Evaluation

Education Alliance Finland

The Education Alliance Finland Evaluation Process

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

NetSupport School

Classroom management and teaching platform for schools

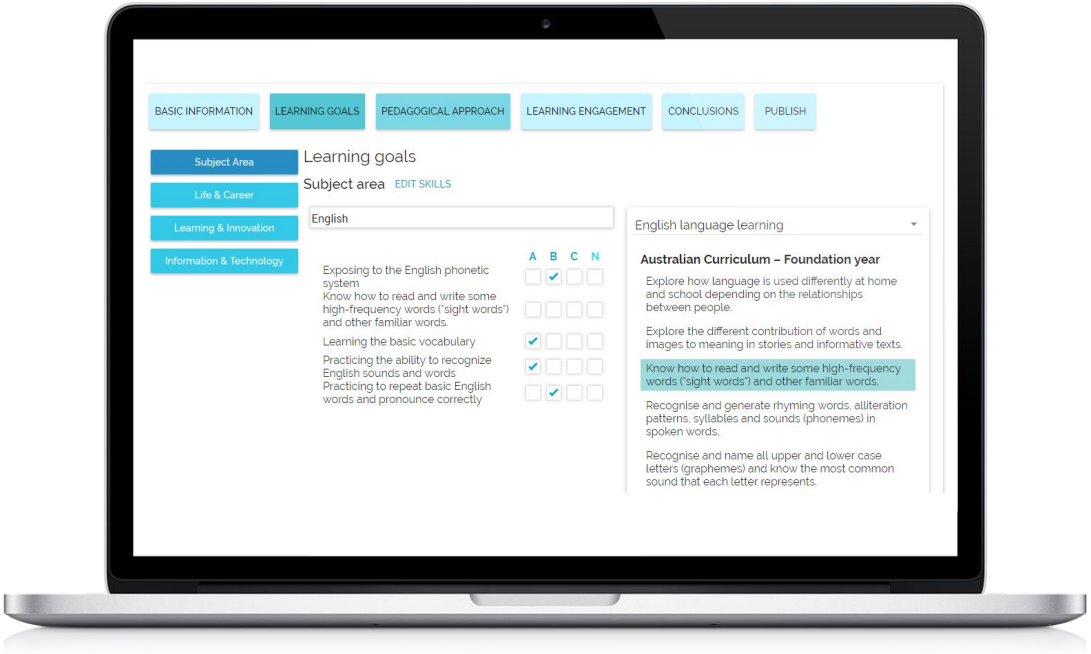
Learning Goals

Matching the learning goals

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

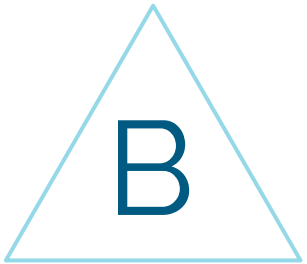
All supported skills are listed and classified as *didactic (A-level)* or *facilitative (B-level)* goals.

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

Learning Management

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. Practicing ways for concentration and staying focused, and guiding the student in the use of technology and other tools in their studies. A
5. Students are encouraged to take responsibility for setting learning goals, planning work, and evaluating their own work process and progress. 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 - Cultural Competence, Interaction and Self-Expression T2 - Grades 7-9

1. Students practice expressing their opinions constructively and applying their skills in a variety of performance, collaboration and interaction situations. A
2. Analyzing the media environment learn about its effects. 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 - Multiliteracy T4 - Grades 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 Competence T5 - Grades 1-2

1. Learn the key concepts of ICT. A
2. Practicing the use of hardware, software and services and learn the basic principles of how to use and operate them. A
3. Practicing keystrokes as well as other basic text production and processing skills. A
4. Pupils gain experience in learning community-based services and practice using ICT in a variety of interactions. A
5. Practice basic ICT skills and learn how to use them as learning tools. A
6. Pupils get and share experiences in working with digital media and age-appropriate programming. 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 3-6

1. Students practice using ICT to interact with non-school actors, also internationally. **A**
2. Students are encouraged to find appropriate forms of expression and use ICT to document and evaluate their work output. **A**
3. Students are directed to act according to their role and the nature of the medium and to take responsibility for their communication. **A**
4. Students will be guided to responsible and safe use of ICT, good behavior and knowledge of the basic principles of copyright. **A**
5. Information and communication technologies (ICT) are widely used in various subjects and in other school work. **A**
6. Creating opportunities for students to find, experiment and use the most appropriate working methods and tools for their own learning and work. **A**
7. Students practice searching for information from multiple sources using search services. They are guided to utilize sources to produce their own knowledge and to practice critical evaluation. **A**
8. Instructing students to examine and evaluate the role of ICT as an influence. **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

9. Students learn how to use various hardware, software, and services, and understand their logic of use and function. A

10. Students are encouraged to bring their ideas to life with ICT. B

11. Use of various communication systems and community-based services in education. 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 7-9

1. Students are instructed in the appropriate use of various communication channels and styles. . . . . A
2. Practice systematizing, organizing and sharing files, and producing various digital output independently and together. . . . . B
3. Students will be guided through the diverse acquisition and production of knowledge and the diverse use of information resources as a basis for exploratory and creative work. . . . . B
4. Students are guided to secure and ethically sustainable use of information and communication technologies. . . . . B
5. Guiding the students to responsible behavior by consideration of, for example, the concepts of data protection and copyright, and the consequences of irresponsible and unlawful conduct. . . . A
6. Teaching uses community-based services and recognizes the importance of collaboration and interaction for learning, exploration and creation. . . . . A
7. Enhance students' understanding of the use and function logic of various devices, software and services. . . . B

A = Primary goal: content is didactic

B = Secondary goal: content is facilitative

Life & Career

Work life skills and Entrepreneurship / Social Skills / Cross-Cultural Skills and Global Awareness / Cross-Disciplinary Thinking /

Life & Career skills

Cross-Disciplinary Thinking

1. Encouraging to build new information and visions . . . . . A
2. Learning to combine information to find new innovations . . . . . A
3. Practicing to notice links between subjects learned . . . . . A
4. Learning to build information on top of previously learned . . . . . 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 respectfully face people and follow good manners ..... A

A = Primary goal: content is didactic

B = Secondary goal: content is facilitative

Life & Career skills

Work life skills and Entrepreneurship

1. Practicing versatile ways of working . . . . . A
2. Practicing time management . . . . . A
3. Encouraging positive attitudes towards working life . . . . . A

A = Primary goal: content is didactic

B = Secondary goal: content is facilitative

Life & Career skills

Social Skills

1. Practicing to work with others ..... A
2. Practicing communication through different channels ..... A
3. Learning to understand the meaning of rules, contracts and trust ..... A
4. Practicing to give, get and reflect feedback ..... A
5. Learning decision-making, influencing and accountability ..... A
6. Practicing to argument clearly own opinions and reasonings ..... A
7. Learning to listen other people's opinions ..... 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

Information & Technology

ICT Literacy / Media and Information Literacy / Multimodal Literacy /

ICT Literacy - Primary skills

ICT Literacy

1. Building common knowledge of technological solutions and their meaning in everyday life — A
2. Using technology as a part of explorative and creative process — A
3. Using technological resources for finding and applying information — A
4. Understanding and practicing safe and responsible uses of technology — A
5. Using technology for interaction and collaboration — A
6. Using technology resources for problem solving — A
7. Understanding technological system operations through making things — A
8. Using technology to express one's emotions and experiences — B

A = Primary goal: content is didactic

B = Secondary goal: content is facilitative

ICT Literacy - Primary skills

Media and Information Literacy

1. Practicing to find, evaluate and share information ..... A
2. Practicing keyboard skills and touch typing ..... A
3. Practicing to use information independently and interactively ..... A

Multimodal Literacy

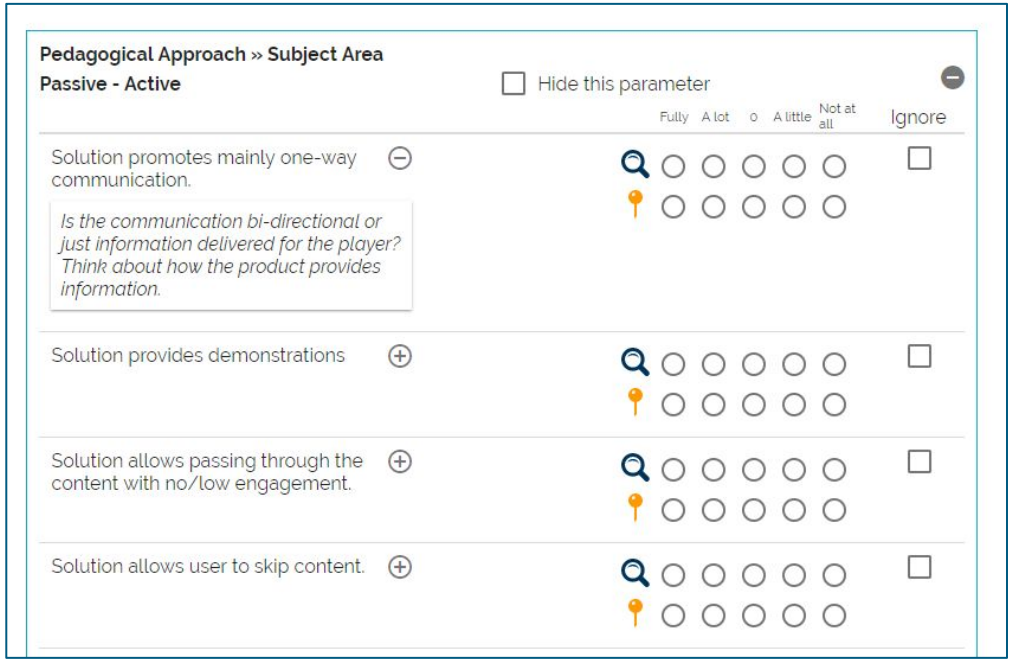
1. Using technology as a part of explorative and creative process ..... A

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 things already learned

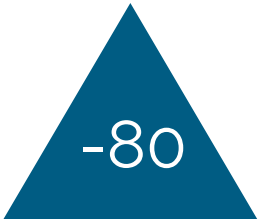
Construct: Learning and constructing new concepts

How to read the contrary pair analysis?

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

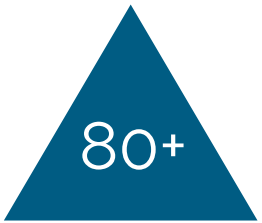
The pin shows where the product should position the learner according to the evaluators.

The Rating Scale



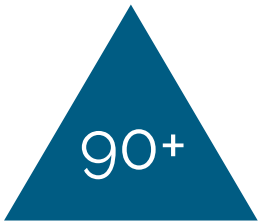
Fair

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.

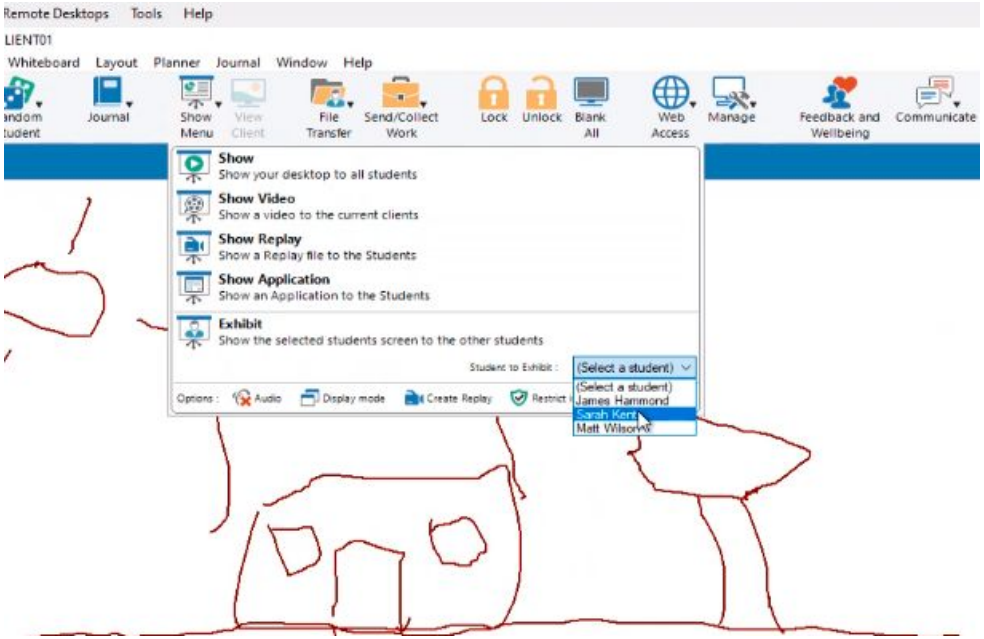
Outstanding

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

Passive - Active: 96/100 = Outstanding

Passive — 96 — Active

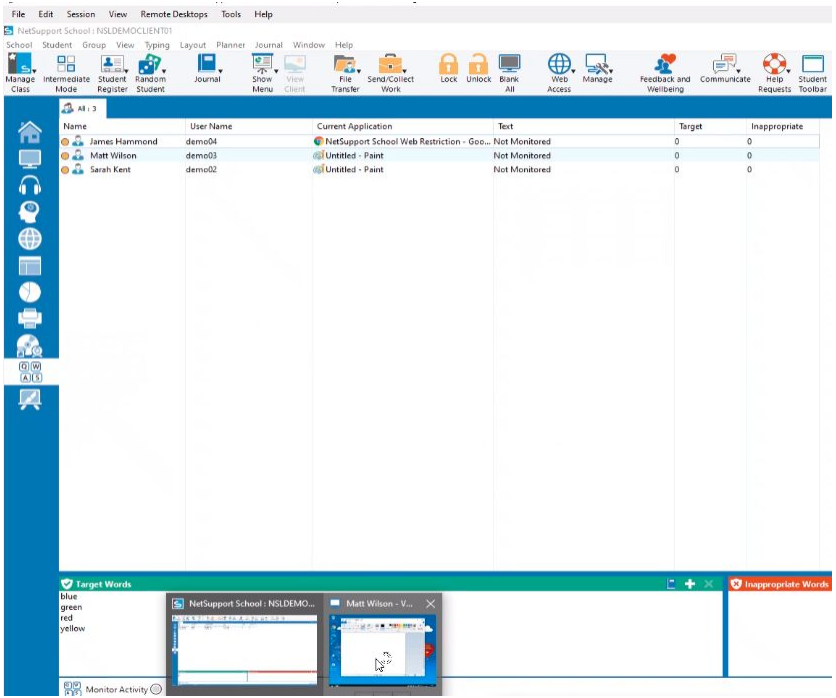
Strengths: NetSupport School has several features to present new information to students and many of them are very interactive. Moreover, the solution allows adapting of its features to the students' needs and type of lesson/activities, as well as the teacher's own skill level. Monitoring is easy and the teacher can activate the students in several ways. Using NetSupport School makes the work in a classroom fluent and easy. The teacher can be sure the students have received the correct instructions and are doing the right things. Therefore, the teacher can focus on teaching instead of managing technology.



Passive - Active: 96/100 = Outstanding

Passive — 96 — Active

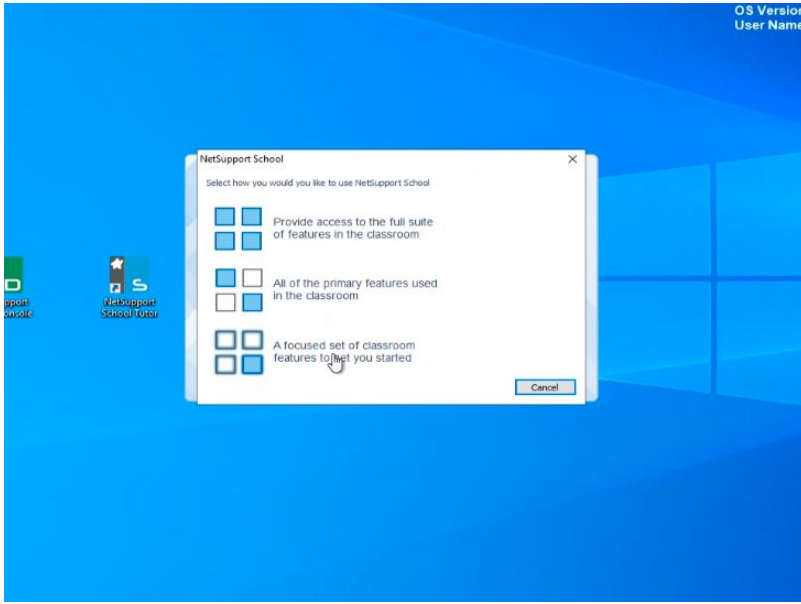
Development areas: Using the tools in a meaningful way depends a lot on the teacher. Since the tool is used in an in-class situation, more qualitative feedback and custom instructions can be easily given also outside of the system. There is a learning curve for teachers to fully utilize the tools, but it is also possible to hide part of the tools and learn them gradually.



Rehearse - Construct: 93/100 = Excellent

Rehearse 93 Construct

Strengths: NetSupport School can be used for delivering content to the whole class and also for very individual guidance. Chances to add lesson objectives and outcomes is a great way to make them visible for learners and that way help their reflection, and tools like task lists give structure to learning. The interaction tools promote rehearsing and revision (Question-Answer, Testing Console), as well as more creative and open-ended work (presentation and white-board, file sharing options). 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 teacher's attention.



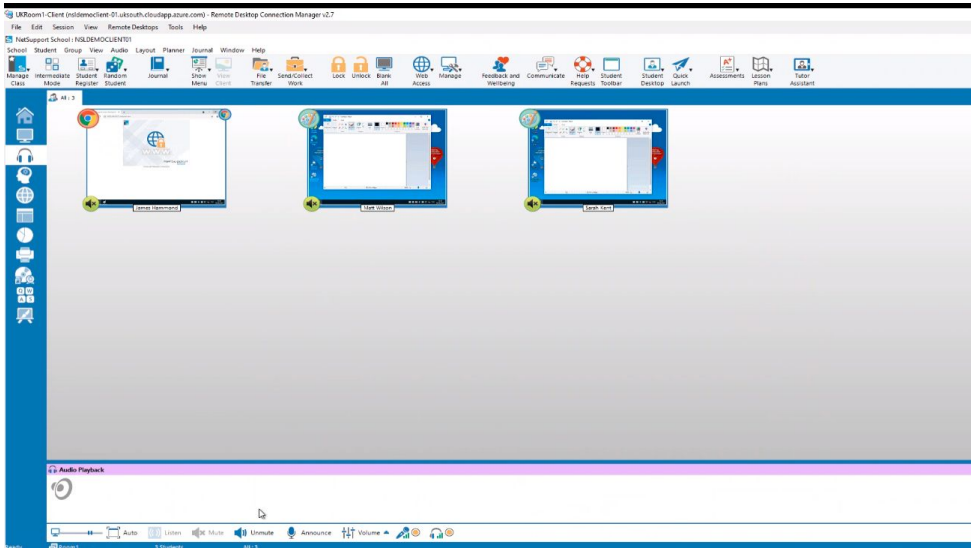
Rehearse - Construct: 93/100 = Excellent

Development areas: The solution tells the users what they have learned. The Journal is a collective view of all resources used or activities done in each lesson. However, this could be promoted even more to help the teachers understand the full pedagogical potential of journaling.

Linear - Non-linear: 95/100 = Outstanding

Linear — 95 — Non-linear

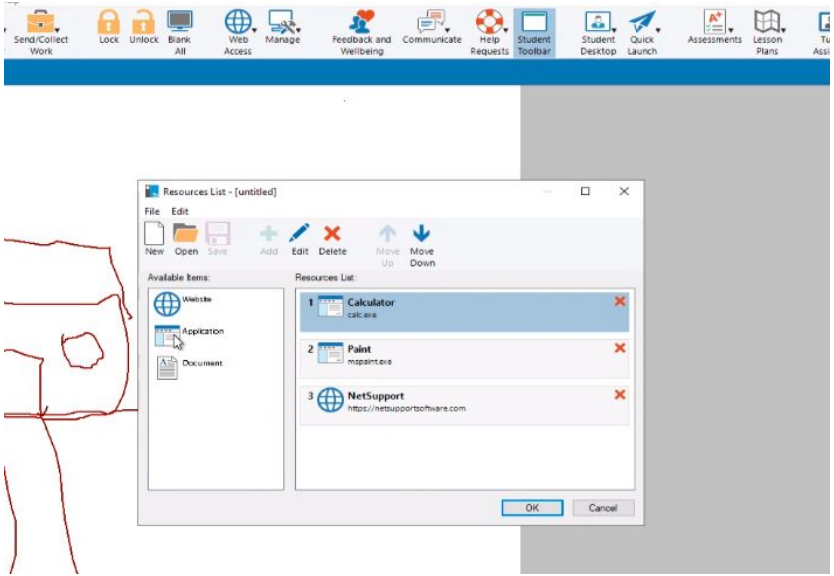
Strengths: The teacher can compare students' progress easily using the product. All students can do the same activities or different, depending on the teacher's plan. There are some great tools for giving both open assignments and more linear and fixed tasks. The Journal helps documenting progress and gives a chance for continuous note-taking.



Linear - Non-linear: 95/100 = Outstanding

Linear — 95 — Non-linear

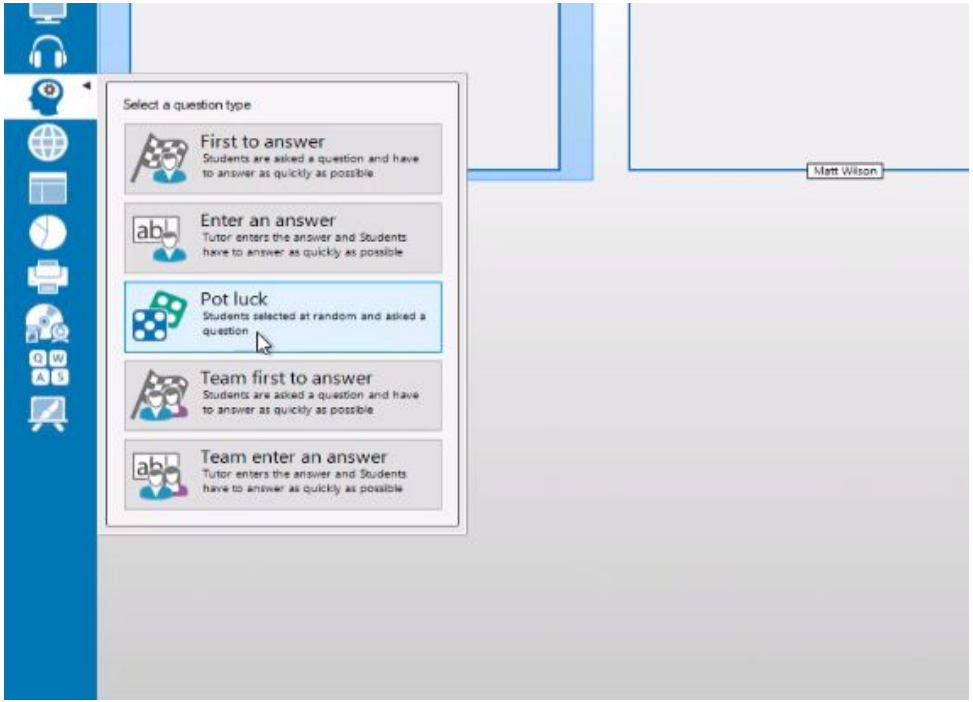
Development areas: The classes are tied to devices, so there's no continuation between classes in the interface. However, the Journals will help keeping track of learning well. There could be some data tools that could help in-class monitoring or creating an end-of-class report - for example, showing how much time each student has spent on each app/page during the class. The teacher could have an option to view this when closing the lesson.



Individual - Collaborative: 93/100 = Excellent

Individual — 93 — Collaborative

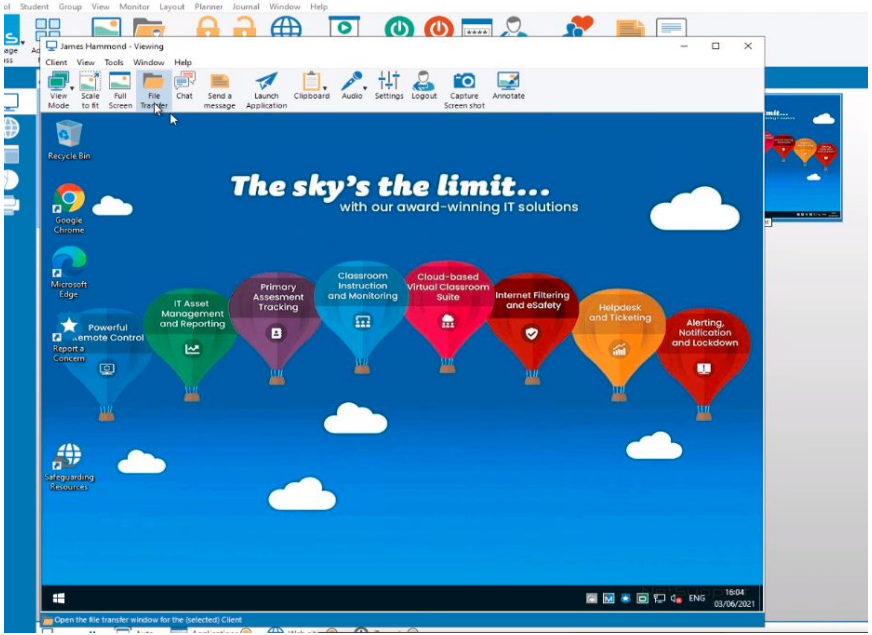
Strengths: NetSupport School is built to help collaboration between teacher and students, but there are also great features that allow student-to-student collaboration and teamwork, such as question-answer in teams. A chance to have a shared journal and a way of letting several students use the whiteboard at the same time allow for easy sharing.



Individual - Collaborative: 93/100 = Excellent

Individual — 93 — Collaborative

Development areas: Because NetSupport School is mostly used in-class, so all students are in the same network/room, the need for file-sharing or chatting between students is not that relevant. However, enabling sharing and collaboration between students with built-in tools within the solution could make collaboration more fluent.



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.

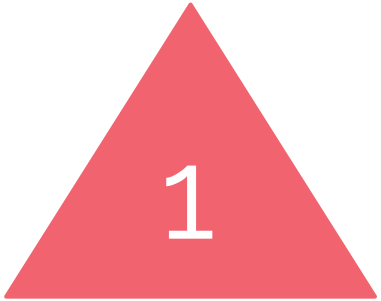
Stimulation

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

Safety

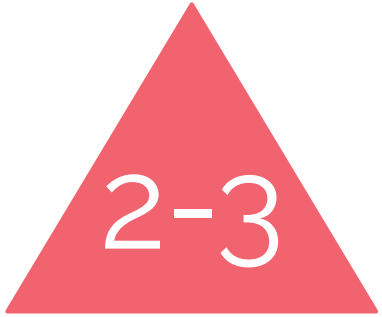
Feeling that the product is a safe environment for having fun and trying out things rather than feeling uncertain of the consequences or threatened by other users.

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: 3.78/5 = 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. It is easy to understand, what the goal in using the product is.	5
2. The product sets limitations for using it when and where I want to, and the limitations feel unnecessary or annoying.	5

Very flexible tool for teachers. The teacher can set limitations for students which go along with the learning and teaching strategies.

Autonomy Score: 3.78/5 = 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. It is possible to use creativity and express yourself when using the product.	3

There could be more chances for creativity.

Competence Score: 3.5/5 = 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.	3.3
2.	The product rewards the user in a meaningful way and according to the challenge	4

Once the teacher learns how to use the product, it is very useful and straightforward and helps focusing on teaching instead of managing students or technology. Being able to hide part of the features (selecting the mode) is very good for beginners. For the students, the interactive parts give immediate and rewarding feedback.

Competence Score: 3.5/5 = Supported

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

Main development areas	Score
1. Navigation in the product is easy and intuitive.	2.7
2. The first-time experience is encouraging and it is easy to learn to use the product	2.7

There are a lot of features and not all of them are presented intuitively. There could be some help, for example, a search that might point you to a correct feature.

Relatedness Score: 4.2/5 = Well 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 uses language which makes you feel welcome and cared for.	5
2. The product supports social interaction, such as multiplay or sharing of content with other people.	4

For the student, the interface is clear and simple and it is very easy to understand what happens. There are also good collaboration tools for groups of students. For example, team-based Question-Answer, a chat discussion that all or selected students can join, enter their comments and share with the rest of the class, also with emoticons!

The virtual whiteboard is great for group work. Tutors can nominate a Student to be the 'Whiteboard Leader'. This activates the annotation options at the selected machine. The Tutor can switch control to any of the other participants as required by selecting their icon in the Student list.

Respect Score: 4.33/5 = 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.	5

NetSupport School is very suitable for various teaching situations and a range of supported devices makes it usable also with smaller children.

Respect Score: 4.33/5 = 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 development areas	Score
1. The product gives clear feedback on all your actions.	3.3
2. The product doesn't have bugs which cause errors or crashing.	4.3

There is limited functionality with some device combinations (tested with Windows-Mac combination) - for example, homework had some delays and problems. Some functions could be tutored more clearly.

Stimulation Score: 3.83/5 = 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 encourages exploring it further.	4.3

All features have a clear function and many of them encourage trying out different and interesting things in your teaching.

Stimulation Score: 3.83/5 = Supported

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

Main development areas	Score
1. The product's graphics, sounds and other elements support the narrative and user experience in a meaningful way and are pleasant..	3.5

The UI is quite technical and a bit old-fashioned-looking. A lot of things are hidden behind menus and buttons.

Safety Score: 4.17/5 = 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. The product doesn't include content or advertising which would be harmful for the targeted users	5
2. If the user shares content - their work, their comments or anything else - it is always clear, who has access to the shared content.	5

The platform provides a safe digital environment for the students to study and the teachers to work with. The teacher has a good amount of tools for taking action with misbehaving students (lock screen, block web pages or software, communicate with the student). It is clear for students that the teacher is watching their screen and to whom they are sharing their work.

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Results

NetSupport School
High Educational Quality Aspects

Education Alliance Finland

1. Teachers have a wide range of tools to manage classroom actions and are able to produce versatile tasks.
2. Using NetSupport School lets the teacher focus on teaching instead of managing the class or technology.
3. Features like digital presentation tools or group quizzing allow for interesting and active classroom teaching.

Pedagogical Approach 94 %

Learning Engagement 3.96

According to Education Alliance Finland's evaluation, NetSupport School 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 diagnosis is done by using a slider between contrary pairs, setting the slider in a position that describes the product's approach. Evaluators use the same slider to describe the best possible approach and give a rating (0-100) on how adequate an 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 diagnosis of two separate evaluations.

The rating points out the strengths and development areas, mirroring them with the needs of the 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

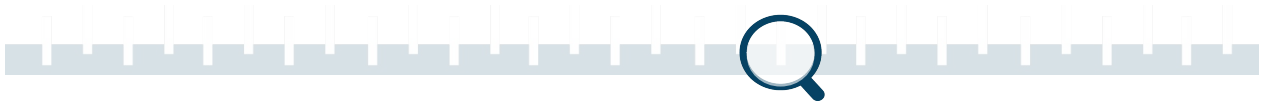
In the first phase of the analysis, evaluators are forming product-related statements to define a variation of skill sets that the use of the product supports. The basis of the statements is formed upon definitions of 21st century skills, Finnish pedagogics and existing research evidence related to the 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. The new Finnish curriculum represents a learner perception based on the most advanced understanding of efficient pedagogical approaches 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, behavioral engagement and emotional engagement.*

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

Passive  **Active**

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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 process 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 a product is to use, and if 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 product, 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 user happiness the best, and how they do it. It will also point out things that hinder 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 user 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 in 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.
Nielsen, Jacob. (1994a). Enhancing the explanatory power of usability heuristics.

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 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.
Nielsen, Jacob. (1994a). Enhancing the explanatory power of usability heuristics.

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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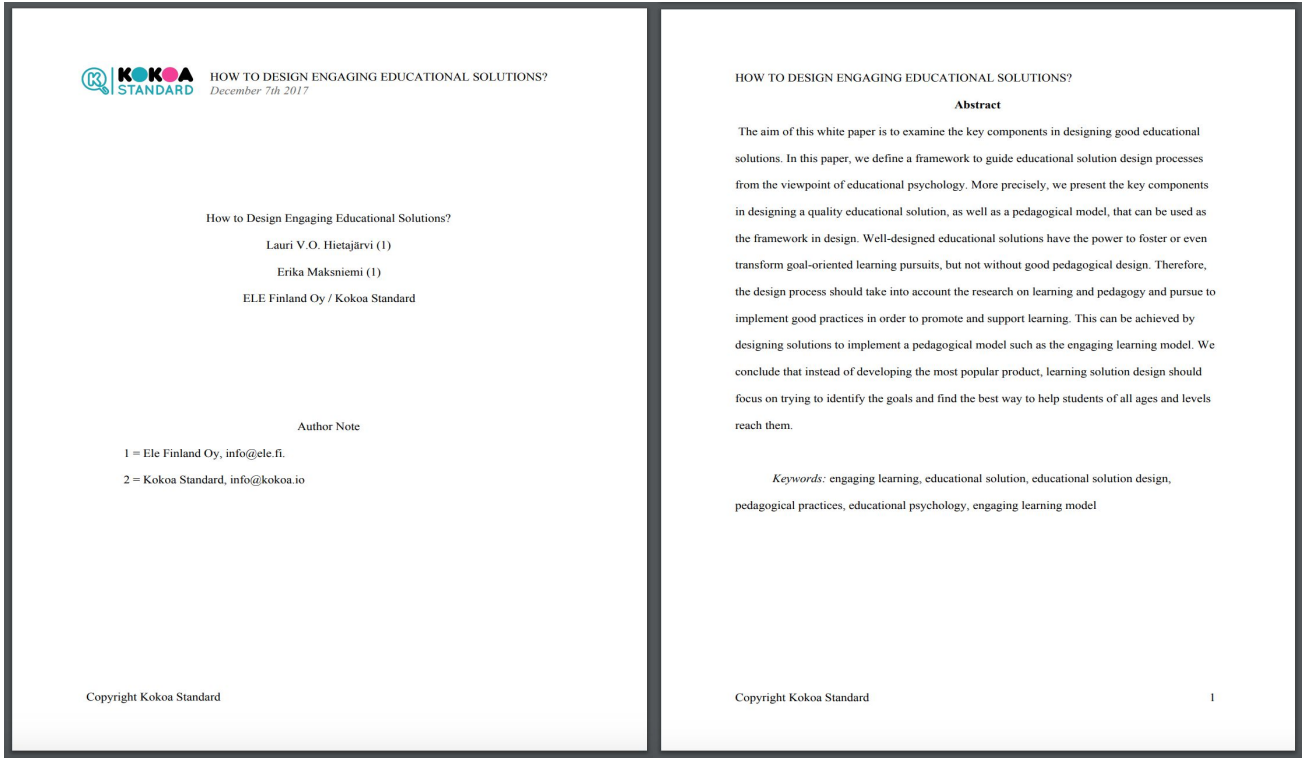
Safety	*Feeling that the product is a safe environment for having fun and trying out things rather than feeling uncertain of the consequences or threatened by other users.*
1. Making errors is beneficial. Every time you make an error, you learn something from it	4. The user does not lose any hard-won 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?

December 7th 2017

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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