



# Adult Learning ICT use in Madrid Open University

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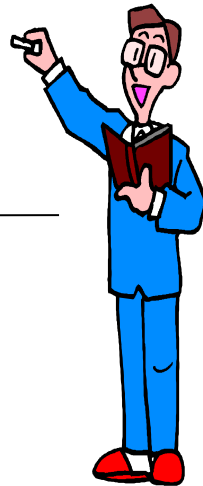


# Introduction

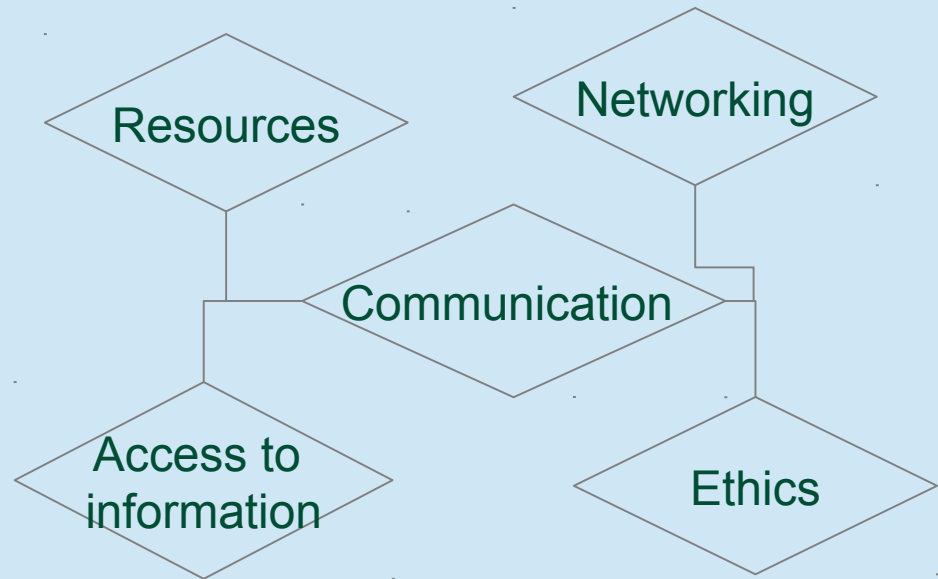
Chat  
Forum  
Glossarie



WebQuest  
Wiki  
HangOut



ICT development has caused several changes in education in the last decades. Educational platforms as Moodle (used in MOU) involve changes in educational elements as:



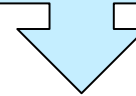
How senior students face these changes?

# Researchers' questions and answers

## E-learning in higher education



Students' access, competences, actions, attitudes towards digital tools and devices



Learning processes and wellbeing



“Net Generation” “Digital Natives”



Higher  
education

**Broad access to computers and the internet  
No evidence of discontinuity around the age of 30**

+ access to other  
technologies

- time using technologies

+ positive attitude to digital  
technology

+ likely to adopt a deep  
approach to study

**Jelfs &  
Richardson  
(2014)**

**No practical generational differences in the  
technology pattern and learning characteristics**

+ for social and leisure  
purposes

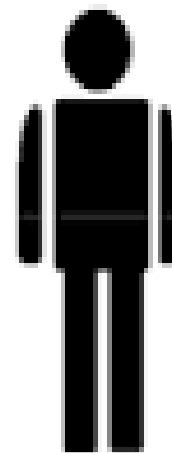
+ for study

**Lai & Hong  
(2014)**

Hosein,  
Ramanau &  
Jones (2010)

Higher ICT use is  
associated to “positive  
outlook”

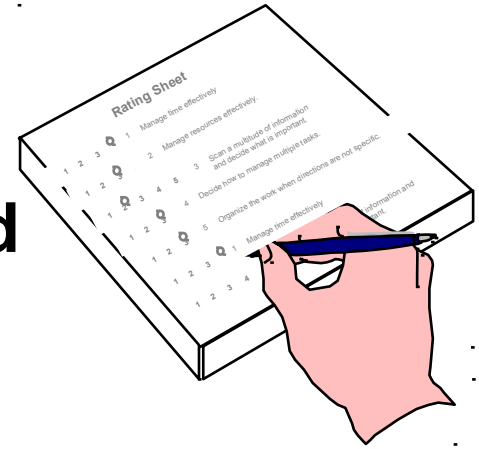
Vroman,  
Arthanat &



# Objectives

1. Know the **digital competence** (computer, tablet and mobile phone) of MOU's 50+ students
2. Describe **the usage of ICT** tools (digital devices, communication, Moodle and other tools)
3. Measure the **attitude towards ICT** for the learning process
4. **Compare** digital competence, ICT usage and attitude towards ICT of 50+ and younger students
5. Test a theoretic **model that relates** the usage, digital competence and attitudes towards the incorporation of ICT in learning

# Instruments: A survey with 4 blocks was designed and applied



## Block 1 General info

- Self-report: years studying at distance, previous marks, work area
- Retrieved using student identity: Age, study area, study level (master, grade), academic performance and first year of enrollment in MOU

## Block 2 Digital Competence

Scale (1 to 4):  
self-report about degree of ability  
to perform:

- Actions with digital devices
- Actions with computers
- Actions with mobile phones and tablets

## Block 3 Frequency of use

Scale (1 to 4): self-report of use  
(from very often use to do not use/know)

- Digital devices
- Communication tools
- Moodle applications
- Tools for sharing and storing files



# udima Attitudes towards ICT

UNIVERSIDAD A DISTANCIA  
DE MADRID

**Block 4  
Attitude**

Items

Refers to preconceived notions, ideas and beliefs about incorporation of ICT in the learning process

24 items (8 items of each scale)  
5-point Likert type from totally disagree (1) to totally agree (5).  
Max. Total Score: 120  
Min. Total Score: 15

**Variable**

**Attitude Towards ICT**

**Attribute**

**Affective**

**Cognitive**

**Behavioral**

**Scores**

**5-40**

**5-40**

**5-40**

**Relationships**





# Sample

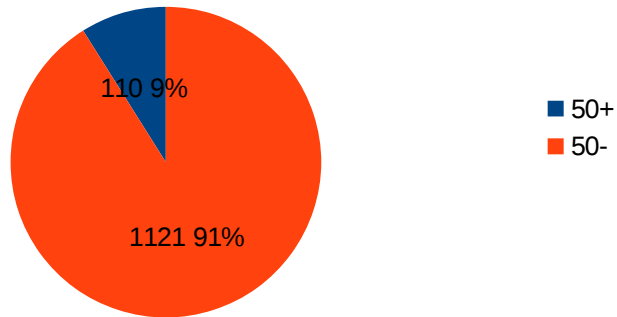
The survey was sent to all MOU students

1231 students answered all questions

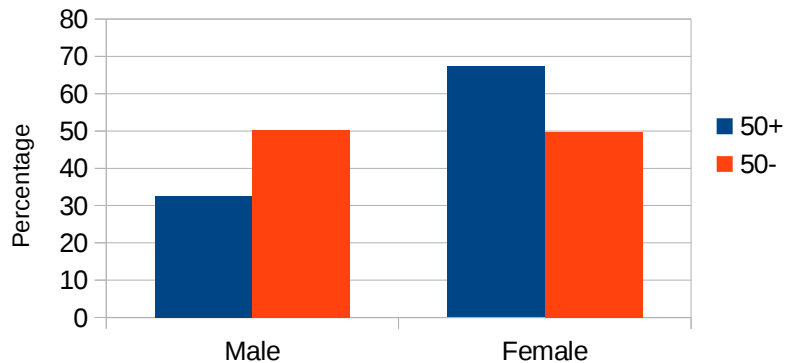
9% aged 50+

37% are undergraduate students

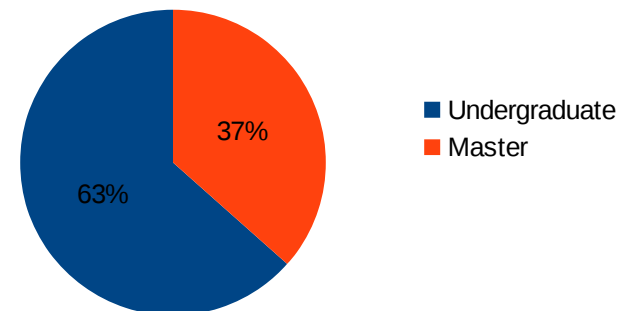
Total sample



Sex



Total sample



# Other characteristics

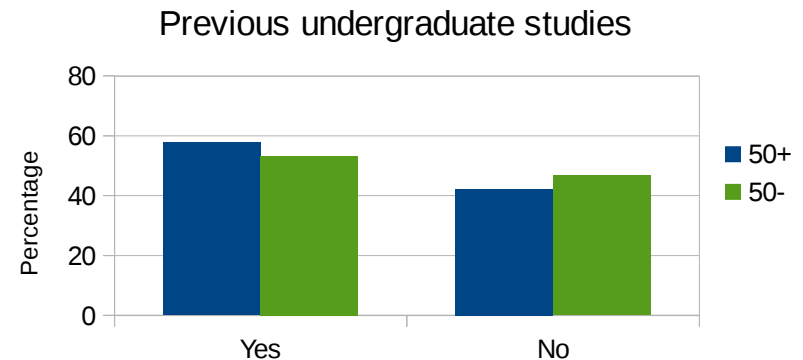
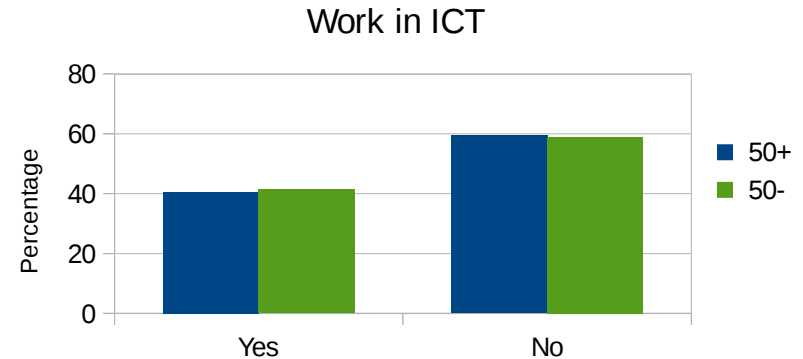
40% work in ICT related areas  
Over 50% has previous studies

No significant differences in  
academic scores:

50+=8 vs 50-=7.76

No significant differences in  
attitude scores:

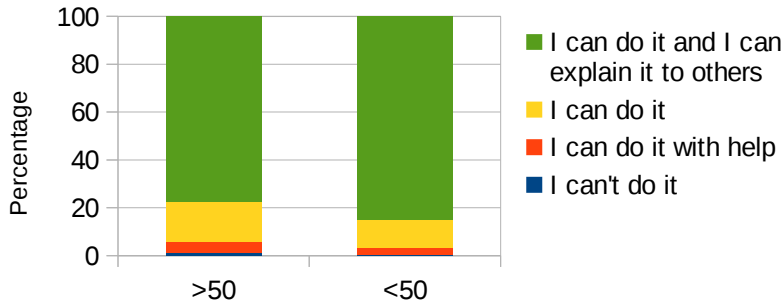
50+=98.53 vs 50-=98.27,



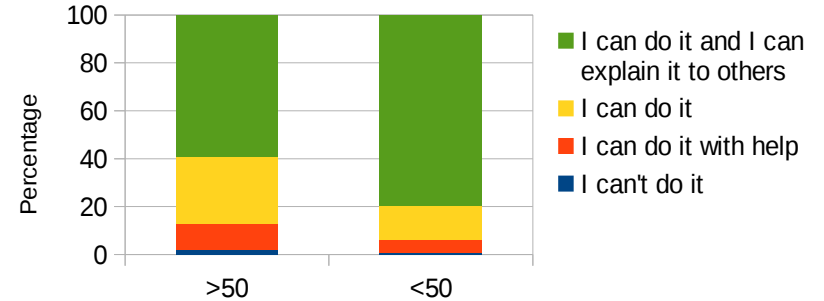
# Block 2 Digital Competence

## Actions with digital devices

Save information on CD, DVD or extraible devices



Pass information between your computer and other devices

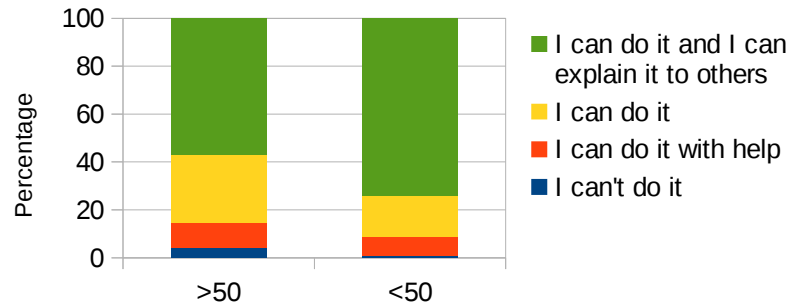


High self-perceived ability in both groups (more than 60% select option 5 in all questions)

The largest differences are observed in questions about pass information and connect devices



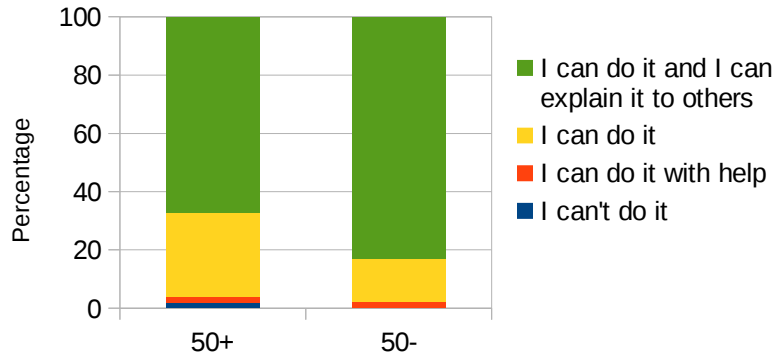
Connect devices via wifi or bluetooth



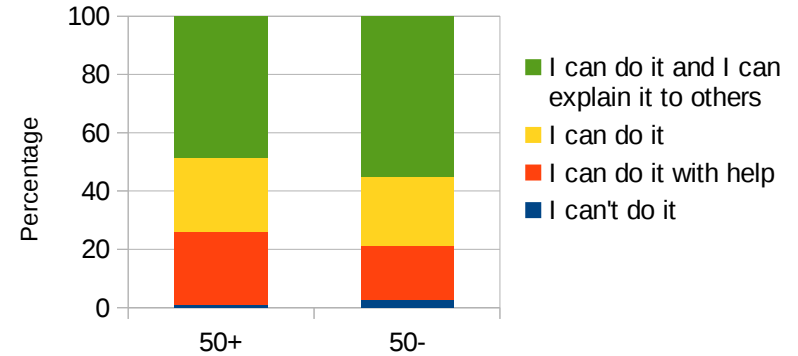
# Block 2 Digital Competence

## Actions with computers

➔ Manage an operating system and its elements



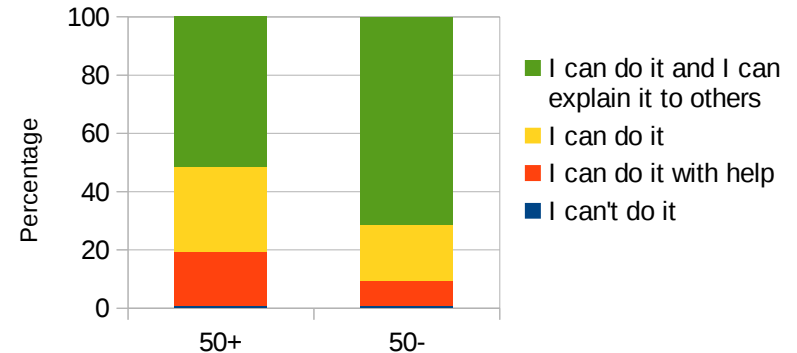
Eliminate virus - install antivirus



Medium self-perceived ability

Largest differences are observed in questions of manage operating system and install basic elements

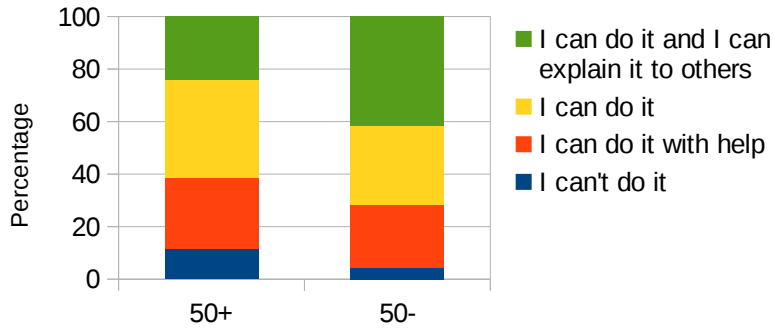
Install basic elements (mouse, webcam...)



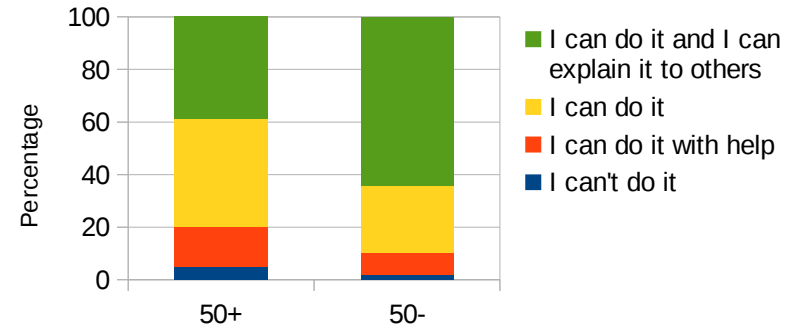
# Block 2 Digital Competence

## Actions with tablet and mobile phones

Know if a mobile is better than another because of their characteristics



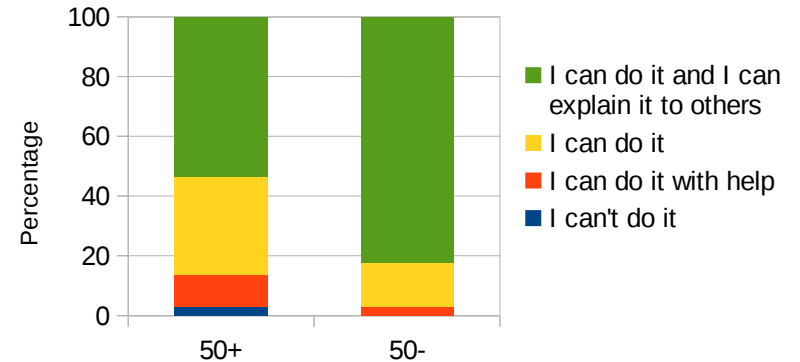
Recognize the most common words and functions of a mobile phone (SIM PIN, PUK, SMS ...)



Medium self-perceived ability

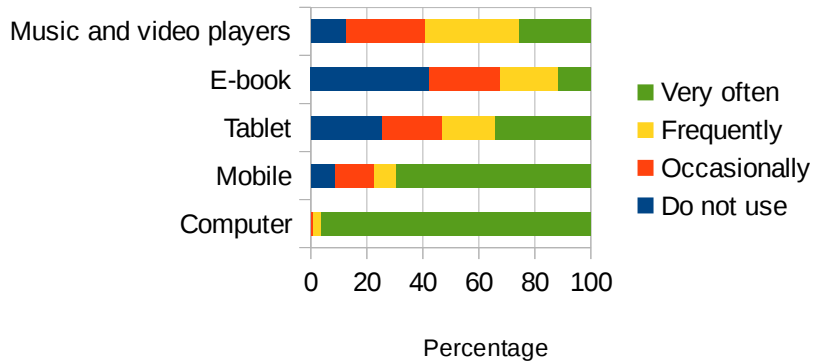
Largest differences are observed in questions of make calls and video-calls

➔ Make calls and video-calls



# Block 3 Frequency of use

Use of devices



Use of devices is very frequent:

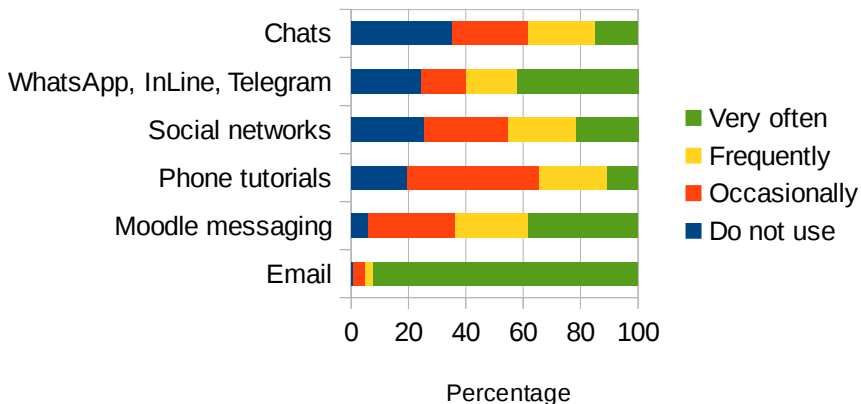
Over 90% uses computer daily

Over 70% uses mobile daily

20% do not use tablet and 40% do not use e-book

Music and video players are used occasionally

Use of communication tools

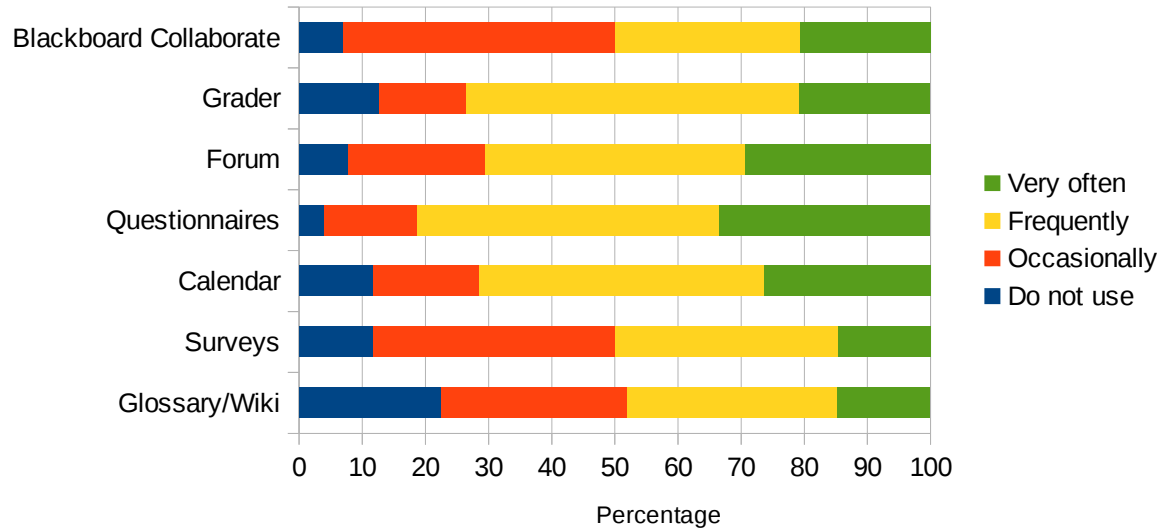


Use of communication tools is less frequent:

Over 90% uses email daily but other tools are used only occasionally

## Block 3 Frequency of use

### Use of Moodle



50+ students use Moodle tools frequently

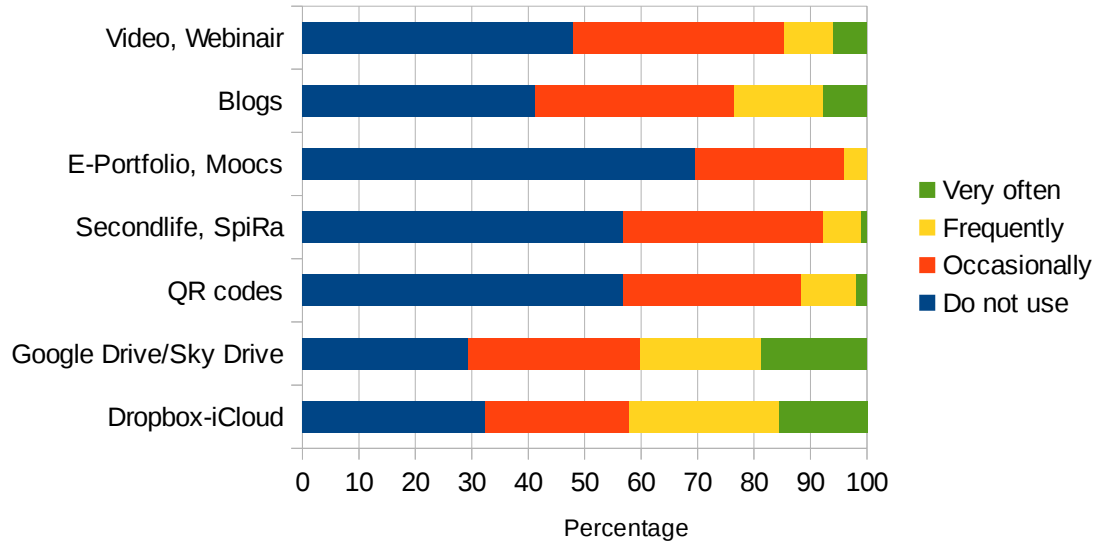
30% uses forums and questionnaires daily

Over 40% uses calendar, forum, grader and questionnaires frequently (once a week)

Less-often used tools are Blackboard, surveys, glossaries and wikis

**Block 3**  
**Frequency of use**

Use of other tools



50+ students uses other tools rarely

The most used tools are google drive, dropbox and blogs, but their use is occasional

Over 50% do not use E-portfolio, Secondlife and QR codes



## Block 4 Attitude

### Cognitive

Refers to preconceived ideas and beliefs regarding utility of ICT in the learning process. Example:  
"ICT enable my learning"

### Affective

### Behavioral

Refers to tendency to action and use of ICT in learning, also effort to manage ICT. Example:  
"The use of ICT allows me to become a better student"

Refers to value judgments and feelings regarding use of ICT.  
Example:  
"I feel comfortable using ICT to study"

## Attitude Towards ICT

Affective

Cognitive

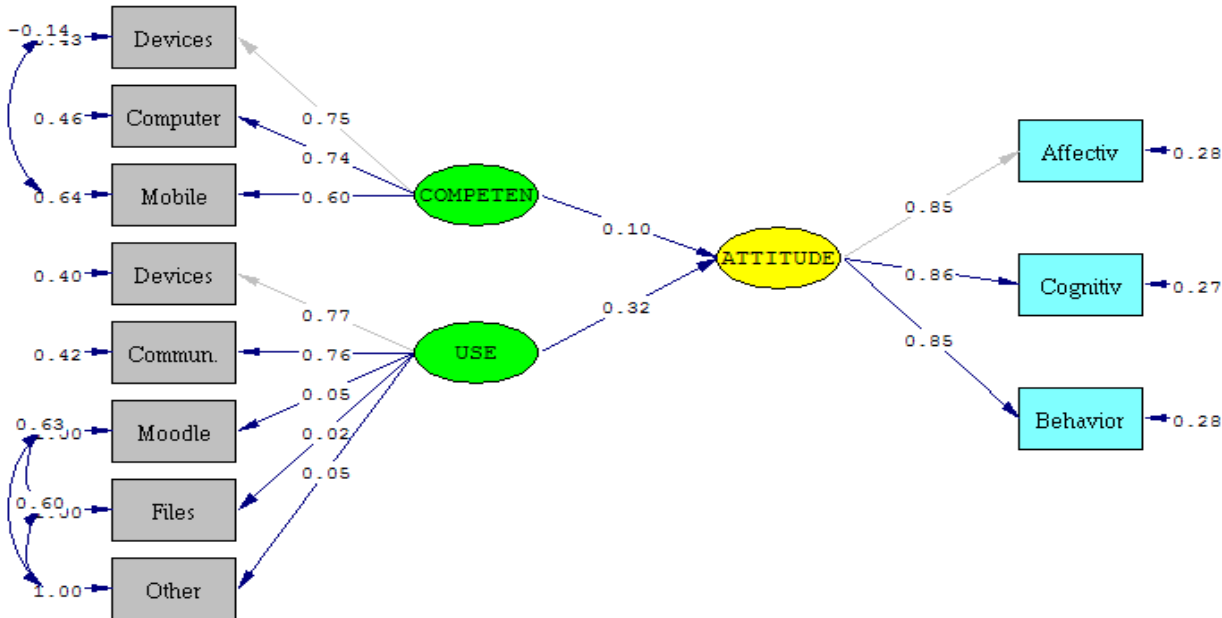
Behavioral

5-40

5-40

5-40

# Structural Equation Model



Structural model that **predicts the attitude in terms of competence and use**. Measurement model to test the quality of measurement

Factorial weights indicate that **usage is mainly defined by digital devices and communication tools**. Other loadings are not significant.

Competence and attitudes factor loadings are positive and significant indicating appropriateness of the measurement. **Attitude is mainly predicted by use**.

## Differences between groups Mann-Whitney Test



50+ vs 50-

50+ vs 24-

Block 2  
DC

Significant differences in all scales: 50- and 24- higher scores

How capable you feel to do the following actions:

Pass information between devices

Manage operating system and its elements...

Block 3  
FU

No significant  
differences

Significant differences  
in communication tools  
24- higher scores

How frequently you use: email, chat, social networks...

Block 4  
Att.

No significant  
differences

Significant differences  
in behaviour scale  
24- higher scores

I have to make an effort to take advantage of ICT in my learning  
Using ICT to learn is difficult to me

# Conclusions

Our sample: high qualified and familiar with ICT

Main results:

-50+ use less frequently and feel less competent with Smartphones and communication tools



-Attitude do not correlate inversely with age:  
50+ showed positive attitudes towards ICT



-The number of years studying online correlates with self perceived competence, frequency of use and attitude towards ICT



# Conclusions

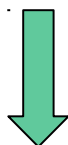
Educational implications:

- No support to big “net generation gap”

as



Jelfs & Richardson  
(2014)  
Lai & Hong (2014)



nevertheless



Communication tools and devices are being less used by 50+ and they feel less competent about them

so



- Take into account when planning learning activities in degrees and masters
- Develop specific training programs

Thanks for your attention

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