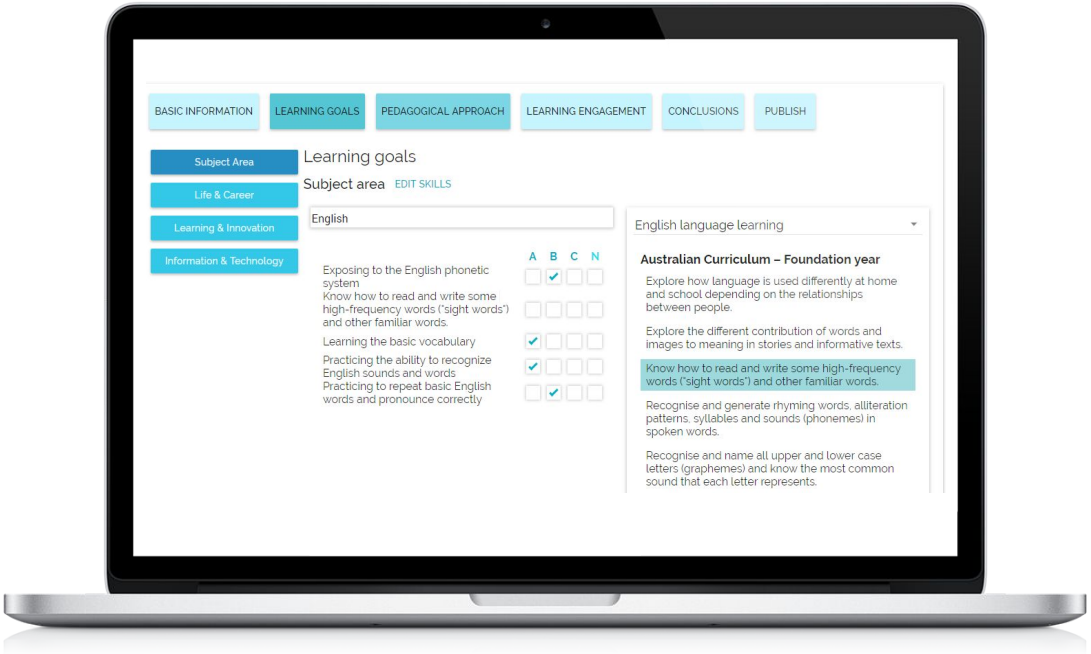
Learning Goals

Matching the learning goals

The evaluator maps the product's learning goals against a specific curriculum/curriculums.

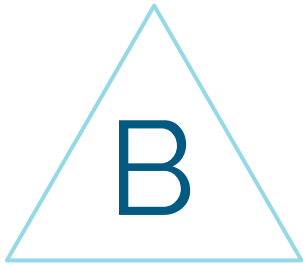
All supported skills are listed and classified as *didactic (A-level)* or *facilitative (B-level)* goals.

The EAF Evaluation Tool has several hundred skills listed from various national curriculums on several subjects (Languages, STEM, Arts etc.)



Primary Goals

Content is instructional and didactic: Learning of these skills is constantly present in the core usage.



Secondary Goals

Content is partly instructional, partly facilitative: Learning of these skills is present in the core usage, but not essentially and constantly stressed.

Non-Existing

Content does not exist: Learning these skills would be a meaningful part of the use of the solution, but they are missing.

Subject Area

Remote learning and study skills

Subject area - Primary skills

Transversal Competences - Finnish National Core Curriculum for Basic Education

2014 - Thinking and Learning to Learn T1 - grades 7-9

1. Strengthen the active role of students in the learning process and create the conditions for positive experiences and emotions to support learning. **A**
2. Students are instructed to identify the most natural ways to learn and pay attention to their own learning habits. **A**
3. Thinking skills are developed by creating diverse opportunities for independent and collective problem-solving, argumentation, reasoning and drawing conclusions, and for recognizing interactions and interrelationships between systems and thus for systemic thinking. **A**
4. The student should reflect on the future of studying and of one's own thinking and working methods. **A**
5. Practicing ways for concentration and staying focused, and guiding the student in the use of technology and other tools in their studies. **A**
6. Students are encouraged to take responsibility for setting learning goals, planning work, and evaluating their own work process and progress. **B**
7. Students are encouraged to trust themselves and their views, to justify their ideas and to apply the skills they have learned outside school. **B**

A = Primary goal: content is didactic

B = Secondary goal: content is facilitative

Subject area - Primary skills

Transversal Competences - Finnish National Core Curriculum for Basic Education

2014 - Multiliteracy T4 - grade 7-9

1. Media literacy is enhanced by participating and working with different media. A
2. Students are encouraged to express their views through a variety of communication and influencing tools. A
3. The skills of producing, interpreting and communicating knowledge are practiced in a variety of subject-specific ways and in a collaborative manner. B

A = Primary goal: content is didactic

B = Secondary goal: content is facilitative

Subject area - Primary skills

Transversal Competences - Finnish National Core Curriculum for Basic Education 2014 - ICT Competences T5 - Grades 3-6

1. Information and communication technologies (ICT) are widely used in various subjects and in other school work. A
2. Use of various communication systems and community-based services in education. A

A = Primary goal: content is didactic

B = Secondary goal: content is facilitative

Subject area - Primary skills

Transversal Competences - Finnish National Core Curriculum for Basic Education

2014 - ICT Competences T5 - Grades 7-9

1. Students are encouraged to use ICT on their own initiative in a variety of learning tasks and to choose the appropriate working methods and tools for different tasks. A
2. Students are instructed in the appropriate use of various communication channels and styles. A

A = Primary goal: content is didactic

B = Secondary goal: content is facilitative

Life & Career

Social Skills / Cross Cultural Skills and Global Awareness / Wellbeing and Sustainable Development / Work life skills and Entrepreneurship /

Life & Career skills

Work life skills and Entrepreneurship

1. Encouraging positive attitude towards working life . . . . . A
2. Practicing time management . . . . . A
3. Practicing decision making . . . . . A
4. Practicing versatile ways of working . . . . . A
5. Learning to plan and organize work processes . . . . . A
6. Connecting subjects learned at school to skills needed at working life . . . . . A

A = Primary goal: content is didactic

B = Secondary goal: content is facilitative

Life & Career skills

Wellbeing and Sustainable Development

1. Encouraging the growth of positive self-image . . . . . A
2. Practicing to take care of one's own and other people's safety . . . . . A
3. Practicing to take care of own and other people's safety . . . . . A
4. Practicing to recognize and express feelings . . . . . B

A = Primary goal: content is didactic

B = Secondary goal: content is facilitative

Life & Career skills

Social Skills

1. Practicing to give, get and reflect feedback . . . . . A
2. Enabling the growth of positive self-image . . . . . A
3. Learning decision-making, influencing and accountability . . . . . A
4. Practicing communication through different channels . . . . . A
5. Learning to understand the meaning of rules, contracts and trust . . . . . A
6. Practicing to work with others . . . . . A

A = Primary goal: content is didactic

B = Secondary goal: content is facilitative

Life & Career skills

Cross Cultural Skills and Global Awareness

1. Learning to face respectfully people and follow the good manners . . . . . A
2. Encouraging to build new information and visions . . . . . A
3. Supporting student to build their own linguistic and cultural identity . . . . . B

A = Primary goal: content is didactic

B = Secondary goal: content is facilitative

Learning & Innovation

Creativity and Innovation / Critical Thinking & Problem Solving / Cognitive and thinking skills / Learning to Learn /

Learning & Innovation

Learning to Learn

1. Practicing persistent working . . . . . A
2. Learning to find the joy of learning and new challenges . . . . . A
3. Practicing to evaluate one's own learning . . . . . A
4. Practicing to take responsibility of one's own learning . . . . . A
5. Practicing to find ways of working that are best for oneself . . . . . A

A = Primary goal: content is didactic

B = Secondary goal: content is facilitative

Learning & Innovation

Cognitive and thinking skills

1. Practising visual recognition . . . . . A
2. Practicing to observe spoken and written language . . . . . A
3. Practicing fine motor skills . . . . . A
4. Learning to notice causal connections . . . . . A

A = Primary goal: content is didactic

B = Secondary goal: content is facilitative

Learning & Innovation

Creativity and Innovation

1. Encouraging students to be innovative and express new ideas. . . . . A
2. Creating requirements for creative thinking. . . . . A

A = Primary goal: content is didactic

B = Secondary goal: content is facilitative

Learning & Innovation

Critical Thinking & Problem Solving

1. Practicing to create questions and make justifiable arguments based on observations . . . . . A
2. Developing problem solving skills . . . . . A
3. Practicing to notice causal connections . . . . . A

A = Primary goal: content is didactic

B = Secondary goal: content is facilitative

Information & Technology

Media and Information Literacy / Multimodal Literacy / ICT Literacy /

ICT Literacy - Primary skills

Media and Information Literacy

1. Practicing to use information independently and interactively ..... A
2. Practicing to find, evaluate and share information ..... A
3. Practicing keyboard skills and touch typing ..... A
4. Familiarizing with the influences of media and understanding its affordances ..... B

A = Primary goal: content is didactic

B = Secondary goal: content is facilitative

ICT Literacy - Primary skills

ICT Literacy

1. Using technology as a part of explorative and creative process . . . . . A
2. Understanding and practicing safe and responsible uses of technology . . . . . A
3. Understanding technological system operations through making . . . . . A
4. Building common knowledge of technological solutions and their meaning in everyday life . . . . . A
5. Using technology for interaction and collaboration . . . . . A

A = Primary goal: content is didactic

B = Secondary goal: content is facilitative

ICT Literacy - Primary skills

Multimodal Literacy

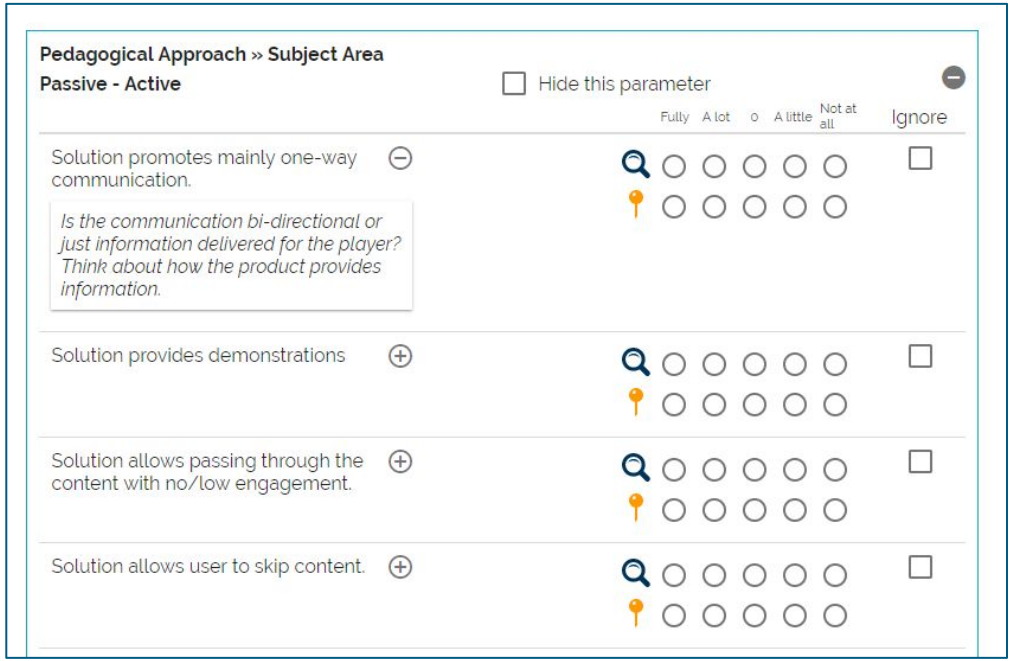
1. Using technology as a part of explorative and creative process . . . . . A
2. Learning to understand and interpret diverse types of texts . . . . . A
3. Learning to acquire, modify and produce information in different forms . . . . . A
4. Practicing logical reasoning to understand and interpret information in different forms . . . . . A

A = Primary goal: content is didactic

B = Secondary goal: content is facilitative

Pedagogical Approach

Assessing the pedagogy



The evaluator answers a set of statements to assess the product's pedagogical approach.

The answers to the questions result to a numeric score on each parameter. The parameters are shown as contrary pair sliders.

The assessment is divided into four parameters:

1. Passive – Active
2. Rehearse – Construct
3. Linear – Non-linear
4. Individual – Collaborative

The set of questions and definitions, have been developed by researchers from the Helsinki University.

Criterion definition

Passive / **Active**

Passive: Learner in an observant role

Active: Learning by doing

Individual / **Collaborative**

Individual: Learner is learning by her- or himself

Collaborative: Requires collaboration with other learners

Linear / **Non-linear**

Linear: Proceeding linearly through repetitive tasks

Non-linear: Supports free exploration and finding solutions in variable ways.

Rehearse / **Construct**

Rehearse: Practicing earlierly learned

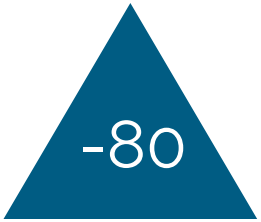
Construct: Learning and constructing new concepts

How to read the contrary pair analysis?

The magnifier tells where the product currently positions the learner, in the pedagogical dimension.

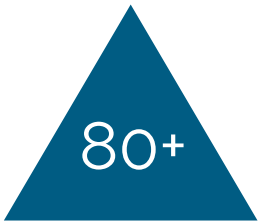
The pin shows where the product should position the learner according to the evaluators.

The Rating Scale



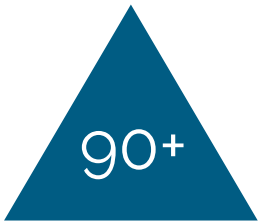
Fair

There are crucial issues with the pedagogical approach. Improvements are necessary in order to achieve high educational quality.



Good

The pedagogical approach is valid. However, many improvements could be made in order to improve this aspect of learning experience.



Excellent

The pedagogical approach is innovative and meaningful. Some improvements could be made in order to improve this aspect of learning experience.

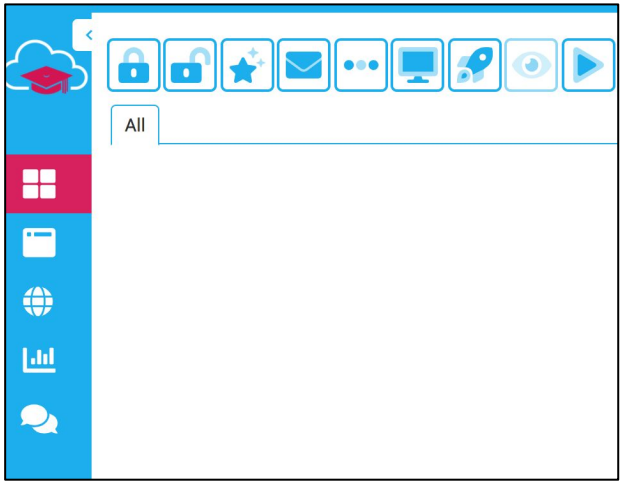
Outstanding

Product is exceptionally innovative and provides high educational value. The content is delivered in an extremely meaningful and engaging way.

Passive - Active: 98/100 = Outstanding

Passive — 98 — Active

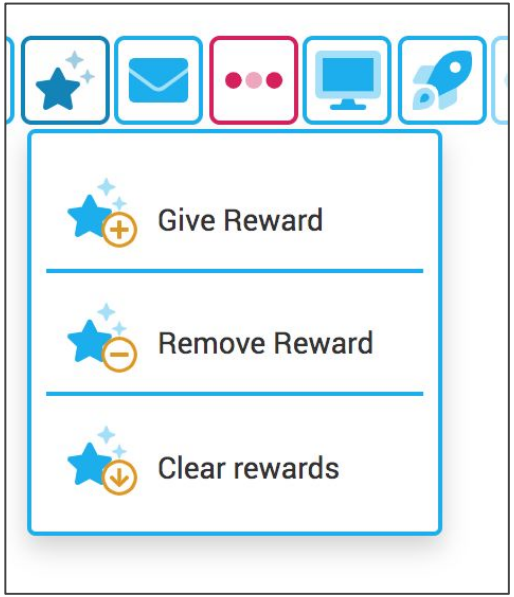
Strengths: classroom.cloud has several ways how the teacher can notice and support student's activity. Monitoring is easy and the teacher can approach students through text chat or activate them with a Survey. At its best, delivering the content with classroom.cloud frees the teacher from worry. They can be sure the students have received the correct instructions and are doing the right things. Therefore the teacher can give the students more freedom to work independently and focus only on supporting them. These benefits are especially apparent in distance learning or when working in a classroom with young learners.



Passive - Active: 98/100 = Outstanding

Passive — 98 — Active

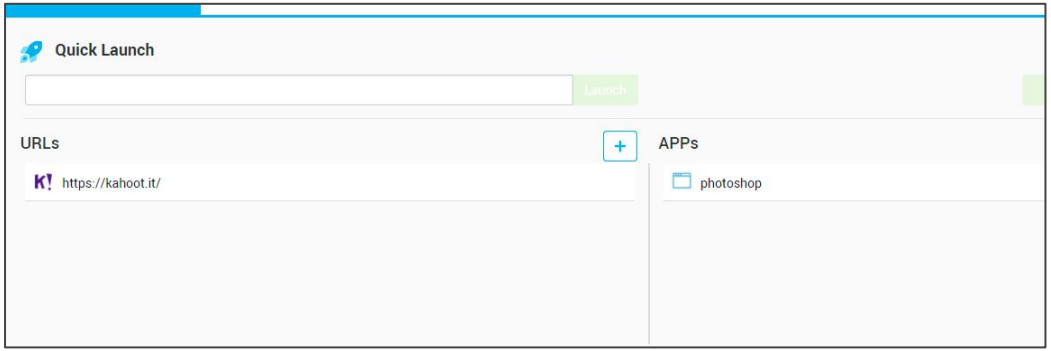
Development areas: The tools for giving feedback and encouragement are a bit limited. The teacher can give out stars, but more nuanced feedback would be nice, such as sending emojis or stickers. For students, the usage is very simple, especially if the setup and installation are done in schools. However, there is a learning curve for teachers to fully utilize the tools. Interactive support materials such as a wizard or interactive tours could help. Some parts of the platform could be more intuitive to use.



Rehearse - Construct: 94/100 = Excellent

Rehearse — 94 — Construct

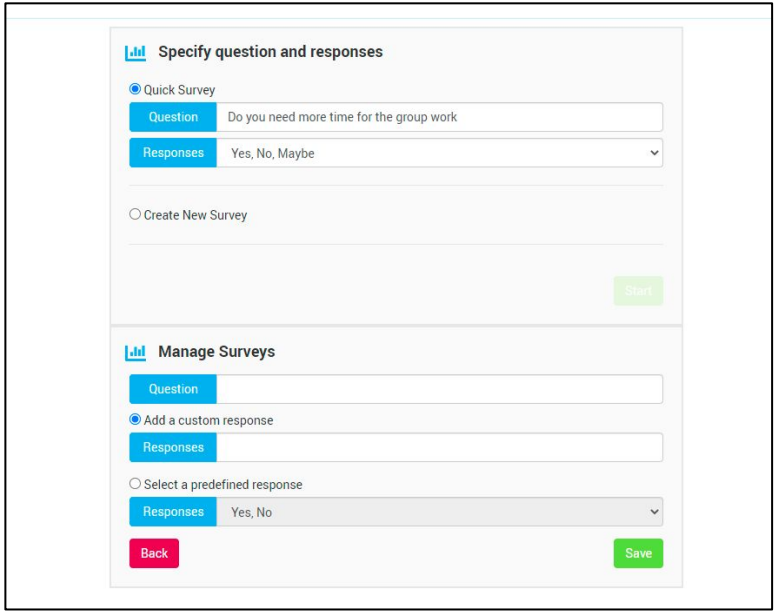
Strengths: Classroom.cloud scales well for various learning situations. It can be used for delivering content to the whole class and also for very individual guidance. The chat and chances for asking for help are easy to use, which allows learners to also take responsibility for their learning and reflect when they want to get the teachers' attention. The tools like Quick launch, chat, screen share, and presentation allow very multimodal use of learning resources. Change to add lesson objectives and outcomes is a great way to make them visible for learners and that way help their reflection.



Rehearse - Construct: 94/100 = Excellent

Rehearse 94 Construct

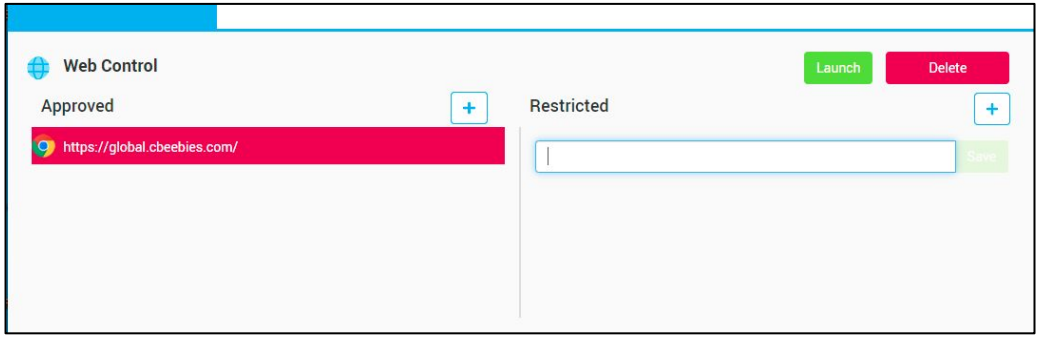
Development areas: At the moment, classroom.cloud is very teacher-oriented and offers good tools for teachers. In the future, there could be more features or even content directed to learners. The teacher could take these into use if wanted. For example, since screen time and sitting still are creating problems for students and workers, a timer that notifies students to stand and stretch occasionally could be a nice addition. Students could be also encouraged to reflect on their learning process. The teacher can use the Survey for this (ask how everyone is doing, ask if students feel they learned something etc.), but classroom.cloud could encourage this by offering some ready surveys as a model.



Linear - Non-linear: 99/100 = Outstanding

Linear — 99 — Non-linear

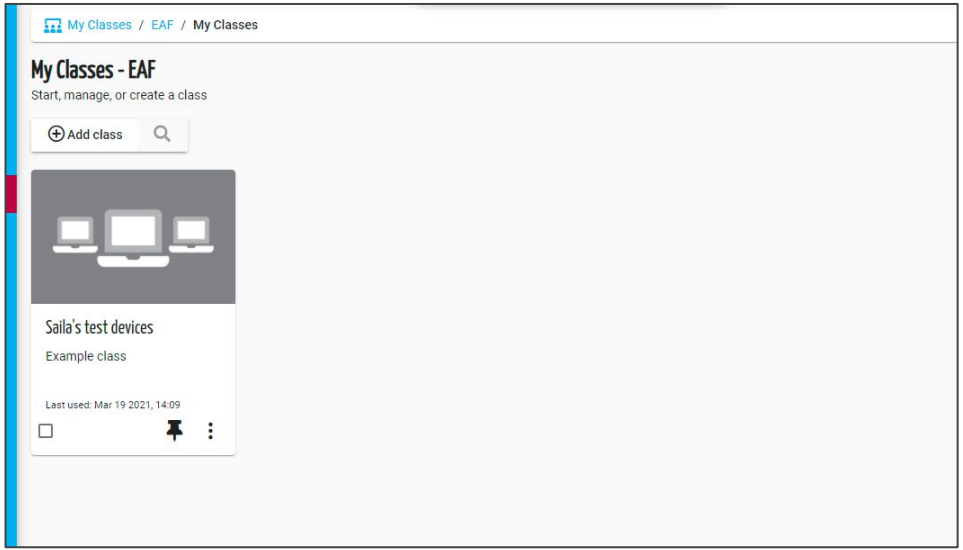
Strengths: The lessons held with classroom.cloud are completely in control by the teacher, and their progress can be scheduled accurately. Classroom.cloud can be used to set equal learning paths for all users or the teacher can provide differentiated instructions and contents for different students. With block tools, the teacher can decide how much free exploration is allowed or promoted. Yet, the teacher can also confidently allow very explorative and creative use of digital resources because they can monitor, what the students are doing.



Linear - Non-linear: 99/100 = Outstanding

Linear — 99 — Non-linear

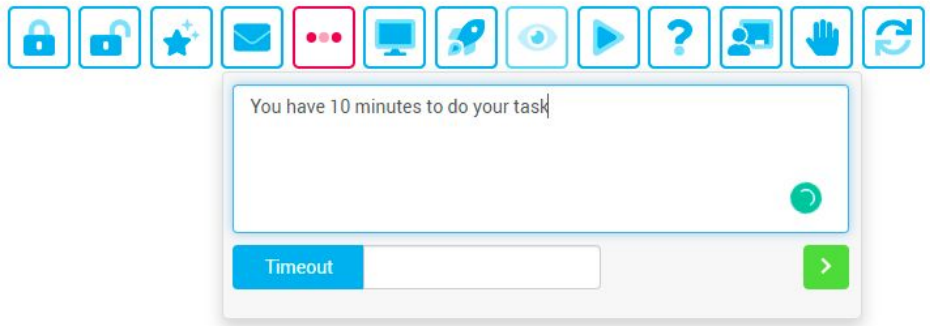
Development areas: In classroom.cloud the classes are tied to devices, so there's no continuation between classes, so collecting long-term data of the students' behavior is not possible. However, there could be some data tools that could help in in-class monitoring - for example, notifying the teacher if a student has been inactive for a certain amount of time (no clicks or keyboard actions monitored). Also showing a student's app/page history from the duration of the class could be a good tool, or showing how much time each student has spent on each app/page during the class. Right now, the teacher can view real time, what everyone is doing.



Individual - Collaborative: 87/100 = Good

Individual — 87 — Collaborative

Strengths: Classroom.cloud is build for collaboration between teacher and students. There are several good tools for guidance and communication, and using an easy digital channel can even lower the threshold for reaching out to the teacher. Classroom.cloud complements other LMSs' in a great way since it gives tools for real-time communication, which are often lacking in other environments. The teacher has a chance to group the devices in class. This allows them to follow, which students are doing group work together and easily manage also smaller groups within the class.



Individual - Collaborative: 87/100 = Good

Development areas: Learning progress within the solution is highly individual. Enabling collaboration between students with build-in tools within the solution could enhance more creative ways of working and learning. There are several other software for group chatting, which can be used alongside classroom.cloud, so executing student-to-student chat might not be a priority.

However, classroom.cloud could offer an easy way for sharing your screen with the rest of the class and present your work that way. As a presentation tool classroom.cloud could potentially top other chat tools because it already has plenty of great features for this purpose for the teacher.

Learning Engagement

The Six Aspects of Learning Engagement

Autonomy

Feeling that the user's actions in the product are based on their own decisions rather than feeling there is external pressure to choose a certain action.

Competence

The user can feel capable and effective in their actions rather than feeling incompetent or ineffective.

Relatedness

Feeling that in the product there is meaningful contact with people who care about you rather than feeling lonely and uncared for. You can also feel connection with fictional characters and events in the product.

Respect

Feeling that the product takes the user into account as a capable and desired actor rather than feeling that the user's opinions and experiences are neglected.

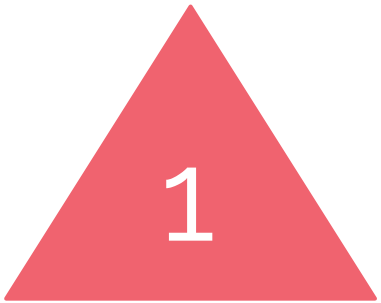
Stimulation

Feeling that the product offers plenty of enjoyment and pleasure rather than feeling bored and understimulated by the product.

Safety

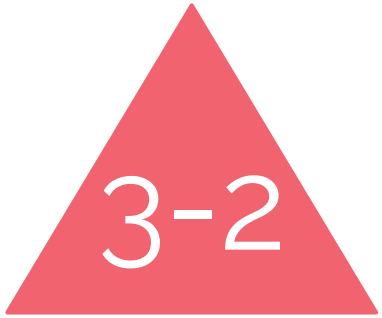
Feeling that the product is a safe environment for having fun and trying out things rather than feeling uncertain of the consequences or threatened by other users.

The Rating Scale



Not Supported

There are issues with the user engagement in this area.



Supported

The product takes into account this aspect of user engagement. Some improvements could be made in order to improve the support.

Well supported

There are several well executed features which support this aspect of user engagement.

Autonomy Score: 4/5 = Well supported

The users actions in the product are based on their own decisions rather than feeling external pressure to choose a certain action.

Main strengths	Score
1. The user can create their own goals for the use.	4
2. The product motivates the use well.	4

The platform allows the student to work independently, providing the possibility to ask and get help from the teacher online. The teacher can provide a wide range of pre-curated materials and tools for the students to work with, enabling the students to create their own goals and paths for learning.

Autonomy Score: 4/5 = Well supported

The users actions in the product are based on their own decisions rather than feeling external pressure to choose a certain action.

Main development areas	Score
1. The product sets limitations for using it when and where I want to, and the limitations feel unnecessary or annoying.	3.7

The limitation of the communication to only teacher-student communication divided opinions; Some of the evaluators saw it as justified, while some thought it necessary to add also student-to-student communication tools.

Competence Score: 4.25/5 = Well supported

Feeling that you are very capable and effective in your actions rather than feeling incompetent or ineffective

Main strengths	Score
1. It is possible to feel successful and proud of myself when I am using the product.	4.3
2. Navigation in the product is easy and intuitive.	4

The platform provides excellent tools for teachers to conduct a remote (or in-class) lesson. It contains many key features present in a common in-class lesson. Using classroom.cloud gives the teacher confidence in focusing on teaching and not to worry about what their students are doing.

Competence Score: 4.25/5 = Well supported

Feeling that you are very capable and effective in your actions rather than feeling incompetent or ineffective

Main development areas	Score
1. The product gives you enough information to use it efficiently.	3.7

It can be difficult to grasp how the system works. Different functions could include more tutoring. For the teacher, the most difficult part is to understand the logic of the system in the beginning, since it is different from many other LMSs - "Class" contains devices, not user profiles. However, if the school Admin makes sure the devices are grouped clearly and helps to create first classes, the teachers should be able to use the system with a little practice.

For Google Classroom and Microsoft Classroom users the classes can be easily imported, so the teachers have a very fluent transition to classroom.cloud.

Relatedness Score: 3.47/5 = Supported

The product supports meaningful contact with people who care about your actions rather than feeling that the contact is one-sided or meaningless. The user can feel connection with fictional characters and events in the product.

Main strengths	Score
1. The product supports communication with other people and there are good reasons to communicate	3.3
2. The visuals and characters in the product are suitable for targeted users.	4

The platform is visually appealing and simple. Surveys and chat are easy to use tools for group communication.

Relatedness Score: 3.47/5 = Supported

The product supports meaningful contact with people who care about your actions rather than feeling that the contact is one-sided or meaningless. The user can feel connection with fictional characters and events in the product.

Main development areas	Score
1. The product supports social interaction, such as multiplay or sharing of content with other people. . .	2.3

The teacher can facilitate group work with classroom.cloud, but student-to-student interaction requires another platform.

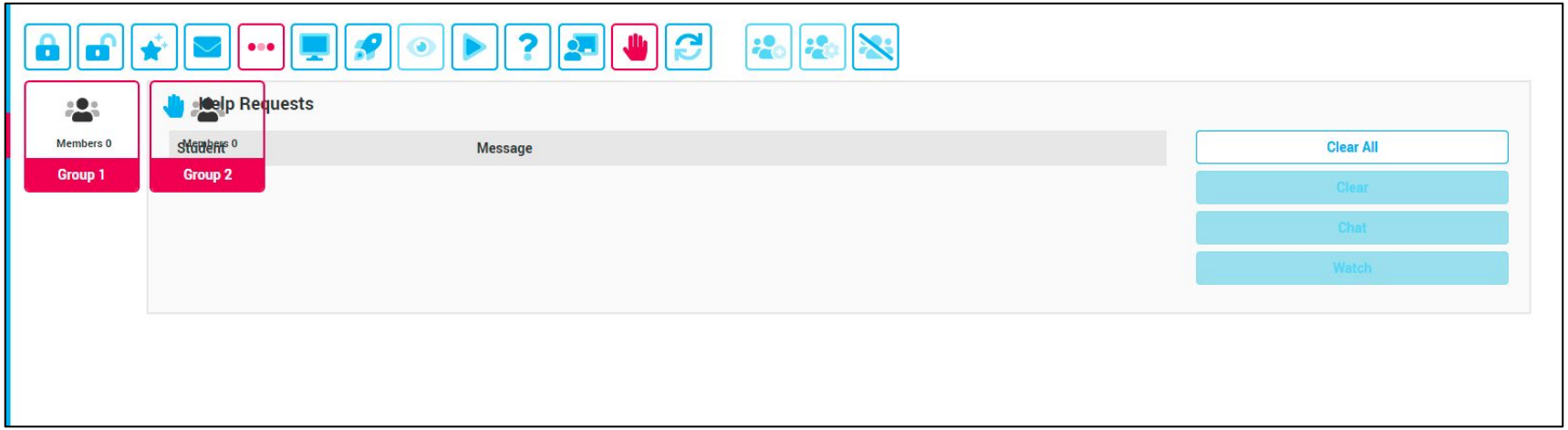
Respect Score: 4.34/5 = Well supported

Feeling that the product takes the user into account as a capable and desired actor rather than feeling that the user's opinions and experiences are neglected.

Main strengths		Score
1.	The product doesn't make assumptions on player's age, gender, race or origin.	4.7
2.	The product doesn't have bugs which cause errors or crashing.	4.7

Classroom.cloud worked well during the testing with Windows computers. It would be great to have other OSes and device types enabled in the future. The guidance tools the teacher has are especially great for special education - control of the screen, quick launch and other tools make it possible to help students, who might struggle in focusing or who need help in accessing suitable resources.

A small bug in classroom.cloud: Groups get overlaid with Help Requests



Stimulation Score: 3.88/5 = Supported

Feeling that you get plenty of enjoyment and pleasure rather than feeling bored and understimulated by the product.

Main strengths	Score
1. The product's graphics, sounds and other elements support the narrative and user experience in a meaningful way and are pleasant.	3.7
2. The product encourages exploring it further.	3

The product provides a possibility for the teacher to create versatile tasks and share contents as well as to guide the students to do research and look for information with the tools in the platform. This allows for rich online learning.

Safety Score: 4.47/5 = Well supported

Feeling that the product is a safe environment for having fun and trying out things rather than feeling uncertain of the consequences or threatened by other users

Main strengths	Score
1. If the user shares content - their work, their comments or anything else - it is always clear, who has access to the shared content.	4.3
2. There is a way to report and possibly block misbehaving users..	4.5

The platform provides a safe digital environment for the students to study and the teachers to work with. The teachers has a good amount of tools for taking action with misbehaving students (lock screen, block web pages or software, communicate with the student).

There are great school admin tools that make sure that remote connections are used in appropriate way and in times that are reserved for school work.

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Results

classroom.cloud
High Educational Quality Aspects

Education Alliance Finland

1. In classroom.cloud Teachers have a wide range of tools to manage the classroom actions and are able to produce versatile tasks and contents to support remote lessons.
2. Using classroom.cloud lets the teacher focus on teaching as they can be confident of what their students are doing with their devices.
3. classroom.cloud gives good tools for teacher-student communication and lowers the threshold of asking for help also in distance learning.

Pedagogical Approach 94 %

Learning Engagement 4.07

According to Education Alliance Finland evaluation, classroom.cloud represents high educational quality and is proven to promote learning efficiently.

Education Alliance Finland

Background

*Expert Evaluation of **what** the solution teaches and **how** it teaches?*

Education Alliance Finland

Education Alliance Finland conducts impact evaluations based on global quality standard for learning solutions

Expert Evaluation and Rating

The analysis of how the product supports learning of different skills is done by using a contrary pair criterion. The evaluator uses contrary pairs to diagnose skill-specifically the pedagogical approach which the product represents. The diagnose is done by using slider between contrary pairs, setting the slider in a position that describes the product's approach. Evaluator uses the same slider to describe the best possible approach and gives a rate (0-100) on how adequate approach the product has.

All diagnoses and ratings are done by two expert-evaluators separately. After all skills are diagnosed through the criterion, evaluators discuss and form a concluding diagnose of two separate evaluations.

The rating points out the strengths and development areas, mirroring them with the needs of education field and product development possibilities. After pointing out the development areas, the analysis gathers suggestions on how to improve the product.

Outcomes

- Defining **what** and **how** the product teaches
- Analysis of features which **engage** the learners
- Pointing out the strengths and development areas
- Giving validation for building the marketing message

Pedagogical Model and Learner Perception

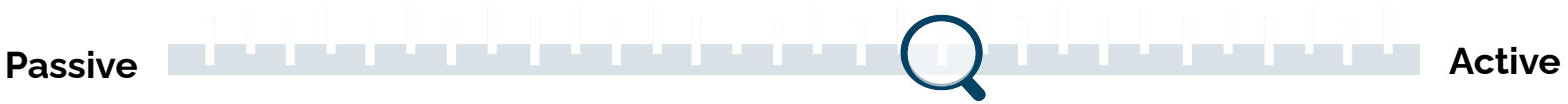
In the first phase of the analysis evaluators are forming product related statements to define a variation of skill sets that the use of the product supports. The base of the statements is formed upon definitions of 21st century skills, Finnish pedagogics and existing research evidence related to the product. The reason for using the mentioned influencers is that they represent the needs of the education field globally.

In the second phase the same influencers are used to develop the criterion for evaluation how the product supports learning of different detected skills. Finnish new curriculum represents a learner perception based on most advanced understanding of efficient pedagogical approach and therefore it can set the highest quality standards for education tools.

Pedagogical approach - Passive / Active

Regarding the role of the student, we characterize the learning solution as promoting learning that is situated somewhere on the scale between *passive* and *active*. As key components determining the characteristics of the solution on this scale we use *accountability, behavioural engagement and emotional engagement.*

Agency	**Behavioural engagement**	**Emotional engagement**
Autonomy	*Interactivity*	*Activating motivation*
Self-regulation	*Engagement*	*Sustaining motivation*
Intentionality	*Scaffolding*	*Feed forward*



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Pedagogical approach - Rehearse / Construct

Regarding the learning activities, we characterize the learning solution as promoting learning that is situated somewhere on the scale between rehearse and construct. As key components determining the characteristics of the solution on this scale we use sparking of interest, building of knowledge and reflection of learned.

Interest	**Knowledge building**	**Reflection**
Activating interest	*Defining goals*	*Reflection*
Mapping prior knowledge	*Applying existing knowledge (adaptation/ assimilation)*	*Decision-making*
Customisation	*Knowledge creation*	*Difficulty optimisation*

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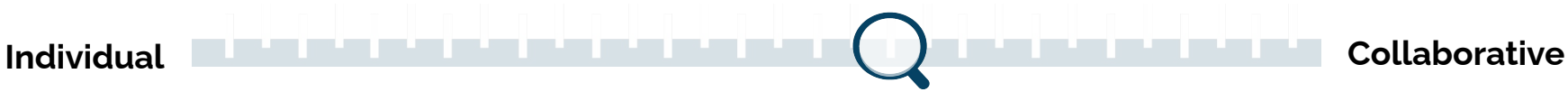
Pedagogical approach - Individual / Collaborative

Regarding the learning activities, we characterize the learning solution as promoting learning that is situated somewhere on the scale between individual and collaborative. As key components determining the characteristics of the solution on this scale we use interaction, responsibility and regulation.

Interaction	**Responsibility**	**Regulation**
Interaction	*Accountability*	*Self / co-regulation*
Fostering collaboration	*Peer support*	*Personal / shared learning goals*
Content sharing	*Information sharing*	*Independency / co-dependency*



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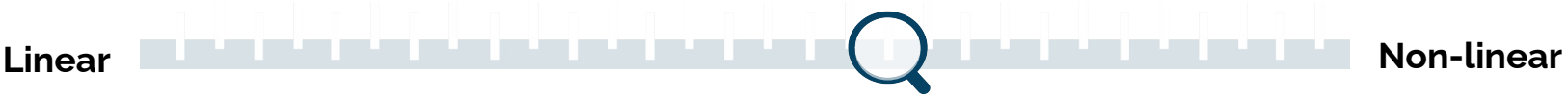
Pedagogical approach - Linear / Non-linear

Regarding the learning process, we characterize the learning solution as promoting learning that is situated somewhere on the scale between linear and non-linear. As key components determining the characteristics of the solution on this scale we use procession and predictability.

Process	**Predictability**
User progression	*Predictability of outcomes*
UX optimisation	*UX limitations*



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Assessing User Happiness

The user experience evaluation is done from the perspective of the user happiness. The evaluation assesses, how fun and engaging an product is to use, and it is suitable for entertainment games, learning games and utility apps,.

The evaluation focuses on things the users are able to do in the product, and how these features make the users feel. It takes into account the general usability of the products, but looks behind issues which are not essential for the experience. Therefore this type of evaluation is also suitable for proof of concept -state prototypes and ideas.

The evaluation report serves as a tool for the design and development team. It shows what are the features that support the user happiness the best, and how they do it. It will also point out things that hinder the happiness, and ways the experience could be improved.

Sources: The aspects of player happiness are from Hassenzalh, Marc et all: Designing Moments of Meaning and Pleasure. Experience Design and Happiness. International Journal of Design Vol. 7 No. 3 2013

Autonomy	*The user's actions in the product are based on their own decisions rather than feeling there is external pressure to choose a certain action.*
1. The user can create their own goals for the use.	4. The product sets limitations for using it when and where I want to, and the limitations feel unnecessary or annoying.
2. The product motivates the use well	5. It is possible to make choices, and the different choices have clearly different and meaningful outcomes.
3. It is easy to understand, what is the goal in using the product.	6. It is possible to use creativity and express yourself when using the product.

Sources: The heuristics are adapted from the following sources:
Korhonen, Hannu & M. I. Koivisto, Elina. (2006). Playability heuristics for mobile games.
Inostroza, Rodolfo et all (2012). Usability Heuristics for Touchscreen-based Mobile Devices.
Nielsen, Jacob. (1994a). Enhancing the explanatory power of usability heuristics.

Competence *Feeling that you are very capable and effective in your actions rather than feeling incompetent or ineffective*	
1. The product rewards the user in a meaningful way and according to the challenge	5. Progression on the product depends on succeeding on things relevant for learning.
2. The product gives you enough information to use it efficiently.	6. The first time experience is encouraging and it is easy to learn to use the product
3. Navigation in the product is easy and intuitive.	7. It is possible to feel successful and proud of myself when I am using the product.
4.The challenges and tasks in the product feel optimal for the targeted users	Experienced and advanced users can find more challenge in the product.

Sources: The heuristics are adapted from the following sources:
Korhonen, Hannu & M. I. Koivisto, Elina. (2006). Playability heuristics for mobile games.
Inostroza, Rodolfo et all (2012). Usability Heuristics for Touchscreen-based Mobile Devices.
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Relatedness	*In the product there is meaningful contact with people who care about your actions rather than feeling that the contact is one-sided or meaningless. The user can feel connection with fictional characters and events in the product.*
1. The story or fictional world present in the product motivates learning	4. The product supports social interaction, such as multiplay or sharing of content with other people
2. The product uses language which makes you feel welcome and cared for.	5. The product provides examples or motivation to learn the skill it tries to teach.
3. The visuals and characters in the product are suitable for targeted users.	6. The product supports communication with other people and there is are good reasons to communicate

Sources: The heuristics are adapted from the following sources:
Korhonen, Hannu & M. I. Koivisto, Elina. (2006). Playability heuristics for mobile games.
Inostroza, Rodolfo et all (2012). Usability Heuristics for Touchscreen-based Mobile Devices.
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Respect	*Feeling that you are very capable and effective in your actions rather than feeling incompetent or ineffective*
1. The product gives clear feedback on all your actions	4. The product is suitable for both inexperienced and experienced users. Players can eg. skip tutorials or choose wanted difficulty levels
2. The product doesn't make assumptions on player's age, gender, race or origin.	5. The product doesn't have bugs which cause errors or crashing.
3. The product doesn't include discriminative narrative or enforce unnecessary stereotypes	

Sources: The heuristics are adapted from the following sources:
Korhonen, Hannu & M. I. Koivisto, Elina. (2006). Playability heuristics for mobile games.
Inostroza, Rodolfo et all (2012). Usability Heuristics for Touchscreen-based Mobile Devices.
Nielsen, Jacob. (1994a). Enhancing the explanatory power of usability heuristics.

Stimulation	*Feeling that you get plenty of enjoyment and pleasure rather than feeling bored and understimulated by the product.*
1. The product encourages exploring it further	4. The user doesn't unnecessarily need to repeat things which they have already learned
2. The product's challenge level is optimal for the targeted users, or it can be chosen	5. The product's graphics, sounds and other elements support the narrative and user experience in a meaningful way and are pleasant.

Sources: The heuristics are adapted from the following sources:
Korhonen, Hannu & M. I. Koivisto, Elina. (2006). Playability heuristics for mobile games.
Inostroza, Rodolfo et all (2012). Usability Heuristics for Touchscreen-based Mobile Devices.
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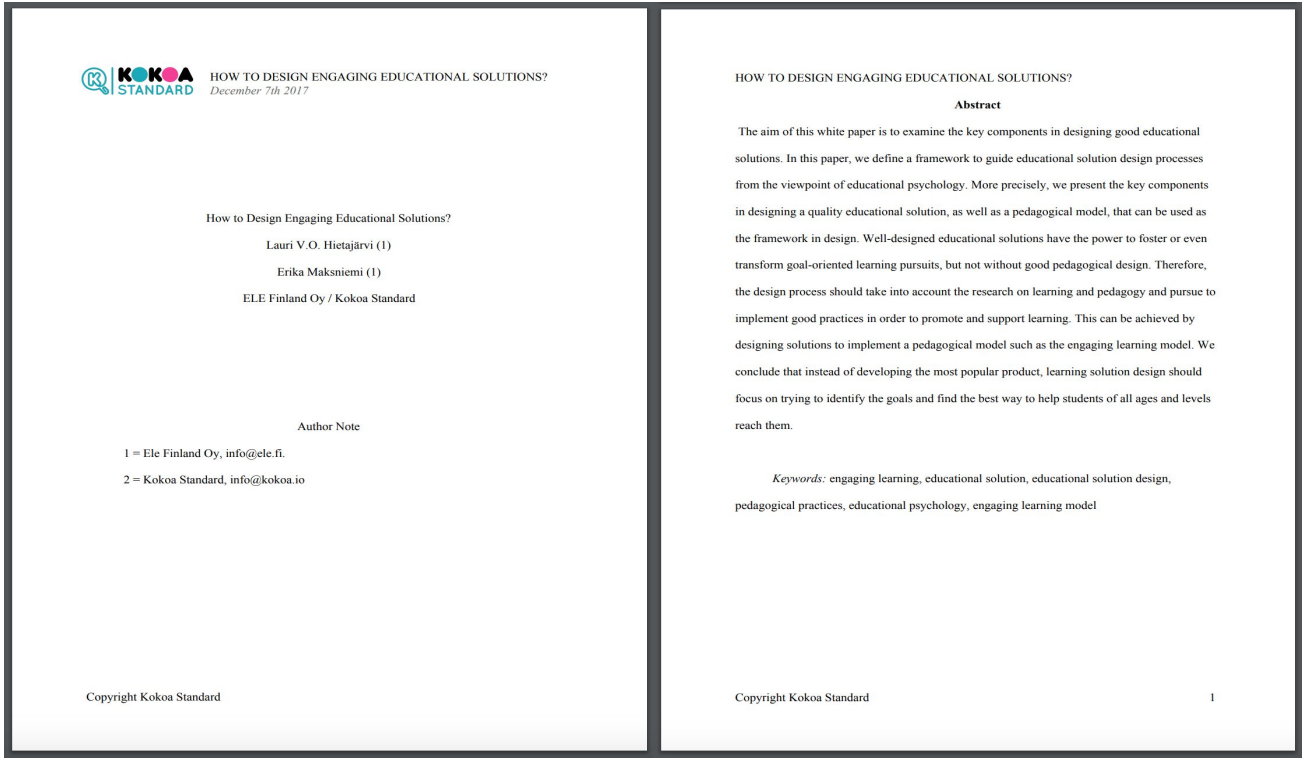
Safety	*Feeling that the product is a safe environment for having fun and trying out things rather than feeling uncertain of the consequences or threatened by other users.*
1. Making errors is beneficial. Everytime you make an error, you learn something from it	4. The user does not lose any hard-won rewards or results if they do something wrong.
2. There is a way to report and possibly block misbehaving users.	5. f the user shares content - their work, their comments or anything else - it is always clear, who has access to the shared content.
3. The product doesn't include content or advertising which would be harmful for the targeted users	6. The user cannot make irreversible errors. Points that lead to restarting the use or re-doing things without a considerable effort should not be possible

Sources: The heuristics are adapted from the following sources:
Korhonen, Hannu & M. I. Koivisto, Elina. (2006). Playability heuristics for mobile games.
Inostroza, Rodolfo et all (2012). Usability Heuristics for Touchscreen-based Mobile Devices.
Nielsen, Jacob. (1994a). Enhancing the explanatory power of usability heuristics.

Theoretical background

The white paper article describes the theoretical background of the evaluation.



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How to Design Engaging Educational Solutions?

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HOW TO DESIGN ENGAGING EDUCATIONAL SOLUTIONS?

Abstract

The aim of this white paper is to examine the key components in designing good educational solutions. In this paper, we define a framework to guide educational solution design processes from the viewpoint of educational psychology. More precisely, we present the key components in designing a quality educational solution, as well as a pedagogical model, that can be used as the framework in design. Well-designed educational solutions have the power to foster or even transform goal-oriented learning pursuits, but not without good pedagogical design. Therefore, the design process should take into account the research on learning and pedagogy and pursue to implement good practices in order to promote and support learning. This can be achieved by designing solutions to implement a pedagogical model such as the engaging learning model. We conclude that instead of developing the most popular product, learning solution design should focus on trying to identify the goals and find the best way to help students of all ages and levels reach them.

Keywords: engaging learning, educational solution, educational solution design, pedagogical practices, educational psychology, engaging learning model

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