

Master's thesis

Creative Design Management

2024

Anastassia Kopra

A concept for eLearning course development

Learning experience to the next level



Master's Thesis | Abstract

Turku University of Applied Sciences

Creative Design Management

2024 | 83

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A concept of eLearning course development

Learning experience to the next level

The main goal of this thesis was to create a concept for Sandvik's upcoming technical eLearning courses, that meets learners' needs and is engaging. One particular course was taken as a target to define the way for development. The first part of this work was analyzing existing courses and user's opinions via survey.

The second part of this thesis was to find out, how an eLearning course can be developed into an effective and engaging learning experience and is memorable. Survey answers, literature, articles, and online publications have been used as sources in this thesis. The research results have helped define the guidance and final concept of the eLearning course.

As a result, the pros and cons, and suggestions for the course development have been clarified, engaging methods were defined, and chosen the most relevant with the help of a literature review. The storytelling method has been chosen for this case. The principles of learning and forgetting also have been explored as well and have been taken into account in the final concept. The original plan was to develop one course as a target, however, the concept has been extended to the comprehensive learning experience.

Keywords:

learning, eLearning, digital learning, learning experience, engaging content,
scriptwriting

Opinnäytetyö (AMK / YAMK) | Tiivistelmä

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eLearning kurssin kehittämiskonsepti

Oppimiskokemus uudelle tasolle

Tämän opinnäytetyön päätavoitteena oli luoda Sandvikin tuleville teknisille eLearning-kursseille konsepti, joka vastaa opiskelijoiden tarpeisiin ja on mukaansatempaava. Tavoitteena oli ottaa yksi kurssi ja luoda sille konsepti. Työn ensimmäisessä vaiheessa analysoitiin jo olemassa olevia kursseja ja käyttäjien mielipiteitä kyselyn avulla.

Opinnäytetyön toisessa osassa selvitettiin, kuinka eLearning-kurssista voidaan tehdä tehokas ja mukaansatempaava oppimiskokemus, jonka jälkeen sen sisältö vielä muistettaisiin. Tässä opinnäytetyössä on käytetty lähteinä kyselyvastauksia, kirjallisuutta, artikkeleita ja verkkojulkaisuja. Tutkimustulokset ovat auttaneet luomaan eLearning-kurssin lopullisen konseptin.

Lopputuloksena on selvennetty hyviä ja huonoja puolia sekä ehdotuksia kurssin kehittämiseksi, määritelty mukaansatempaavat menetelmät ja valittu kirjallisuuskatsauksen avulla asiaankuuluvimmat. Tähän konseptiin on valittu tarinankerrontamenetelmä. Myös oppimisen ja unohtamisen periaatteet on tutkittu ja otettu huomioon lopullisessa konseptissa. Alkuperäinen suunnitelma oli kehittää tavoitteeksi yksi kurssi, mutta konsepti on laajentunut kattavaan oppimiskokemukseen.

Asiasanat:

oppiminen, verkko-oppiminen, oppimiskokemus, mukaansatempaava sisältö,
käsikirjoitus

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List of abbreviations (or) symbols

Andragogy

Adults pedagogy

eLearning

Electronic Learning

Face-to-face training

Classroom training

LMS

Learning Management System

SCORM-file

Published format from Adobe Captivate file

1 Introduction

1.1 Sandvik and eLearning in general

Sandvik is an international engineering company with around 41,000 employees in 150 countries. It specializes in metal cutting, digital manufacturing, mining and construction, stainless steel alloys, and industrial heating. (Sandvik, 2024). Load and Haul division manufactures underground loaders and dump trucks.

Sandvik Mining and Rock Solutions develops and produces products and services for customers' drilling, rock reinforcement, loading, hauling, and mechanical cutting, as well as mine automation needs, worldwide. (Sandvik, 2024).

The division's training department provides three main types of training to the employees: classroom training, digital offerings such as eLearning courses, and simulator training. Classroom training is face-to-face training between technical trainers and participants. The participants can be local teams or they can travel all over the world to participate in technical face-to-face training. It is recommended to go through eLearning courses first as prerequisites before the technical training.

eLearning is a training, which is distributed through electronic gadgets such as laptops, desktop computers, smartphones, or tablets. This type of learning is intended to enhance personal competence development and achieve organizational goals. To optimize instructional time and resources, many organizations are embracing eLearning for employee training. (Clark, R & Mayer, R, 2011)

Online courses can be open and available to everyone in the company, or they can be closed and are intended only for a certain group of people. They are intended for a particular group of people belonging to the Load & Haul division in Sandvik Mining and Rock Solutions company. The target groups of the eLearning courses in Sandvik are company personnel such as office staff

employees, factory workers, operators, maintenance & repair specialists, product masters, and customers all over the world. The aim is to provide basic and advanced knowledge about Sandvik's products, and new technology in self-paced manner online and worldwide.

Nowadays andragogy demands the use of digital tools, which are widely used in higher education and business companies. Learners have to adapt to alternative ways to learn and take a more active role in independent studies. Online learning managing systems support independent learning and collaboration particularly well. (Routti, K. 2018)

Even though online learning is a contemporary way of learning, there are also challenges associated with the development of eLearning courses. The content for the courses must be well planned and implemented to be effective and interesting. eLearning courses must also be easy to find and user-friendly.

1.2 Why this topic?

My passion in my work is to provide high-quality digital learning solutions for employees that meet the needs of the company. The main priority is to plan, design, and provide eLearning courses to Sandvik's external & internal stakeholders online. My target is to apply and enhance existing skills such as:

- Blending the design, art, technical knowledge, creativity, and the science of learning
- Creating beautifully crafted custom learning that delivers results

Learn more about conducting surveys and discussions with experts:

- Observe and analyze the existing offerings
- Personal discussions with experts and surveys for learners about existing content

Deepen into the interesting topics:

- Gather the information about memory, involving content and storytelling
- Create learning experiences that are personalized, engaging, and memorable

2 Current state of eLearning courses

eLearning is a dynamic field constantly exploring new approaches for diverse educational needs. From universities to workplaces, it's become crucial for providing interactive, personalized, and adaptable learning experiences. The constant evolution of computer science fuels innovation across disciplines, including online learning, by providing powerful new theoretical and practical tools. (Routti, K. 2018)

The term eLearning was first mentioned in 1999 in a CBT-system company seminar. "E" stands for Internet, but also for "electronic". eLearning is a way to learn things by using computers and the networks that support the learning process. (Hubbard, 2013).

eLearning courses are popular because they are flexible and easy to use. They can be completed anywhere and anytime, and there is no need to travel. Online courses are also often more affordable than traditional training programs. eLearning is more environmentally friendly because it doesn't contribute to the pollution brought about by paper production. Disadvantages of eLearning is the lack of social interaction. eLearning is one of the causes of social isolation without seeing instructors and classmates face-to-face anymore. (Horachek, 2014)

The officially confirmed Learning Management System (LMS) in the Sandvik Load & Haul division is the cloud-based platform Workday, where all the eLearning courses are available. The confirmed eLearning creation program is Adobe Captivate.

It is an eLearning authoring tool, which is designed for instructors, instructional designers, developers, and subject matter experts. In Adobe Captivate it is possible to create easily facilitative content by adding scenario-based training, product training, software/application capture, and video-based training. It supplements these tools with assessment creation and tracking capabilities as

well as a variety of pre-built, easy-to-assemble information delivery and content creation tools. (Pooja J. & Bruyndonckx D, 2019)

Self-study eLearning courses are designed to make learning quick and easily accessible. Various eLearning modules are targeted for different levels of users. The course content is divided into four different levels: level 1 – beginner, level 2 – basic, level 3 – proficient and level 4 – advanced. Learning content is divided into 4 levels, based on the content of the courses. Courses are only available in English.

It is recommended to complete all levels in ascending order and sequence. The duration of courses varies with the level & content (Approx. 10 – 60 minutes). Currently, plenty of eLearning courses are available through Workday.

2.1.1 Target group

Having an understanding of what the target group is and how it will be experienced before developing the course, will help to create a relevant, effective, and meaningful technical course.

1. Staff employees in the offices across the world. They are doing those courses to have a better understanding of the products.
2. “Frontline” or parts and services employees who are situated in the countries next to customers. They are deepening their knowledge of topics.
3. Production people who are learning about the machines that they are assembling.

2.1.2 eLearning Service Scenario

There are various service scenarios in how learners find and do the courses. Understanding the scenarios gives a comprehensive picture of how different content can be found.

Scenario 1. Learner searches for eLearning courses in the Workday platform by themselves. They will do a course at a self-paced without a limit of time. If the course is completed, it will be registered in the system. If it is in progress, the platform will leave a learner in the same place where it has been left. The user can proceed with this course later from the same place.

Scenario 2. The manager assigns particular courses to learners in their team in Workday. The learner will get a notification to their account. The course needs to be completed in a specified time.

Scenario 3. Two weeks before face-to-face product technical training, the trainer will notify about pre-requisite eLearning courses to the participants. They are checking what courses they have to do from PDF-file or Excel attached in Teams or e-mail.

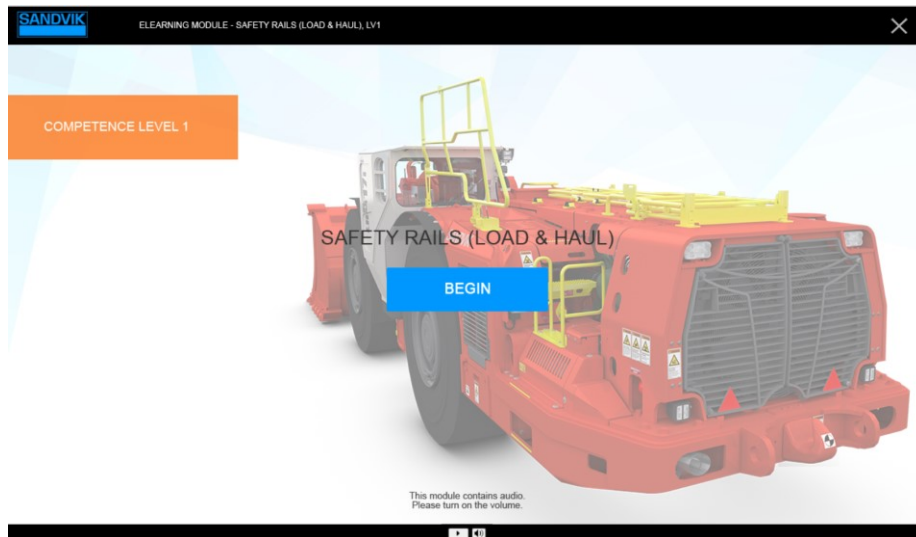
Scenario 4. Customers are doing eLearning courses in the Extended Enterprise Workday platform. Customized learning programs are created for each customer.

Scenario 5. Courses are assigned to a large distribution list through the Workday Learning Campaign. Learners have to complete them within the specified time. If not, they will get an e-mail reminder about it. There can be a defined amount of reminders and the last one is with a copy to the manager.

Scenario 7. Learners will find a course through the Intranet news portal or Load & Haul Intranet pages.

2.1.3 How courses are built

The graphic guidelines were changed in the autumn of 2023, but most of the courses are done based on the previous graphic guidelines from the year 2019.



Picture 1. Appearance of the safety rails course.

Buttons are blue and orange rectangles, the font is Arial, (Graphic guideline 2019). In most cases rendered 3D pictures are used in the slides.

The content for eLearning courses can come from a mix of various sources such as technical training material presentations, technical documentation material, subject matter expert knowledge, videos, etc.

Courses are built slide by slide with different types of media: texts, narrator's audio (woman and man), animations, videos, 2D pictures, schematics, and rendered 3D pictures. Content is divided into topics and proceeds further smoothly and logically. At the beginning of each slide question appears by a narrated robotic woman, for example: "What is the automatic lubrication?" Robotic narrated man's voice is answering the question by explaining technical information "The automatic lubrication system is..." The woman's voice

continues asking additional questions such as "How does the automatic lubrication system work?" etc.

The use of sound in the technical eLearning courses is quite moderate. All the voices are coming from narrations or videos. Other audios are disabled such as mouse click sounds.

Usability is the measure of how well a specific product can be used by its intended users to achieve their defined goals with effectiveness, efficiency, and satisfaction in a particular context of use. (Hammouche, 2014)

Navigation is a part of usability and it happens by "Next "or "Previous" buttons with guided text such as "Continue" in front of the next button when all the slide is played. With these instructions, the learner knows that the slide is done and can continue.

The progress bar is not in use at this moment and this way learners can't see in which part of the course they are situated, but this way prevents them from scrolling the whole course through and completing it in seconds.

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3 Research

3.1 Research questions and methods

Research questions were formulated to achieve the goals of this thesis.

1. **What are the pros and cons of Load & Haul eLearning courses and how the challenges can be improved?**

Quantitative & Qualitative approach (user's survey). Benchmarking

2. **How Load & Haul technical eLearning courses can be developed into engaging learning experiences based on the research results?**

Results of the survey, literature review, discussion with experts

Every month training department generates a report of the eLearning courses. The data is about enrollments, completion status: completed, not started, and in progress- status, etc. The aim is to increase the competence development of the Sandvik employees. It is possible by decreasing the "In progress" and "Not started" -phases, increasing completed courses, and publishing more courses. To implement that, the content should be engaging and presented in a more interesting way to do the course till the end.

3.2 Framework

The framework for this project has been chosen by the context. *ADDIE* is a framework for developing courses and training materials. (Bouchrika I., 2023). It fits perfectly with the theme of this thesis.

It is used in the instructional design field, and it is intended for designers, educators and training developers. (Kurt S., 2017)

The framework is suitable for creating course programs, traditional college degrees or human resources (HR) degree training programs.

It was developed in 1975 by the Center for Educational Technology at Florida State University for the U.S. Army. The model is still used by the U.S. Army and other organizations around the world. (Bouchrika I., 2023)

But what the instructional design is? It is a process, which helps to create training material efficiently. It also enables to ask the exact questions, make the right conclusions, and make the product useful. Kurt S., 2017

The name stands for the five phases:

1. **Analysis – Goals setting**

In this thesis, goals are set at the beginning of this project. The analysis is done on existing eLearning offerings and research is ongoing on engaging methods.

2. **Design – Planning**

Based on analysis and survey the design of the eLearning course should be defined.

3. **Development – Production and testing**

Production of the eLearning course and testing with a couple of users.

4. **Implementation – Procedure of continuous modification**

Implementation course into life by modifying and finalizing it.

5. **Evaluation - Formative and summative final testing. (Bouchrika I., 2023)**

Testing the concept with a trial group and experts.

The ADDIE framework will be used as an approach to structure the process of this thesis. The same framework has been used in other competence development teams in Sandvik.

3.3 Survey

The questions of the anonymous survey were created based on both research questions. The participants were informed of the purpose and implementation of the thesis e.g. in an email. In this case, the act of answering the questionnaire is considered as a consent.

The questionnaire has been conducted for learners who have completed eLearning courses as a pre-requisite before technical training in the year 2023. It was reasonable to start to clarify what good existing eLearning courses have and what things can be improved. There were 42 respondents in total.

In this chapter are presented the most relevant questions and answers from the survey from a research questions perspective. The rest of the questions and answers are added as appendices. The values in the graphs are amount of learners, not the percentage of them.

1. What is the best thing in Load & Haul eLearning courses or online learning in general?

These answers were divided into categories by the topic.

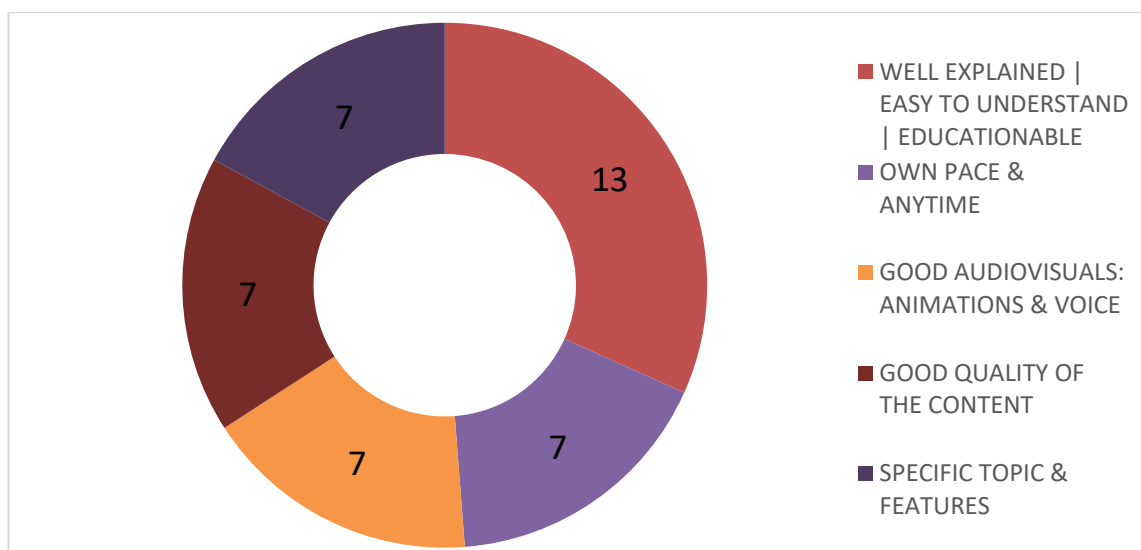


Figure 1. Best in eLearning courses

13 participants have answered that the content was educational, well-explained, and easy to understand. 7 people like their own pace in course completion and that it can be done anytime. 7 answerers appreciate good audiovisuals such as animations & voiceovers. Another 7 participants' opinion on that question is that they like the quality of the content. 4 people rely on specific topics and features of the courses.

These results show that people are quite satisfied with the content quality and these topics should be kept in the future course content as well.

2. What frustrates you most? (39 answers)

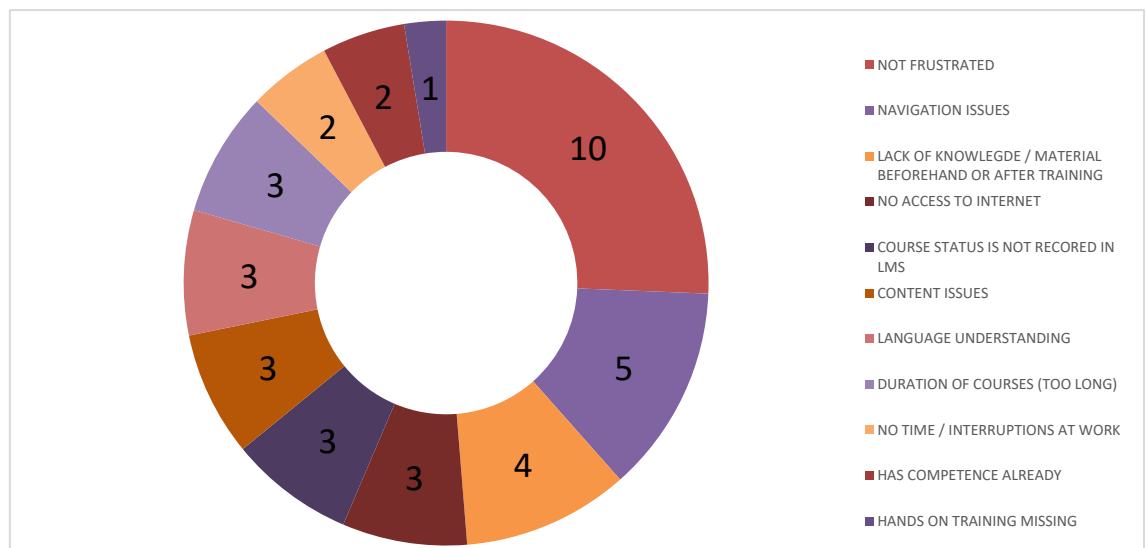


Figure 2. Frustrations in eLearning courses

Surprisingly, 10 people were not frustrated at all, which again shows that quality is at a very high level. 5 respondents are struggling with navigation issues in the courses. This kind of issue has been noticed previously and is partly already fixed. 4 participants have a lack of knowledge beforehand or after training. 3 answerers

don't have access to an internet connection. This is because they might be located in a mining environment. Another 3 people are frustrated because of the status of the course, which is not recorded in the Learning Management System. This situation has been encountered previously and the solution is already found in LMS. In addition to that, 3 respondents were not satisfied with the content of the courses. The other 3 people had problems with understanding the English language. This can be solved by translating courses to needed languages. 3 participants think that the duration of the courses is too long. 2 of the respondents don't have time to do eLearning courses or they have been interrupted while doing them.

3. What factors will help you to continue a course without interruptions? (42 answers)

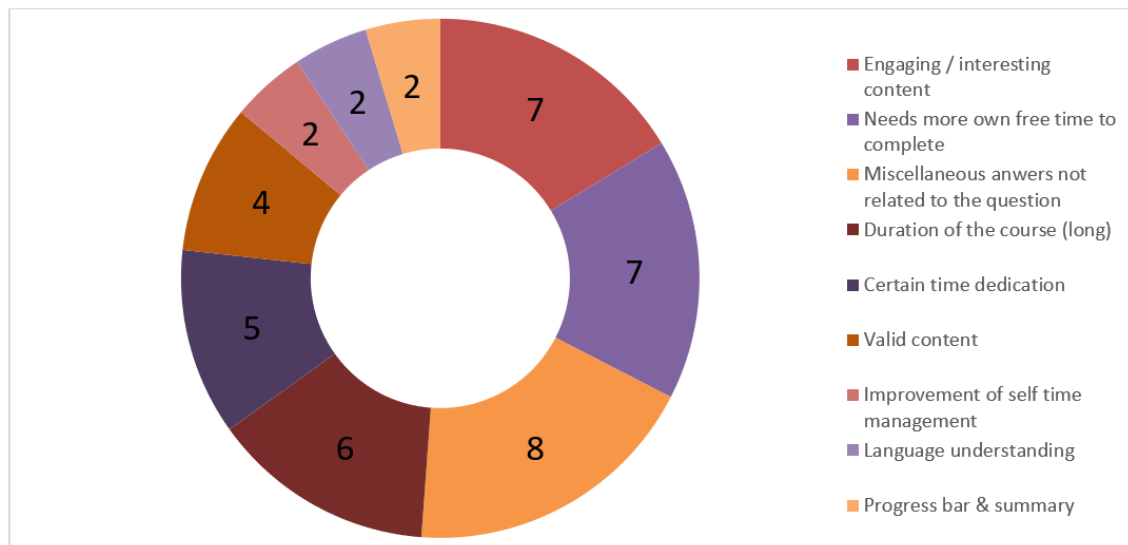


Figure 3. Helping factors to continue a course without interruptions.

7 persons answered that engaging and interesting content will help them. Another 7 respondents need more own free time to complete courses. 7 participants didn't answer a particular question at all. 6 learners have stated that the duration of the courses is too long. 4 people need a certain time and dedication for courses. Another 4 persons need

valid content to complete courses without interruptions. 2 think that need to improve their time management skills. 2 learners have trouble with language understanding. 2 respondents find the progress bar & summary section useful.

From these answers, some of the ideas can be taken to the concept such as providing engaging content and paying attention to the course duration, and progress bar & summary sections. Management skills are a personal thing, but these skills can be improved by doing eLearning courses on the LinkedIn Learning platform for example.

4. What factors engage you most? (39 answers)

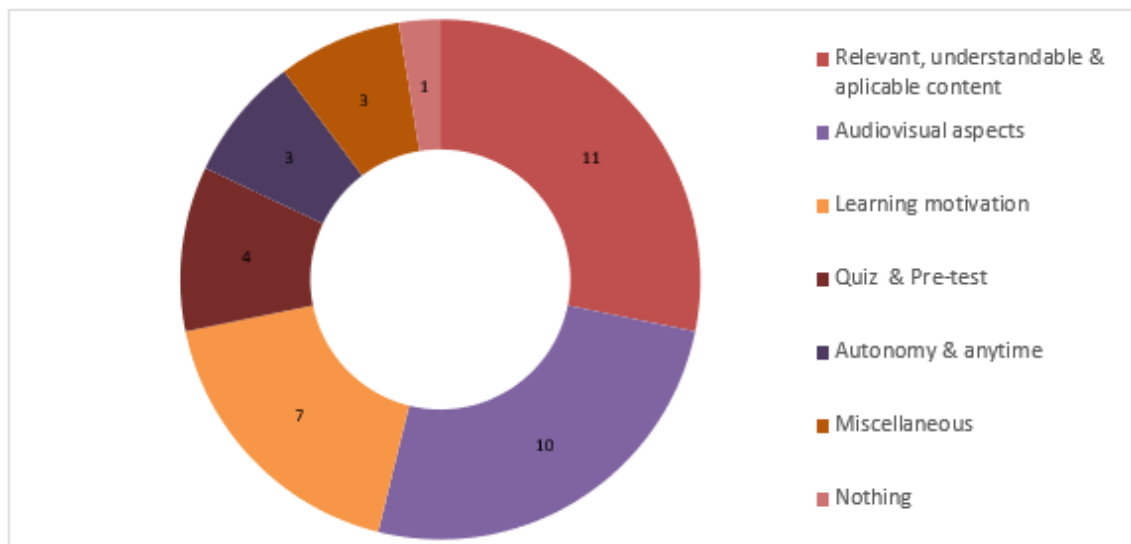


Figure 4. Engaging factors.

11 persons engage in relevant understandable content that can be applicable in work life. 10 learners state that audiovisual content is the most engaging. 7 people are driven by motivation to learn. 4 respondents say that assessments and pre-tests are engaging. 3 are engaged by the possibility of doing courses anytime and anywhere. 3 learners didn't answer a question. 1 person thinks that nothing is engaging.

From these answers can be seen that relevant understandable and audiovisual content is important and engaging and that means that there is a reason to continue with this type of content in the feature. Also, assessments and pre-tests were experienced as engaging factors. Some of the previous courses have already pre-tests, but some of them don't have them, so in the upcoming concept, pre-tests will be used.

4.4 Benchmarking

The idea of the benchmarking is to compare already existing eLearning courses and learning materials, that are available in the market. By analyzing them, useful features can be found and will be used in the upcoming concept. Courses have been searched in the Workday platform, but also in other available digital environments. The idea was to check courses from different fields: management, business, and safety, but also technical fields as well. Looking to other areas can bring fresh ideas to the technical concept.

EF Activate – The Manager Transition.

Navigation is focused on the left-hand side. Users can see the whole path and predict the upcoming modules. By clicking the MENU the content will appear on the right-hand side. The design is appropriate for the target group (English learners). The picture is spread to the whole area and used as a background with a darkened modification. Text is popping up from the background. Some of the words are emphasized with color which highlights to learners what is important and what is not. In the menu, completed modules are marked with Done mark and the learner is aware that they are already completed. This method can be used in Sandvik courses as well.

MinnaLearn

MinnaLearn provides traditional online courses and effective learning experiences. MinnaLearn uses a colorful appearance and fresh design which is attracted by simplicity. On the starting page, left-hand side alignment and call-to-action method by providing a topic name with a big bold font, then describing text and a start course button. The same clearness and elegant & simple design can be used also in the Sandvik concept concerning new graphic guidelines.

SSG Entre Basic Course

SSG stands for standard solutions group. This is a safety course that is intended for industry contractors to recognize risks in high-risk environments such as mines. The text content is on the left-hand side and the picture is on the right-hand side. It is divided into the same amount of space in the slide. Navigation is clear and page numbers can be seen in front of the next arrow. This style has been used in the psychological safety eLearning course in Sandvik and it's useful for the future also. You can also listen to this module which is good for long-term memory.

Instructive & interactive videos: What is CURRENT– electric current explained, electricity basics

This video was chosen to see possible animation styles and ideas to present technical things simply. Visual presentation by using animation explains electrical current. It is named in the picture and gives a practical understanding of everyday life objects such as sockets, laptops, and phones. Sometimes complex things can be explained in a very simple example. The same principle can be used in Sandvik's concept.

4.5 Learning experience

In the instructional design, the main aim is to deliver high-quality online training. In the learning experience design, the learner is the main point of view for a design. The approach is more holistic and user-centered. It demands a deeper understanding of a learner. (Conceição & Howles, 2020)

The eLearning material quality depends on design features and how participants need to interact with the content. There are two different styles of interactions: passive and active. In passive interactions, the learner reads the text, watches videos, and does an assessment. In the active learning level, the material is a combination of challenging tasks with applying learned information. The learning experiences between the learner and the content are formulated by instructional design solutions about how to present and integrate online technologies into the online course in the best possible way. For example, if we put questions with structured and explained answers, learners will balance their knowledge better and not assume unrealistic expectations. Using hypermedia links to online courses gives an opportunity to learners expand their comprehension through alternative sources of learning. (Conceição & Howles, 2020)

Based on Conceição and Howles, there can be four different content creation scenarios for online courses:

- Course development on existing online content
- Course developing from offline face-to-face training to online format
- External content for new online course
- Creating eLearning content from scratch

In this thesis, the task is to create new eLearning content from scratch. It demands deep content research, instructional design, and improvement. This scenario can give space for designing new ways of interactions, and learning experiences and benefit from new online technologies and education. (Conceição & Howles, 2020)

A group of scientists from the faculty of education of AlbaceteIn, the University of Castilla-La Mancha, and the University of Lisbon, has researched the importance of learning-analytics based feedback. Two groups of fifth-grade students have participated in the research by completing eLearning courses in LMS platform Moodle. The tasks were completely the same but the difference was in the feedback quality. In one group students got extended feedback and in another group with limited (correct or not). Both groups enhanced their knowledge, but the one with larger feedback rated training much higher than the other. They noticed their importance and experienced satisfaction with the learning path. (Tirado-Olivares, Cózar-Gutiérrez, González-Calero, Dorotea, 2024.)

Clear enough feedback helps learners to feel valuable and relevant in learning so good explanations would be included in the final concept.

4.6 Engaging methods

Cambridge Dictionary defines the adjective *engaging* as something attractive and pleasant. Something that attracts our attention. (Cambridge Dictionary, 2024).

In the questionnaire done by Articulate company, was found that the biggest challenge in instructional designer's work was to make dry content interesting to their users. 40% of users have experienced the learning content as boring. In addition to that, there was mention that compelling content is much easier to learn and recall afterward. (Articulate, 2018).

During this thesis was found the next engaging methods for eLearning courses: were gamification, storytelling, interactivity, audiovisual content such as videos, animations, sound effects, good user interface, and motivation.

Gamification is a way to engage the audience as an experience can be very useful. Based on reports from the gamification platform Badgeville, engagement is increasing very drastically, when gamification techniques are integrated into

the system. (Hubbard, 2013). More Information on game-based learning can be found in this book: *The Really Useful ELearning Instruction Manual : Your Toolkit for Putting Elearning into Practice*, written by Rob Hubbard.

Sandvik's Load & Haul's official and confirmed eLearning program is Adobe Captivate 2019. Unfortunately in this program is no straight possibility to create games. Some of the games can be done by using Java script actions, but the amount of these games is very small. For example memory games. Therefore it is necessary to use another resource with coding skills who can provide these services. However, the sound effects can be used in the eLearning content.

Using music and sounds can be a part of the experience. Sound and music aren't just background noise. They can be powerful tools in eLearning, boosting engagement in several ways: keep learners focused, evoke emotions, consolidate learning objectives and different learning styles, improve interactivity and reaction, decreasing cognitive burden, and boosting retention. (LinkedIn Learning, 2024)

"Pop up" or "swish" sound effects during transitions, are another effective way to entertain the eLearning course.

In this thesis, storytelling would be the main method and others would be used partly.

4.6.1 Storytelling

What storytelling actually is? Storytelling can be experienced through writing, telling, or reading stories. (Cambridge Dictionary, 2024). Halonen, scriptwriting lecturer at TUAS Academy of Arts, argues that storytelling is arranging elements according to dramaturgical principles. (Halonen, 2020).

Why storytelling has been chosen as the main engaging method in this work? From several researches have found that telling stories is the most powerful way to engage the audience. This method boosts the amount of hormones in

our brains, creates a connection with listeners, and activates more brain areas than just dry facts.

Paul J. Zak, professor of psychology, has examined in his article that, the hormone oxytocin, signals safety and openness to connection. This neurochemical is produced only in safe and trusted circumstances. In his lab was questioned, if the oxytocin system can motivate and engage people by watching a narrative video rather than one-to-one interactions. The result was that stories with strong characters consistently boost oxytocin. If the target is to motivate, engage, and convince the audience with memorable content – then the solution is to tell a story. First, our brains will be captivated, and then our hearts. (Zak, 2014)

How do our brains receive information through facts? When dry facts activate two brain regions (language comprehension and language processing), stories activate eight (touch–sensory cortex, language comprehension, sounds, scents, movements, language processing, colors & shapes, touch–cerebellum). This immersive effect explains why we cry during movies - our brains react as if the stories were real. Stories activate areas related to tactile sensation, motion, aroma, audio, color, and form creating an immersive experience. (Ariel Group, 2024)

Princeton University's Uri Hasson conducted research showing that storytelling creates a mental connection. Brain regions of both the speaker and listener activate similarly, even though one person is telling the story and the others are absorbing it. People are using stories to create connections, share experiences, and help everyone to be involved and achieve a positive outcome. (Ariel Group, 2024).

Jennifer Aaker, professor of Marketing at the Stanford Graduate School of Business, says that a good story is 22 times more memorable than just dry information. (Aaker, 2024)

Applied storytelling is a collaborative process that utilizes storytelling techniques in carefully designed workshops tailored to specific audiences. A key element of

applied storytelling is the sharing of personal narratives by workshop participants. (Luukkonen, 2015)

How to apply storytelling to eLearning courses? One example can be an eLearning course video, showing how to operate the equipment. The story would contain a character that runs through challenges. Maybe they use the wrong settings or don't clean the equipment properly. Instructional video would show the implications of these issues, and how to resolve them moving forward. Are they struggling? What problems do we already have?

Technical eLearning and presentations easily fall into fact-based and advanced information. In a storytelling format, learners can receive material more easier to understand and remember. This way the material can be more learner-oriented.

3.6.1.2 Scriptwriting

The storytelling requires a script. Scriptwriting brings stories to life for movies, TV, and video games. (Wikipedia, 2024). In this thesis, the script should be used in eLearning course concept planning.

Scriptwriting is the pre-planning phase of time-based, performable material. In the script, things are presented in advance. The script can also be drawn as a storyboard and explain the story without any words. (Halonen, 2020).

3.6.1.3 Storyboard

A storyboard is a tool, which helps to describe a service or event in linear order. This process of making decisions helps to clarify ideas and to develop a more precise understanding of the service. Visuals in storyboards help us structure the connections between words and their intended meanings. (Mäkinen, 2018)

A storyboard is a common way to present the idea of the eLearning course visually. In Sandvik PowerPoint or World have been used as a tool for that purpose. Every slide in PowerPoint represents a scenario of the upcoming

slides in the Adobe Captivate program. In the notes section is a speech agent script for dialogs.

Based on the "Connecting through storytelling" publication by Ariel group, there are 5 pillars of the good story:

1) Structure

The story should have a beginning, a middle part, and an end.

2) A hero

In this thesis that would be the main character of the story.

3) Truth

In this part of the story facts based on the topic are told.

4) Goal

The goal of the course is to gain knowledge and a basic understanding of the topic.

5) Struggle

Conflicts make making flat story interesting. (Ariel Group. 2024)

A few characters can be used in the plot of the story. Characters may encounter some troubles in the factory tour. For example, the story starts by introducing characters to a learner (user of an eLearning course). After that, they enter the factory area where they pay attention to the safety aspects. In that part, the learner can be involved in a story by asking some questions to check the knowledge on that topic. In the middle of the story, they see a battery-powered machine and doing observation of it by learning the main assemblies. Here can pop up some troubles, where the learner has to solve a problem by answering questions. One person is very experienced and another is learning new things about the machine. The story is based on technical facts about the vehicle. The course or module ends by stepping out of the factory area with knowledge of the machine.

3.6.1.4 Characters

Compelling characters are the heart of any story, and eLearning is no exception. By using personas that embody different learner types, two key things can be achieved:

- **Diversity and relevance:** Learners connect better with stories that reflect their perspectives. Personas representing various learner archetypes showcase how the content applies to different individuals, fostering a sense of relevance.
- **Engagement and support:** Characters can act as mentors or guides throughout the learning journey. They can empathize with learner challenges, offer valuable insights, and provide clear advice, making the learning process more engaging and supportive. (Elearning company, 2024)

In the concept, characters should be compelling individuals to whom learners can relate. For example, there can be a mentor person who is guiding and doing onboarding to another person.

4.7 How people learn

To perform the best learning experience, we must know how our memory works and how the knowledge will be saved in long-term memory. The aim is to learn and remember the information provided in the eLearning course.

Principles of learning

Based on cognitive science research, knowledge construction emphasizes three key principles for effective learning.

- **Double channels** — Our brains process information through different channels: visually (pictures, graphics) and audibly/verbally (words, sounds).
- **Limited capacity** — People can only actively focus on a small amount of information at a time, whether it's visual or auditory.
- **Active processing** — Effective learning happens when people actively process information. This involves activities like paying attention to important details, logically structuring the material, and connecting new information to their existing knowledge base.

Deep learning happens when the learner actively participates in all these steps. (Clark, Ruth C., and Richard E. Mayer, 2011)

Based on cognitive research, eLearning courses with conversational text (written or spoken) promote deeper learning compared to formal language. The formality of the language should match the content's seriousness. A conversational style can be effective when used thoughtfully. Personalizing the content by using words such as “you” and “I” you are giving a message, that the content is not that serious. A conversational approach in multimedia presentations encourages learners to actively engage with the material. By using language that feels like a natural conversation, you can prime their brains for better processing and understanding of the presented information. (Clark, Ruth C., and Richard E. Mayer, 2011)

The social aspect affects crucially to learning by activating social responses, increasing cognitive processes, and boosting the quality of learning results. With the lack of social aspect above-mentioned activations and increasing will not be realized. Despite this, eLearning specialists should be aware of the potential for distraction when using conversational style too much.

In the concept, characters will interact with themselves and the learner, and a conversational style will be used between them.

4.7.1 Forgetting

When we can understand how we forget the information, we can prevent it and be sure that information sticks.

Hermann Ebbinghaus was a psychologist who researched memory and who discovered the learning and forgetting curve. The forgetting curve describes the exponential missing of information that one has learned. The missing occurs in the first twenty minutes and the significant one in the first hour. In one day, the curve flattens out. (Wikipedia, 2024).

Information fades with time. Unless we actively revisit what we learn, our memory of it gradually fades over hours, days, and weeks. Regularly revisiting information flattens the forgetting curve, boosting long-term memory. (Mindtools, 2024)

Studies have shown that spaced retrieval, a form of active recall with increasing time intervals, is an effective strategy for reducing forgetting. (Wikipedia, 2024)

Harvard-trained neuroscientist, Lisa Genova, in her book “Remember” described, how to recall and reinforce our memory. Here are the most important strategies from the eLearning course creating perspective. To create a memory we need to repeat things. When we repeat things again and again we train a memory. We are reinforcing neural connections and that is making neural areas stronger. (Genova, 2021). For example, repeating learning material distributed through the learning campaign. This can be implemented to apply this technique in the upcoming concept.

Another important technique is self-testing. When you revisit some information in your brain, you try to find it and then bring it back for example by writing.

(Genova, 2021). In the eLearning field, self-testing is doing assessments and pre-tests. Both can be added to the upcoming concept too.

4.7.2 Recalling

The learning phase is not over after knowledge acquisition, recalling the information is very important in the long-term outcome of learning.

Memory recall, alongside encoding and storing, is retrieving past information or events without needing a specific prompt. (Britannica, 2022).

As well as encoding and storage, it is a core memory process. A recall can be free, cued, or serial. The multiple-choice test uses recognition memory, but in essay writing, we utilize recall memory. (Britannica, 2022).

Behavioral experiments have demonstrated that word learning effects can be observed either directly or indirectly for up to one year after learning a new word. Memory systems play a central role in the acquisition and maintenance of new words.

In Sandvik, assessment contains multiple-choice tests, but in my opinion, in addition to that, we can try to use recall memory. Also, after the assessment we can add some recall sessions through the learning campaign dashboard, to remember the information from a long-term perspective. That is the main aim, to remember the information and to use it when the situation arises. For example, operators have done the eLearning course, but have never used the learned information. After one year, he has to calibrate sensors in an underground loader. Probably he will not be able to do it alone without any supportive materials. But if we have a systematic recall, then he possibly could remember the calibration process better.

4.8 Discussions with experts

15.3.2024 A team meeting was organized with the Sandvik brand team and graphic designers. It was an open discussion about brand adaptability in eLearning courses. The main questions were “What are the new brand eLearning guidelines, what kind of characters (style) can be used in the thesis, and from what accepted digital libraries they can be downloaded?” eLearning guidelines were in the developing phase and weren’t sharable yet, but in the future, there would be recommended digital libraries from where characters can be easily downloaded. (Brand Team, 2024)

2.5.2024 the Teams Meeting with a Learning & Development expert Gerald Genilke from the HR Technology & Information Management Team was conducted. It was also an open discussion about Workday possibilities and limitations. It had been found that Workday Learning Campaigns and Learning Journeys might be solutions for the comprehensive learning experience that was planned. Even though journeys are available only for global teams and learning partners don’t have the right to do that, that will complicate the process.

5 Designing & Developing the concept

Design involves laying out what is going to be said, what the learner will see, and the activities that will be used to help the learner retain what they have been told. Development involves bringing it to life. The planning phase starts by getting all the ideas through the filter to get rid of bad ideas and to leave just the best ones.

Filtering & Focusing

This part of the thesis is reserved for analyzing, filtering the information, and finding possible solutions for problems, founded from research in total.

Because the new brand identity was published in autumn 2023, it was crucial to follow the new line. In discussion with a brand team and designers, was found that guidelines for learning were not ready yet, so libraries weren't been in use for some time. In the concept, this aspect can be taken into account by keeping the appearance of the characters open at this point in the thesis. In the future, the character designs will be published and they can be easily used.

The original plan was to create an eLearning course concept, but the survey results showed that other needs can be expanded into the learning experience concept.

From the open discussion with the Learning & Development expert, was clarified that Learning Campaign is the most suitable tool to implement the learning experience.

Gamification is one of the engaging methods of learning, but it's not the right time for now. However, it was decided to use some elements from gamification such as sound effects and large feedback in assessments with positive tone of voice.

From the benchmarking part, a very useful trick from navigation had been taken to the concept: done-checkmarks visible after every slide and interactive activity. If a learner is going back, the slide should look like it is already visited.

Also, clearness and elegant & simple design can be used in the Sandvik concept concerning new graphic guidelines. Even though in this concept the main focus is not on the graphic design.

The basis for planning a concept is research results. It's important to continue eLearning course creations by bringing already well-proven things through research such as:

- Understandable and relevant content
- High-quality audiovisuals: animations, videos, voiceovers

There were also frustrating things which are a starting point for improvement of the eLearning courses. There would be a problem and a possible solution as an ideation part of this work.

- Navigation – it is crucial that the learner can get back to assessment again and again even though he didn't pass the course. At this point, this problem was encountered recently. Also, all the buttons and links should be clickable and workable. To implement that, stress testing should be done more carefully and with better attention to navigation.
- Lack of knowledge beforehand of after training -> customized trainings – for operator, service, and & repair specialists with a service design approach. Still in this concept, this bullet point is not going to be improved.
- No access to the internet connection – based on Workday expert, the eLearning offline feature is not going to be implemented in the near future (Genilke, 2024. Personal statement)
- Status of the course is not recorded in the Learning Management System – checking the SCORM files in Workday with the “providing grade” checked box.
- Understanding the English language – English course offerings for employees with language challenges, translation to Spanish, possibly to Indonesian (Bahasa) and Mongolian. Maybe in the future, at this point just a concept for that thesis.

- Long duration of the courses – Most of the answerers think that an eLearning course divided into separate modules is better than one long course. That's why splitting courses into small modules (maximum 30 minutes in total) will be the solution for that issue.
- No time to do eLearning courses or they have been interrupted while doing them – Approved/requested time for eLearning courses from managers for example 1-2 hours per week.
- Factors, which help to continue a course without interruptions are:
 - Engaging and interesting content – storytelling method for course presentation.
 - Progress bar & summary section – adding a progress bar to the courses.
- Most of the respondents find the content engaging - 5/5. These factors are engaging:
 - Relevant and understandable content that can be applicable in work life – Can be presented as a story.
 - Audiovisual content - Voiceover with more humanized voice, because existing voices sound too robotic.
 - Motivation to learn – The same engaging method was found in the literature review
 - Assessments and pre-tests – Pre-tests haven't been used for some time lately, but it is useful to bring them back to the beginning of the course.
 - Possibility to do courses anytime and anywhere – Freedom to complete

The best type of media is animation, video, text slide, audio, photo, or 2D-picture, so these media will be used in the upcoming courses as well.

Courses will be done with all these media in the future as well since they have been experienced as very captivating.

As it was mentioned previously, the storytelling method should be used in building the concept to attract and engage the audience. Starting with the

scriptwriting helps to proceed with the concept further. The script is written below.

Referring to the online book "Designing the Online Learning Experience" by Conceição, active interaction type or eLearning is more effective. It was defined that personalized content is more engaging, so it is crucial to create characters for this eLearning. In this course, it will be Pentti and Matti as the main characters and narrator (reader) of the course.

Because characters are not yet downloadable from digital libraries, the solution is to use 3D models of two persons. They are situated in the factory 3D environment. The learner will be one character too (not shown as a person, but attention to the learner will be taken in the story). A learner is involved in solving problems by choosing a correct answer from multiple choice. It would be interaction points that will connect learners with content through emotions and the feeling of helping someone. To be part of something can create a dedication to characters and learning content.

When different types of media and question checks are mixed, the learner will balance their knowledge better and not assume unrealistic expectations. Also adding links to the media is much more engaging, so in this eLearning would be added some hyperlinks for additional information on the topic.

After answering questions, clear feedback with an explanation, of why those are correct answers, will appear as a text and a voiceover. At the same time, clear feedback is a summary of the options listed above. In Lisa Genova's book was mentioned that repetition and self-testing reinforce memory. It can be implemented by creating & sending additional summaries and assessments to learners through the Learning Campaign tool.

In this concept, the (*italic style*) of text in brackets means the describing activity, which is happening in the background.

(Normal text in brackets) refers to the research results applied to this part of the concept.

Italic style text in front of: mark means narrator's profile.

In this learning experience concept, only one eLearning module will be presented as a target, to get an understanding, of what kind of solution was invented for the course. Other modules will be implemented the same way using the storytelling method and style from this "Powertrain" module.

NAME OF THE COURSE: Introduction to LH518iB machine.

1 MODULE NAME: "Powertrain"

COVER SLIDE 0:

Narrator's voice: Welcome to Sandvik eLearning. The course name is Introduction to LH518iB machine. The course contains multiple modules (*All the modules included are listed. Names of the module will be defined when needed*). This is a "Powertrain"-module.

(Text and picture of the machine will appear): Introduction to LH518iB vehicle

As infographics: clock icon with duration of the course – 30 min and how many modules, progress bar icon

Pre-test button:

Text and *narrator's voice:* Click the pre-test button to check your knowledge beforehand or you can skip it!

In the right-hand corner of the slide: Select language. (*Will redirect to course with a translated version of the content in Spanish, Indonesian (Bahasa), and Mongolian*)

SLIDE 1 - INTRODUCTION:



Picture 2. AI-generated picture Leonardo App. <https://app.leonardo.ai/ai-generations/image-guidance>

Narrator's voice: New employee Pentti (*Pentti's 3D character appears*) starts his very first working day at Sandvik's factory (*3D-factory picture appears*) with the onboarding person Matti (*Matti's 3D character appears*). Matti has over 30 years of experience with Sandvik machines (*Matti's picture appears, when he is younger repairing the Toro machine, background of the factory blurred*), and knows about them nearly everything. Pentti has just graduated from the University of Applied Sciences from the mechanical engineering faculty (*Pentti's picture appears with a Graduating hat in polaroid style, the background of the factory blurred*) and never worked with this kind of machine. He doesn't know much about battery-powered vehicles, since his studies were focused on diesel ones. Besides that, he is eager to learn everything that comes to him. Pentti and Matti are equipped with PPE (personal protective equipment) and are ready to start the factory tour. (By this introduction we create an emotional connection between the learner and characters to recognize or identify some of the period's of people life).

Matti's voice: Hi Pentti, I have worked as a product master here for ages and I will be guiding you here on the factory tour. Welcome to Sandvik!

Pentti's voice: Hi Matti, it is very nice to meet you. I started here as a junior design engineer and can't wait to see the LH518iB machine. I am ready to learn as much as I can.

(In this part, conversational style has been applied. This way it encourages learners to actively engage with the material)

(When clicking the "Next" button swish sound appears)

SLIDE 2: SAFETY

Question 1:

Matti's voice: The LH518iB vehicle is a battery-powered loader. Pentti, before stepping in front of the machine, what factors should be taken into consideration from a safety perspective? Choose all the correct answers:

- a) Machine can stand in front of charging and cooling units and stepping on the cables between the loader and the units is forbidden.
- b) Walkaround: Checking if someone is assembling or working on the machine, check if the machine is running.
- c) Check the decals on the machine with warnings & dangers and define possible risks.
- d) Just be yourself and brave enough to try every button and cable.

(When answered, clear feedback with an explanation of why those are correct answers. At the same time, clear feedback is a summary of the options listed above. In Lisa Genova's book "Mindsight" was mentioned that repeating will train a memory by reinforcing neural connections and that is making neural areas stronger. Also, feedback is in a positive tone of voice which does not crush feelings about lack of knowledge but encourages to continue and try again).

CORRECT: *(Correct sound effect and a green checkmark will appear)*

Matti's voice: Great job! Now you know how to behave safely in front of the battery machine. It can stand near charging and cooling units and cables could be next to it. Remember that stepping on them is forbidden due to high voltage.

If someone is working on the machine or the machine is running, be sure to use earplugs and be aware of the moving vehicles and parts.

Checking decals will make you aware of possible risks and dangers.

WRONG: *(Wrong sound effect and red cross will appear)*

Try again! Come as you are, but remember – safety first!

Hyperlink to the charging and cooling unit courses.

(When clicking the “Next button” a swish sound appears)

SLIDE 3: SAFETY DECALS:

Narrator's voice: Matti and Pentti just walked in front of the machine. Pentti is doing all the checking. *(Animation: camera flying around the machine when Pentti reading the decals. The camera is focusing on the danger decals. The picture freezes and all the decals are shown as small 2D pictures. Animation disappears and a picture from one side of the machine is shown)*

Narrator's voice: Click each decal to see more precisely about the risks, warnings, and dangers! *(By clicking the small decals they will pop up to big readable ones and the background is blurred)*

(When clicking the “Next button” a swish sound appears)

SLIDE 4 – POWERTRAIN ASSEMBLIES:

Matti's voice: Now you know what to remember about safety aspects. Let's move forward! The LH518iB has a different powertrain as in the diesel machines because as you already know, this is a battery-powered vehicle.

QUESTION 2 (DRAG & DROP):

Narrator's voice: Try to guess which of the listed assemblies belong to the LH518iB machine and what not. Drag and drop all the correct answers to the right hand-side.

(When assemblies are listed "Pop" up sound effect appears"

Picture

Picture

LH517i (Diesel)

LH518iB(Battery)

Traction motors

Transmission

Engine

Torque converter

Dropbox

Batteries

Inverters

Drive shafts

Axles

Blue "Submit" button

CORRECT: *(Correct sound effect and a green checkmark will appear)*

Narrator's voice: Perfect! Only diesel machines have engines, transmissions, and torque converters.

WRONG: *(Wrong sound effect and red cross will appear)*

Narrator's voice: Try again!

(When clicking the "Next button" a swish sound appears)

SLIDE 4:

Matti's voice: As you have learned right now, the powertrain of the LH518iB loader contains the next assemblies: traction motors, dropboxes, inverters, drive shafts, axles, and batteries. *(3D-animation around the machine: camera flying again, but this time all the assemblies are highlighted in Sandvik's blue color, and "pop up" sound effects will appear)*

Matti's voice: They are situated all over the machine.

QUESTION 3: *Matti's voice:* Pentti, here are the batteries, but can you guess, where the rest of the assemblies are situated? *(Hotspots will appear on every highlighted assembly on the 3D model of the machine)*

Guide's voice: Can you help Pentti recognize the powertrain assemblies of the machine by clicking each of the hotspots?

Batteries, traction motors, dropboxes, inverters, drive shafts, axles.

(By clicking the hotspots of the LH518i picture the text will appear on top of the picture.)

(When clicking the "Next button" a swish sound appears)

SLIDE 5 - BATTERIES:

Matti's voice: Alright! Now we have gone through the location of the powertrain assemblies. Let's dive deeper into each section.

QUESTION 4:

Matti's voice: If we get back to the batteries, do you know, what are the batteries intended for?

- a) The batteries are the main power source used to power the machine during normal operation.
- b) The batteries are the main power source used to power the machine during unusual operation.
- c) The batteries are the main heating source during normal operation.

(The question disappears and 3D-picture of the machine appears)

CORRECT: *(Correct sound effect and a green checkmark will appear)*

Good job! The batteries are the main power source used to power the machine during normal operation. The LH518i has one main battery and one tram battery *(A picture will appear where the batteries are highlighted and named)*. The main battery charges the tramming battery for around 7- 8 hours.

WRONG: *(Wrong sound effect and red cross will appear)*

Unfortunately, this is not the correct answer. Try again!

(When clicking the "Next button" a swish sound appears)

SLIDE 6: BATTERIES

Pentti's voice: Are the batteries already programmed?

Matti's voice: Yes, we pre-program them by ourselves. The front powers the front part of the machine, and the rear one, the rear part of the loader.

Pentti's voice: How it can be done?

Matti's voice: We will go through this in the next module.

Narrator's voice: Click "Next" to proceed to the end of this module!

(The progress bar is at the end, so learners know that this is going to be done)

SLIDE 7: EXIT

(Congratulations sound effect and green checkmark will appear)

Narrator's voice:

Congratulations! You have completed the "Powertrain" module. Click the "Exit" button to exit this module.

You will be redirected to the main window, where all the modules are located.

6 Implementation

The main idea of this concept was to create an engaging eLearning course concept. After the survey results, it was clear that the concept should be much wider than just an eLearning course. Learning is a process, not just a one-time occasion. The second research question was about putting the learning process into an engaging learning experience. Based on the research this part would be resolved by creating a comprehensive learning experience concept. In that case, it means that the touch points of the learning started happening already before starting the actual eLearning course while reserving time for completing the course, and even after completing it, which makes this Learning campaign continuous learning. The idea is to implement all this through the Workday LMS Learning Campaign tool. The learning campaign will be an assigned activity to the chosen audience. Activity roster and other report possibilities help to reflect activity or outcomes in Workday.

This would be a fully automated solution where different types of activities will be sent to the learner's Workday account and e-mail within the planned schedule.

PRE-PHASE

First of all, the audience or in other words, the target group should be defined in the learning campaign dashboard. In this case, it would be the group of people who are beginners in the field, office workers, advanced machine operators, maintenance and service & repair personnel.

The first step of the campaign is to create an invitation letter through e-mail, where recipients would have a first touch of the planned experience. This would be sent one week before the actual eLearning course is supposed to be started. The letter will contain information about the assigned eLearning course "Introduction to LH518iB machine" including all the modules, all pre-planned

post-assessments, reminders, and knowledge checks that reinforce their memory. Also, all possible language versions are mentioned in this letter.

eLEARNING COURSE PHASE

This phase is reserved for completing the whole course. The "Welcome to the eLearning course" letter will be sent to the audience with a link to the course in one week after the first letter. The duration of that phase would be 30 days to complete and this information would be explained in the letter too. If after the first week, the user has not started the course, the first reminder will be sent. This activity will remind learners that this course is still waiting to start. If two weeks before the due date the course is not activated, a second reminder will be sent. If one week before the due date learner hasn't started the course, the third reminder will be sent with a copy to the manager.

DUE DATE OVER

When the course is completed or the due date is over a joyful tone of voice letter will be sent to the audience to express excitement about completion to learners who have completed it. That can motivate and give good emotions and a feeling of achievement. Also, grades will be provided, which will be recorded in the LMS system. In the same letter, there would be notice of a plan for the next steps: "In the next letter you will receive a summary of the completed course".

POST-MARKETING PHASE

After one week of the due date, there would be a letter with a summary of the eLearning content of each module. Also, there would be a hyperlink to the PDF file to SharePoint, which can be downloaded or printed. With that activity, the learner can have some specific material that would be stored on the desktop or printed and pinned on the wall. This will create a stronger connection between knowledge and the user.

After the second week of completion of the course, the first knowledge check will be sent "Do you still remember about the powertrain assemblies?" This section would be a SCORM-format file where the drag & drop exercise will help to refresh memory.

After the third week of completion of the course, the same final assessment would be sent to check if they can still answer the same questions. This would be implemented through a SCORM-format file which is separate from the previous completed one. That will prevent a possible conflict between already completed assessments. The first final assessment has been included in the eLearning course as a module. The second final assessment has the same content but is a separate file included in the campaign, not the actual course. That way learners can do a test twice and check do they still remember the second assessment does not affect the grade. This activity will activate memories from the past and reinforce them in the present moment and hopefully in the future also. The idea is to have the forgetting curve not be in a flattened position.

HANDS-ON TRAINING

In the survey was defined that hands on training was missing in eLearning content. One solution could be to provide a service where after eLearning course completion the learner will have an opportunity to ride a simulator and apply all the gained advanced knowledge in reality. People from locations where a simulator is available in the facilities will receive a message about the possibility of having simulator sessions.

This will also happen through a campaign but using another audience with locations, where simulators are situated. Learners in industries that require hands-on work may not want to sit at a laptop doing eLearning. They may prefer training that focuses on actually doing or simulating the activity.

FINAL SURVEY

When the second final assessment has been done, the survey will be sent to everyone. There would be questions about the learning campaign overall. How do they experience the frequency of the sent content and how their knowledge of the machine has improved or is it?

7 Evaluation & Results

The main objective of this study has been to identify the good points and concrete problems have faced by learners in eLearning courses. The second main objective was to find the way how eLearning courses have faced during their commercialization processes. As a result, the comprehensive learning experience concept is created. Based on research it was found that existing eLearning courses are already in good condition, but they still had some improvement points.

The eLearning course itself has been improved by the results of the survey which was conducted for learners. From the questionnaire was found that learners need a translated version of the courses. The top 3 languages were: Spanish, Indonesian (Bahasa), and Mongolian. They are included in the concept and learners will be informed about those possibilities in the welcome letters and in the course itself with language-button. Also requested pre-test, progress bar, and summary sections were added to the concept. A large feedback in knowledge checks was included in the eLearning course as well.

The storytelling method was found as the most engaging by many factors. It raises emotions, is memorable, it creates a connection between the learner and the content and activates more brain areas than just dry facts. Based on research, conversational style (written or spoken) promotes deeper learning compared to formal language. This style has been used in the concept through dialogs.

The script of the first module of the eLearning course is presented and in this example, it can be easily seen how the facts and technical information can be turned on creatively with a story with characters that learners can relate to. Sound effects bring a new angle of entertainment to the course. Based on the survey, learners liked a lot of animations and they are used in this solution.

After that, the implementation plan was created using the Workday Learning Campaign content tool. The whole concept is learner-centered, but it is also

done from a digital learning solution specialist's or instructional designer's perspective. It is important to understand both sides of the implementation. Learner is taken into account before starting the actual course, but also after that. It is prepared by several steps created in the Learning campaign in advance. Invitation letters, welcoming to the course, joyful messages about gentle reminders, refreshing a memory by sending summaries, knowledge checks, assessments, and a final survey. It will help to evaluate the whole idea of the learning experience of a storytelling method-powered course.

The concept has been reviewed with a manager of the training department. The feedback was good and the concept was clear and well explained. This concept can be evaluated also by sending it to the trial group of the learners from the survey. Some amount of the learners have expressed a willingness to test the eLearning content based on the storytelling method. Activity roster and other report possibilities help to evaluate and reflect activity or outcomes in Workday.

From this thesis can be easily seen how the facts and technical information can be turned into a creative learning journey: learner-centered approach with pre-planned steps before the eLearning course, eLearning itself with integrated storytelling method, and after it with post-marketing steps that can reinforce memory.

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Appendices

Survey questions



* Required

1. How many Load & Haul eLearning courses you have completed so far? *

- 0
- 1-5
- 5-10
- 10-20
- 20-30
- 30-40
- 40-50
- More than 50

2. How would you rate the course content and the information provided in the course?

*

One star means 1.



3. What is the best thing about Load & Haul eLearning courses or online learning in general? *

4. What frustrates you most? *

5. Have you ever left a course in progress-status? If yes, why didn't you complete it at one session? *

6. Do you feel lack of focus (attention) while doing eLearning courses?

- Yes
- No
- Maybe

7. What factors will help you to continue a course without interruption? *

8. Do you find eLearning content engaging? *



9. What factors engage you most? *

10. What was the best type of media you have encountered in the course? What helps you to learn *

- Animation
- Video
- Text slide
- Audio
- Photo or 2D-picture
- All of above

11. Do you think that eLearning course divided into separate modules is better than one long course?

- Yes
- No
- Don't know

12. Do you feel that you need translated version of the eLearning courses? *

- Yes
- No
- Maybe

13. To what languages courses should be translated? *

- Finnish
- Spanish
- Indonesian (Bahasa)
- Chinese
- Other

14. If we start creating our courses based on storytelling method, would you like to be in the trial group? *

- Yes
- No

15. If you would like to be in the trial group, could you please share your email or contact details?

Also please share your country or region

Figures and categorized answers

1. How many courses you have completed so far? (42 answers)

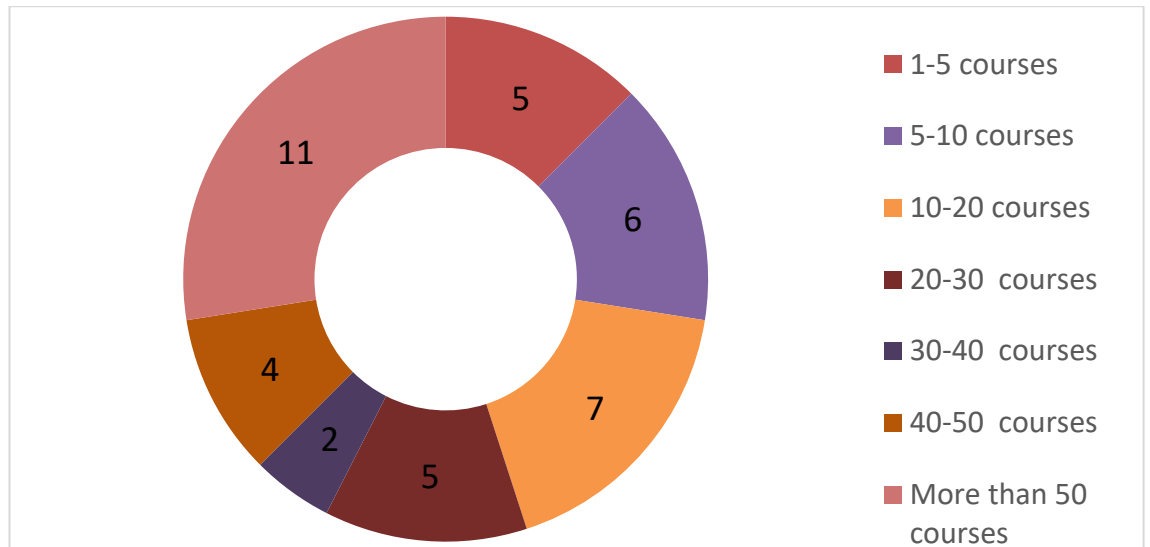


Figure 1. Amount of completed courses

- According to that most of the people have done more than 50 courses in total.

2. How would you rate the course content and provided information in the course? (From 1-5) (42 answers)

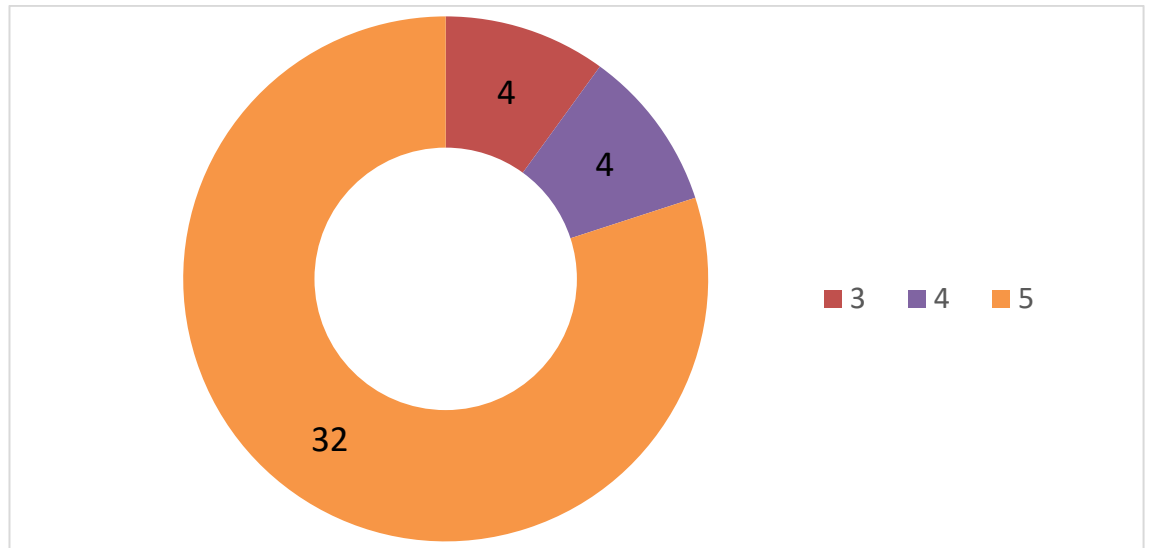


Figure 2. Rate of the courses

3. What is the best thing in Load & Haul eLearning courses or online learning in general?

These answers were divided into categories by the topic.

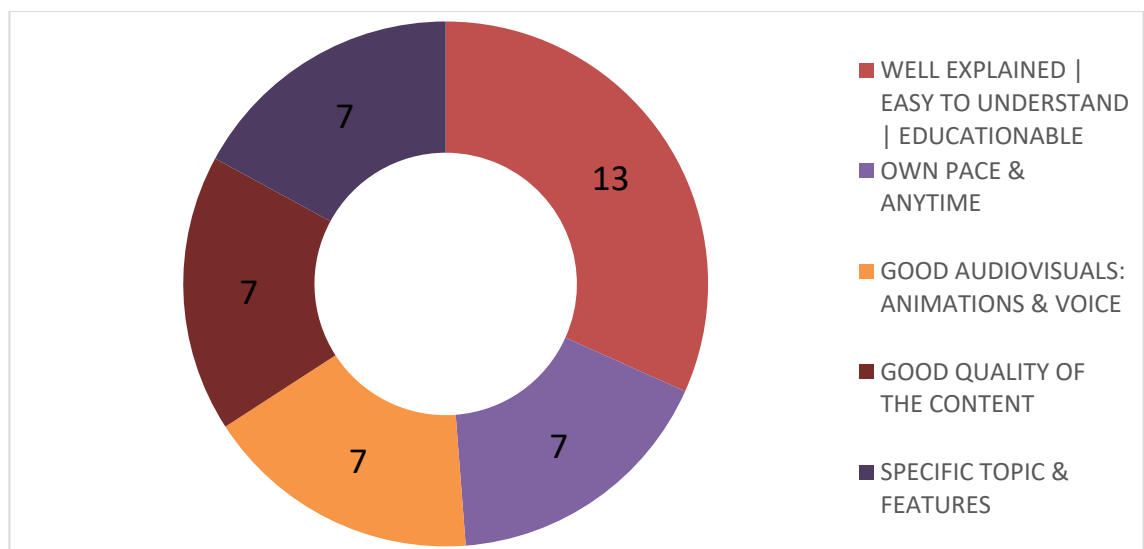


Figure 3. Best in eLearning

WELL EXPLAINED | EASY TO UNDERSTAND | EDUCATIONAL

Everything is explained in detail and can be viewed anywhere.

Everything is well explained.

The clarity, materials, and content of the course are easy to understand and well-organized, making the learning process straightforward and effective.

The course is explained very well

The training material is great and has very good explanations.

They give a clear understanding of the equipment or the topics of the course before going into the classroom learning environment.

Very practical and clearly explained

More complete understanding of machine systems, which can assist in repairs.

It is easy to understand the content.

It's simple to understand the content and really helps before taking a machine Complete training

They are sufficiently detailed and completely subject oriented .

It's very educational for my workday

it's very good and enlightens the ideas of learning more new things, but some courses are

quite challenging needs physical hands on practical or classroom.

13 in total

OWN PACE & ANYTIME

Able to complete them at your own pace, and able to pick up where you left it at anytime.

I manage the speed of training progress

The best is that you can do the training in your own time.

It starts with basic information and carries on to more intense info which also forces the person to first start with basics before more intense training is allowed

The courses can be taken as per our own convenience

I can do them when I got the time and at my own pace.

Is the option I have to learn no matter the place and the time.

It's there when you need it .

7 in total

GOOD AUDIOVISUALS: ANIMATIONS & VOICE

clear interactive images

clear voice in communication

Explaining with Animation makes it easily understandable.

Video and animations are really good.

The way the subjects are interconnected is perfect, I like the narrator dictation and the pace of things.

Explaining with Animation makes it easily understandable.

I find the animation good and the description clear.

7 in total

GOOD QUALITY OF THE CONTENT

The course material very good, and we can get a lot of actual knowledge LOHA

The content shown.

I thought it of the best of the course , is it quality of person does teach it, also the content of the course is of good level as well as material to learn ,and otherwise, the

patient of the person that explain the each topic is awesome in special with people doesn't speak english and understood as well
 After that you have a good knowledge
 There are 2 type of e-learning we are working on. 1. Adobe learning, its good to have the training but it seems like the workshop manual on a video version. and most of the start of each topic is redundant. 2. Workday e-learning, Again it is good to have a online training. In the event that you need to do some research or want to learn something, the e-learning is the easiest option. In general, I would rank it as very good.
 The information shared is very critical for my training sessions with the learners. Being taught by a qualified teacher was beneficial
7 in total

SPECIFIC TOPIC & FEATURES

The ability to re-take any course as a refreshment.
 trouble shooting
 Automation and BEV equipment
 The courses are short and very specific
 insight into things
 Hardware Descriptions and Product Updates
 They are simple and short
8 in total

4. What frustrates you most? (39 answers)

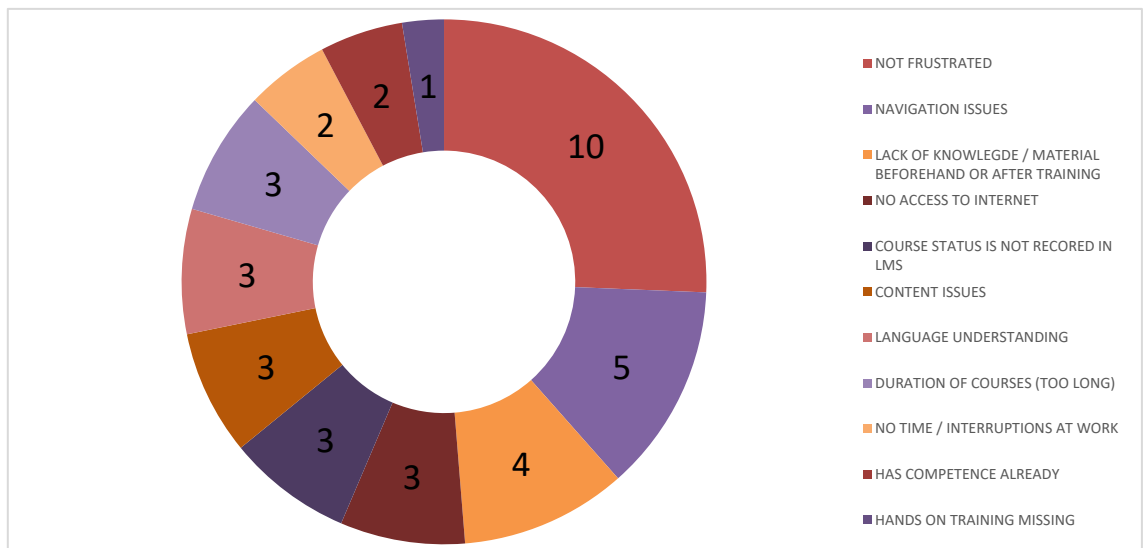


Figure 4. Frustrations in eLearnings

LACK OF KNOWLEDGE / MATERIAL BEFOREHAND OR AFTER TRAINING

For me, when I am joint in the training I don't have experience for the machine. because the machine is new unit for us and still under process delivery from factory to my site
how to hear language, and units that we never deal with

not shared ppt files for training

understanding of the component's operation concept

4 in total

NO ACCESS TO INTERNET

I cannot have access to information without access to the internet, for consultation in case of equipment breakdown

My Internet some times is bad

network related issues

3 in total

COURSE STATUS IS NOT RECORDED IN LMS

I feel frustrated when the learning is not recorded, and I need to start again the module.

Sometimes the test wouldn't save and so I had to shut down the course and restart it and go thru it again to proceed.

When i Must do the course a second time

3 in total

HANDS-ON TRAINING MISSING

I think eLearning is a good product but in my opinion there's no substitute for hands on training

1 in total

NOT FRUSTRATED

I'm okay

no

none

Not any

Nothing

Nothing like that happened

Nothing really frustrate me.

nothing.

So far I haven't had anything frustrating. It has been fluid.

So far, I have not faced any maybe in future.

10 in total

CONTENT ISSUES

LH514 and LH517 hydraulic system almost same.

that most of the pictures shown in the training material is not available in the manuals which will also assist in fault finding

There are many similar and ambiguous questions

3 in total

LANGUAGE UNDERSTANDING

no spanish subtitles
some time I think is it the language, I can speak english and understood well, but for I need extra focus to get the idea to learned of totality
how to hear language, and units that we never deal with
3 in total

LONG DURATION OF COURSES

Some courses are too long (over an hour)

The length of some courses are too long, after 60 - 120 minutes of learning you have a test at the end. I would prefer having a test after each stage of the course.

In the case of LH518B courses, it is annoying to have so many small courses and the fact of having to start over again and again. It would be better to have two or three modules at most.
3 in total

NOT ENOUGH TIME TO COMPLETE

start a course at work and forget to finish it to do another task

Its not Sandvik fault, I simply would like to have more available work time to dedicate to online training.

2 in total

HAS COMPETENCE ALREADY

It's hard to navigate through session content when it is already completed or "learned".
Some time when we know the stuff and still we have to go through it, but we understand that there might be someone who haven't gone through that so it is there.

2 in total

5. Have you ever left a course in progress status, and if yes why? (34 answers)

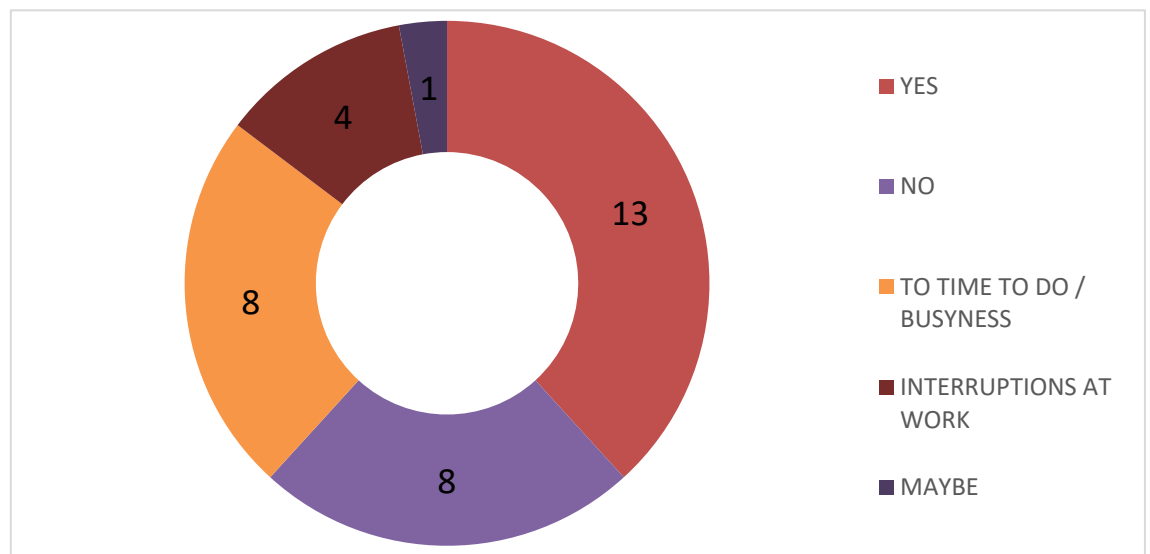


Figure 5. Course statuses and reasons for them

YES

Yes, because i have to attend to a client.

Yes, because of other obligations.

Yes, Because of time availability. we need invoice from a costumer first before doing anything else. Training will be prioritized if we can invoice a costumer out of it. Just saying. Hope i'm wrong.

yes, because situation that suddenly appeared that needed my attention.

Yes, because some courses are so long, and I combined the work and some training in my Laboral activities.

Yes, due to other commitments

Yes, for interruptions with operational issues

yes, i could not assess the full content and to restart the course over and over again

Yes, may be time constraint or other reason.

Yes, other commitments

Yes, out of time in the day or had to move around after being at the computer for a while.

yes,still busy breakdown

Yes. due to other demanding tasks assigned to me as priority 1.

13 in total

NO

no

no not at all

no, i didn't
 No.
 No. I did not leave any course of Loading haul.
 Not Never
 Not yet.
 Nothing like that happened
8 in total

MAYBE

maybe
1 in total

NO TIME TO DO / BUSYNESS

Because most of the times I take these trainings in my free time
 I take advantage of my free time to do it
 Lack of free time
 Some times I need explain to the people how you access to the trainings and don't have time for finish.
 Sometimes it's because of time scheduling, other times it's because it is kinda frustrating
 There is. And only because of my busy schedule as a workshop manager on a distributor who also is a contrator for mines running 24/7. I wish I had more available time.
 Time, because I'm doing e-learnings when I'm off from work.
 When you do the courses in your free time you have Not any time enough time
8 in total

INTERRUPTIONS AT WORK

start doing them and forget to do them because of another task
 Usually if I do not complete a session. I have been interrupted and need to help a customer or technician looking for information.
 yes
 Reason for leaving was work interruptions
 The same reason as response 4.
8 in total

5. Do you feel lack of focus (attention) while doing eLearning courses?

(40 answers)

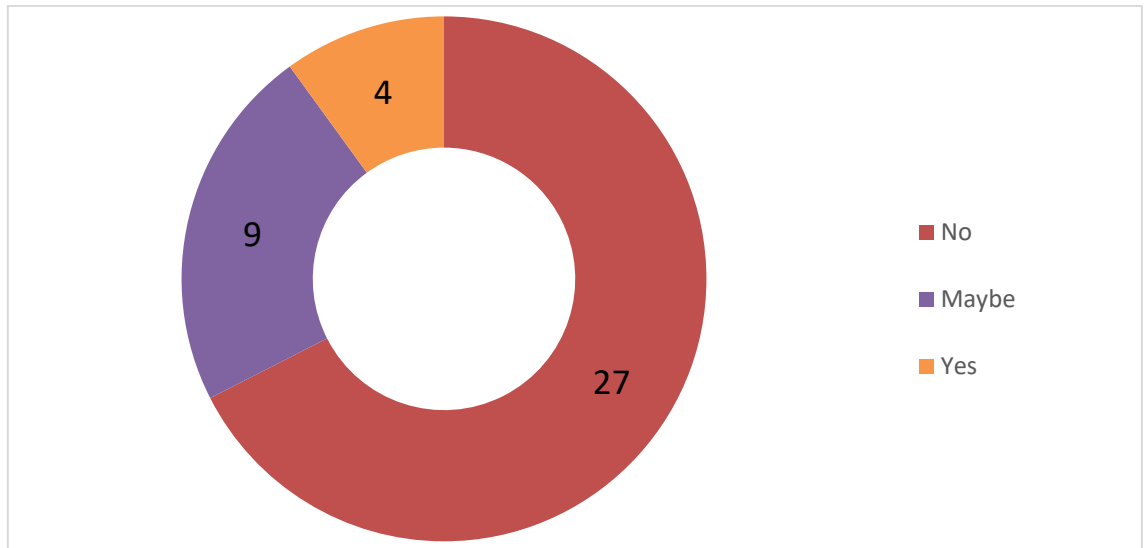


Figure 6. Feeling lack of focus

**6. What factors will help you to continue a course without interruptions?
(42 answers)**

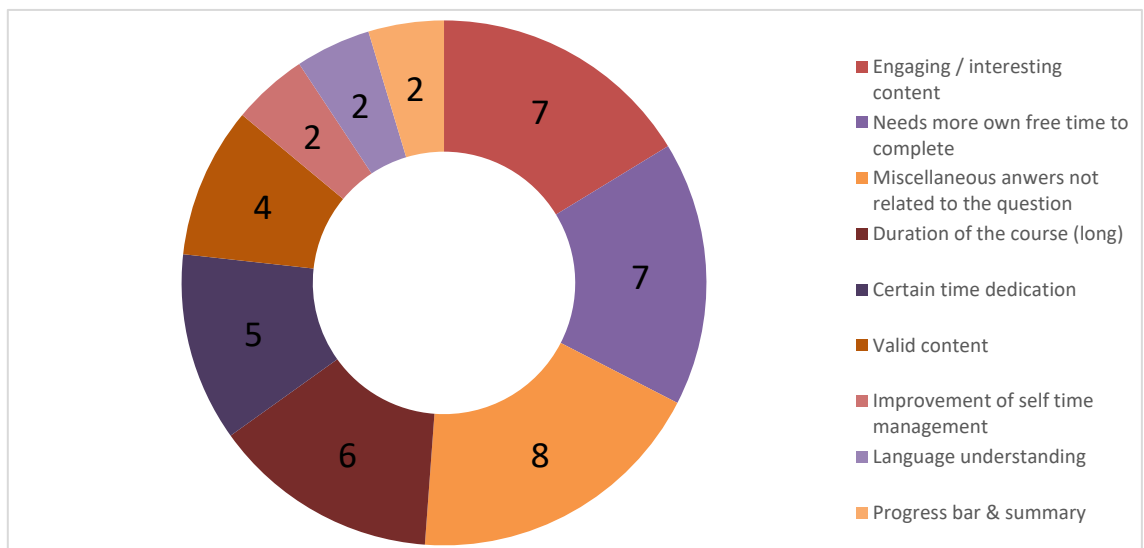


Figure 7. Helping factors to continue a course without interruptions

Engaging / interesting content

Animations

Interesting visuals and videos/animations.

interest

More interactive courses, for example with VCM course have a demo and requests to

carry out some tasks like navigate to parameter windows or diagnostics pages.
Same for hydraulic , electrical and so on

The quality of the videos, with the presented information, should be interactive and not fall into monotony

Individual approach

very interesting and educational, for help me on my job

9 in total

Needs more own free time to complete

Doing it in my day offs.

free times when not busy or during holidays

In my personal, need make the trainings out of office hours, because during the office time, normally something happen.

It is easy for me to do them at home since at work there are many distractions due to other tasks.

More free time

Out of work environment.

Timing factor. I am always busy to fixed problem oon the field almost no time for online training. We use my day off for the online training

7 in total

Miscellaneous answers not related to the question

work related issues. sometimes whiles learning using your phone a call comes through and interrupt

see the actual on the machine

It is multi factors.

No need any help.

I cannot decide

I do not know

always I try to complete the trainings as soon as possible.

In my case the customer comes first, or machine down situation

8 in total

Duration of the course

duration of the course.

I think less than 30 minutes each training. it will better do training.

keep the lessons short

Short courses (30 mins max) booking my schedule as training.

Some courses should be fastest to achieve.

When the time for one course Not more than 30 min goes

6 in total

Certain time dedication

Dedicate the whole day or certain hours to the course.

Quiet, dedicated time for course.

Allocated time from my work

i tink ,We cannot do online treaning at the jobsite, because our status supports Freeport

Have enough time. And i need to learn.

5 in total

Valid content

If the presentations a within the content is on point.

It would be good if the next level subjects are brought out under the course.

when the course is human friendly and understandable.

see the actual on the machine

4 in total

Improvement of self time management

better planning and possibly switching off the cellphone

Setting my calendar as having a meeting during that time.

2 in total

Language understanding

Simple language. Appropritely aligned learning path

Support with spanish translation or subtitles

2 in total

Progress bar & Summary

Maybe it is a good idea to put a summary of the course, for example, on every 3 slides

put a summary and test with of the content

The flow of information and the link between the slides, and if we know the timeline of the course, how much we have completed and how much to go.

2 in total

**8. Do you find eLearning content engaging?
(42 answers)**

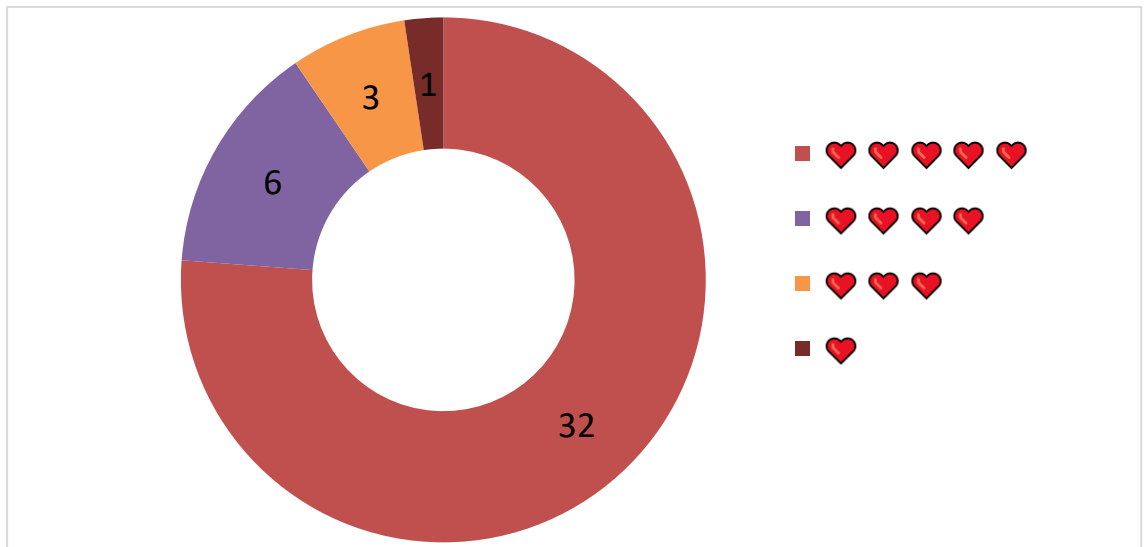


Figure 8. The rate of engagement

One ❤️ means 1/5 or that content is not that engaging

Five ❤️ ❤️ ❤️ ❤️ ❤️ means 5/5

7. What factors engage you most? (39 answers)

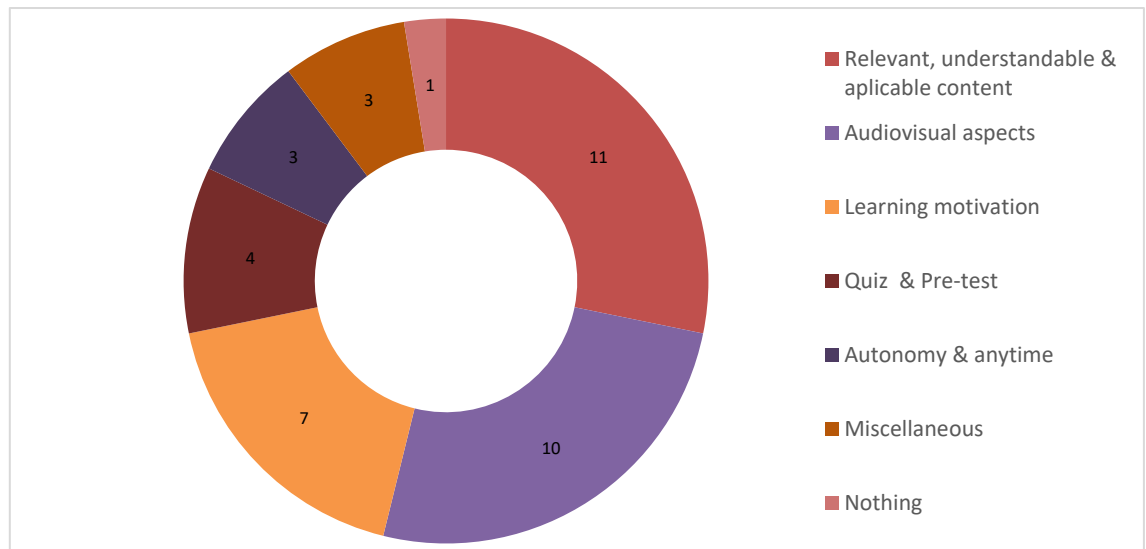


Figure 9. Engaging factors

Relevant, understandable & applicable content

The content which is relevant.

the content of the course will be useful in a future, I meaning that will be applicable in my routine job

the finer details in more Indepth information

The structure of the courses naturally take you to the next slide.

The working principle of the parts.

Trouble-shooting

When trying to understand the hydraulic schematics and valves and how they work.

questions and answers from the presenters.

Easy to understand information.

Electrification of mining.

simplicity.

11 in total

Audiovisual aspects

Good animations

Interaction would be better than a computer generated voice

Key Information's those are hard to find in Manuals.

visualisation of components in 3D .

Technical information of systems of the machines I was actively working with and animations of how system work.

The animations and the 3D content.

The presentations and videos

The good Präsentation

The, information, animation and the way everything is explained.
videos
Videos and animations
10 in total

Learning motivation

Desire for improvement.
I can get more knowledge
It helps to me reduced troubleshooting time. Sometimes, I attended some training again.
Jobs factors
New technology released from the factory and those things that i dont know.
Novelty unknown
We need Focus in learning
7 in total

Quiz & Pre-test

I find the little quiz's which are introduced through the training. This prevents people skipping through the material. and going to the questionnaire
Pre-test.
Questions section makes you feel going through the course wholly so you don't get the answers wrong
Questions with choices.
4 in total

Autonomy & anytime

autonomy and schedule flexibility
its available whenever
the automation part.
3 in total

Miscellaneous

I can not decide
The content helps us to be aware of digital fraud or scams
Face to face
3 in total

Nothing

Not any
1 in total

8. What was the best type of media you have encountered in the courses, which helped you to learn? (42 answers)

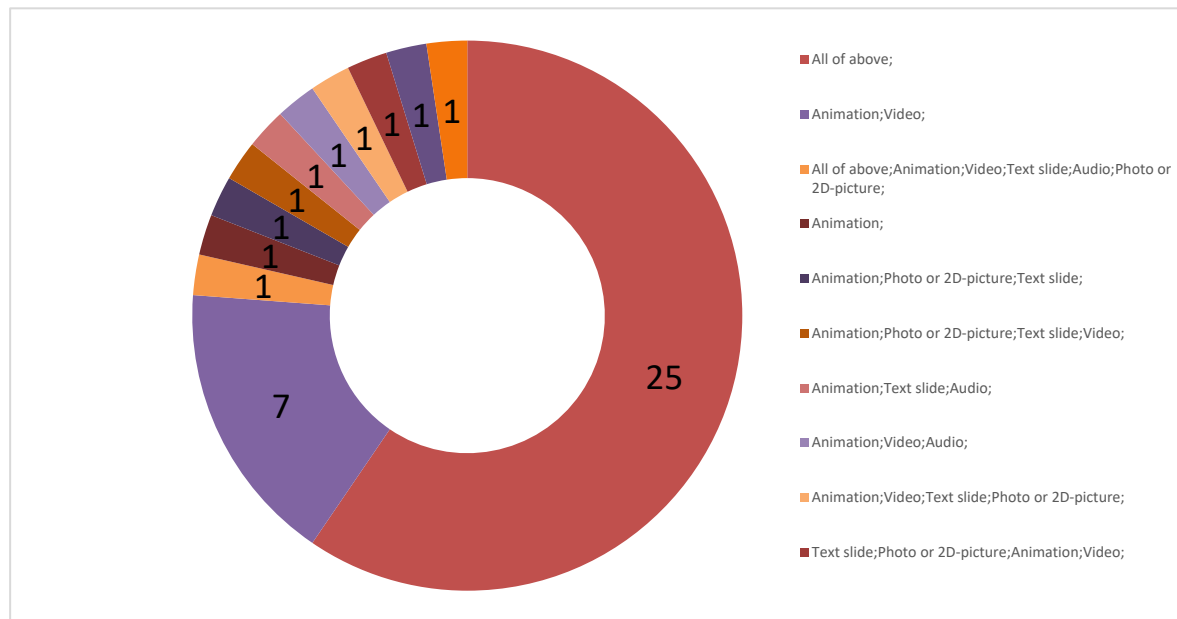


Figure 10. Best type of media used in courses

The question was with multiple choice answers such as: animation, video, text slide, audio, photo or 2D-picture, all of above.

**9. What Do you think that the eLearning course divided into separate modules is better than one long course?
(40 answers)**

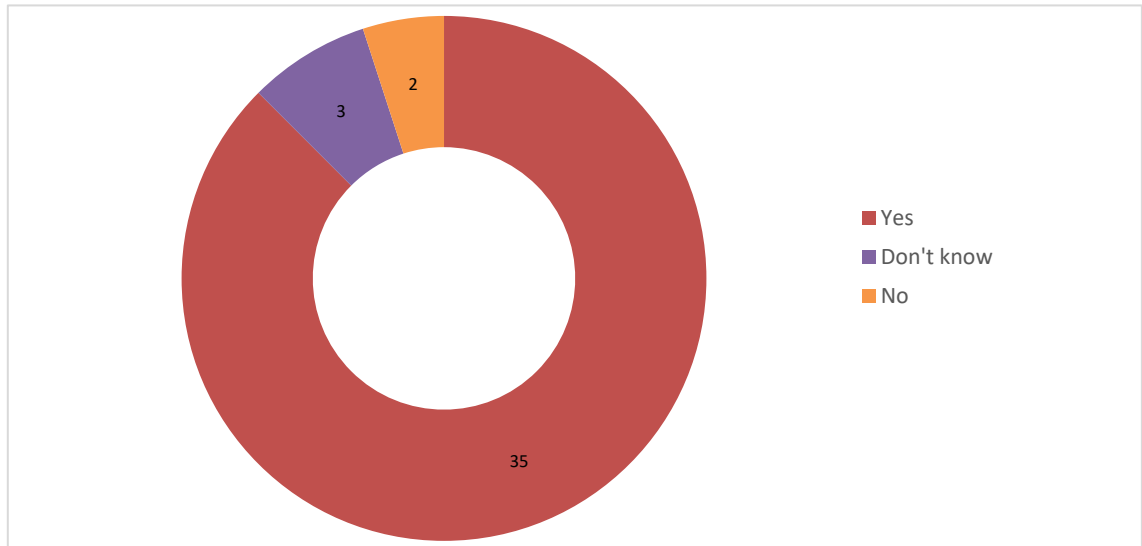


Figure 11. Separate modules or one long course

**10. Do you feel that you need a translated version of the courses?
(42 answers)**

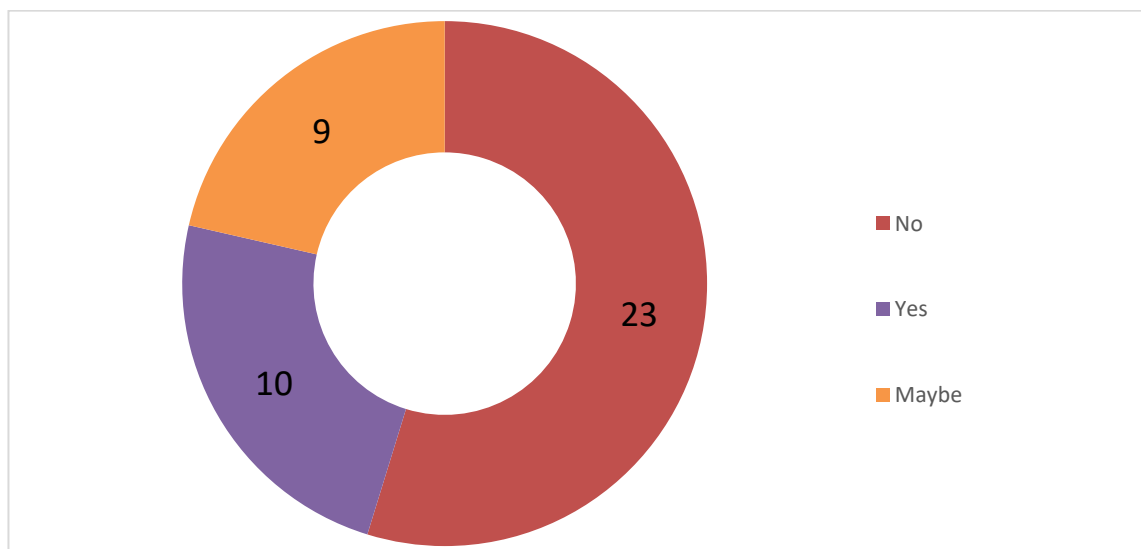


Figure 12. Need of the translation for the course

**11. To what languages courses should be translated?
(42 answers)**

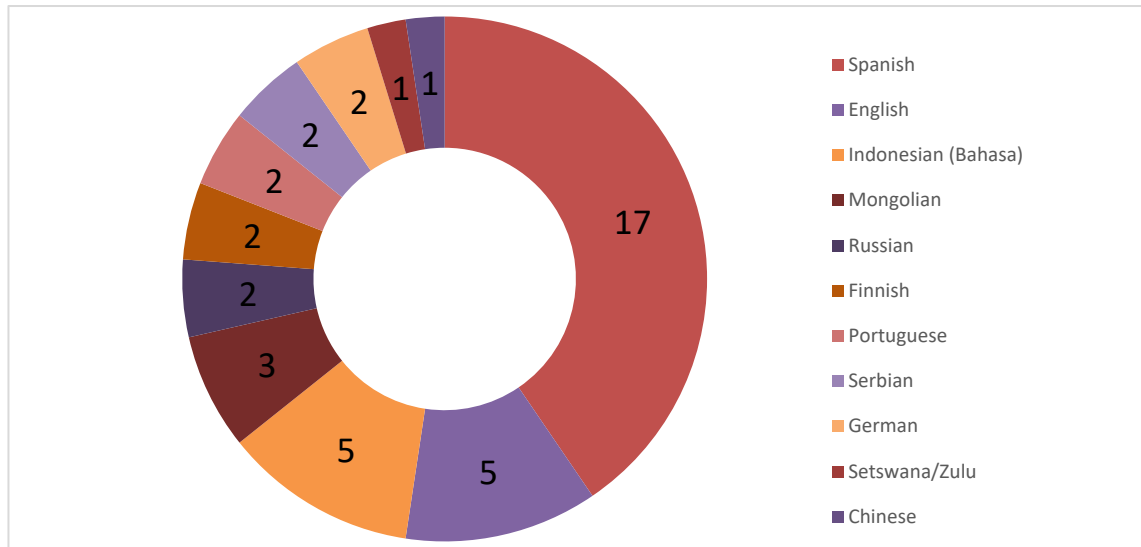


Figure 13. Needed languages

**12. If we start to create courses based on the storytelling method,
would you like to be in the trial group?
(42 answers)**

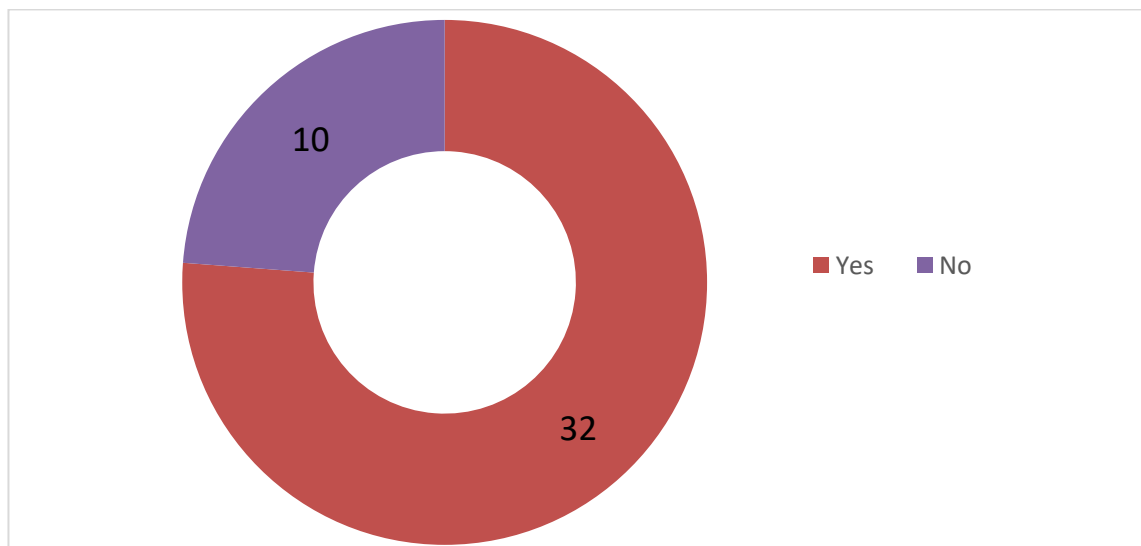


Figure 14. Willingness in the trial group

Figures in the appendix 2.

Figure 1. Amount of completed courses

Figure 2. Rate of the courses

Figure 3. Best in eLearning courses

Figure 4. Frustrations in eLearning courses

Figure 5. Course statuses and reasons for them

Figure 6. Feeling a lack of focus

Figure 7. Helping factors to continue a course without interruptions

Figure 8. The rate of engagement

Figure 9. Engaging factors

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