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# Methodology and training courses development for digital literacy of elderly people in Spain

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# Contents

# Acknowledgements

*Most importantly, none of this would have been possible without my family*

*I am grateful to Susana for her encouragement and practical advice*

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# Abstract

We live in a time of change and challenge, where the value is not only in the material anymore, in the physical assets, but embraces the intangible too, the knowledge. Thus, it is important to learn to adapt in order to reinvent ourselves. Technology is being developed in high speed and so a huge group of population has been pulled apart: the elderly.

Thus, the present work develops a methodology for developing training courses in order to diminish digital illiteracy among the elderly. This involves a combination of developing proper material with suitable explanations and a good coordination between workers. A greedy approach to generate qualitative satisfactory results is presented, along with two different projects. Among the results, we could stand out these two completed training courses.

# List of Figures

# List of Tables

# Chapter 1

# Introduction

## 1.1   Digital literacy

Literacy is traditionally known as the capability of reading and writing. Sometimes, it also refers to speaking and listening. As it is stated in "Definitions of literacy" [1], most children learn to talk fairly easy, whereas in contrast, learning to read and write is a laborious process. The ability to communicate effectively with others and to understand written information is what makes a person literate.

A lack of reading and writing skills holds people back at every stage of their life. As a child, they will not be able to succeed at school, as a young adult they will be locked out of the job market and, as a parent, they will not be able to support their own child's learning. People with low literacy skills may not be able to read a book or newspaper, understand road signs or price labels, make sense of a bus or train timetable, fill out a form, read instructions on medicines or use the internet.

It is simple to see the inconvenient of being illiterate and all the drawbacks it entails. Thus, if you tack the word **digital** before **literacy** the problem becomes bigger [2].

Digital literacy does not only include the ability of reading and writing but the ability to effectively find, identify, evaluate, share and create content using information technologies and the internet.

Nowadays, children have no problem in knowing how to navigate thought the internet, managing devices like smartphones or tablets, or sharing information on social media. However, digital literacy goes beyond that [3].

As Liana Heitin states in Digital Literacy: An Evolving Definition [4], digital literacy encompasses a wide range of skills, all of which are necessary to succeed in an increasingly

digital world. Those skills could be summarized in the capability to achieve information, (media and technology), the easiness to exercise their creativity and innovation (critical thinking and problem solving, and communication and collaboration skills) and the motivation of developing career skills such as adaptability, responsibility, productivity and leadership.

Therefore, educators are increasingly required to teach students digital literacy in the classroom. A wide lack of skills could fall into a huge struggle in students. As technology is part of our daily live, it is essential to teach digital literacy in order to be able to succeed in personal and professional life [5].

## 1.2   Digital illiteracy issue in Europe

It is essential that core skills and knowledge associated with the use of technology and computers are embedded into education systems. A mixture of technical skills and conceptual knowledge must form a central part of students school experience, both as a subject in its own right and as a way of facilitating learning and development. Greater efforts must now be made at both the European and national levels to further embed digital literacy into schools and thus ensure that the skills acquired are those that will be needed by Europe's citizens of tomorrow [6].

Formal skills development programmes provide an externally defined structure that can be readily adopted by schools and national education systems. Skills development programmes, such as those based on a standard set of knowledge and skills which include four main topics: **Computer Basics**, **Introduction to the desktop**, **The World Wide Web** and **Email**, can be effective in a number of ways.

Digital skills must be embedded in the breadth of activities in which children are engaged. Digital literacy, like reading, writing and arithmetic must be a foundation on which learning and personal development is based. Research by the OECD had clearly demonstrated that those students who control technology tend to perform better in key school subjects, such as mathematics, than those with limited experience or low confidence in their ability to carry out basic computer functions.

This informal integration of digital skills must, crucially, be supported by formal skills development programmes. These give students a clear target to aim at and, once completed, provide them with a concrete tool to demonstrate their skills levels to others and to take with into the workplace or higher education [7].

Skills development programmes can also act as a starting point for curriculum development. A publicly available syllabus can facilitate teachers in the development of engaging and relevant resources to support the acquisition of digital skills. These programmes can also provide a continuous professional development path for teachers. Teachers, as much as students, need to have an opportunity to develop their digital skills. They are more likely than students to be **digital immigrants** and not **digital natives**; therefore, formal skills development programmes are a means of ensuring that they are equipped to pass on key skills and knowledge to their students.

ECDL, an international organisation dedicated to raising digital competence standards in the workforce, education and society, is a successful example of a skills development programme that has been implemented in education systems within Europe and globally. Italy and Ireland are just two examples of countries where students have directly benefited from this organization [8].

- In 1999, ECDL was adopted as the official standard for evaluating computer skills in the Italian education system. One of the specific policy goals being targeted by this national level policy is the diffusion of digital literacy. Up to the end of 2009, 640,000 students engaged with ECDL through the public school sector, with the programme being operated by 80 middle schools and 1900 high schools.

- The ECDL programme in Ireland has seen more than 400 schools certifying 120,000 students since its inception. An interesting characteristic of this programme is that, over time, the age at which students are engaging with the ECDL programme is falling; some schools are now offering the programme to 12 year-olds.

In summary, it is possible to draw some recommendations for decision makers who wish to ensure that the young Europeans who will leave school over the coming years are equipped to make the most of and contribute to a vibrant European digital knowledge economy

At a national level:

- ICT (Information and Communications Technology) and education policy formation need to give an appropriate emphasis to digital literacy to ensure that crucial enabling digital skills, both for working and for living, are fostered among young people.

- Specifically, formal skills development programmes should continue to be rolled out in schools to provide a structure for teaching digital skills and to provide a concrete outcome for students to take with them into the workplace.

- Investment in ICT infrastructure in education systems should be undertaken in conjunction with the skills development programmes necessary to ensure that both students and teachers fully benefit.

- Teachers should be specifically targeted with formal digital skills development programmes in order to ensure that they have developed the appropriate skills and knowledge to assist in the integration of technology as a standard element of student's learning.

At an European level:

- Guidelines and targets should be provided to assist Member States in embedding digital literacy into curricula at all levels of education.

- Incentives and support via priority funding should be channelled to Member States to facilitate digital literacy in education systems.

- Objective measures should be employed to gauge the implementation and effectiveness of skills development programmes relating to digital literacy in schools.

## 1.3 Problem definition

We live in a time of change and challenge, where the value is not only in the material anymore, in the physical assets, but embraces the intangible too, the knowledge. Thus, it is important to learn to adapt in order to reinvent ourselves.

Technology is being developed in high speed. Teachers and learners are introducing ways of teaching digital literacy in their classrooms so children will develop huge digital aptitudes. Moreover, kids are surrounded by hundreds of technology devices since they are very little so they grow up with a different outlook. However, this only takes into account to the youngest.

A wide range of medium age population has learnt digital literacy while it was being developed, as most of them have had to use it in their job. World work is pioneer when talking about new discoveries. Thus, it has made their workers to adapt to new changes and to acquire new skills. In conclusion, this lot of population does not have any digital literacy issue either.

Lack of digital literacy starts with the elderly. This huge group has been pulled apart since the very first beginning. They did not have the chance to learn it either at school

nor at work, as they were already retired. Furthermore, as they do not really have the need to use it, nobody has taught them and most of them have not got the chance to be in touch with technology at all.

This has led to the elderly to get dropout in terms of technology. We tend to think they are no capable of dealing with any devices and they will not be able to manage them. However, we believe that want is power and any person motivated to learn will be able to make it. Marian Goldberg is an excellent example as she reports in "Making Technology Easier for Older People to Use" [9] where she stands that she was terrified of her smartphone and now she has an intimate relationship with it.
Therefore, we are willing to develop material suitable for them so they can catch up and be updated with the modern world. However, we are aware of the difficulties we have to face. It is a challenge but also a very enriching project and we are looking forward to seeing the results.

## 1.4 Specific elderly features

The reason why it is crucial for children to learn how to deal with technology is because otherwise, in a near future, they will no longer be able to bear in their daily life. Learning how to manage it is an essential process they acquire during all their growth so technology becomes part of them.

However, the elderly has no chance in learning it through their education as technology has emerged all of a sudden for them. As our project is focused on a specific range of people, the elderly, there are some relevant features we will have to take into account in order to make the best out of our work and fit all the needs.

With old age, there is natural weakening of the body's systems, including vision and related eyesight complications. This is one of the reasons why Tablets were chosen for developing this project. A proper Tablet can have a screen big enough for them to see and so it will help them to customize the visual experience.

Also with old age usually comes a degradation of fine motor skills. Holding a device firmly in the hand and tapping a specific part of the screen may seem very easy. However, this may not be the case for an aged user. Devices and technologies must offer large buttons that do not require clicks or taps on precise areas of the screen.

Memory and cognitive difficulties usually afflict senior citizens at a higher rate than the rest of the population. This can impact their technology experience because often they

must switch between multiple screens to use a device. Setting up a social media profile, for instance, by entering a username, password, personal details and other information on four different screens can be confusing for an individual facing memory problems. That is why we want to provide the right video tutorials so they will not get lost and be able to follow all the instructions.

## 1.5 Goals

Since the very beginning purposes and goals have always been very clear; helping digital illiterate people people to handle any device in technology. Over time we have realised that literacy is not only a main problem but the elderly dealing with technology. The core of this project is to encourage old people to learn how to use technology devices by developing dynamic videos that will teach them. This videos must be simple and clear, with basic vocabulary, examples and demonstrations. A Focus Group Study was done in Department of Psychology in Edinburgh, United Kingdom with quite encouraging results [10] so we are motivated to improve on this issue.

The goal is that elderly acquire enough knowledge so that they can manage on their own with some devices. Thus, it will make them more independent and confident. The project is particularly focused on computers and on Tablets as computers have always been the most popular and used device and Tablets have an appropriate size and the facilities for the elderly to use them.

The computer course would cover the main steps to explain what a computer is and how to deal with it. The software used for this course is Linux, as it is a free software and anyone can have access to it. Thus, students (always refering to the elderly) could be ready to write a document, save it, search folders or even navigate in the internet and create an email account. The purpose is to give them the right jog so they could feel confident on their own.

The Tablet course would extend over the use of the main applications as well as being able to configure a new one. Software used in this training course is Adroid as it is a free software as well. Two whole new Linux and Tablet projects will be included in this thesis, with all the content and material.

# Chapter 2

# Methodology used

The methodology implemented on this project consists on the union of two studies: pedagogy study and team organization study.

At the present time, all members of the team already know how to work in this projects. However, for elaborating training courses in the future, there will might be different developers each time. Therefore, this methodology is orientated to the future developers of each elderly training course we may want to implement (iPhone, smartphone...). The methodology consists on displaying the key points, providing them at the end of the course the clues to succeed for obtaining the basic knowledge to fend for theirselves. This methodology shows the evidence of in what main features is necessary to focus (in order to avoid detours when developing contents) and the way in which they will be completed.

It is a suitable and traceable solution that permits the supervisor to see where the issues made by the developers are arising from if there were.

In this section, flow diagrams are shown in order to explain the behaviour of the methodology proposed.

## 2.1 Pedagogy study

For the pedagogy study, a qualitative research model was chosen as shown in figure 2.1. Applying those steps, an investigation was done in order to obtain the four main features to take into account when developing material for the elderly: **Use of language**, **Redundancy**, **Specific video contents** and **Proper examples**. When they are all identified, they are categorized and inquired.
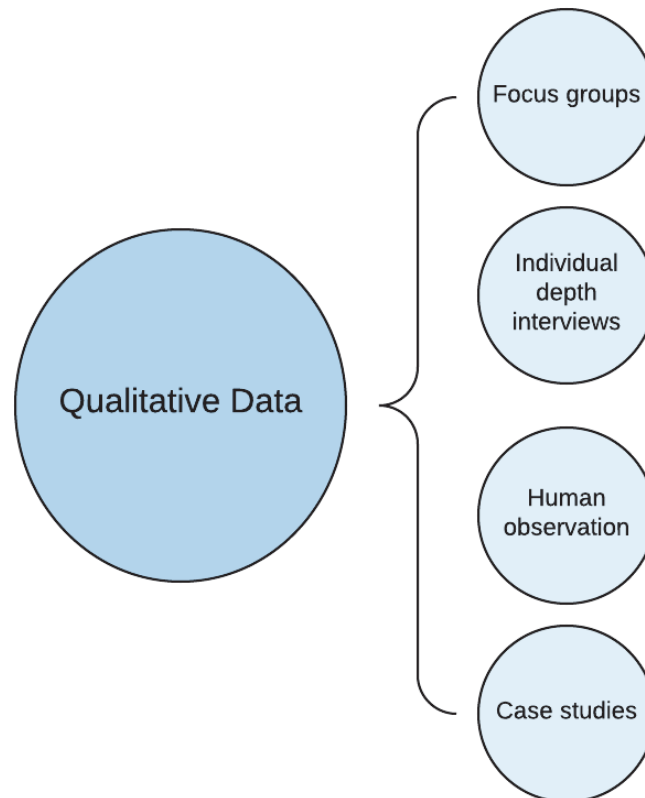
Figure 2.1: Qualitative model

All videos have to restrain specific features due to the proper understanding. As they are focused on the elderly, a qualitative research among this age range was made. In conclusion, these are the four main concerns we will take into consideration:

- **Use of the language:** Sentences must be simple, with no plural or complex syntax. Unnecessary adjectives must be avoided as well as ambiguity.

- **Redundancy:** Every text the speaker says must also be written in the screen. If possible, the text should appear in the screen while the speaker talks. The speed must be slow. At the end of each sentence, there must be a couple of seconds with the text on the screen so students can absorb concepts and reread something if necessary.

- **Videos:** They must contain the same desktop and features as the ones the students will have. It would not make sense to explain a concept with one desktop and one

specific version if students have a different interface. Learners would get lost.

- **Proper examples:** After explaining a concept, it is suitable to include a few examples so they can see how it works. Furthermore, these examples have to be related to topics the elderly would be interested in. We always have to keep in mind that students cannot lose track of the program. Good examples could be related to family, activities they could do, health services. . .

## 2.2 Workers organization

The workers organization study chosen is the **DEMING circle (PDCA)** [11]. We recall that this model carries out change as it is a cycle that should be repeated again and again with no end for continuous improvement, as figure 2.2 shows
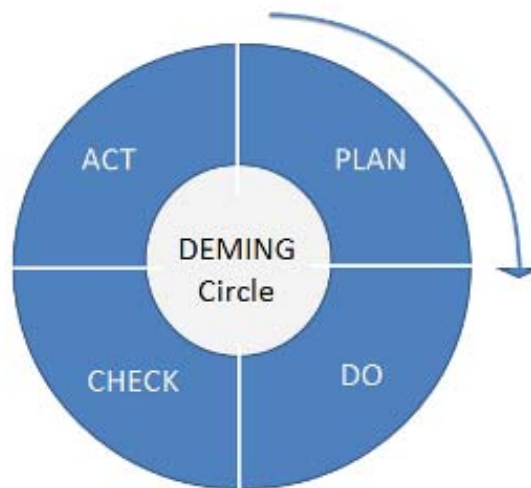


Figure 2.2: DEMING circle

It is composed by a very easy structure with very powerful results. Divided in four sequential categories **plan**, **do**, **check**, **act**, the purpose is to improve the quality and effectiveness of every process. Therefore, **DEMING cycle** applied to our project could be summarized as in figure 2.3

Document the results, inform the
developers about process changes
and make new recommendations
for the next change

Define the problem to be
addressed, collect relevant
data, and ascertain the
problem´s root cause.

ACT          PLAN

DEMING
Circle

Confirm the results through
before-and-after data
comparasion and have
everyone`s consent

CHECK          DO

Supervisor develop and
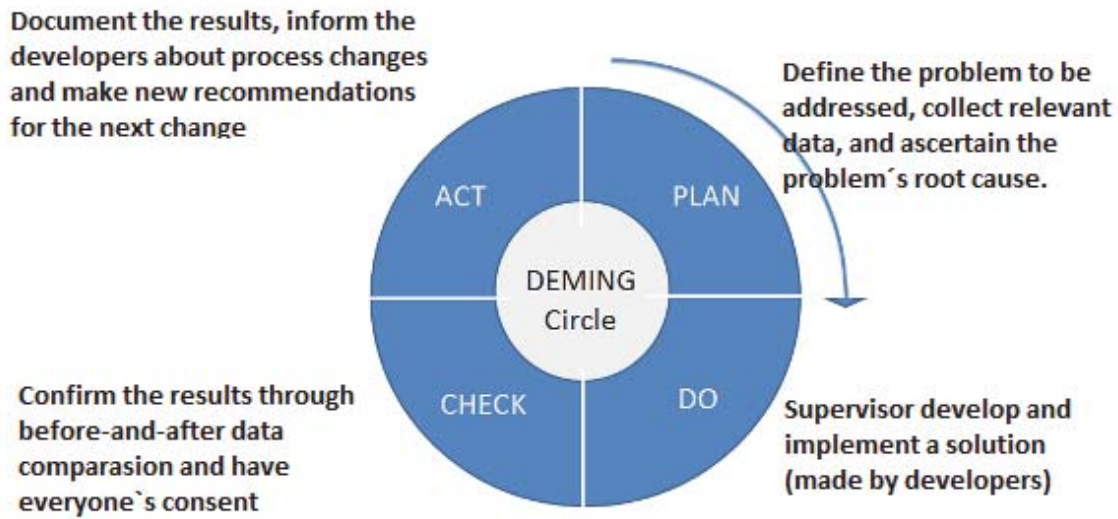implement a solution
(made by developers)

Figure 2.3: PDCA

In order to be able to enforce the mentioned model, there will be a simple structure
so the work can be done stepwise. Also, some steps will be followed for the labour of each
material for training.

As an overall table, we could summarize the process as in Table 2.1. Every step will be
done as many times as needed.

| Guide | Draft | Developer |
|---|---|---|
| | Revise | Reviewer |
| Storyboard | Draft | Developer |
| | Revise/comment | Reviewer |
| | Adapt comments and readjust | Developer |
| | Revise | Reviewer |
| Videos | Draft video | Developer |
| | Video checked | Reviewer |
| | Adapt comments and readjust | Developer |
| | Export video | Developer |

Table 2.1: Process

### 2.2.1 Team

This team will be integrated by a reviewer and two (sometimes three) developers. The work will be produced by the developers and the reviewer will take the responsibility to check if everything is being followed and guide the workers. Communication is the key to succeed.

### 2.2.2 Guide

With the team already arranged and the research already done, everything is set up for start working.

First task will be to develop a guide. This guide will include the summary of all the videos that there will be edited. The purpose of this is to have an overall view of all the contents in the project and be able to make changes in case of need. In table 2.2 we can see how it would look like:

| Topic | Videos |
|---|---|
| 1.Computer | 1.1 Computer |
| | 1.2 Computer parts |
| 2.Keyboard and mouse | 1.3 How to turn on the computer |
| | 2.1 How to use a keyboard |
| | 2.2 Keyboard exercise |
| | 2.3 How to use a mouse |
| | 2.4 Mouse exercise |

Table 2.2: Guide

The left column includes the main topics. The second column is designed to display the most important concepts of each topic. Every title of the second column will be a video and the order is fundamental as we cannot explain in a video something that requires extra concepts that have not been told yet. This would make the students get lost and lose interest in the rest. Therefore, the guide may be the most important task of all. A wrong design of it will make the whole a non-worth project.

As some backing to develop the guide, we could say that every time we explain a new concept, a followed exercise video must be provided. It is important that students absorb new concepts. Thus, if we just produce explanation videos with no examples, there would be too much theory without practise. As we can see in table 2.2 after explaining what a

mouse is, there is a practical video with mouse exercises.

These video exercises are compound of two sub-videos:

- A task that the student is supposed to do on his own. This video will be really short, just state the duty to do.

- The video solution. In this video we provide the work they should have done on their own. Thus, they can check whether they did it correctly or they needed some help.

### 2.2.3 Storyboard

Having established the guide, it is time to develop the content of each video. Instead of directly editing the video with no support, we will write what we will call a storyboard. A storyboard is a graphic document that includes as many details as possible about how the video will look like. In other words, a draft for editing the video. The purpose is to make the steps clear. To elaborate a storyboard, we will consider the following details.

**Program needed**

Storyboards can be written in any text editor available in which you can read text  attach images or create a table. **Word** or **OpenOffice** are both good. However, it is recommended that every member of the team uses the same tool as to avoid format issues.

**Procedure**

A template will be attached so that everyone can have the same format. Later on we will describe document's naming. The pattern will look like in figure 2.4

<Chapter name>

| Time | Text | Layout | Details |
|------|------|--------|---------|
| <Time the action is supposed to last> | <Explanatory text> | <Screenshot or any other image that will appear on screen> | <Any further explanations needed related to design> |
| <Next action> | <...> | <...> | <...> |
| | | | |

Figure 2.4: Storyboard

Each storyboard will be compound of four columns:

1. **Time column:** It will appear the start and ending time of each action. It is not easy to set the perfect time but an approximate one so you can see how long the video is getting. We are not interested in very long videos as the students will get bored and lose attention. It is better to split videos in two if they get very monotonous rather than developing a long one.

2. **Text column:** Everything said by the narrator must appear on screen. The text must be written in a very easy and understandable way as our students will be elderly people.

3. **Layout column:** It is compound by a visual view of how the video will look like at that time, including all the images that will be used.

4. **Details column:** At this point, all the specific features of this part will be explained such as annotations like zoom-n-pan or animations. There can also be some tips for the future developer to make work smoothly. However, the video editor has the rigth to change some details if he thinks it suits the video better.

In the storyboard, 2.4, every row is an action. By action we refer to the information it appears on screen at the same time. It is significant to learn how to divide actions as they must be short due to avoid exceeding information. The developer is the responsible for it and actions must be written clear as to simplify the editors work.

**Timing**

Writing a storyboard file should not take more than three hours.

## 2.2.4   Video

With all the storyboards already reviewed and the proper order in the guide, the next step will be producing the videos that the customer will receive. This can be the most tedious work of all as we can add as many details as we wish. However, we always have to keep in mind that this videos must look very visual, with no complex designs but without losing the aesthetics of the product. Furthermore, videos must not be too long, between 1 to 4 minutes, otherwise videos will get tiresome.

As the previous steps, reviews and adjustments will be done as many times as needed

until we reach the suitable product.

The developer must take into account some considerations related to nomenclature and repository.

**Nomenclature**

We will have a specific way of naming all the files. As there will be several versions of the same file because of reviews and improvement, it is important to set the date as to know which version is the newest. Therefore, the structure will look like this:

Name separated by \_, followed by the date -year/month/day.extension

As an example, we could say:

Computer\_features-2018/04/07.mp4

**Repository**

Both index and storyboards as well as videos will be saved in a common **Drive**. Every member of the team will have access to read and write. The structure of the drive will look like in Figure 2.5
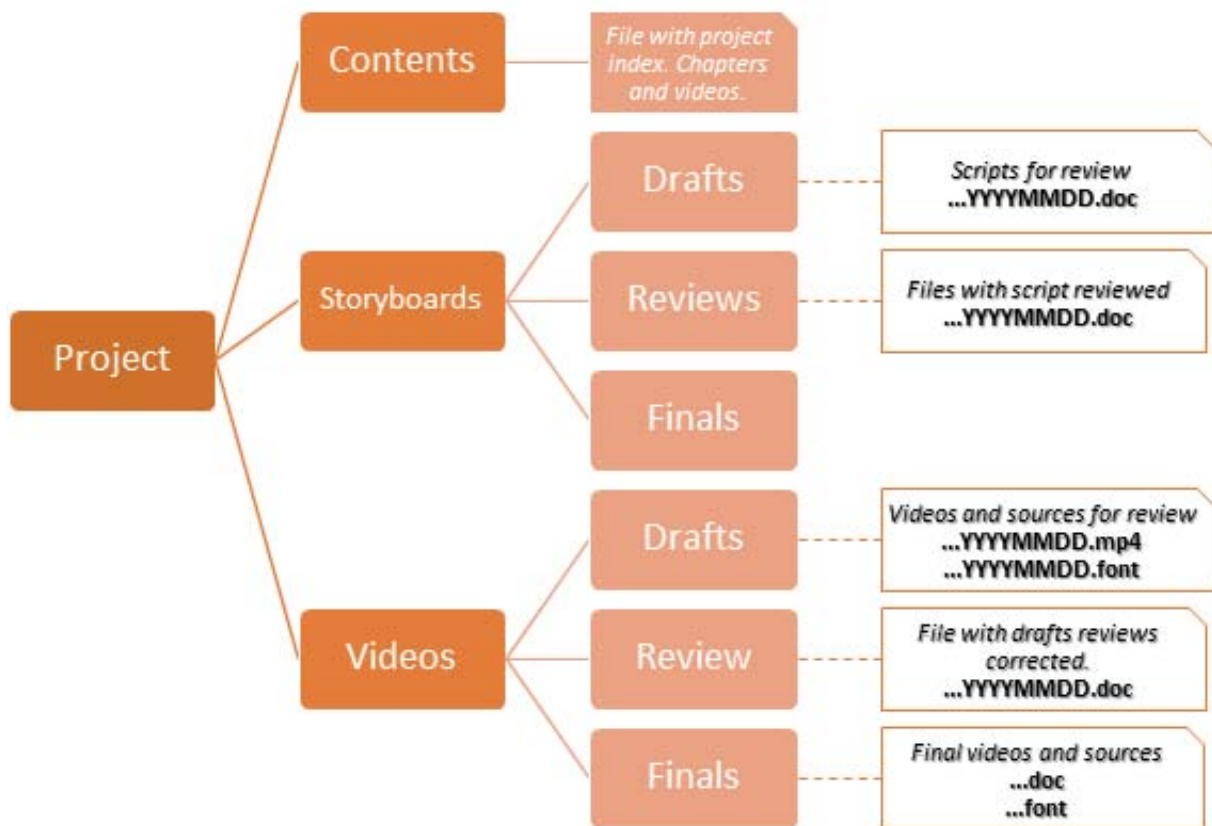
Figure 2.5: Drive

Draft folder can be removed once the project is done. We will no longer need the drafts as the final version will be in Final. Not until the draft version is approved, we will upload it on the final folder.

# Chapter 3

# Development framework

## 3.1 Development process

A good organization is basic for a proper synchronization. Every project will be divided in several steps. It is important to follow them strictly, as a bad use will only lead to a waste of time. Each task is mandatory to follow and reproduce it in the right order. We have to take into account that this kind of projects are developed in parallel by a team composed of two to four people. Thus, deadlines have to take seriously because a delay in one part can harm other person work and be dragged until the end. This projects are meant to be done between all of the members team so a lack of communication can be fatal.

The steps followed for every project will always be the same. Each project will have its own particularities but the overall work will look like in figure 3.1 [12]. Once the topic is established, we have to start developing the material in order to pursue the best version of it.
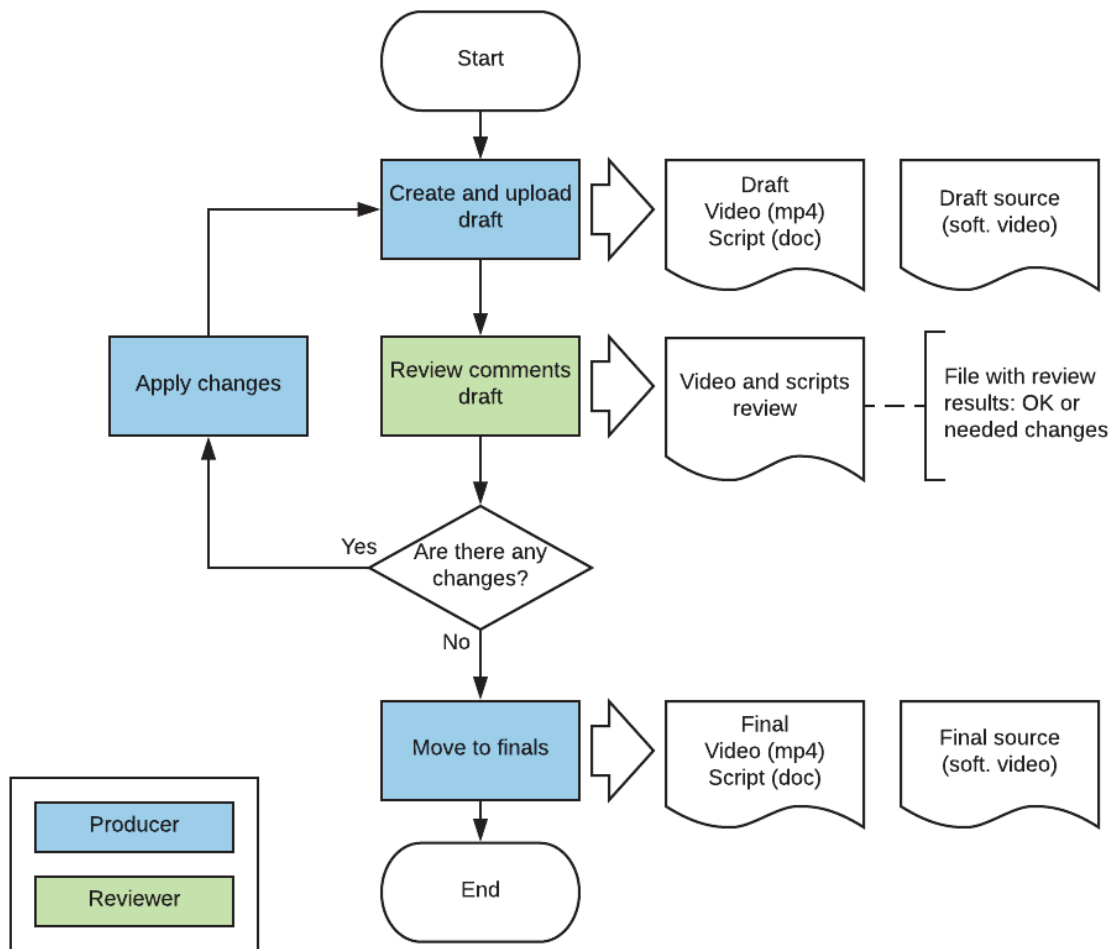
Figure 3.1: Working structure

## 3.2 Development tools

Editing and producing videos is a laborious process. In order to achieve the ideal material, different tasks must be done with different programs and gather them all together later on. We will use free software applications to carry out the videos:

1. **Screencast video recorder:** For motion capture of the computer screen for demonstration videos. i.e. Kazam and Active Presenter.

2. **Text:** Write all the text it must appear on the screen. This will be done in Active Presenter.

3. **Record the audio:** This also will be done in Active Presenter. However, not all the languages are included in this program. If so, we can use Audacity or Natural Recorder.
   Same text that appears on the screen has to be recorded and reproduced by the speaker.

4. **Music:** Include some background music to give the video a nice touch. Important remark: it has to have copyright, otherwise we cannot use it.

5. **Final consolidate:** Piece together all the previous tasks in Active Presenter for assembling the final video.

Below there are included some further explanations of all the tools used in this project needed to develop the training courses.

## Active Presenter

Among every editing programs available, the reason why Active Presenter has been chosen is mainly because any developer can have access to it. Since the work will be made in parallel and each worker will use their own devices, a program available for everyone was needed. Thus, mayor problems such as licences or compatibilities would be avoided. Moreover, even though Active Presenter is a very powerful tool, it is an easy and understandable program. It can be learnt in a short time and gives quite satisfactory results.

Up to now it will only be needed for editing videos, although it can also create screencast videos, produce HTML5 contents and perform editable slides to design eLearning courses.

*ActivePresenter user interface*

The Active Presenter starting page gives us an easy and quick access to recording, creating a new project, opening recent projects, or other resources such as purchases or information.
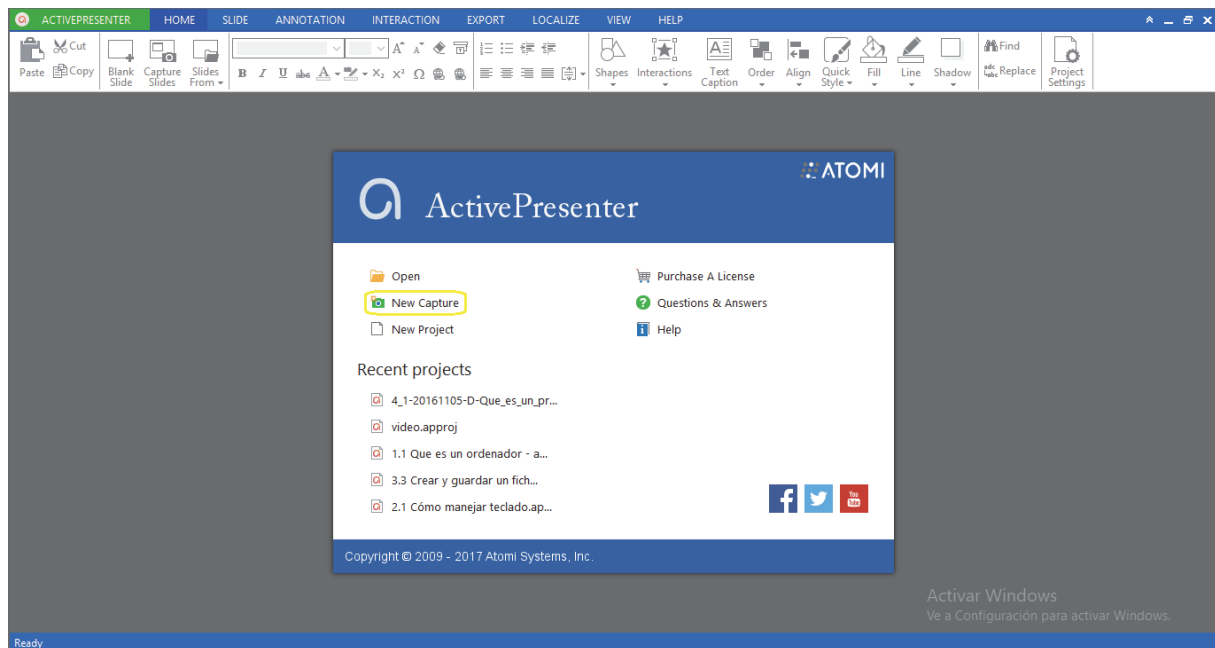
Figure 3.2: Starting page

As we can see in figure 3.2, one of the options is **New Capture.** This will be used whenever we are working with either Windows or MacOS. Unfortunately, the program Active Presenter is not available in Ubuntu. Therefore, for developing material for an Ubuntu training, some other tools will be needed for screencast and screenshot. Always important to keep in mind that it will have to be a free software application such as **Kazam**.

However, for assembling the final video, even for a Linux project, Active Presenter will be the tool used.

In 3.2, Recent projects, ActivePresenter shows a list of recently opened projects. Do either of the following:

- To re-open a project file, click it.

- To remove a project file from the list, right-click it and press **Remove.**

Figure 3.2 is an overall view of the options you have. However, most of the times the only one needed will be **New project**. It will appear the following window seen in 3.3. Press **Blank Project**, set a project name and create one blank slide.
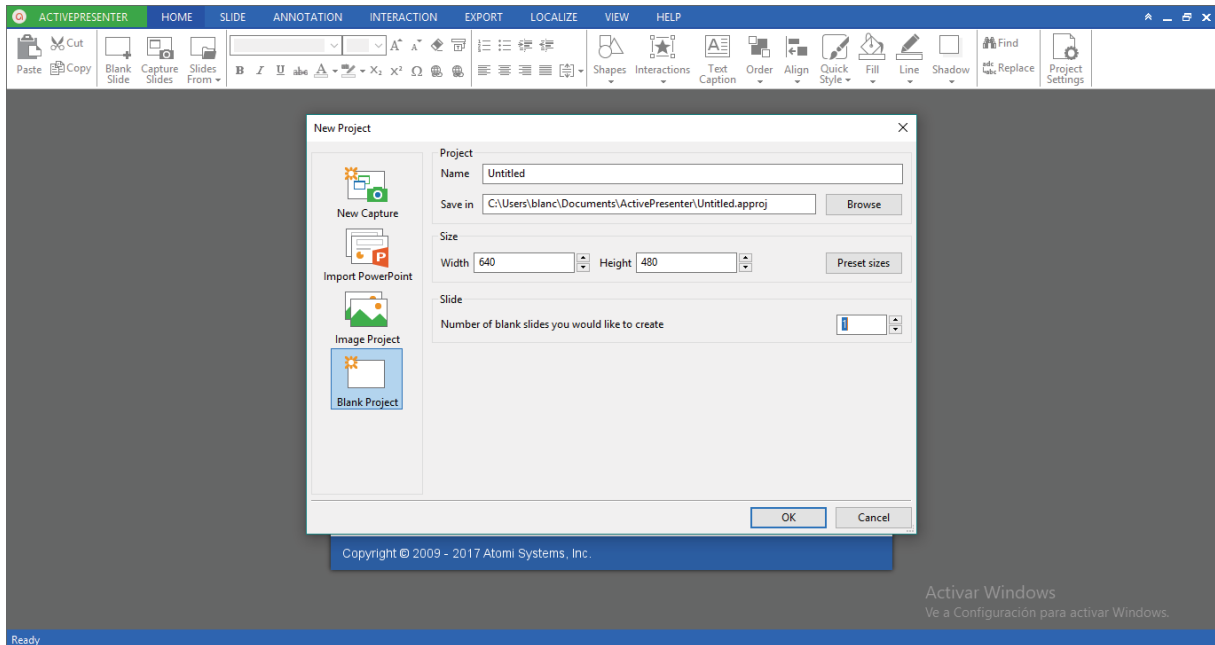
Figure 3.3: New project window

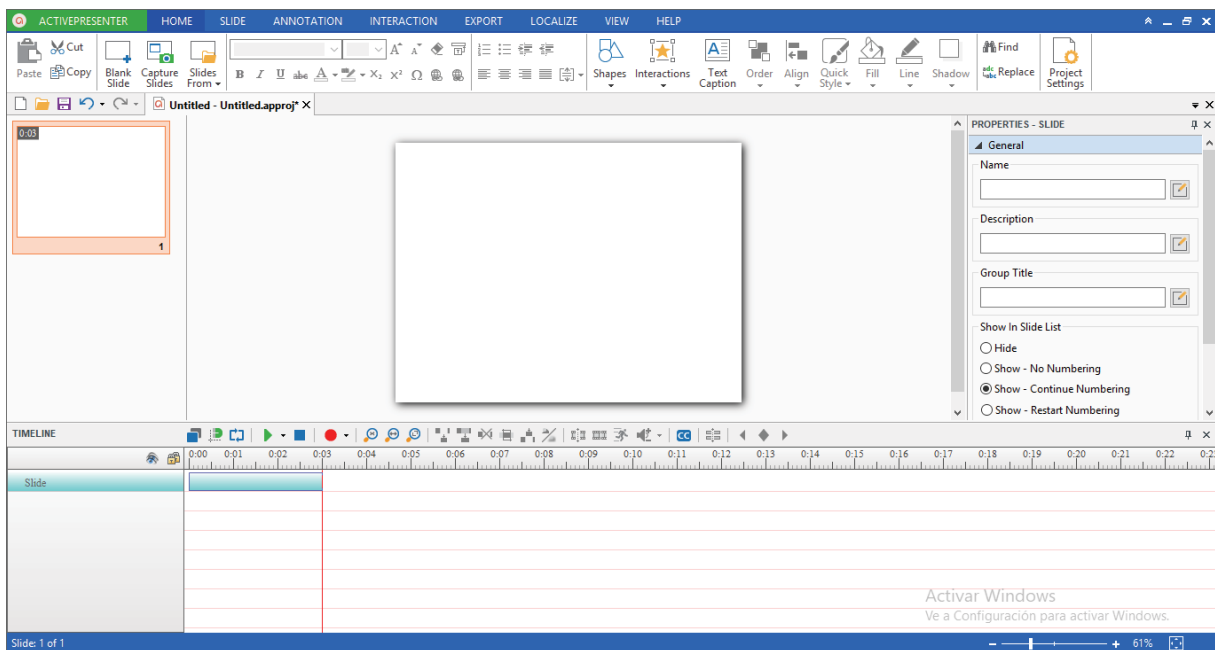Once done, 3.4 screen will be displayed.



Figure 3.4: Main window

This will be our main window and all our work will be shown here. We can divide the screen in four main parts as we can see in figure 3.5.
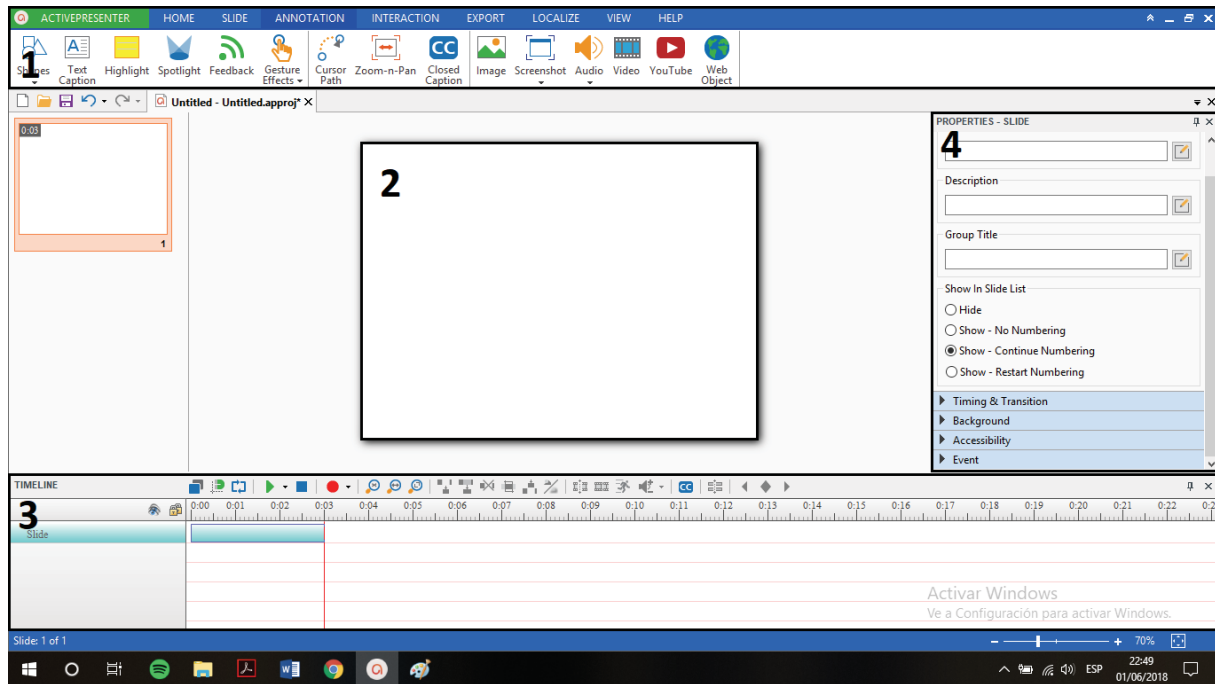Active Presenter has hundreds of different possibilities.



Figure 3.5: Parts

1. On the tabbed toolbar on top we find all options available to edit the video.

2. The big white centre square, called layout, will show every change we add to the video. This is how the user will see the video.

3. The bottom bar includes the timeline. Every detail concerned to the video will be located there. You can control when an action begins and ends, how long an image lasts... not only there is one line but we can work with different actions at the same time. This offers us a wide variety of options to play with and make complex design videos if wanted.

4. This section contains the properties column. It shows further details of whatever we have selected in the layout.

Now we will number the most important and needed features due to develop the videos. However, there are more options that can also be used even though they are not included

in this handbook. We will list the most significant ones.
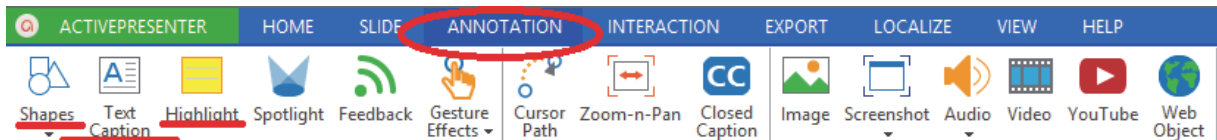
**To write text**



Figure 3.6: Writetext

On the tabbed toolbar we can find the **ANNOTATION** tab, whose more remarkable options for writing text are:

1. **Shapes:** We can use them to clarify explanations or make something more visual. It is a nice solution to stand out concepts.

2. **Text caption:** We will barely use it since the background of the videos we will develop will not normally be white as it is hard to read.

3. **Highlight:** we will use this option every time we want to write something. These are yellow rectangles easy to see under any condition. Font has to be *Calibri* and the size never under 20. We have to be aware to whom this videos are focused to so it has to be very visual and easy to see. The background of the text has to be solid fill with 255 opacity. We find this features in the properties column, section **Fill**.
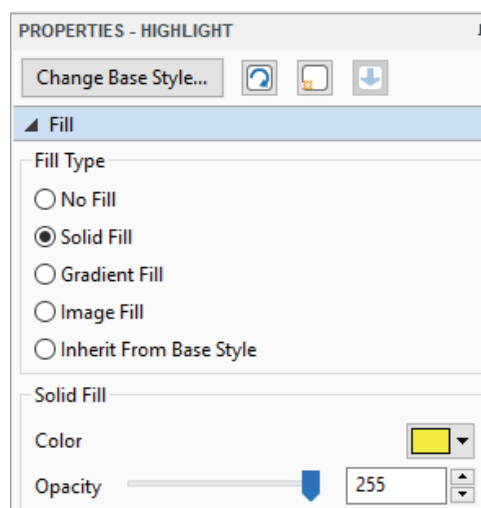


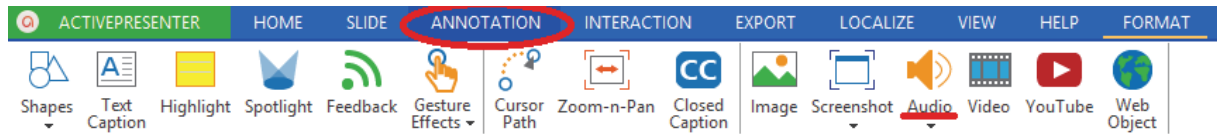Figure 3.7: Highlight features

28

**Audio**

We also have two options:



Figure 3.8: Audio

1. On the tabbed bar, we can find the option **ANNOTATION**, and then choose Audio. Most of the times, we will be able to record the audio with Active Presenter. However, we might want to include some external audios. Due to do that, press **From file**. Otherwise, press **Create new**. In the properties column it will appear the following:
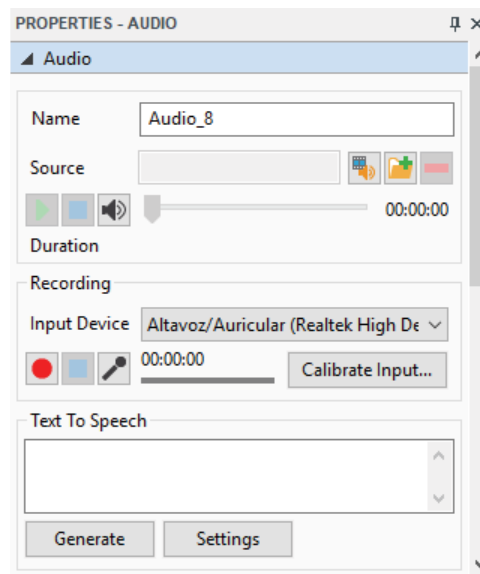


Figure 3.9: Create new

Write all the text in the box called <Text To Speech>. Press **Settings** and low the speed until 36. Under 36 it gets too slow and not easy to understand, and higher than 36 it is too fast for the students to follow. Depending on the project, we will set a different voice in the proper language. If the voice wanted is not included, it can be downloaded from the internet and added later. However, so far we will not

have to do so.

Not until we press **Generate**, the audio will be recorded.
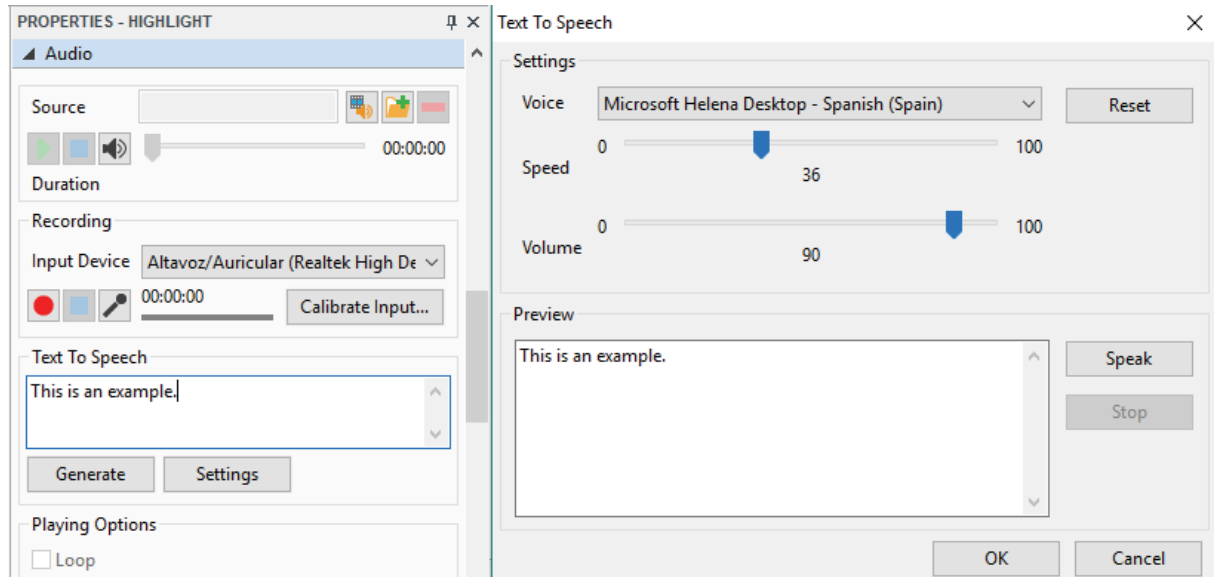


Figure 3.10: Generate audio

2. On the properties column of a highlight text, we can also include the audio with the same options as in figure 3.10. The only difference between these two options will be remarkable in the timeline. If we create the files separately, in the timeline there will appear two different files that can be placed anywhere. On the other hand, if we use this option of creating it with its text, it will only appear one file. Having only one file with all the text and audio can simplify the organization when the video has many items. However, it is up to the developer whether to use one or another option.

**Insert video/image**

This option is located on the tabbed bar, **ANNOTATION**, **Image**/ **Video**.
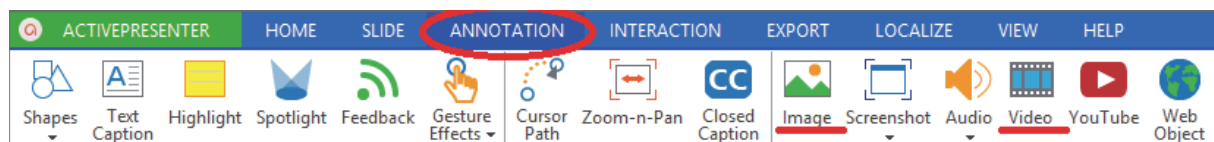


Figure 3.11: Insert video/image

The file can be dragged directly from your folder to the layout. This option is quicker.

Once the image is in the layout, it can be edited. Press the right button and select **Edit image**. Multiples adjustments can be applied.

Regarding to the video, there are some options available on the timeline, as we can see in figure 3.12, which can help us. Some remarkable ones are marked in yellow. The video can be cut if there are some parts willing to be removed and also the volume can be lowered. This will be interesting if we include background music as it has to be lower than the speaker.



Figure 3.12: Video options

**Timing and animations**

Located in the right column of the main Active Presenter window. It is a supporting feature for any type of option we include. By default, it is set **None**. A nice option to use is **Fade in** as an entrance effect and **Fade out** as an exit effect, both with same duration. Any of them can be used, it depends on the developer's taste.
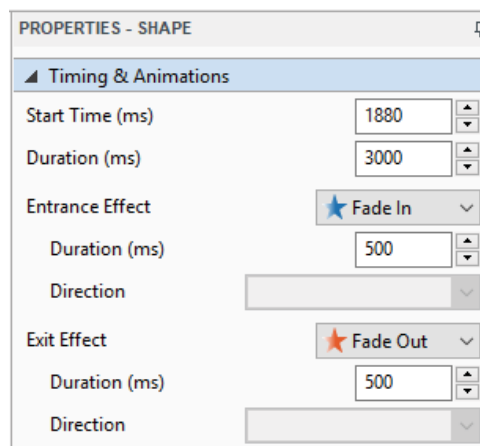


Figure 3.13: Timing and animations

**Export**

Once all the video is edited and finished, it has to be saved. We could say it is divided in two. On the one hand we have the source saving process, which saves the video as a

file with extension **.approj**. In this format, we will be able to make changes if wanted but we will not be able to reproduce it unless we have Active Presenter in our device. To export it and make it a **.mp4** file, we will select **EXPORT**, **Video**. Here we set our preferences. Bit rate will be the highest (320Kbps) and format will be **.mp4**.
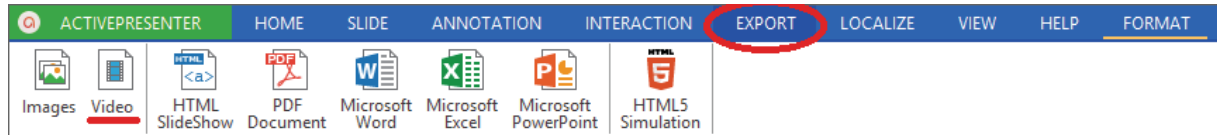


Figure 3.14: Timing and animations

## Kazam

It is a tool used for motion capture of the computer screen for demonstration videos to be edited with Active Presenter. As we explained before, Active Presenter has a screen capture option that can be used. However, it is not compatible with Ubuntu and we needed one program available in Ubuntu space. Thus, possibilities were reduced and we had to search for a new one, **Kazam** . The main reason why we chose **Kazam** is because its easiness for its use apart from the fact that it is a free software tool.

With it you can do screenshots as well as screencast as we can see in figure 3.15. It is important to include the mouse cursor option when we want to screencast. This will help the students to follow the video easier.



Figure 3.15: Kazam

When finishing recording, the file will be saved in a **.mp4** format. It will have to be exported to **Active Presenter** and all the adjustments will be done there. Never forget Kazam is an extra tool for recording, but Active Presenter still the tool to assemble the videos.

# Chapter 4

# Implementation- case studies

## 4.1 Introduction

In this thesis, there will be included two different training material: Linux and Tablet with all the contents.

As the training courses are addressed to Spanish people, all the material will be in Spanish. However, if needed, language could be changed as all the sources are also attached.

Our purpose is to reduce the ignorance and increase the knowledge of the person in front of the screen. Videos are short, easy to follow, with plenty of examples, as well as explanations and exercises.

The program includes two devices per student. The first device will be a tablet where the training course will be played. In this Tablet there will be only the contents of the training course. Students will watch the videos as many times as needed.
The second device will depend on the program (computer, tablet) so students can practise and understand what the videos say. However, as people who will participate in this course have no knowledge about technology, they will not be able to start playing the videos by themselves. We need an extra item to help them. This will be a paper script that teaches them the basic instructions to start working.

These instructions must include the steps to turn on the tablet and start playing the videos, how to stop a video and how to restart it. Once they are capable to do so, the proper training course will teach them the rest. Here we can find those instructions `https://drive.google.com/open?id=1itvBWdo7INNu9gKfZ04rb69QN2eb4WEo`

## 4.2 Material for Linux

This specific training course is focused on teaching how to use a computer. As it is mentioned before, the reason why it is **Linux** and not Windows neither IOS is because its free software. It is important that everyone can has access to it.

This particular project is a course for beginners. It includes tutorials from the very start, explaining what a computer is, its parts, how to turn it on and also more complex subjects such as navigating through the internet and send an email.

It is an onward course in which every new concept taught is an incoming exercise video that challenges the students to enforce their knowledge. The purpose is that students acquire enough knowledge so they can be totally independent with a computer. In order to do so, several steps had to be taken.

One of the most important tasks is the right material guide.

As it is said in Methodology used, a qualitative research was done to obtain the topics. Later on, storyboards were written, all with the same format and following the guide previously designed. Every new storyboard file needed to be saved in the proper folder on Drive.

After applying PDCA method in order to improve and avoid future delays, the only task left was editing the videos.

In this project, Active Presenter was the tool for piece together all the video. However, as it is mentioned in 3.2, in Linux we cannot screencast with Active Presenter. That is why in this course **Kazam** was used to do this duty.

Furthermore, language wanted is Spanish and Active Presenter has it integrated so all audios could be developed in it.
The only job left was to mix it all together. When all the videos were done, again PDCA method was implemented and changes were made. Changes in videos are more tiring and laborious than in storyboards. This means that we should plan our timetable to make it to the deadline.

The final product can be found in Drive repository;

**Contents**

`https://drive.google.com/open?id=1sui-vin4ybpQhZxQQwpE4bDRNiIZCrK3`.

**Storyboards**

```
https://drive.google.com/open?id=1ggW-nzFnRjJEhwX2FkuN8NLtiZuGaLON
```

**Videos**

```
https://drive.google.com/open?id=1y8r4bWOZUCcVjy7617nC5DHXNIkRbAV6
```

**Sources**

```
https://drive.google.com/open?id=18XAzxjgq0cbzaPVUt1VbrUmXwrEJltTS
```

## 4.3   Material for Tablet

After the success of Linux project, we wanted to keep developing training courses in order to help as many people as possible. Therefore, our next project was developing training material for tablet course. Nowadays, it is a fact that the elderly is excluded in the technological scope as they are not as fluent as the rest of population with it. That is why we thought it could be a good idea to develop a program for them in order to make them more independent and confident.

Tablet guide is mainly integrated of the main actions you can execute with a tablet. We thought tablet could work better than a smartphone as it has a bigger screen and it is easier to see. However, in case of desire a smartphone, same concepts developed here could be taken to smartphone so it would not be an issue.

In this course, it is important to highlight how to manage the device with your fingers. Tasks that for us may be unremarkable, for this students can be determining. It also has to be explained how to configure a tablet and manage the main apps. Every new word used (such as app, connection) has to be clarified. As well as in Linux course, exercises videos must also be provided.

In this course, audio can be recorded in Active Presenter but screenshots and screencast cannot. Due to format problems, not all the apps are valid. The one used that fits properly were **screen recorder**.

Active Presenter was also used to assemble the final videos and in Drive repository is all the material.

**Contents**

https://drive.google.com/open?id=1MeKqjAos6_ASouBKirAQYjwIXt7cL3sD.

**Storyboards**

https://drive.google.com/open?id=1L-n6lb2JjyX405ut8pBiKtpCctgsiCs5

**Videos**

https://drive.google.com/open?id=1CsXxhJDkeqjRJ1z6cmghK_fNsWSCXnya

**Sources**

https://drive.google.com/open?id=1m2XUwZ8sgyt6l-jMgAtNis7rIyol9adE

# Chapter 5

# Final remarks

Digital knowledge and its right use is highly necessary nowadays. Thanks to the combination of the proper material training and the easiness of the video understanding, the reduce of the digital illiterate amount of people can be accomplished. With the results obtained, any person willing to discover technology can improve his skills and become self-sufficient.

The challenges faced at the beginning of the project were costly in terms of organization as a methodology that coordinates all the members of the team allowing them to work in parallel, did not exist.

With the implementation of it, work gets smoother and results get more favourable as not until a previous task is already reviewed, the next one is started. It is highly recommended to wait for the feedback of each duty rather than starting the next one without the previous adjustments. This only leads to a waste of time.

Furthermore, in Linux project, there has to be special attention to virtual box machines in case of use. As not all the videos will be assembled by the same developer, it will require mindfulness precaution to install the same version with the same features. Same with any other particular program or application needed for a training course.

There is still a lot of work to do in this project of reducing the iliterate amount of people. This thesis is a useful handbook for future developers for future projects. However, aside from the programs mentioned here, there are hundreds of them that can also be accepted. Nevertheless, every time a new tool is used, it has to be documented. Thus, this handbook gets more abundant with more alternatives.

As a future project, one potential training course could be iPhone. It is a trendy brand with hundreds of users and very well-known. The only drawback is its non-free software. That twists the entire project and make things more complicated.

However, if there is a company willing to develop this training course, it will be done.

In this thesis there is a sample of a guide that could work for this program, and, in case of exploit it, the same developing tools would be used.

# Appendix A

# Appendix

All the material developed is gathered in a Drive repository. Here is the link due to reach all the information.

`https://drive.google.com/open?id=133xO_BDwqvEYlUTOewUSkpUtMMnMocUn`

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