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**HOW DO DIGITAL TRANSFORMATION
AND THE INTERNET USE INFLUENCE
OUR WELLBEING PERCEPTION?**

TESIS DOCTORAL

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Acknowledgments

“View life as a series of movie frames, the ending and meaning may not be apparent until the very end of the movie, and yet, each of the hundreds of individual frames has meaning within the context of the whole movie.

“View your life from your funeral, looking back at your life experiences, what have you accomplished? What would you have wanted to accomplish but didn't? What were the happy moments? What were the sad? what would you do again, and what you wouldn't?”

Victor Frankl

Austrian neurologist and psychiatrist, a survivor of Holocaust Nazi (1965)

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0. Table of Content

| | | |
|-------|---|----|
| 0. | Table of Content | 3 |
| 1. | Foreword | 11 |
| 2. | Resumen (español) | 13 |
| 3. | Resum (valencià) | 15 |
| 4. | Introduction | 17 |
| 5. | Well-being | 20 |
| 5.1 | Introduction | 20 |
| 5.2 | Well-Being background | 23 |
| 5.3 | Well-Being dimensions | 30 |
| 5.3.1 | <i>Economic dimension:</i> | 34 |
| 5.3.2 | <i>Psychological dimension:</i> | 36 |
| 5.3.3 | <i>Sociological dimension:</i> | 37 |
| 5.4 | Different theories of WB. | 40 |
| 5.5 | The Measurement of Wellbeing | 43 |
| 5.6 | Conclusions | 47 |
| 6. | Factors influence Well-being | 49 |
| 6.1 | Introduction | 49 |
| 6.2 | Education and Well-Being | 50 |
| 6.3 | Income and Well-being | 58 |
| 6.4 | Personal Values: | 61 |
| 6.5 | Other factors to take in consideration: | 63 |
| 6.6 | Model of 6 factors: | 64 |
| 6.6.1 | <i>Physical aspects</i> | 69 |
| 6.6.2 | <i>Intellectual aspects</i> | 70 |
| 6.6.3 | <i>Occupational aspects</i> | 71 |
| 6.6.4 | <i>Emotional aspects</i> | 72 |
| 6.6.5 | <i>Social aspects</i> | 73 |
| 6.6.6 | <i>Spiritual aspects</i> | 74 |
| 6.7 | Conclusions | 75 |
| 7. | Digitization, digital transformation, and Internet | 77 |
| 7.1 | Introduction | 78 |
| 7.2 | Digitization and digital transformation background. | 80 |

| | | |
|---------|---|-----|
| 7.3 | Digital transformation components and dimensions | 85 |
| 7.3.1 | <i>Components:</i> | 85 |
| 7.3.2 | <i>Dimensions:</i> | 94 |
| 7.3.2.1 | <i>Economic dimension:</i> | 94 |
| 7.3.2.2 | <i>Social dimension:</i> | 97 |
| 7.3.2.3 | <i>Politic dimension:</i> | 98 |
| 7.4 | The Internet..... | 99 |
| 7.4.1 | <i>The actual status of internet usage</i> | 99 |
| 7.4.2 | <i>Challenges Internet usage</i> | 104 |
| 7.4.3 | <i>Digital transformation and Internet skills and behavior</i> | 105 |
| 7.4.4 | <i>Internet use measurement</i> | 108 |
| 7.5 | Conclusion | 112 |
| 8. | Digital transformation, Internet and Well-Being _____ | 115 |
| 8.1 | Introduction..... | 116 |
| 8.2 | Internet impact on a different stage of life..... | 120 |
| 8.2.1 | <i>Impact on Childhood:</i> | 120 |
| 8.2.2 | <i>Impact on Adolescents</i> | 123 |
| 8.2.3 | <i>Impact on Adults:</i> | 128 |
| 8.2.4 | <i>Impact on the Elderly:</i> | 131 |
| 8.3 | Conclusions..... | 134 |
| 9. | Digital transformation, Internet and Education _____ | 136 |
| 7.1 | Introduction..... | 137 |
| 9.2 | Types of education..... | 140 |
| 9.3 | Digital transformation on education:..... | 145 |
| 9.3.1 | <i>Access to digital technologies and learning about them</i> | 146 |
| 9.3.2 | <i>Learning through digital technology</i> | 153 |
| 9.3.3 | <i>Skills and requirements associated with digital transformation</i> | 160 |
| 9.4 | Conclusions | 164 |
| 10. | Methodology _____ | 166 |
| 10.1 | Introduction..... | 166 |
| 10.2 | ESS structure..... | 172 |
| 10.3 | ESS questionnaire..... | 173 |
| 10.4 | ESS procurement and size | 174 |
| 10.5 | ESS and WB..... | 175 |
| 10.6 | Selection of ESS variables..... | 180 |
| 10.7 | Type of Analysis..... | 184 |
| 11. | Descriptive Analysis _____ | 187 |

| | | |
|--------|---|-----|
| 11.1 | Introduction..... | 188 |
| 11.2 | Sample description | 189 |
| 11.3 | Internet Use status description | 191 |
| 11.4 | Life satisfaction and Happiness description | 204 |
| 11.5 | Life satisfaction and Happiness and Internet use | 223 |
| 11.6 | Conclusions | 235 |
| 12. | Model definition | 238 |
| 12.1 | Introduction..... | 238 |
| 12.2 | Selected Variables..... | 239 |
| 12.3 | Individuals Profile Definition | 247 |
| 12.4 | The relationship between individuals' profile, life satisfaction, and internet use 259 | |
| 12.4.1 | <i>Curious Profile</i> | 262 |
| 12.4.2 | <i>Ambitious Profile</i> | 266 |
| 12.4.3 | <i>Altruistic Profile</i> | 270 |
| 12.4.4 | <i>Polite Profile</i> | 274 |
| 12.5 | Conclusions | 278 |
| 13. | Conclusions | 282 |
| 14. | References | 292 |
| 15. | Annexes | 339 |
| 15.1 | ISCED classification education programmes | 340 |
| 15.2 | Questionnaire ESS..... | 342 |

List of Figures:

| | |
|--|-----|
| <i>Figure 1. Different components of WB</i> | 33 |
| <i>Figure 2. Different dimensions of WB</i> | 39 |
| <i>Figure 3. Introduction of Measurement Happiness indexes</i> | 46 |
| <i>Figure 4. Aspects related to education and WB</i> | 51 |
| <i>Figure 5. Basic values and motivational sources of Prof. Schwartz</i> | 63 |
| <i>Figure 6. Core dimensions Ryff Model and foundations</i> | 65 |
| <i>Figure 7. Fixed broadband subscriptions per 100 inhabitants – December 2015</i> | 86 |
| <i>Figure 8. Mobile broadband subscriptions per 100 inhabitants – December 2015</i> | 87 |
| <i>Figure 9. OECD fixed and mobile broadband subscriptions, by technology</i> | 88 |
| <i>Figure 10. Evolution smartphone devices</i> | 89 |
| <i>Figure 11. Penetration of Machine to Machine SIM cards – December 2015</i> | 90 |
| <i>Figure 12. Big Data Landscape 2016</i> | 91 |
| <i>Figure 13. Patents in a new generation of Internet Communication Technologies- Number of IP5 patent families and annual growth rates</i> | 93 |
| <i>Figure 14. Top Players in IoT, Big data, and quantum computing tech. 2005-07 and 2012-12- Economies' share of IP5 patent families filed ad USPTO and EPO.</i> | 94 |
| <i>Figure 15. Telecommunication infrastructure investment as a percentage of GPC, 2015- Non-OECD G20 economy data is for 2014 instead of 2015.</i> | 96 |
| <i>Figure 16. World Internet usage</i> | 100 |
| <i>Figure 17. Internet users, 2005 and 2015, as a percentage of total individuals.</i> | 101 |
| <i>Figure 18. Internet users 2006</i> | 101 |
| <i>Figure 19. Internet Users per 100 inhabitants developed and developing world</i> | 102 |
| <i>Figure 20. Average Time Spent per Day with media by US adults (I)</i> | 110 |
| <i>Figure 21. Average Time Spent per Day with media by US adults (II)</i> | 111 |
| <i>Figure 22. The learning framework developed by OECD Education in 2030.</i> | 137 |
| <i>Figure 23. Computers at schools in OECD countries</i> | 148 |
| <i>Figure 24. The change between 2009 -2012 in the share of students with access to the Internet at schools</i> | 150 |
| <i>Figure 25. % of workers who use the computer at work</i> | 152 |
| <i>Figure 26. Percentage of students in the United States taking distance learning courses from 2012 to 2016</i> | 155 |

| | |
|---|-----|
| <i>Figure 27. Size of the e-learning market in 2014 and 2022</i> | 156 |
| <i>Figure 28. Definition MOOC</i> | 157 |
| <i>Figure 29. Evolution number of MOOCs (2012-2016)</i> | 158 |
| <i>Figure 30. Individuals who attended an online course (2007 and 2013) as a percentage of individuals who used the internet in the last three months</i> | 159 |
| <i>Figure 31. Information processing skills used in everyday life (population aged 16-65)</i> | 161 |
| <i>Figure 32. Industries with the highest and lowest skills use at work</i> | 162 |
| <i>Figure 33. Countries participants in ISSP</i> | 168 |
| <i>Figure 34. Countries taking part in EES round data</i> | 170 |
| <i>Figure 35. Topics analyzed in EES round data</i> | 177 |
| <i>Figure 36. Data country distribution</i> | 189 |
| <i>Figure 37. Gender distribution</i> | 190 |
| <i>Figure 38. Age distribution</i> | 191 |
| <i>Figure 39. Frequency of Internet use</i> | 192 |
| <i>Figure 40. Frequency internet use by the average age</i> | 194 |
| <i>Figure 41. Frequency internet use by the average age</i> | 196 |
| <i>Figure 42. Daily Internet use by interval age</i> | 196 |
| <i>Figure 43. Frequency internet use by the average age</i> | 198 |
| <i>Figure 44. Daily Internet use by education level</i> | 199 |
| <i>Figure 45. Distribution of everyday Internet use by country</i> | 200 |
| <i>Figure 46. Daily time spent online by country (on minutes)</i> | 201 |
| <i>Figure 47. Frequency of internet use by income source (1)</i> | 203 |
| <i>Figure 48. Frequency of internet use by income source (2)</i> | 204 |
| <i>Figure 49. Life satisfaction and Happiness perception by interval age</i> | 208 |
| <i>Figure 50. Life satisfaction and Happiness perception by education level</i> | 210 |
| <i>Figure 47. Life satisfaction and Happiness perception by education level (2)</i> | 212 |
| <i>Figure 52. Life satisfaction and happiness perception by country</i> | 215 |
| <i>Figure 53. Life satisfaction perception by GPD country level</i> | 219 |
| <i>Figure 54. Life satisfaction and Happiness perception by income source</i> | 222 |
| <i>Figure 55. Life satisfaction and Happiness perception by Internet use</i> | 225 |
| <i>Figure 56. Relationship life satisfaction and internet use moderated by age</i> | 229 |
| <i>Figure 57. Relationship life satisfaction and internet use moderated by education level</i> | 231 |
| <i>Figure 58. Relationship life satisfaction and internet use moderated by income source</i> | 233 |

| | |
|--|-----|
| <i>Figure 59. Relationship life satisfaction and internet use moderated by country</i> | 235 |
| <i>Figure 60. Relationship individual profiles with Ryff dimensions</i> | 246 |
| <i>Figure 61. Definition profiles of sample</i> | 247 |
| <i>Figure 62. Age and education at different profiles</i> | 249 |
| <i>Figure 63. Non-formal education and formal education at different profiles</i> | 251 |
| <i>Figure 64. Formal education and Life Satisfaction at different profiles</i> | 252 |
| <i>Figure 65. Age and Life Satisfaction at different profiles</i> | 253 |
| <i>Figure 66. The frequency of meeting friends and life satisfaction at different profiles</i> | 254 |
| <i>Figure 67. Feeling safe in the dark and Life Satisfaction at different profiles</i> | 255 |
| <i>Figure 68. Net income and Life Satisfaction at different profiles</i> | 256 |
| <i>Figure 69. Feeling about household's income and Life Satisfaction at different profiles</i> | 257 |
| <i>Figure 70. Feeling hampered in daily activities and life satisfaction at different profiles</i> | 258 |
| <i>Figure 71. Subjective general health and life satisfaction at different profiles</i> | 259 |
| <i>Figure 72. Internet Use and Life Satisfaction at different profiles</i> | 260 |
| <i>Figure 73. Relationship internet use and life satisfaction moderated by Curious profile</i> | 265 |
| <i>Figure 74. Relationship internet use and life satisfaction moderated by Ambitious profile</i> | 269 |
| <i>Figure 75. Relationship internet use and life satisfaction moderated by Altruistic profile</i> | 273 |
| <i>Figure 76. Relationship internet use and life satisfaction moderated by Polite profile</i> | 277 |

List of Tables:

| | |
|--|-----|
| <i>Table 1. Evolution of WB Research</i> | 24 |
| <i>Table 2. Theories of WB and conceptions of happiness</i> | 41 |
| <i>Table 3. Resume of studies relating to education and WB</i> | 52 |
| <i>Table 4. Results of some cross-country income and WB studies</i> | 59 |
| <i>Table 5. Resume of 6 components and affection to Ryff's model</i> | 67 |
| <i>Table 6. Resume of 6 components and affection to Schwartz theory and Ryff Model</i> | 68 |
| <i>Table 7. Impact of Internet use at childhood</i> | 120 |
| <i>Table 8. Impact of Internet use at adolescence</i> | 123 |
| <i>Table 9. Impact of Internet use at adulthood</i> | 128 |
| <i>Table 10. Impact of Internet use at the elderly</i> | 132 |
| <i>Table 11. ISCED 2011</i> | 143 |
| <i>Table 12. Questions and responses from ESS questionnaire used</i> | 181 |
| <i>Table 13. Frequency of Internet use by gender</i> | 193 |
| <i>Table 14. Frequency of internet use by the average age</i> | 194 |
| <i>Table 15. Frequency of Internet use by interval age</i> | 195 |
| <i>Table 16. Frequency of Internet use by education level</i> | 197 |
| <i>Table 17. Frequency of internet use by income source</i> | 202 |
| <i>Table 18. Life Satisfaction and Happiness perception</i> | 205 |
| <i>Table 19. Life satisfaction and happiness perception by gender</i> | 206 |
| <i>Table 20. Life Satisfaction and Happiness perception by interval age</i> | 207 |
| <i>Table 21. Life Satisfaction and Happiness perception by education level</i> | 209 |
| <i>Table 22. Life Satisfaction and Happiness perception by education level (2)</i> | 211 |
| <i>Table 23. Life Satisfaction and Happiness perception by country</i> | 214 |
| <i>Table 24. Regression Life Satisfaction by country</i> | 217 |
| <i>Table 25. Distribution of observations attending GPD intervals</i> | 218 |
| <i>Table 26. Analysis of GPD and life satisfaction</i> | 219 |
| <i>Table 27. Life satisfaction / happiness perception by income source</i> | 221 |
| <i>Table 28. Life satisfaction / happiness perception by internet use</i> | 224 |
| <i>Table 29. Life satisfaction and internet use by gender</i> | 227 |

| | |
|--|-----|
| <i>Table 30. Life Satisfaction and Internet use by age</i> | 228 |
| <i>Table 31. Life satisfaction and Internet use moderated by education</i> | 230 |
| <i>Table 32. Life satisfaction and Internet use moderated by income source</i> | 232 |
| <i>Table 33. Life satisfaction and Internet use moderated by country</i> | 234 |
| <i>Table 34. Relationship Ryff dimension with selected variables</i> | 240 |
| <i>Table 35. The evaluation process for each selected variable</i> | 242 |
| <i>Table 36. Component Matrix rotated profile</i> | 244 |
| <i>Table 37. Relationship individual profiles with Ryff dimensions</i> | 245 |
| <i>Table 38. Additional variables to profile</i> | 247 |
| <i>Table 39. Curious Profile and Life Satisfaction</i> | 262 |
| <i>Table 40. Curious Profile and internet use</i> | 263 |
| <i>Table 41. Relationship Curious Profile and Internet Use</i> | 264 |
| <i>Table 42. Ambitious profile and life satisfaction</i> | 266 |
| <i>Table 43. Ambitious profile and internet use</i> | 267 |
| <i>Table 44. Relationship Ambitious profile and internet use</i> | 268 |
| <i>Table 45. Altruistic Profile and Life Satisfaction</i> | 270 |
| <i>Table 46. Altruistic profile and internet use</i> | 271 |
| <i>Table 47. Relationship Altruistic profile and internet use</i> | 272 |
| <i>Table 48. Polite profile and life satisfaction</i> | 274 |
| <i>Table 49. Polite profile and internet use</i> | 275 |
| <i>Table 50. Relationship Polite profile and internet use</i> | 276 |

1. Foreword

Even a happy life cannot be without a measure of darkness, and the word happy would lose its meaning if it were not balanced by sadness. It is far better to take things as they come along with patience and equanimity.”

Carl Jung (1945)

Digital transformation and the internet are changing the way people relate to others, but also the way individuals to themselves and their wellbeing perception.

In this thesis, there have been examined definitions, affections, and considerations relative to digital transformation, internet, or wellbeing to deepen and understand better the concepts that will take part in our analysis.

There, it has been analyzed the internet use among European Countries attending data provided by the European Social Survey (2016) on a sample of more than 34.700 respondents from 18 countries and its relationship with WB perception of individuals.

First, it has been examined the individual relationship of WB of people involved in the survey. Sociodemographic factors as age, education, gender, or country have also been considered to analyze differences. The same exercise has been done with internet use data.

Second, it has been examined the effect of considering both concepts (internet use and WB) together and interaction between them, for providing more extensive information and understanding.

Then, personal values have been introduced. Values influence people's lives and determine individuals' attitude, behavior, relationships with others and themselves, and even their WB perception. Thus, attending personal values and considerations individuals report on the survey, different personal profiles have been defined. And both, internet use and WB concepts, first at an individual level, and secondly considering their interaction, have been examined for each different profile.

Finally, results and conclusions that demonstrate personal values and different individuals profile influence the Internet use and WB perception are presented for discussion.

2. Resumen (español)

“Incluso una vida feliz no puede ser vivida sin una pizca de oscuridad, y la palabra feliz perdería su significado si no estuviera equilibrada por la tristeza. Es mucho mejor tomar las cosas a medida que vienen junto con la paciencia y la ecuanimidad.”

Carl Jung (1945)

La transformación digital y el uso de internet están cambiando la forma en la que las personas interactúan entre ellas, pero también el modo en el que se relacionan consigo mismo, e incluso su propia percepción del bienestar.

En esta tesis, se han examinado las definiciones, afecciones y consideraciones relativas a la transformación digital, internet y/o bienestar para profundizar mejor en los conceptos incluidos en el presente análisis.

Además, en base a una muestra de la Encuesta Social Europea (European Social Survey) 2016 en una muestra de más de 34.700 participantes de 18 países, se ha analizado el uso de internet entre países europeos, así como su relación entre la percepción del bienestar de las personas.

Así, primero se ha examinado la relación y percepción individual del bienestar de las personas incluidas en la encuesta, analizando factores sociodemográficos tales como edad, educación, género o país para analizar las diferencias entre la muestra poblacional. Dicho ejercicio ha sido replicado en lo que al análisis individual del uso de internet se refiere.

En segundo lugar, se ha examinado el efecto de considerar ambos conceptos simultáneamente (uso de internet y bienestar) para analizar la interacción entre ellos y profundizar en los efectos derivados del mismo.

Seguidamente se introducen los valores personales. Los valores influyen la vida de las personas determinando su actitud personal, su comportamiento, la relación con ellos mismos y con los demás, e incluso su propia percepción del bienestar. Así, atendiendo a los valores y consideraciones personales proporcionadas en la encuesta, se han definido distintos perfiles personales, para, seguidamente analizar el impacto de el uso de internet y percepción del bienestar primero a nivel individual para cada perfil, y posteriormente valorar la interacción de la confluencia de ambos y la singularidad de su efecto en cada perfil.

Por último, se presentan los resultados y conclusiones identificadas, que demuestran que, los valores personales y los diferentes perfiles personales influyen el uso individual de internet y su percepción del bienestar.

3. Resum (valencià)

"Fins i tot una vida feliç no es pot viure sense un mica de foscor, la paraula feliç perdria el seu significat si no s'equilibra per tristesa. És molt millor prendre les coses a mesura que vénen juntament amb la paciència i l'equanimitat. "

Carl Jung (1945)

La transformació digital i l'ús d'Internet estan canviant la forma en què les persones interactuen entre si, però també la forma en què es relacionen amb si mateixos, i fins i tot la seva pròpia percepció del benestar.

En aquesta tesi s'han examinat les definicions, condicions i consideracions relatives a la transformació digital, Internet i/o benestar, per tal d'aprofundir en els conceptes que s'inclouen en aquesta anàlisi.

Partint d'una mostra de l'Enquesta Social Europea (European Social Survey) 2016 amb més de 34.700 participants de 18 països, s'ha analitzat l'ús d'Internet entre els països europeus, així com la seva relació entre la percepció del benestar de les persones.

Així, s'ha examinat per primera vegada la relació individual i la percepció del benestar de les persones incloses en l'enquesta, analitzant factors sociodemogràfics com l'edat,

l'educació, el gènere o el país per analitzar les diferències existents. Aquest exercici s'ha replicat amb tot allò relatiu a l'anàlisi individual de l'ús d'Internet.

En segon lloc, s'ha examinat l'efecte de considerar els dos conceptes simultàniament (ús d'Internet i benestar) per analitzar l'acció entre ells i aprofundir en els efectes que se'n deriven.

També s'han introduït els valors personals. Els valors influeixen en la vida de les persones mitjançant la determinació de la seva actitud personal, el comportament, la relació amb ells mateixos i els altres, i fins i tot la seva pròpia percepció del benestar. Així, tenint en compte els valors i les consideracions personals previstes en l'enquesta, s'han definit diferents perfils personals, per després analitzar l'impacte de l'ús d'Internet i la percepció del benestar primer a nivell individual per a cada perfil, i posteriorment valorar la interacció de la confluència d'ambdós i la singularitat del seu efecte en cada perfil.

Finalment, es presenten els resultats i conclusions identificats, demostrant que els valors personals i els diferents perfils personals influeixen en l'ús individual d'Internet i en la seva percepció de benestar.

4. Introduction

“Instead of censoring people, let's try to flunk it. Let's try to Figure out why they do what they do. That is much more profitable and more interesting than criticism, and from it arises sympathy, tolerance, and kindness.”

Dale Carnegie (1980)

Digital transformation linked to the progress of technology has revolved daily life and derived into social evolution. Today we are immersed in a Network Society (Castells 2010) characterized by a constant flow of information over technology.

Internet use has been growing in the last years, and it is expected it continues expanding all over the world. Far away are those times where were few computers, laptops, mobiles, and smartphones. Today the internet has become a part of our living day without we were aware of it, first with communicating tools, and later for entertainment, other social roles, and of course, for improving quality and effectiveness of employment. Today almost everybody has at least one smartphone and internet access (mobile or fix). We are aware that this is not an isolated tendency. Instead, it will be increasing connections and interaction with everyday things (Internet of things), and in short, it will be complicated to live in a no-connected world.

Besides, internet adoption and usage are changing the way individuals interact and relate

to others, to family and themselves, and as well their Wellbeing perception.

Wellbeing is another candent concept that focuses on interest in our society. It has lots of affections and senses, some more complex other less, and it could involve happiness, life satisfaction, material, and spiritual fulfillment, among others. It is a broad concept that affects everybody's life. Maybe someone could think it is only a topic, philosophy, or a new way of living people's lives. A fashion of the 21st century could be though. The truth is society, economics, and policies are evolving and increasing the importance given to this "concept," from ancient Greek to date, and far to reduce it will expand and improve its relevance in people life's more and more. Today, individuals, policymakers and governors are interested in maintaining or improving the WB of individuals.

Thus, the present study aims to analyze two of the terms and concepts that nowadays are getting more transcendence and relevance in society. Two candent and relevant topics whose importance, despite we do not do anything, will enforce and merge in short for society. So, we will deepen in both terms and concepts. We will analyze what is behind them, its evolution, and different theories to understand better evolution and behaviors of society.

Until date, there are thousands of studies that analyzed the impact of internet use in specific stages of life (teenagers, elderly) or processes (education, illness...), but they often have been criticized because of its small samples. Nevertheless, we have not found any study that evaluates both concepts from a broad perspective.

The present study aims to examine how the Internet affects people's life. A sample of 34.700 respondents of 18 countries from data of the European Social Survey in 2016 has been considered. It includes data of individuals that have fulfillment people's auto-

evaluation of happiness, WB, from a subjective point of view, but also completed with other objective factors delimited by some authors (Ryff 2018).

Therefore, a descriptive analysis using ANOVA and multiple linear regressions methodologies will be applied to characterize the frequency of Internet use attending sociodemographic aspects (gender, age, country, and education level). The same description will be made in attendance to life satisfaction and happiness individuals' report, and also including 2017 GPD country data. Moreover, the interaction between life satisfaction and happiness and internet use regarding sociodemographic and other aspects and frequency of use will be presented.

Furthermore, personal values will be introduced to our study. Because they determine attitudes and behaviors of individuals influencing their feelings and lives, and affect relationships people maintain with others and themselves. Those relations are as well affected by the adoption and usage of the internet, which is changing the way individuals interact and relate. So, altogether, values, internet use, and individuals' Wellbeing perception will also be examined.

ESS includes data regarding the basic values and motivational sources of Prof. Schwartz (Schwartz & Sortheix, 2018). Thus, applying an Exploratory Factorial Analysis of data related to personal values, four different profiles will be defined. Then, selected variables associated with WB as personal safety, education, income, health, and social relationships will be considered to evaluate their influence on each profile. Furthermore, for each pattern, it will be individually analyzed and correlated with the level of internet use and life satisfaction individuals report to analyze its influence on each profile. Finally, the interaction of both variables will be considered. Results and conclusions will be presented for discussion.

5. Well-being

“The Gross National Product counts air pollution and cigarette advertising, and ... the destruction of the redwood and the loss of our natural wonder in chaotic sprawl... Yet [it] does not allow for the health of our children, the quality of their education, or the joy of their play... the beauty of our poetry or the strength of our marriages... it measures everything, in short, except that which makes life worthwhile.”

Robert Kennedy, 1968

5.1 Introduction

There has been a widespread assumption that prioritizing economic growth is the best way to maximize Well-being (WB) (Stiglitz et al. 2009). That is the reason why governments in most countries have tended to prioritize economic growth and have been monitoring the

economic progress through the Gross Domestic Product (GPD)¹ evolution, from a long time ago.

However, maybe they have not been in the right way. As *Easterlin Paradox* (Easterlin 2003; Easterlin et al. 2010, 212) demonstrated, the relationship between economic growth and WB is not as close as might be expected, although this view is increasingly being contested. Consequently, the need to focus on WB has been increasingly recognized.

To measure progress, governments and policymakers need to look directly at human WB as an outcome and include or develop specific indicators to monitor it, rather than focusing solely on economic growth and GDP or GDP per capita.

Undoubtedly, GPD and economic growth influence WB. Therefore, the study of the relationship between economic growth, human WB, and the achievement of a sustainable future is not innovative.

WB is a meaningful outcome to the public because it is related to positive health and positive social results, including pro-social behavior (Diener et al. 2002; Diener et al. 1999; Lyubomirsky et al. 2005; Judge et al. 2001). Furthermore, WB gives direct status on the lives of people, and it fills the gap between standard macroeconomic data (as GPD) and perception of the welfare of people.

In this chapter, it will be resumed and presented the state-of-the-art around WB. There are many considerations around the concept of WB and no single definition. Thus, here, there should be agreed and consensus definitions to context this study. It is not an easy question due to WB's intrinsic nature, where subjectivity plays an important role. WB comes from

¹ Gross domestic product (GDP) is the monetary value of all the finished goods and services produced within a country's borders in a specific period.

individual perceptions, and although it could be barely objectivated, it has an essential subjective component. The question is how to identify and influence this subjectivity properly. It is not an easy request, from Ancient Greece philosophers to modern sociologists, psychologists and economists have been thinking about it, and all of them conclude that WB is a complex concept.

Also, in this chapter, it will be introduced the term *social capital* that refers to how people interact with the world around them. Social capital is generally considered to be the characteristics of social relationships rather than of individuals (Coleman 1988), and it is positively related to WB (Coleman 1988; Putnam 1995, 2000). Subsequently, social capital effects and influences WB, and because of its dynamic nature, it creates a virtuous circle. High levels of WB bring people more capacity to respond to adverse circumstances, innovate, and fruitfully engage with other people and the world around them. However, this is not a stable process; some compelling events (wars, childbirths, bereavement) can change people's emotional set points (Diener et al. 2006; Vieira 2010).

Here it will also be discussed the WB concept from different dimensions (economic, philosophy, psychology, and sociology ones) that form part of it. Moreover, various theories and conceptions that have been evolving through history, from hedonism and eudaimonic, emerged from Plato and Aristotle to modern psychological WB, Self-Determination Theory, Objective list, or Desires Theories to Authentic Happiness will also be presented.

By the end of the chapter, it will be emphasized the importance of measurement and monitor WB and presented different initiatives governments and institutions have carried in this way.

5.2 Well-Being background

It is a fact that WB has enormous relevance and impact for individuals and governments, and that is the reason why the study of this concept is not a new tendency. In history, the thoughts of subjective WB, life satisfaction, and happiness as the goal of human existence have been studied by philosophers of ancient times- providing lots of works- but also by many influential writers, psychologists, whether on religious, ethical, or political issues.

The next Table 1 summarizes the main contributions and authors that have been analyzing the topic.

Table 1. Evolution of WB Research

| Period | Researcher- Date | Contribution | Comments |
|-----------------------|---|--|--|
| Ancient Greece | Democritus (460 to 370 BC) | WB included satisfaction (both in general and satisfaction with specific domains), pleasant effect, and low negative affect | He was the first relevant philosopher who used the term Subjective Well-Being (SWB) to emphasize the individual's own assessment of their own life – not the judgment of “experts”. |
| | Plato (428 – 347 BC) | Those who are moral are the only ones who may be truly happy. | Plato initiates the Hedonism theory and linked happiness with moral behavior. |
| | Aristotle (384 to 322 BC) | Everyone deserved happiness in life, and by then, money, power, health, and physical attraction were valued only as of the fulfilling elements of happiness. | Aristotle initiates Eudaimonics theory that considers happiness depends on knowledge and the use of practical reason. Its influence is still relevant in moral and psychological theory. |
| | Epicurus (341 to 270 BC) | The real pleasure was a spiritual kind achieved by nurture friendships, gain knowledge. For him, the pleasure was equated to ataraxia, a state of inner peace as an ideal of the wise (Mindoljevic 2012). | The task of philosophy task was to find a way towards happiness, claiming everyone tries to avoid suffering. He continued developing hedonism theory. |
| Middle Ages | St. Thomas Aquinas (1225 to 1274) | Sacrifice, suffering time, and death became the gateway to a better life, a journey that will last in ecstasy, delight, bliss, and happiness. | He was the most famous Italian Dominican priest of Christianity. |
| | Martin Luther (1483 to 1546) | The desire for happiness presupposes an individualistic understanding of happiness based on the subjective notion of the good of William of Ockham. | He was the founder of the Protestant Reformation-the German theologian. |
| After the middle ages | François-Marie Arouet Voltaire (1694-1778) | Citizens have the right to be happy, and their politicians and governors have the mission to achieve it (like Rousseau) | He was a French philosopher who promoted individual liberty, reason, and question religious doctrines. |
| | David Hume (1711 – 1776) | Foreign trade makes available products that are not available inside a country; it offers more choices to people, and by the end, more WB. International trade also is a stimulus for economic growth, and therefore, it is crucial for the development of the nation. | He was a Scottish economist and philosopher. His discussions on politics led to the development of several ideas that are prevalent in the field of economics even today. |
| | Jean Jacques Rousseau (1712 to 1778) | Citizens have the right to be happy, and their politicians and governors have the mission to achieve it (like Voltaire). | He was a French philosopher for whom happiness was not a utopian dream. He defended happiness as a condition attainable by different kinds of people in a wide variety of circumstances. |
| | Adam Smith (1723- 1790) | The impulse of modern economics and the free-market capitalist of the world. Rational self-interest led to economic well-being. | He was a Scottish economist and philosopher who promoted freedom in the economic system as a fundamental ethic value. |

| | | | |
|--------------|---|---|--|
| Contemporary | Immanuel Kant (1724-1804) | The theory that space and time are subjective forms of sensibility. Happiness description as continuous WB, enjoyment of life, complete satisfaction with one's condition. | He was the most influential German philosopher who developed the idea of moral autonomy and linked it with freedom and dignity as the supreme value of human life. |
| | Jeremy Bentham (1748 to 1832) | Happiness is considered as the sum of pleasures and pains. | He was a British and utilitarian philosopher who distinguished actions according to the principle of utility - attending if its realization will be more productive of pleasure or happiness- (Bentham 1978; Burns 2005) |
| | John Stuart Mill (1806 to 1873) | Happiness is a state of pleasure and absence of pain. The utility is the sum of all joy resulting from an action, minus the suffering of anyone involved in the act, and applied it to the WB. | He was a British and utilitarian philosopher who encouraged the right actions are those that tend to promote happiness. He argued that people's achievement of people of goals, such as virtuous living, should be counted as part of their happiness. |
| | Sigmund Freud (1856 to 1939) | Considered money and material wealth brought hardly any happiness in life. | Austrian neurologist who initiates psychoanalysis therapies through dialogue between a patient and a psychoanalyst |
| | Victor Frankl (1905-1997) | Revolved around the emphasis on meaning, the value of suffering, and responsibility to something more significant than the self. | He was an Austrian neurologist and psychiatrist, a survivor of Holocaust Nazi. |
| | Abraham Maslow (1908 – 1970) | Creator of the hierarchy of needs of Maslow, a theory of psychological health based on fulfilling of physiological and safety innate human needs in priority, followed by love or belonging needs and culminating in esteem (achievement and respect) and self-actualization. | He was an American psychologist who developed a theory of psychological health. According to his opinion, the order of fulfillment in the hierarchy is necessary. |
| | Richard Easterlin (1926-) | Creator of Easterlin paradox refers to a point in time happiness fluctuates directly with income, both among and within nations. However, it also concludes over time, and happiness does not trend upward as revenue continues to grow. | He was a professor of economics at the University of Southern California that studies the correlation between income and happiness. |
| Modern Ages | Amartya Sen (1933-) | His human development theory proposes that development should be understood as freedom. It means that resources are the only means of achieving it. He focused on the development of human capabilities. | He was an Indian economist, whose contributions to welfare economics earned him the Nobel Prize in Economic Sciences in 1998. His capability approach is the basis of the United Nations Development Program (UNDP) (Sen 1985). |
| | James Griffin (1933-) | He concluded there is a list of numerous non-reducible items that contribute to the quality of a characteristic human life, and that anything that influences to the quality of any human being will be one or other of these features (Griffin 2007) | He was an American philosopher professor who defends WB should fit in moral and political thought. |

| | | |
|---------------------------------------|---|--|
| Daniel Kahneman (1934-) | High-income purchases life satisfaction but not happiness, and that low income is associated both with low life evaluation and little emotional WB. (Kahneman & Deaton, 2010) | He was an Israeli-American psychologist awarded in 2002 Nobel Memorial Prize in Economic Sciences. His conclusions challenge the assumption of human rationality prevailing in modern economic theory. |
| Richard Layard (1934-) | Initiation of happiness economics concept, taking into consideration social comparisons, adaptation, and changing tastes. | He was a British labor economist that defend money is not the only thing affecting the happiness of people. |
| Ronald F. Inglehart (1934-) | Theory of Generational Replacement and Evolutionary Modernization Theory. The first one changes from materialist to post-materialist values intergeneration, while the second one argues that economic development, welfare state institutions are reshaping human motivations in ways that have significant implications concerning gender roles, sexual norms, the role of religion, economic behavior and the spread of democracy. | He was an American political scientist, director of the World Values Survey. |
| John F. Helliwell (1937-) | Lead the research measuring subjective well-being to provide a broader way of measuring human progress. He collaborated and shared theories with Putman, Diener, Kahneman, and Layard. | He was a Canadian economist and editor of the World Happiness Report. |
| Robert Putnam (1941 -) | Participation and enrollment in one's community are associated with high levels of happiness and life satisfaction. | He was an American political scientist. His contribution has been related to the social capital concept. |
| Martin Seligman (1942-) | "Well-Being Theory" or Authentic happiness theory- explained later- (Seligman 2011). He defined five elements related to WB: Positive emotion, Engagement, Relationships, Meaning, and Achievement, although it has not been empirically validated yet. | He was an influenced American psychologist and writer that has been analyzing positive psychology and its relationship in happiness. |
| Edward Diener (1946-) | Proposed three components of SWB: life satisfaction, pleasant emotions, and unpleasant emotions (Diener 1984). Latterly, in 1999 he added one more, the pleasure gained from certain aspects of life such as job satisfaction, marriage, leisure activities and satisfaction with one's health. Diener concludes that the cognitive evaluation of life is determined on the assessment of life satisfaction (Diener et al. 1999). He also described a human yearning for happiness and satisfaction while avoiding pain and suffering, although there are nevertheless to evaluate the pleasure/pain continuum in human experience (Diener & Lucas 1999). | He was an American professor of psychology and researcher that has carried on lots of studies about happiness and well-being over the past thirty years. |
| Martha Craven Nussbaum (1947-) | She developed a frame with ten capabilities that have been very influential in development policy and for the evolution of the human development index (Nussbaum & Sen,1993). | She was an American philosopher. Her work on capabilities has often focused on the unequal freedoms and opportunities of women, and she worked closely with A. Sen. |
| Carol Ryff (1950-) | Psychological WB is attained by achieving a state of balance affected by both challenging | She was an American professor of psychology and researcher that has carried on lots of studies about |

| | | |
|-------------------------------------|---|---|
| | and rewarding life events. She identified six key-elements: Self-acceptance, Personal growth, and development feeling of Purpose and meaning in life, Environmental Mastery, Autonomy and Positive relationships with others (Ryff 1989) | happiness and WB. She developed a Six -factor Model of Psychological Well-being. Her work has influenced at gran extend further researches. |
| Richard M. Ryan (1953-) | Self-Determination Theory (SDT) remarks three basic psychological needs: autonomy, competence, and relatedness. | He was an American professor psychology and researcher that has carried on lots of studies about happiness and WB. He developed with Edward L. Deci, the Self-Determination Theory (SDT), one of the most influential theories of human motivation. |
| Marie Jahoda (1958-) | Included positive states in definitions of WB, which sparked a paradigmatic shift in conceptions of mental-health (absence of mental illness and mental health happiness became important as well). She identified six components in positive mental health: self-acceptance, personal growth or self-actualization, integration of the self, autonomy, preserved perception of reality and environmental mastery (Keyes 2006) | She was an Austrian psychologist. The first researcher who tries to systematize the notion of positive mental health. |
| Corey L. M. Keyes (1960-) | Include “ <i>Flourishing</i> ” concept” defined as a state where people experience positive: emotions, psychological functioning, and social functioning most of the time. It is a descriptor and measure of positive mental health and overall life WB, living within an optimal range of human functioning and includes other components, such as cultivating strengths, subjective WB, goodness, generativity, growth, and resilience. | He was an American sociologist and psychologist who studied positive psychology. He collaborated with C.Ryff. |

Source: Own Elaboration

In sum, the concept of WB has been investigated for a long time ago by philosophers, economists, and writers who have been interested in it. Moreover, as a result of all these studies, there have been generated different theories, that will be explained in the following epigraph, because, previously, there should be defined and agreed terminology and concepts that will be used.

There are numerous definitions of WB within and between disciplines (psychology, economics, social, cultural...) and thousands of papers with subjective and objective orientations addressing to happiness, flourishing, income, health, autonomy, and capability (Diener et al. 2003; Ryff 2014, 2018; Kasser 2002; Jackson & Marks 1999, Cronin et al. 2005; Kahneman 2003; Sen 1993). Depending on the context, literature has associated WB to productivity, health care, costs, or others.

We have carried on an extensive investigation and research to understand and agree on a definition of the WB concept that tries to guarantee interpretation of results and conclusions this study offers are the more accurate possible. At last, we have considered and accepted one of the most used definitions of *Well-being (WB)*:

WB is a multidimensional concept that involves lots of perspectives, sense, and affections (Vittersø et al. 2010; Huppert & So, 2009). Also commonly agreed, it could be considered as an active and dynamic process that gives individuals a sense of how their lives are working through the interaction between their situations, environments, activities, and psychological resources or ‘mental capital’².

However, this was not an isolated concept. Due to WB refers majority to a personal evaluation and depending on the mood and experience of the person who is interviewed, researchers created the term *Subjective Well-Being (SWB)* as a closely related concept.

SWB emphasizes the subjectivity on the evaluation people do, based on their own experience, regarding how happy or satisfied with the life they are overall. Nevertheless, those subjective judgments of WB have an objective part, that is independent of preferences

² **Mental capital** means the degree of mastery of life skills at the time an individual faces the choices of life (Weehuizen, 2008). It is not only positive attitudes (comprise, hope, self-efficacy, optimism, or resiliency among others) it also includes certain key skills that allow one to produce such mental goods as self-esteem and sense of achievement, as well as self-reflective skills.”(Ho, 2012)

and feelings. Thus, there is a social consensus that such measures are essential components of WB (Gaspart 1997), and in this way, Nussbaum created an Objective List of capabilities for a flourishing life (Nussbaum & Sen 1993) that will be explained later.

Moreover, SWB is not just the absence of mental illness; in fact, *it includes "Flourishing"* (Keyes 2005: 539). Flourishing has been defined as a multi-component construct that represents the state of complete mental health, and it is a widely accepted measure of SWB (Keyes 2002), among others, satisfaction, happiness, thriving, engagement, and self-fulfillment (Kahneman 2003; Sen 1993).

Diener, one of the most prestigious researchers in this field, defined SWB, as: "*a phenomenon that includes people's emotional response, levels of satisfaction in various domains and global judgments of life satisfaction*" (Diener & Lucas. 1999: 277). Moreover, that definition is crucial because it includes two new terms and concepts (happiness and life satisfaction), both of them related to SWB and WB, and sometimes used indistinctly.

There are some studies analyzing life satisfaction and happiness meaning and definition (Seligman 2016, 2012; Veenhoven 2013; Pavot & Diener 2009; Argyle 2001; Welsch 2006; Cohn et al. 2009). For this study, ***Life satisfaction*** has been defined in the literature as the informed and cognitive judgment of one's life in which the criteria of evaluation are up to the person, with experiencing good feelings and making favorable judgments about how life is going (Pavot & Diener 1993). Furthermore, ***Happiness*** has been considered as a mental or emotional state of WB, which can be defined by, among others, positive or pleasant emotions ranging from contentment to intense joy (Seligman 2004).

Indeed, life satisfaction is so close as happiness, and happiness a widely presumed component of life satisfaction that often is used as a synonym (Abdallah & Mahony 2012).

Nevertheless, also they are related to SWB. Indeed, some researchers prefer to use the term “*satisfaction*” and, especially, “*happiness*” to denote SWB in general (Veenhoven 1991).

Perhaps, this is an oversimplification because, unfortunately, the nature of happiness has not been defined uniformly. Happiness can mean pleasure, life satisfaction, positive emotions, a meaningful life, or a feeling of contentment, among other concepts. Nevertheless, as we found literature considers it, and it was difficult to divide terminology when analyzing papers, we considered it necessary to remark it.

Until here, there have been included and analyzed several concepts and terms: Well-being (WB), Subjective Well-being (SWB), Happiness, and Life-Satisfaction. The literature abounds with many definitions – objective, subjective, or some synthesis of both – of them that although could differ from nuances, on the top converge.

Consequently, like happiness and life satisfaction could be equated to SWB, and considering WB could not be referred without a subjective evaluation, in this study, all concepts will be reduced to a single one: WB. Thus, to simplify terminology in this document, all these terms and perceptions will be referred to as WB.

5.3 Well-Being dimensions

Once defined the concept of WB, in this epigraph, there will be identified and analyzed different components and aspects that form part of it.

WB refers to objective and subjective evaluations of human life (Lane 2000); thus, both axes should be appropriately analyzed:

The **objective axis** assesses observable characteristics such as economic development (employment opportunities, income and wealth, the availability of health care), or living conditions (standard of housing), access to education, freedom, and justice, among others. All these characteristics are objectively valuable within a defined scale; thus, they can be considered as objective ones.

The **subjective axis** relates to the experience of the persons who are making the evaluation and refers to the quality of their life and emotional responses (affects, emotions), satisfaction with different aspects of life (family relations, leisure, hobbies, job, relationships with partners, among others) and global satisfaction. Less empirical, subjective axis also includes positive-negative feelings (positive day-to-day feelings such as happiness and enjoyment of life, and lack of negative emotions such as anxiety and depression); satisfying life and vitality (self-esteem, optimism, and resilience); and feelings of autonomy and positive functioning (which covers autonomy, competence, engagement, and meaning and purpose).

As in any other case, the most significant difficulties of evaluation come from subjective axis due to subjectivity is more heterogeneous and implies more variables. Fortunately, research has led to a greater understanding of the processes of satisfying judgments and evaluation of life full of pleasant emotions and nothing unpleasant.

By this way, **within the subjective axis**, there have been identified two components: the affective and cognitive ones, whose relationship is still being studied (Busseri & Sadava 2011; Diener 1984; Diener et al. 1999; Lucas et al. 1996; Schimmack et al. 2008, Vittersø 2004). Metaphorically, cognitive refers to the rational 'from-the-head' aspects of a person's response, while affective refers to the emotional 'from-the-heart' components.

Because of its relevance and complexity, we considered necessary to analyze and define terms of Affective and Cognitive Well-being appropriately:

Affective well-being (AWB) is the component of WB that balances pleasure and displeasure in the lives of individuals, and it could be referred to as short-term or more recent events. It relates to the frequency and intensity of positive and negative emotions and mood, including the presence or lack of feelings of happiness, anxiety, depression, or stress and satisfaction with life as a whole (Schimmack et al. 2008; Luhmann et al. 2013). AWB is the most critical component of psychological well-being (Van Horn et al. 2001; Warr 1990; Linley et al. 2009) because it refers to how people assess and judge their life satisfaction; including the relationship of what the person wants out of life in comparison to what they have achieved (Andrews & Robinson 1991). Moreover, it is the basis of many other constructs, such as work-family conflict, job satisfaction, occupational success, and income (Hofmann et al. 2014; Ilies et al. 2015). However, it is not an easily comparable concept because its weight varies across individuals and cultures (Suh et al. 1998; Eid & Larsen 2008).

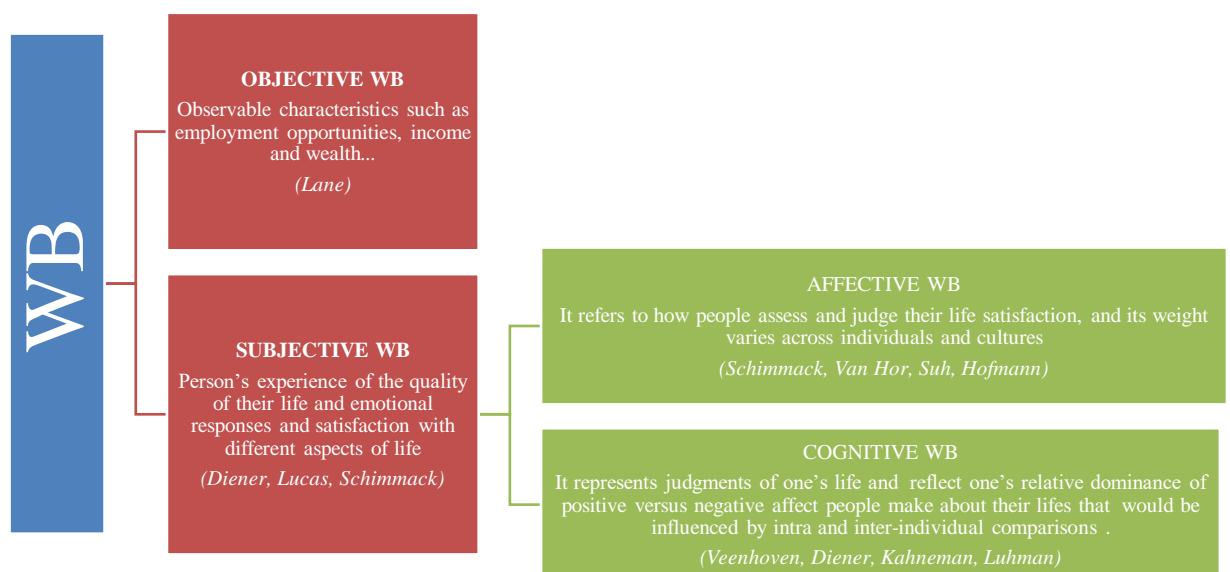
Cognitive well-being (CWB) represents judgments of one's life or reflect one's relative dominance of positive versus negative affect people make about their lives, and it is influenced by intra and inter-individual comparisons (Veenhoven 2013; Diener et al. 1999; Kahneman et al. 1999, Schwarz & Strack 1999). It refers to domain-specific (e.g., job satisfaction, marital status) and global life evaluation people do, with a more long-term conception, based on a comparison of a subjectively constructed ideal with their actual life (Luhmann et al. 2010; 2012). CWB includes several concepts ranging from shifting moods to global judgments of life satisfaction, from depression to euphoria.

Perhaps AWB could be equated with the more emotional, and CWB with the more rational perception of WB. Indeed, AWB and CWB are intrinsically related but separable constructs that differ in their temporal stability (e.g., Eid & Diener 2004; Luhmann et al. 2013). It means that, for some events, although the effects on AWB and CWB are in the same direction, they differ in their strength. For instance, results from circumstances such as income, job status, or recent life events affect both AWB and CWB but tend to have stronger effects on CWB (Schimmack 2008, Schimmack et al. 2008; Luhmann et al. 2011; 2012; 2013). Other life events such as bereavement, have first adverse effects on both AWB and CWB, but they are stronger for CWB, while childbirth may lead to increase AWB and the time frame do not moderate the associations (Luhmann et al. 2013).

By contrast, correlations to personality characteristics such as emotional stability and extraversion are typically stronger for AWB (Jovanovic 2011; Schimmack et al. 2002; 2008; Steel et al. 2008; Judge & Bono 2001)

Next, Figure 1 summarizes the concepts explained previously.

Figure 1. Different components of WB



Source: Own Elaboration

Once analyzed WB components from the objective and subjective axis, and within this last one, affective and cognitive parts, WB should be examined from another point of view, the dimension it addresses.

In this way, for a long time, different collectives (philosophers, psychologists, economists, writers, researchers, and sociologists) have been studying WB. Each one had different motivations and was interested in various aspects of the concept. Here have been listed and presented the three main dimensions that have emerged from their contributions: Economic, Psychology, Sociology dimensions.

5.3.1 Economic dimension:

Economic dimension refers to observable characteristics such as employment opportunities, income, wealth, and the availability of health care. It also applies to the standard of housing, access to education.

Economic dimension offers important outcomes and data for government and institutions, because it is associated with numerous health-, job-, family-, and economically-related benefits (Lyubomirsky et al. 2005). Over this dimension, WB causes better health and longevity and leads to higher income, better job performance, more creativity, and productivity (Diener & Chan 2011).

By this dimension, perhaps it could be asserted that “more is better.” That is a long-held assumption that considers an increase in income, and consequently, in the goods at one’s disposal, increases WB by giving people more choices about how to live their life. However, the relationship between the increase of GDP per capita and experienced WB has broken down. More income does not always bring with it a lasting rise in WB, at least in the

developed countries of Europe and elsewhere, because of the adverse effect of social comparison, among others. This dimension refers to and influences to the marginal utility of income concept, that means the value anticipated ex-ante from an increase in consumption turns out ex-post to be less than expected, as one adapts to the new standard of living, and as the values of others improve correspondingly (Easterlin 2005; 2006; 2010).

Those circumstances are resumed as the “**Easterlin paradox**” in honor of the researcher who claimed it. Easterling Paradox suggests that although there is a positive correlation between economic growth and WB in the cross-section and short-term, in the long-term (ten years, at least), the relationship does not exist. Easterlin Paradox also concludes that there is no link between the economic development of a society and its average level of WB (Easterlin 1974, Easterlin et al. 2010). In this way, we can affirm although richer countries are in general happier than developing countries (Diener et al. 2013), this positive relationship between economic growth and self-reported WB is small or insignificant beyond a modest level of affluence (Layard 2011; Bartolini & Bilancini 2010; Easterlin 2013). However, this is a controversial issue. Thus, it cannot be ignored opinions of other authors (Stevenson & Wolfers 2008; Sacks et al. 2012) that defend happiness and income are not related.

Additionally, from this economic dimension, it could be referred to as increasing levels of happiness that may improve productivity, satisfaction, and creativity at work (Ali et al. 2013). Therefore, not surprisingly, policymakers and society have been increasingly interested in promoting happiness (Bok 2010).

Connecting this dimension with other terms explained before, we could consider the economic perspective offers essential information majority objectively or closed to

objective WB component, but WB has a significant subjectivity component, and it does not provide a broad perspective, it should be completed with other dimensions.

5.3.2 Psychological dimension:

Psychological dimension refers to personality, sense, emotions, goal-directed behavior, social cognition, lifespan development, cross-cultural diversity (Shmotkin 2005, Kahneman et al. 1999; Strack et al. 1991; Pervin & John 2008). It includes both positive and negative moods and emotions associated with daily life and global satisfaction.

This perspective focuses on the individual, and more concretely, within oneself. Over psychology, this dimension has been studying the characteristics of happy people. The ability to be happy and satisfied with life represents, to many scientists, a fundamental criterion of adaptation and mental health (Wessman & Ricks 1966). Happy people tend to function better in life than less glad ones (Diener et al. 2013), and happier people are typically healthier, live longer, are more socially engaged, are more productive, and tend to have higher incomes (Diener et al. 1999, 2002; Diener & Chan 2011; Lyubomirsky et al. 2005; Judge et al. 2001). Additionally, happiness brings greater self-control, more pro-social behaviors and higher-quality social relationships (De Neve et al. 2013). Although extreme happiness – within an affective conception, and understood as excessive levels of positive emotions every time and everywhere – could be detrimental to the incomes of individuals, education, and political participation (Diener et al. 2013).

Other experimental studies carried on over this psychology dimension confirm that exists a virtuous circle; positive emotions lead to positive cognitions, pro-social behaviors, and increased motivation and cognitive capability. Moreover, positive cognitions, behaviors,

motivation, and skills, in turn, spur positive emotions (Fredrickson & Branigan 2005; Kasser & Ryan 1996; Ryan & Deci 2001; Forgas 2012).

Thus, it could be affirmed that depending on personality or personal values, each person is likely to be predisposed to be more or less happy. We have considered individual character and values so important that have linked and included them in our study model, as will be presented later. At last, mark personality can be influenced and altered with the help of psychologists or other factors, and due to its potential, scientists and researchers are still investigating this concept.

Connecting this dimension with other terms explained before, we could consider the psychological perspective offers essential information majority subjectively or closed to cognitive WB component, and although it fits and complements quite well the WB description, there is still missing one more dimension.

5.3.3 Sociological dimension:

The sociological aspect also focusses on the individual but contrasting to the psychological one that enhances intern vision, this one looks outside and refers to the way an individual interacts with others.

The sociological dimension is related to social cognition, cross-cultural diversity, trust, family relations, intimacy, or social connection. In other words, it analyses relationships and behaviors people have when interacting with others, confidence in other people, companionship, appreciation with whom confidential matters can be discussed and belonging. Moreover, it examines how networks and links can be utilized to contribute to positive outcomes for the individual, group, and community alike.

The crucial role of this dimension in evaluating WB may be linked to an evolutionary perspective, that people have never been used to live alone. They have always lived in communities, from survival and reproduction at prehistory to consumer society or human need for a sense of belonging in the later period. Thus, how personal relations to others and their culture is a crucial aspect to consider. Because WB involves the individual relationship with others and how he/she communicates, interacts, and socializes with other people.

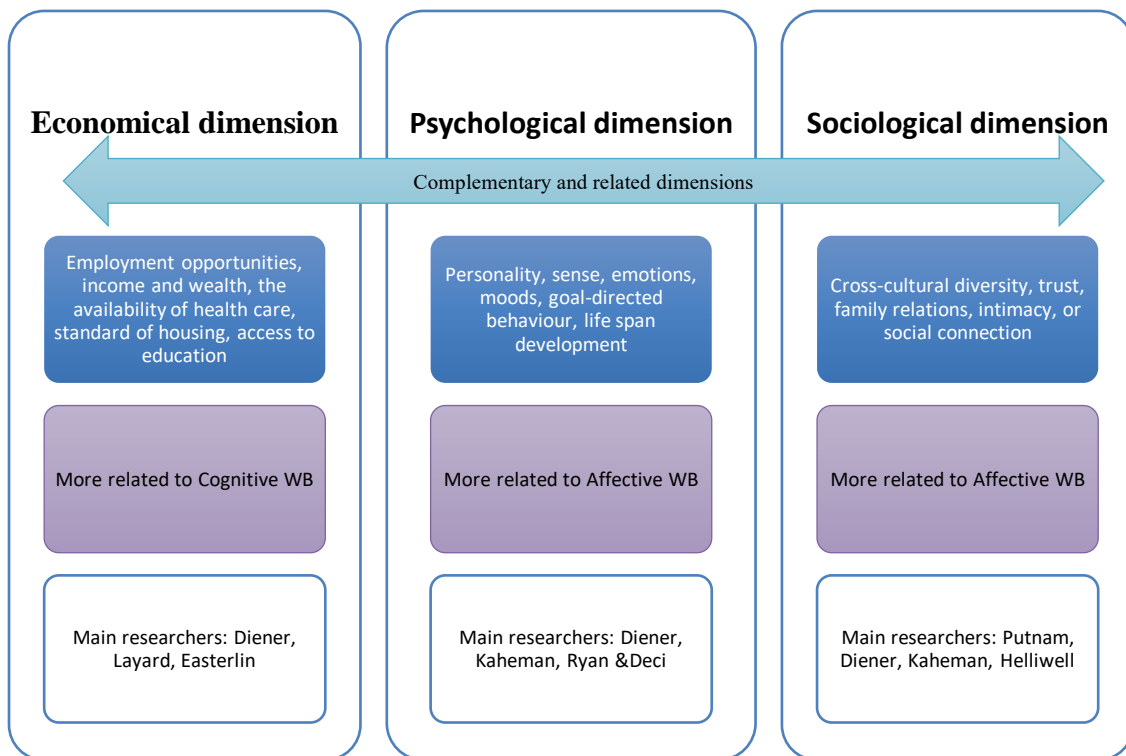
Over this dimension, there was found sometimes; it is also termed social capital in literature. OECD defined “social capital”: “*networks together with shared norms, values, and understandings that facilitate cooperation within or among groups*” (OECD 2001b, p 41). Also, active participation in social activities and involvement in one’s community is associated with high levels of happiness and life satisfaction (Putnam 2001; Argyle & Crossland 1987; Helliwell & Putnam 2004; Helliwell 2003, Harper & Kelly 2013; Hommerich & Tiefenbach 2017).

However, this social dimension varies beyond nations. Different communities have different grades of tolerance, openness, helpful so that WB may differ across cultures (Diener & Tov 2007; Diener et al. 1995; Oishi et al. 1999; Diener et al. 2013). Moreover, religion and other beliefs that enhance more sacrifice or more enjoyment (Diener et al. 2011), including other extraordinary events occurred within the community as wars, natural disasters, among others (Kahneman et al. 1999; Lucas et al. 2004) also affect and influence people WB perception. So, each community should be considered different because the social and cultural factors of each culture and society influence them, and those aspects are necessary for understanding this dimension.

Connecting this dimension with other terms explained before, we could consider the sociological perspective offers essential information majority subjectively or closed to affective WB component, that with other aspects complete the WB description.

Figure 2 offers a complete view and resume different dimensions conform WB have been explained individually previously. However, those three dimensions explained (economic, psychological, and sociological ones) are not isolated. They are complementary between them. For instance, the sociological perspective could be linked to the economic ones through material consumption concerning symbolic identity values (Jackson & Marks 1999).

Figure 2. Different dimensions of WB



Source: Own Elaboration

Besides, linking to the psychological aspect, although it is evidenced material consumption ultimately cannot satisfy these deep-seated social needs, people who have strong materialistic values have lower WB than those who are less materialistic (Kasser 2002; Inglehart 2018). Therefore, successful interventions encourage intrinsic/self-transcendent values, increase personal security feeling, or block materialistic messages from the environment have been carried on (Kasser 2016).

In this epigraph, to understand better and analyze different concepts WB involves, there have been explained various components and dimensions conform WB. As has been shown, the concept is more complicated because all ideas and dimensions are related. Therefore, WB could not be reduced a list of things³ or sum of satisfaction from particular aspects, because people ponder with different importance specific areas of life.

5.4 Different theories of WB

There have been lots of theories and studies analyzing WB, its causes, and its composition. Almost every researcher had studied the concept developed his approach, but over time, opinions have been evolving and merging. Here there are listed in Table 2 the most relevant theories considered:

³ Career accomplishments, friendship, freedom from disease and pain, material comforts, civic spirit, beauty, education, love, knowledge, and good conscience, among others)

Table 2. Theories of WB and conceptions of happiness

| Theory / Author | Contribution | Relation with other researchers and Comments |
|--|--|---|
| <p>Hedonism</p> <p>(Plato initiates Epicurus developed)</p> | <p>For hedonists, happiness is merely the sum of many pleasurable moments (feeling good, feeling of comfort, global life satisfaction), versus displeasure, including all judgments about the good/bad elements of life.</p> <p>Hedonists argue happy people smile a lot, are ebullient, bright-eyed and bushy-tailed; and that their pleasures are intense and many, while their pains are few and far.</p> | <p>It dates from ancient Greek (Plato, Epicurus) -<i>Etymology pleasure (hedone)</i></p> <p>Hedonists tend to emphasize more positive affect, less negative affect, and higher life satisfaction, maximizing feelings of pleasure over pain (Kahneman et al. 1999, Diener & Lucas 1999).</p> <p>By this theory, it has been defined the “<i>hedonic treadmill</i>” (Kahneman et al. 1999) also known as “hedonic adaptation” (Brickman 1971; Frederick & Loewenstein 1999), as an evidence people adapt very quickly to external changes, both good and bad, and to achieve the same level of improvement in happiness or satisfaction on a subsequent occasion, the external change (e.g., the magnitude of the pay rise) must be greater than before. The hedonic treadmill is discouraging for instance in a political context because when policymakers try to improve social conditions of citizens after a crisis, they need to invest significant resources in achieving the same level of satisfaction they had before)-.</p> |
| <p>Eudaemonic</p> <p>(Aristotle)</p> | <p>For eudaemonics, happiness with both the presence of pleasure and absence of pain, furthermore refers to the human desire for overall fulfillment covering such them as self, and it is related to meaningful pursuits and a virtuous life</p> | <p>Dated from ancient Greek too (Aristotle) - eudaemonics -Etymology "well-being" (eu-esto) and "feeling good" (eu-thumie)-</p> <p>Eudaimonic WB reflects positive functioning psychological well-being, and personal expressiveness (Ryff & Keyes 1995). It considers the need for self-actualization in Maslow's (Maslow 1968) needs hierarchy.</p> <p>A difference with hedonism theory, the eudaimonic approach has better implications for policy because, rather than trying to maximize happiness or satisfaction, which may be transient, the policy should aim to maximize opportunities for people to utilize their full potential, which is likely to lead to sustainable happiness and contentment.</p> <p>At last, when we compared Hedonism and eudaimonic theories of WB and happiness conceptions, we realized although they are distinct, they maintain intriguing relations that facilitate people to optimize their WB independently, which approaches follow (Keyes et al. 2002). Happiness in hedonism (short term) is likely to influence the level of life satisfaction in the eudaimonic sense, while the term eudaimonia refers to WB as distinct from happiness per se. Moreover, Eudaimonic theories maintain that not all desires, though they are pleasure producing, would yield WB when achieved because some outcomes are not suitable for people and would not promote wellness. Thus, from the eudaimonic perspective, subjective happiness cannot be equated with WB (Ryan & Deci 2001).</p> |
| <p>Psychological Well-being (PWB)</p> <p>(Ryff)</p> | <p>PWB, as distinct from WB, presents a multidimensional approach to the measurement of six different aspects of human actualization: autonomy, personal growth, self-acceptance, life purpose, mastery, and positive relatedness (Ryff & Keyes 1995).</p> | <p>This theory was developed by Carol Ryff (Ryff & Keyes, 1995).</p> <p>PWB determines to contribute to an individual's psychological WB, contentment, and happiness and consists in achieving a state of balance affected by both challenging and rewarding life events (Dodge et al. 2012).</p> |

| Theory / Author | Contribution | Relation with other researchers and Comments |
|---|--|---|
| Psychological Well-being (PWB) (Ryff) | <p>PWB, as distinct from WB, presents a multidimensional approach to the measurement of six different aspects of human actualization: autonomy, personal growth, self-acceptance, life purpose, mastery, and positive relatedness (Ryff & Keyes 1995).</p> | <p>This theory was developed by Carol Ryff (Ryff & Keyes, 1995).</p> <p>PWB determines to contribute to an individual's psychological WB, contentment, and happiness and consists in achieving a state of balance affected by both challenging and rewarding life events (Dodge et al. 2012).</p> |
| Self-Determination Theory (SDT) (Ryan & Deci) | <p>SDT remarks three basic psychological needs: autonomy, competence, and relatedness.</p> <p>Need fulfillment is viewed as a natural aim of human life that delineates many of the meanings and purposes underlying human actions (Deci & Ryan 2010).</p> | <p>SDT is a theory of motivation developed by Edward L. Deci and Richard M. Ryan (Ryan & Deci 2000).</p> <p>SDT theorizes that fulfillment of these needs is essential for psychological growth (e.g., intrinsic motivation), integrity (e.g., internalization and assimilation of cultural practices), and WB (e.g., life satisfaction and psychological health), as well as the experiences of vitality (Ryan & Frederick 1997) and self-congruence (Sheldon & Elliot 1999).</p> <p>SDT represents a broad framework for the study of human motivation and personality defining its intrinsic and varied extrinsic sources. It focuses on how social and cultural factors facilitate people's sense of wish and initiative, in addition to their WB and the quality of their performance. Conditions supporting the individual's basic psychological needs defined (autonomy, competence, and relatedness) are argued to foster the most high-quality forms of motivation and engagement for activities, including enhanced performance, persistence, and creativity.</p> |
| Desire theories (Griffin) | <p>It considers pleasure and pain are inside heads of people, and as it is hard to measure, assumes WB consists in the satisfaction of preferences or desires, the content of which could be revealed by the choices of their possessors.</p> | <p>This theory was developed by James Griffin (Griffin 1986).</p> <p>Desire Theories hold that fulfillment of a desire contributes to one's happiness regardless of the amount of pleasure (or displeasure). That made possible the ranking of preferences, the development of 'utility functions' for individuals, and methods for assessing the value of preference-satisfaction. According to which what matters to a person's WB is the overall level of desire-satisfaction in their life. This theory tries to objectivate hedonism one; by the way, it replaces pleasure that is more abstract to a fulfillment of a specific desire that is more concrete.</p> |
| Objective List Theories (Nussbaum) | <p>It identifies a list of capabilities that constitute WB. Some examples or pursuits listed are career accomplishments, friendship, freedom from disease and pain, material comforts, civic spirit, beauty, education, love, knowledge, and good conscience are good for people.</p> | <p>This theory was developed by Martha Nussbaum (Nussbaum 1992).</p> <p>Nussbaum offered an objective list filled by exogenous and endogenous factors, related to real capabilities for doing things. By this theory, once achieved everything is listed people should be happy (Nussbaum & Sen 1993).</p> <p>Nussbaum worked closed with Sen, who never offered a closed or specific list that could apply to everybody. Sen argues everyone should find its list (Sen 1993).</p> |
| Authentic Happiness (Seligman) | <p>It holds that there are three distinct kinds of happiness: The Pleasant Life (pleasures), the Good Life (engagement), and the Meaningful Life. The first two are subjective, while the third one is at least partly objective and lodges in belonging to and serving what is larger and more worthwhile than the just the self's pleasures and desires.</p> | <p>This theory was developed by Martin Seligman (Seligman 2003)</p> <p>Authentic Happiness mixes and synthesizes several theories: The Pleasant Life regarding happiness in Hedonism's sense, the Good Life about happiness in Desire's sense, and the Meaningful Life about happiness in the Objective List's sense</p> |

Source: Own Elaboration

Until here, there have been examined and presented the most critical WB theories, with some nuances, some similarities, and partly complementarity between them, and the most influential researchers and authors that have been analyzing WB.

Our study that pretends to analyze the impact of digital transformation and the Internet use on WB individual perception will be based on the model of six dimensions proposed by Ryff. Thus, we will take into consideration the multidimensional approach proposed by Ryff that englobe autonomy, personal growth, self-acceptance, life purpose, mastery, and positive relatedness, aspects within the evaluation of people WB.

The following chapters will explain more detailed considerations and models utilized for carrying on this study, but before, it is required to have a look around the world and over time, about different methodologies and surveys used to WB measurement.

5.5 The Measurement of Wellbeing

WB has vast potential and implications; thus, for a long time, different theories have been analyzing this issue and continue today.

Nobody discusses monitor WB offers essential information for public and policy purposes. Governments around the world have increasingly considered the need to look beyond economic indicators and consider measures for enhancing the WB of their citizens.

It is clear there is a great interest in measure WB. A proof of it is the number of indicators launched in the last decade. However, as it has been documented, it is a complex concept that involves lots of perspectives and senses, and independently which theory or definition is being considered, it has an essential subjective component.

Thus, it is essential to create a set of internationally comparable ‘well-being accounts’ that complement existing socioeconomic indicators of success. Thereby provide higher quality data is essential to a deeper theoretical understanding of WB constructs and how they relate to one another; to understand what contributes to WB of people and how it varies across countries, but also to assess the impact of different social and political policies on personal and social WB of individuals.

In the beginning, WB was measured with self-reports (Eid & Larsen 2008), but that is fundamentally different from using objective measures (e.g., household income, unemployment levels, neighborhood crime). A combination of objective and subjective factors was important for assessing WB, and that is to date, what has been lacking in any assessment by national governments, although the use of both objective and subjective measures, when available, is desirable for public policy purposes (Diener 2009).

In 2005 after thinking much about it, the International Institute of Management in the United States launched a Gross National Wellness (GNW). It is a fact, they were inspired by the Gross National Happiness (GNH) introduced by the former King of Bhutan in 1972, but even so, it was a challenge. GNW that still exists today was launched as a socioeconomic development and measurement framework that evaluates seven dimensions: economic, environmental, physical, mental, work, social, and political, with no religious measurement components. It was carried on via survey and included subjective results complemented with objective data.

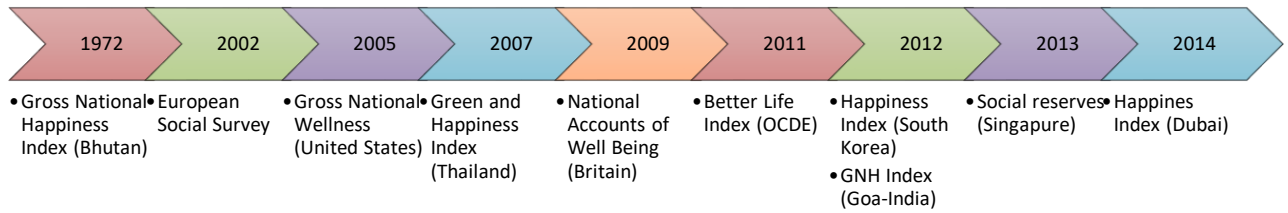
In January 2009, in Britain, the New Economics Foundation (nef) launched the National Accounts of Well-Being (NAWB). NAWB that also still exists is required to compare and

contrast the effects of different political and social policies and contexts on the levels of WB experienced by citizens. These (predominantly subjective) WB indicators would complement existing objective measures such as socioeconomic indicators, which currently provide the most common method.

However, they are not isolated records, several initiatives were also launched into other different communities: Thailand released Green and Happiness Index (GHI) in 2007; and in 2011, Organization for Economic Co-operation and Development (OECD) launches "Better Life Index" (BLI) that establish and measure WB as an indicator of progress and development. In the same year, General Assembly of United Nations signs the resolution 65/309, titled "Happiness: towards a holistic approach to development," and as well as Canadian Index of Wellbeing Network (CIW Network) has been created. In 2012, South Korea launched Happiness Index citing the GNH Index framework, and both, the Government of Goa (In India) and the city of Seattle in Washington, launched their happiness index initiative using the GNH Index as a model for measuring happiness. In 2013, Singapore focused on building up its "*social reserves*," a concept that appears to have parallels to GNH; and in 2014, Dubai launched its localized Happiness Index to measure the contentment and satisfaction of the public with different government services, and United Kingdom launched its own WB and happiness statistics.

Figure 3 resumes the main indexes.

Figure 3. Introduction of Measurement Happiness indexes



Source: Own Elaboration

Hence, there have been found, lots of indexes, indicators, and measures by the public or institutional side, and lots of information and separate data about it, but none equivalent. Each country and institution tend to look more inside than outside, and there does not exist any coordination or leadership.

By the academic side, also many scientists were and are still interested in studying WB, itself, its measurement (it could), and its causes – with empirical methods. This data will allow understanding better the factors that contribute to WB and provide a metric for evaluating the real impact on people of the societal context and social policies.

When researchers make cross-national comparisons, the most common approach is using a single measure of happiness or life satisfaction as a sole indicator (Abdallah & Mahony 2012). However, such summary measures only provide a limited perspective on whether people are living the good life. For instance, when the employment perspective has been evaluated from the WB perspective, questions are focused on measuring job satisfaction, satisfaction with work-life balance, the emotional experience of work, and assessment of work conditions. Moreover, in different circumstances, for some comparisons where global WB indicators show little or no difference, this may obscure significant differences in selected life domains, which has important implications for policy (Easterlin 2004).

Perhaps all this interest comes from the concern that WB declines in old age, and it could be accompanied by deteriorating happiness. The fact is, across Europe, there is a rapidly growing number of people in the “third age” or age of active retirement (Tillsley & Taylor 2017) and a crisis in pensions as a structural lag. Results found most in this group are still in relatively good health and have a high level of cognitive capability, and social institutions do not provide them adequate opportunities to use their skills and stay active and socially engaged. Whatever it is, ensure WB, especially in old age, represents a severe cost to society, while other resources are being under-utilized (Hagestad & Dannefer 2001).

However, not only the third age has been studied by academics. Lots of collectives have been analyzed. Research on WB includes different samples, demographic variables and also, other specific themes have been considered, as a particular area of people’s lives, labor and work issues- using specific questionnaires or experience sampling methods (Ryff 2014).

Such variety inevitably raises enormous questions and data that latterly can neither be shared or compared utterly. Some of them offer a good overview of WB, but a single, catch-all measure might also hide interesting details that a more multidimensional approach can reveal.

5.6 Conclusions

In this chapter, we have analyzed the concept of WB, concluding it involves emotional responses and satisfaction with different aspects of life, and it explains perspectives, sense, and affections give people a sense of how their lives are going on.

It has been presented a complete overview of the concept analyzing its composition. Knowledge of evolutionary aspects and related theories is compulsory to understand the intricacies of the concept and how to measure it. We made a time travel and deepened in the bibliography and understand how precedent researchers have analyzed them over time.

Various and complementary dimensions (economic, psychological, and sociological) have been analyzed to understand better and analyze different concepts WB involves. It could not be reduced to a list of things or sum of satisfaction from particular aspects, because people give different importance to specific areas of life. Thus, personality or personal values play an essential role in WB evaluation, the reason why we have considered character and values so significant and included them in our study model.

WB has a huge potential and an important role to play in society. Research shows that higher WB contributes to many important outcomes. Consequently, data on WB is being studied from a wide range of academic perspectives drawing insights from sociology, economics, psychology theories, and several indexes that have been presented. Such variety inevitably raises enormous questions and data that latterly can neither be shared or compared utterly. Some of them offer a good overview of WB, but a single, catch-all measure might also hide interesting details that a more multidimensional approach can reveal.

Furthermore, the concept is complex because all concepts and dimensions are related. Thus, it becomes clear that a better understanding of what does contribute to well-being is needed.

6. Factors influence

Well-being

*“Life is a journey, and if you fall in love with that journey,
you will be in love forever.”*

Peter Hagerty (2000)

6.1 Introduction

As there has been presented in the previous chapter, WB has a significant subjective component. Therefore, each aspect of life (education, relationships, job or career, money, physical and mental health) influences WB perception. That is the reason why since WB has been studied, researchers have focused on identifying components or factors – that usually are interrelated – form part of it.

In this section, it will be presented how education- understood as a transversal concept, and from a general point of view- influences and affects WB perception. However, not only education, but also other factors that influence it as unemployment, specific life events or

situations (such as the onset of incapacity), or patterns of behaviors and daily events (such as interaction with specific groups and family) (OECD 2013) will be introduced.

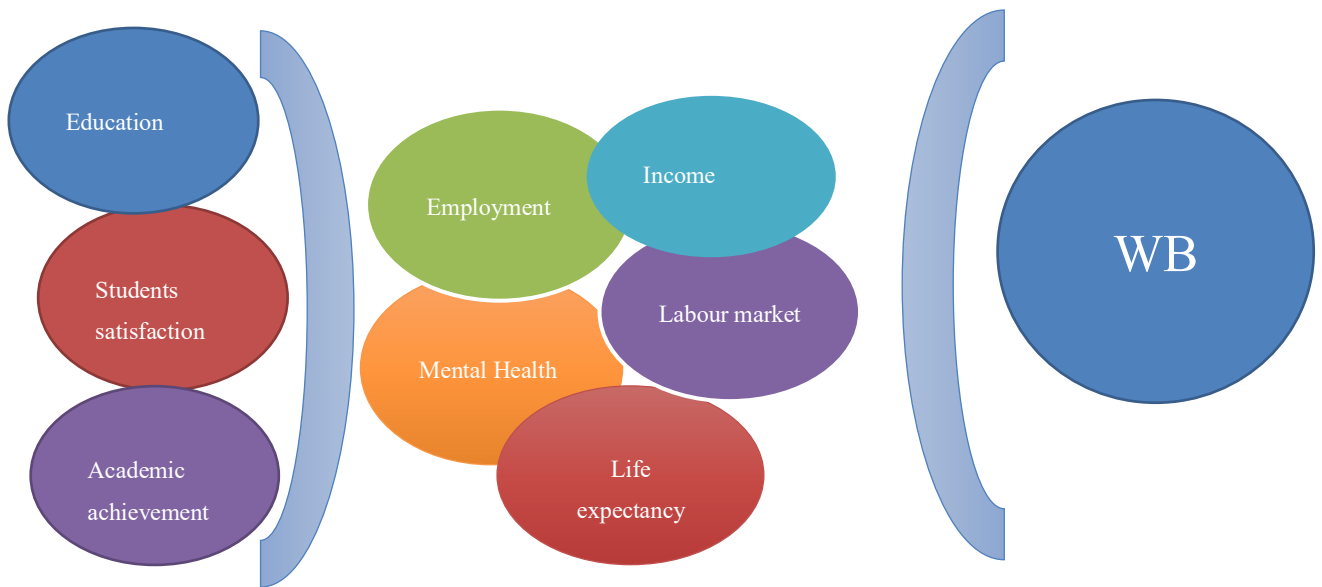
Also, it will be analyzed how income affects people's WB perception and how individual features – as emotional, intellectual, occupational, physical, social, and spiritual aspects – influence that perception. Those aspects are crucial to our model that evaluates how digital transformation and internet use influences people's WB because all these personal considerations could be related to the Ryff theory (Ryff 2014) that is the basis of the WB model designed.

Hence, it is crucial to understand correctly components and affections that are part of WB in order to provide a more comprehensive knowledge for objectivate subjective components of WB. It will provide the necessary consistency to the model of the interrelation of WB and the Internet use we proposed in this study.

6.2 Education and Well-Being

The WB of modern society is dependent on the knowledge and ideas possessed and generated by individuals (Crocker 2002). Thus, this epigraph will be analyzed the impact of education on WB within different dimensions, student satisfaction, academic achievement, employment, labor market, mental health, income, and life expectancy presented in Figure 4.

Figure 4. Aspects related to education and WB



Source: Own Elaboration

Table 3 summarizes a non-exhaustive list of studies that analyze the impact of education on WB at different levels.

Table 3. Resume of studies relating to education and WB

| | Topic | Source/ Authors |
|---------------------------|--------------------------------------|---|
| WB & Education | Education in general | OECD- Education at Glance 2016, 2018 |
| | Students satisfaction | Michalos & Ordando, 2006 Munir 2018 |
| | Academic achievement | Sánchez-Álvarez et al. 2016 Brunker 2007 Upadyaya & Salmela- Aro 2013 |
| Health | Health in general | Michalos and George 2007 Delaruelle et al. 2016 OECD 2016 |
| | Mental Health | Eurostat 2017 Sánchez-Álvarez et al. 2016 Dudal & Bracke 2016 Hayward et al. 2005 |
| | Life expectancy | Wigley & Akkoyunlu-Wigley 2006 Cutler & Lleras-Muney, 2012 Home et al. 2015 Sasson 2016 |
| Employment | Job quality | Albert & Davia 2005 García-Aracil et al. 2018 |
| | Income & Labor status & productivity | Cuñado & de Gracia 2012 Chen 2012 Albert & Davia 2005 Hill & King 1995 McGowan & Andrews 2015 |
| Gender | Gender issues | OECD Education at glance 2018, 2016 Vincent- Lacrin, 2008 |
| | Couple relationships | Halford & Bodenmann 2013 Klesment & Van Bavel 2017 De Hauw et al. 2017 |

Source: Own Elaboration

As could be anticipated, education and WB are related. Analyzing the **impact of education overall**, we found the OECD annual report “Education at Glance 2016” that compares individuals' life satisfaction between different groups of education grades. That report concludes, “*Individuals with tertiary education were more likely to report satisfaction with their life than those with upper secondary or post-secondary non-tertiary education*” (OECD 2016, 156). Although this relationship (Education and WB) becomes weaker when other aspects such as income, health status are controlled (Boarini et al. 2012; OECD 2013).

However, deepen in the process of learning and its WB influence, there has not been only evaluated individuals' satisfaction once grades are finished. There has also been evaluated **students' satisfaction**. In this way, it has found that the most powerful university-related variable with students' satisfaction is the ones students have with their instructors. Because other university-related variables, in combination with the life domain variables, do not add practically anything (Michalos & Orlando 2006). Although this second affirmation has been questioned recently by Munir, who suggests the learning space characteristics such as the environmental, design and facilities, also influence student' satisfaction and perceived performance (Munir 2018).

Regarding **academic success**, it was found emotional dimensions, and the level of school engagement influence student's performance. On the one hand, emotional intelligence influences WB (Sánchez-Álvarez et al. 2016) and, also social-emotional WB facilitates and predicts academic achievement (Brunker 2007). On the other hand, high engagement with school fosters several aspects of students' WB, such as positive emotions and life satisfaction, while low engagement is negatively associated with it, and relate with depressive symptoms and burnout (Upadyaya & Salmela-Aro 2013).

Furthermore, the **Intelligence Quotient (IQ)** in general influences individual WB - because both are directly related- although influenced by other factors as activities of daily living, income, health, and other neurotic symptoms, that mediate this relationship (Ali et al. 2013). Nevertheless, for persons with a mild/borderline intellectual disability is a poor predictor of WB (Arvidsson & Granlund 2018).

Other studies analyze how education affects people's **behaviors**. More educated people have higher self-esteem, environmental mastery, autonomy. Individuals who are well-educated feel in control of their lives, encourage and enable a healthy lifestyle. That is because a practical end and effectiveness of education are empowering them to find an autonomous and creative work and thereby promoting good health (Mirowsky 2017).

Furthermore, there is a direct effect between education and WB because of “self-confidence” or “**self-estimation**” effect from acquiring knowledge, due to more confident people tend to be more successful in life (Michalos 2017; Cuñado & de Gracia 2012). Thus, education reduces distress mainly by being a way to obtain paid work and economic resources, and all together are associated with high personal control, considered as an indicator of the subjective quality of life (Cuñado & de Gracia 2012; Ross & Van Willigen 1997).

Education also impacts on health. There is a direct relationship between education, schooling, and good **health**, and on WB (Michalos 2008). Results conclude that education affects and influences health, and it has contributed to change the mechanisms that link education to women’s health (Delaruelle et al. 2016). Individuals with higher educational fulfillment are less likely to report activity limitations due to health problems than those with lower educational attainment (OECD 2016).

Moreover, education contributes to **mental health** — individuals with higher levels of education report lower frequency of depression in all countries⁴ (Eurostat 2017). Inclusive in those countries with an oversupply of the higher educated in the labor market, they are experiencing fewer depressive complaints (Dudal & Bracke 2016). Education systems can help reduce depression, and as higher educational attainment usually leads from a health economics perspective, education is a good investment that can reduce long-term health care costs (Hayward et al. 2005).

Similarly, education affects **life expectancy**. Highly educated people, on average, live longer than lower educated ones, which declines in adult life expectancy (Wigley & Akkoyunlu-Wigley 2006, Home et al. 2015; Sasson 2016). More educated people are concerned about healthy habits, and consequently, they have fewer infections and illness, lower morbidity rates, and higher life expectancy (Cutler & Lleras-Muney 2012).

Education also has effects on **employment and the labor market**. It improves cognitive, social, and emotional skills that play an essential role in increasing life satisfaction linked to **job quality**. Education promotes learning experiences, fosters methodological and applied competencies, specific career-related experience, and employability skills that prepare graduates for the transition to work a job quality (García-Aracil et al. 2018). This relation is so strong that the net effect of education on satisfaction is positive; and it becomes more significant after introducing income in the estimations, in southern than northern countries in Europe (Albert & Davia 2005). It also affects **income and labor status**. Individuals with a higher education attachment report higher income levels and a higher probability of being employed, and thus, report higher levels of WB (Cuñado & de Gracia 2012).

⁴ Responding to the 2014 European Health Interview Survey (EHIS)

However, a job is not only a task or duty. It could offer money, fulfillment purpose in life, friendships, or mental health, among others. All of them can influence WB positively or negatively (improving or worsen our lives) depending person and circumstances – although that relationship could differ between countries. For instance, in China, individuals with higher education levels have more **extensive social networks** and greater WB (Chen 2012). In European countries where the link between education and satisfaction is more significant and confident in the Southern countries – even after introducing income in the estimations – than in Nordic ones (Albert & Davia 2005).

Regarding employment, too, remark educational progress has enhanced **labor market productivity** and income growth. In this way, it is also essential to pay attention to the correlation between skills and firm-productivity. Over-qualified and over-skilled workers, when exists convergence between both, are positively associated with higher firm productivity, while when exists divergence is associated with lower labor productivity (McGowan & Andrews 2015).

At last, there cannot be forgotten **gender issues** when studying this concept. Educating women has beneficial effects on social WB not always measured by the market because it fosters economic growth to extend the average life expectancy in the population and improves the functioning of political processes (Hill & King 1995). Moreover, although there still exists a **gender gap** in tertiary education, it has turned around in recent years. From the 1960s forward, the number of women in tertiary education has increased significantly (Vincent-Lancrin 2008). Recently, there are more highly educated women than highly educated men reaching the reproductive ages, to such a level that men now generally delay behind women on several essential educational standards (DiPrete & Buchmann 2013). Moreover, today, there are more women than men tertiary graduates;

despite this tendency does not continue to more advanced levels (doctoral or equivalent programs) (OECD 2016).

Specifically, attending 2018 Education at Glance report, *“On average across OECD countries with available data, boys makeup about 60% of secondary-school grade repeaters and are less likely to complete that level of education than girls. As a result, a larger share of girls than boys graduates from this level. Men are also less likely than women to attain tertiary education: 38% of men aged 25-34 were tertiary-educated on average across OECD countries in 2017 compared to 50% of women the same age, and this gap has been widening over the past ten years. The gender gap favors girls in education, but men in the labor market”* (OECD 2018, 23-25). Thus, despite better educational fulfillment, women still have worse employment outcomes, earning 26% less than men at tertiary education grades (OECD 2018).

Finally, it could not be neglected this increasing education rates on women influences the **couple relationship**. Women’s advantage in higher education has affected living patterns, child care, and family earnings (Klesment & Van Bavel 2017). Thus, relationships of couples have been altered. In this way, education enhances the level of satisfaction of **relationships** of couples with low satisfaction, helping couples to maintain and increase fulfillment (Halford & Bodenmann 2013). However, not only that, women before tended to form unions with men who were at least as highly educated like themselves, and now they tend to live with men who are at most as highly educated. Along the way, advanced education became a bonus on the mating market for women as well as for men (De Hauw et al. 2017).

Subsequently, it has been proved different aspects related to education influences WB. Thus, our study will consider, include, and analyze how education dimension affects and

influences the Internet use and WB perception of individuals involved in the sample.

6.3 Income and Well-being

Although there has been introduced in previous chapter income aspects, because of its transcendence, we cannot neglect to comment on them here.

There are lots of theories and researchers (Easterlin, Diener, Veenhoven, Inglehart) that have been studying how income influences on WB. Also, numerous studies have been analyzing if there exists a correlation between income and WB. Following Table 4 lists and summarizes some studies carried on connecting income and WB.

Table 4. Results of some cross-country income and WB studies

| Study | Income Measure | Well-being measure | Results | Pattern |
|------------------------------|---------------------------------------|--------------------|---|-------------|
| Cantril 1965 | GNP per capita | Happiness | Correlation = positive | Not shown |
| Easterlin 1974 | GNP per capita | Happiness | Correlation = ambiguous | Flatline |
| · Cantril data 1965 | GNP per capita | Happiness | Correlation = ambiguous | |
| · World Survey III 1965 | GNP per capita | Happiness | Correlation = ambiguous | |
| Inkeles & Diamond 1980* | GDP per capita or PPP | SWB | Correlation = 0.55 – 0.61 | Not shown |
| Ouweneel & Veenhoven 1991* | GDP per capita or PPP | SWB | Correlation = 0.62 | Not shown |
| Veenhoven 1991* | GNP per capita | SWB | Correlation = 0.51 | Curvilinear |
| · Cantril data 1965 | GNP per capita | SWB | Correlation = 0.59 | Curvilinear |
| · World Survey III 1965 | GNP per capita | SWB | Correlation = 0.84 | Curvilinear |
| · Gallup 1975 | GNP per capita | Happiness | Correlation = 0.46 – 0.50 | Linear |
| Diener et al. 1993 | GNP per capita | SWB | Correlation = 0.46 – 0.50 | Linear |
| Diener at al. 1995 | GNP and Purchasing Power Parity (PPP) | SWB | Correlation = 0.59 | Linear |
| Myers & Diener 1995 | GNP per capita | SWB | Correlation = 0.67 | Not shown |
| Diener & Diener 1995 | GDP per capita or PPP | SWB | Correlation = 0.64 | Not shown |
| Schyns 1998* | GDP per capita or PPP | SWB | Correlation = 0.64 | Not shown |
| Myers 2000 | GNP per capita | SWB | A positive correlation, which evaporates among nations with GNP>\$8000/person | Curvilinear |
| Inglehart & Klingemann 2000* | GDP per capita or PPP | SWB | Correlation = 0.70 | Not shown |
| Diener & Oishi 2000* | GDP per capita or PPP | SWB | Correlation = 0.69 | Not shown |
| Deaton 2008 | GDP per capita and PPP | Satisfaction | Correlation = positive and substantial | Linear |
| Stevenson & Wolfers 2008 | Log of GDP per capita | Happiness | Correlation = 0.93 | Linear |
| · Gallup 1946 | | | | |
| · Tension Study 1948 | | | | |
| · Gallup 1949 | | | | |
| · Human Concerns 1960 | | | | |
| · World Survey III 1965 | | | | |
| · World Values 1981-1984 | | | | |
| · World Values 1989-1993 | | | | |
| · World Values 1994-1999 | | | | |
| · World Values 1999-2004 | | | | |
| · Pew Global Survey 2002 | | | | |
| · Gallup World Poll 2006 | | | | |
| · | | | | |
| · | | | | |

Source: Jody Delichte- 2009, Positive psychology uk.

So far, there are lots of studies, that over time have been complemented and evolved. Moreover, today, regarding if richer countries are happier than poorer ones, there still exists some controversial. Here are presented the three dominant perspectives:

1. There exists a weak relationship between income and WB (Easterlin 1974; Easterlin et al. 2010), and it is caused because of income inequality (Oishi & Kesebir 2015).
2. There exists a positive relationship between income and WB, but it decreases after reached a certain level of income (Myers 2000; Veenhoven 1991). Thus, income could reduce sadness, although not increase happiness (Kushlev et al. 2015; Hudson et al. 2016).
3. There exists a positive and linear relationship between income and WB (Deaton, 2008; Diener et al. 1995; Diener et al. 2013; Hagerty & Veenhoven, 2003; Stevenson & Wolfers 2008).

Three different perspectives to which should be added the comparison effect of individuals announced by Boyce et al. (2010) that refer “*people gain utility from the ranked position of their income within a comparison group*” (Boyce et al. 2010, 2). The comparison effect concludes that the ranked position of an individual’s income predicts general life satisfaction, whereas total income and reference income do not affect. Thus, some balanced effects should be done increasing and reduce the utility between raked positions (Boyce et al. 2010)

Other authors (Biswas-Diener) distinguish between a) goals and values, and b) relative standards (comparison judgment, adaptation, hedonic treadmill, Easterlin paradox) to explain this complex relationship between material wealth and WB (Biswas-Diener 2009).

At last, remark overall theories, it is a fact money influences WB, by giving more options and chances (improving living conditions, social status) although it tends to decrease over time (Diener 1984; Diener & Biswas-Diener 2002; Diener & Eunkook Suh 1997; Myers 2000; Myers & Diener 1995). Also, an increase in income will have a higher effect on an individual who is relatively poor – living in a developing country with a deteriorated economy –, than on one more favored – living in a proper country that has high aspirations and desires even more money, and wastes their money on factual things for themselves.

Consequently, after examining the income variable and how economic dimension could affect and influence WB, our study will consider and analyze in what manner the economic dimension impacts on the internet use and WB perception of individuals included in the sample.

6.4 Personal Values:

Personal values influence behavior and individuals WB, and they held motivations as striving towards goals of people (Huppert 2009). Values attain the goals underlying individuals. They are subjective and reflect what people think and state about themselves and also predict a large variety of attitudes, preferences, and specific behaviors. Researchers have determined their usefulness in influencing action because understanding personal values means understanding human behavior. Furthermore, understanding human behavior approximates to understand WB fulfillment (Sagiv et al. 2017).

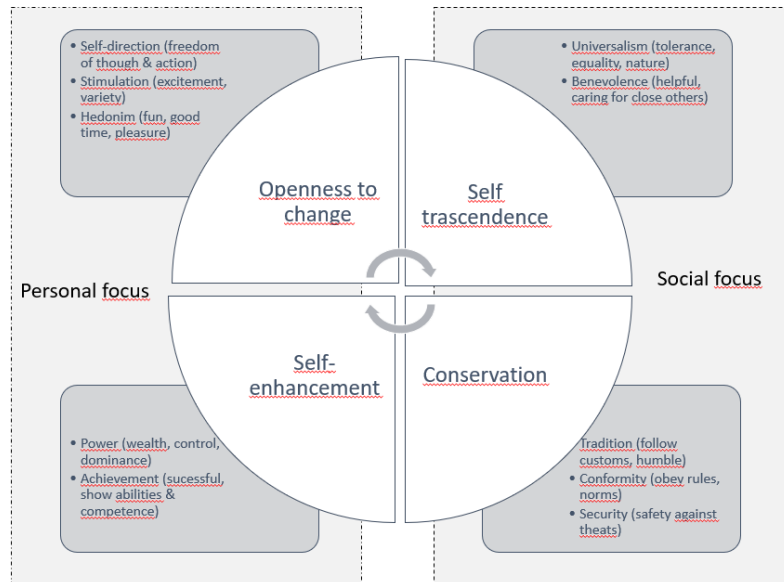
The two most popular and recent scales for measuring values are the Inglehart (1971) and Schwartz (1992) ones.

Inglehart's theory and scale measure values of materialism/postmaterialist (Inglehart 1997). Inglehart developed and initiated the World Values Surveys and the Evolutionary Modernization Theory. This theory argues that economic development, welfare state institutions, are reshaping human motivations in ways that have significant implications on social convivence. He provides an appropriated framework to measure preferences among possible goals for one's country, but not about personal goals.

Schwartz's theory and scale are currently the most widely used by social and cross-cultural psychologists for studying individual differences in values (Schwartz & Sortheix 2018). Schwartz underpins ten different motivational types of values that allow the measure of personal goals: 1) Achievement – that refers to personal success and demonstration of competence according to social standards. 2) Power – that refers to social status and prestige and control or dominance over people and resources. 3) Security – that refers to the safety, harmony, and stability of society, relationships, and of the self. 4) Conformity – that refers to the limitation of actions that could trouble others and violate social expectations or norms. 5) Tradition –refers to respect and acceptance of the customs and ideas that traditional culture or religion provides the self. 6) Benevolence – that refers to preservation and enhancement of the welfare of people with whom one is in frequent personal contact. 7) Universalism – that refers to understanding and protection for the welfare of all and the environment. 8) Self Direction – that refers to independent thought and action-choosing, creating, exploring. 9) Stimulation – that refers to excitement, novelty, and challenge in life. Moreover, 10) Hedonism – that refers to pleasure and sensuous gratification for oneself (Schwartz & Sortheix 2018).

Next, Figure 5 presents the basic values and motivational sources of Schwartz's theory.

Figure 5. Basic values and motivational sources of Prof. Schwartz



Source: Own source based on Schwartz & Sortheix, 2018

Schwartz scale has been used on the European Social Survey questionnaire – the one that will be taken into consideration for the current study – and their questions will be analyzed in the present research with the purpose of deepening on motivational aspects individuals have and influence their WB.

6.5 Other factors to take in consideration:

It has been presented how education, income, and personality impacts on WB, but there are other essential aspects that should be taken into consideration.

According to OECD, **Personal safety** is considered a core element in individuals' WB (OECD 2011). It is a broad concept that can be measured in different ways, although the level of crime is one of the most used rates (OECD 2011). Feelings of insecurity have a variety of adverse effects on society and tend to limit people's daily activities (OECD 2017). Rural economies with better education and labor market opportunities are associated with lower rates of violent crime (Marré 2017). Thus, the more personal safety, the more WB individuals perceive.

Moreover, general **gender issues** should be considered. Women are less wealthy than men, although they have equally healthy. Some studies argue they are happier at the beginning of their life (Hartog & Oosterbeek 1998; Easterlin et al. 2010) despite at the end of their life they are less happy (Easterlin et al. 2010). Other studies remark that although women experienced more inequalities (lower incomes, widowed, wealth), they do not affect their happiness, having the same or more happiness than men (Zweig 2015). Thus, there is controversy about how gender influence WB.

We have introduced and explained those factors because our study will consider and analyze how personal safety dimension, understood as to how safe people feel walking alone in the local area after dark, affects and influences internet use and WB perception of individuals included in the sample; and indubitably, also the gender dimension.

6.6 Model of 6 factors:

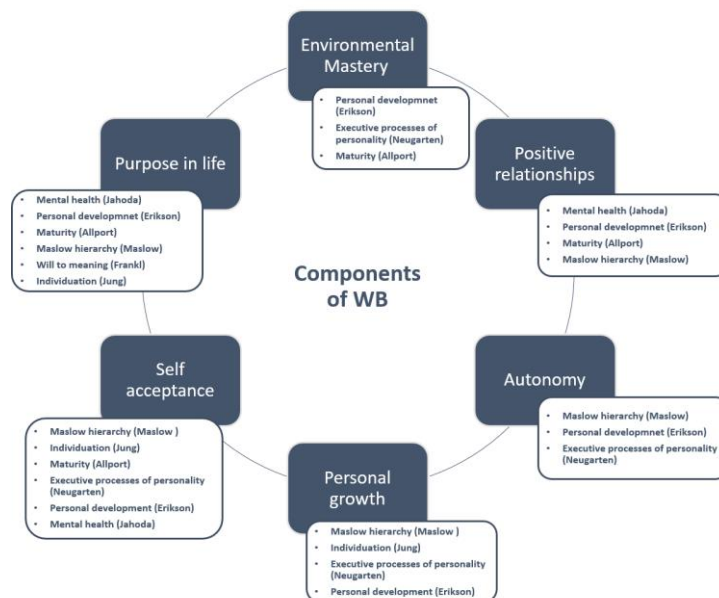
Once examined general or transversal aspects that impact on WB, in this section, there will be presented and analyzed other six different perspectives that influence the most

subjective valuation of WB. These perspectives are related to physical, social, and emotional aspects, but also from a spiritual, intellectual, or occupational aspect. They englobe all aspects of life (personal -individual and social- and professional), whose, altogether provide a broad reference to how judge oneself live at a global level.

These six perspectives have been linked to the six components defined by Carol Ryff: Autonomy, Environmental Mastery, Personal Growth, Self-Acceptance, Positive Relationships, Purpose in life (Ryff 1989, 2014, 2017); in order to provide broader consistency to the model proposed in this study.

Briefly, Figure 6 presents the Ryff's model and its foundations and theoretical underpinnings (Ryff 2018).

Figure 6. Core dimensions Ryff Model and foundations



Source: Own elaboration based on Ryff, 2017

The autonomy component is related to a fully functioning person (Rogers 1961). It highlights independence and self-determining functioning and self-actualization, responding to Maslow's hierarchy (Maslow 1968), turning inward in later life (Erikson 1959), and freedom from the norms (Neugarten 1973).

The environmental Mastery component is associated with the capacity to create situations suitable to one's psychic needs and necessary for mental health (Jahoda 1958). It also relates to the capability to act on and change the close world through mental and physical actions (Erikson 1959, Neugarten 1973). Moreover, to maturity – state to extend the self into spheres of endeavor that goes beyond the self (Allport 1961).

The **personal Growth** component is concerned with self-realization and achieving personal potential (Maslow 1968; Jahoda 1958), fully individuated (Jung 1933). It takes into consideration basic life tendencies and challenges and tasks at different periods of life (Erikson 1959; Bühler 1935; Neugarten 1973).

The Self-Acceptance component is related to having positive self-regard (Maslow 1968), maturity (Allport 1961), optimal functioning (Rogers 1961), and mental health (Jahoda 1958). It includes the acceptance of one's past life (Erikson 1959; Neugarten 1973; Jung 1933).

Positive Relations with Others component refers to the ability to have feelings of empathy and affection and to love as a central feature of mental health (Jahoda 1958). It also refers to deep friendship, and empathy with others (Maslow 1968), or intimacy and affection (Erikson 1959; Allport 1961; Becker 1993).

The purpose in life component concerns to directedness and intentionality to life (Allport 1961; Jahoda 1958); existential formulations, searching for meaning in adversity situations

(Frankl 1959), and its evolution with life-changing purposes or goals at different life stage (Erikson 1959; Neugarten 1973; Jung 1933).

Examined six Ryff’s components, Table 5 summarizes and relates factors we propose in our study model that analyze the influence of the Internet Use on WB perception, with Ryff’s model. Next will be explained more specifically those factors.

Table 5. Resume of 6 components and affection to Ryff’s model

| Factors proposed | Ryff’s component | Affection |
|----------------------|------------------------|---|
| Physical aspects | Autonomy | Live according to individual convictions |
| Intellectual aspects | Environmental mastery | How well individuals deal with daily life situations |
| Occupational aspects | Personal growth | Make use of individual talents and potential |
| Emotional aspects | Self-acceptance | Knowledge and acceptance of themselves, including awareness of personal limitations |
| Social aspects | Positive relationships | The strength of relationships individuals have, and engages with significant others |
| Spiritual aspects | Purpose in life | Purpose and direction |

Source: Own elaboration

Taking into consideration also Schwartz's theory and scale of values included on the European Social Survey – data used on our analysis – Table 6 summarizes and relates factors proposed in our study model, and with Ryff’s one.

Table 6. Resume of 6 components and affection to Schwartz theory and Ryff Model

| Factors proposed | Ryff's component | Schwartz Components | Affections |
|----------------------|------------------------|---------------------|--|
| Physical aspects | Autonomy | Power | Social status and prestige and control or dominance over people and resources |
| | | Security | Safety, harmony, and stability of society, relationships, and of the self. |
| Intellectual aspects | Environmental mastery | Universalism | Understanding, and protection for the welfare of all and the environment. |
| Occupational aspects | Personal growth | Stimulation | Excitement, novelty, and challenge in life. |
| Emotional aspects | Self-acceptance | Achievement- | Personal success and demonstration of competence according to social standards. |
| | | Self-Direction | Independent thought and action-choosing, creating, exploring. |
| Social aspects | Positive relationships | Conformity | Limitation of actions that could trouble others and violate social expectations or norms. |
| | | Tradition | Respect and acceptance of the customs and ideas that traditional culture or religion provide the self. |
| Spiritual aspects | Purpose in life | Benevolence | Preservation and enhancement of the welfare of people with whom one is in frequent personal contact. |
| | | Hedonism | Pleasure and sensuous gratification for oneself. |

Source: Own elaboration

6.6.1 Physical aspects

This factor is related to take care of our body, health, and appearance, from nutritional or exercise, needs to hygiene or healthy habits. It also refers to the independence of people in different aspects of their lives, on movement or sensorial terms, but also personal criteria. Also, decision capacity or control could be linked.

Physical aspects refer to autonomy on independence people have in daily activities. They also refer to how corporal (body, health, hygiene) affects the quality of life because it is demonstrated physical activity reduces the risk of diseases and promotes mental health across the life span (Powell et al. 2011).

Connecting with the Ryff model (Ryff, 2014), this factor refers to the ***Autonomy component***, which is defined as living according to their convictions. People that feel self-determining and independent; can resist social pressures to think and act in specific ways; regulate behavior from within; evaluate self by personal standards could be considered autonomous by this component.

Moreover, regarding Schwartz's theory, this factor refers to the ***Power*** component that refers to social status and prestige and control or dominance over people and resources. However, also, with the ***Security*** component that refers to safety, harmony, and stability of society, relationships, and of the self.

In our model study, as it will be presented later, we have linked this dimension to how hampered are individuals for attending daily activities (illness/disability/mental problem); to how important is for them freedom and making their own decisions, importance to do what is told and follow rules, and also to being rich, having money and expensive things.

6.6.2 Intellectual aspects

This factor is related to the ability to plan and accomplish determined mental actions. It refers to the capability of use concepts, and experience people have learned during their whole life, and to detect inconsistencies and address everyday problems. It is also related to deal with external and adverse inconveniences, influence the environment, or asses different intellectual viewpoints, among others. Imagination, adaptability, creativity, criteria, or reliability could be linked.

Intellectual aspects as well refer to education and experience background individuals have and to their ability to chore or create environments suitable to their conditions, and how people manage their current life with pre-existing knowledge and abilities, and of course, it could be related to education considerations presented in previous epigraphs.

Connecting with the Ryff model (Ryff 2014), this factor refers ***to the environmental mastery component***, defined as how well people are managing their life situations. If they have a sense of mastery and competence in managing the environment; to control a complex array of external activities; to make effective use of surrounding opportunities; to be able to choose or create contexts suitable to personal needs and values, or to address over the external world, the master environment.

Moreover, regarding Schwartz's theory, this factor links to ***Universalism***, which refers to understanding, and protection for the welfare of all and the environment.

In our model study, as it will be presented later, we have linked this dimension to how important it is for an individual creative or think new ideas, have an exciting life and seek adventures, and how safety feels in their local area.

6.6.3 Occupational aspects

This factor is related to work because it refers to get satisfaction through the labor people do, through developing new skills at a job or other occupations. It could be linked to a desire to improve and to the ability to learn and be receptive to new challenges or experiences. Also, engagement, motivation, realization could be linked.

Occupational aspects can be understood as a contextually bound combination of meaningful doing, being, belonging, and becoming that influence people's life (Gallagher et al. 2015). They do not refer only to single tasks or job people realize; they also refer to how people enhance their capacities and use them to confront new challenges and getting an outcome.

Connecting with the Ryff model (Ryff, 2014), this factor refers to the **Personal growth component**. That is defined as making use of their talents and potential, having a feeling of continued development, feeling self as growing and expanding; open to new experiences; sensing of realizing his or her potential; feeling an improvement in self and behavior over time, and changing in ways that reflect more self-knowledge and effectiveness.

Moreover, regarding Schwartz's theory, this factor relates to **Stimulation**, which refers to excitement, novelty, and challenge in life.

In our model study, as it will be presented later, we have linked this dimension to the level of education and engagement with improving knowledge or skills periodically; and also essential to try new and different things in life.

6.6.4 Emotional aspects

This factor is related to emotions and feelings an individual has with other people and with oneself. It refers to information people have to evaluate and accept themselves, being aware of strengths and personal limitations. It also includes the ability to express emotions and feelings and to understand other ones, so assertiveness, self-acceptance, self-knowledge, or proactivity could be linked.

Emotional aspects refer to the positive or negative evaluations of the self, as in how people feel about it, as well as how significant other's views of one's life domain. It also refers to the acceptance and satisfaction with the past, absence of anxiety, worry, anger, contentment or pride, happiness, or depression. They contribute to invest and solve interpersonal problems in order to minimize or tolerate stress and conflict (Fredrickson & Joiner 2002).

Connecting with the Ryff model (Ryff 2014), this factor refers to the ***self-acceptance component*** he identified and defined as knowledge of oneself. Acceptance implies having a positive attitude toward every aspect of the self, as an individual, and from their past, including good and bad qualities; feels positive about past life; without wanting to modify what has occurred in the past, being troubled about certain personal qualities or wishes to be different than oneself is. In other words, accept those aspects of oneself cannot intervene in.

Also, regarding Schwartz's theory, this factor relates to ***Achievement*** that refers to Personal success and demonstration of competence according to social standards. But also, to ***Self-Direction***, understood as independent thought and action-choosing, creating, exploring.

In our model study, as it will be presented later, we have linked this dimension to how individuals perceive their subjective general health, how important and comfortable they are showing their abilities and being admired; to how people feel about the household's income nowadays, and also to how important is to be successful a recognize achievements for them.

6.6.5 Social aspects

This factor is related to the relationship with other people, to the ability to create stable social environments or networks. It also refers to the capacity to interact with other people openly and sincerely and to support mutual help and understanding. Respect, confidence, empathy, and love could be linked.

Social aspects are related to existing social relations, and categorization is most likely to occur within social, personal, labor, and political structures. They refer to the individual's behavior and associations between social relationships, group memberships (Gallagher et al. 2015).

Connecting with the Ryff model (Ryff, 2014), this factor refers to the ***Positive relationships component***, which is defined as the depth of connection they had in ties with significant others. People that have warm, satisfying, trusting relationships with others; is concerned about the welfare of others; capable of intense empathy, affection, and intimacy; gives and takes of human relationships could be considered has positive relationships by this component.

Moreover, regarding Schwartz's theory, this factor relates to ***Conformity***, understood as

a limitation of actions that could trouble others and violate social expectations or norms, and to ***Tradition***, which refers to respect and acceptance of the customs and ideas that traditional culture or religion provide the self.

In our model study, as it will be presented later, we have linked this dimension to the frequency to meet with friends and participate in social activities, to follow the rules and traditions, to behave appropriately and to be humble or portentous.

6.6.6 Spiritual aspects

This factor is related to the importance or meaning we give to life and mostly to people's lives. It refers to the ability to see life from a long-term perspective and adopt values and behaviors in harmony. The desire to fight for change causes or defend injustices could be linked.

Spiritual aspects refer to goals, intentions, sense of direction, and desire to change life among others, in order to contribute a change, the world, and to have a meaningful life, including also religious affections (Unterrainer et al. 2014).

Connecting with Ryff model (Ryff 2014), this factor refers to ***Purpose in life component***, that is purpose and direction, or in other words, having goals in life and a sense of directedness; feeling there is meaning to present and past life; holding beliefs that give life purpose, or having aims and objectives for living.

Moreover, regarding Schwartz's theory, this factor refers to Benevolence that is Preservation and enhancement of the welfare of people with whom one is in frequent personal contact. And also, to Hedonism, as pleasure and sensuous gratification for oneself.

In our model study, as it will be presented later, we have linked this dimension to importance to help and care, people, to understand different people, to seek fun and have a good time, and to defend trade union or organization causes, to have empathy and to equality with others.

6.7 Conclusions

WB is a complex concept. It has different factors involved around it, and all of them are interrelated and should be balanced. In this chapter, we have explained how education, income level, personal safety dimension, or personality influence on individuals' WB evaluation.

Education impacts positively on WB. The more educated individuals are, the better employment, life expectancy, academic achievement, and mental health, among others they report.

Income level and personal safety also influence WB positively. Although there exists some controversy regarding the magnitude of income influence (some authors defend it is stronger than others), it is a consensus on higher-income level provides more extensive chances for individuals, although its impact on WB could be different. Regarding personal safety, there exist unanimously it influences WB positively because it allows individuals to develop daily activities.

Furthermore, other aspects that also influence WB have been introduced. They are: 1) physical – that refers to autonomy, power or security –; 2) intellectual – that relates to environmental mastery and universalism –; 3) occupational – that refers to personal growth

and stimulation –; 4) emotional – that relates to self-acceptance, self-direction, and achievement –; 5) social – that refers to positive relationships, tradition and conformity –; and 6) spiritual – that relates to purpose in life, benevolence, and hedonism –.

Finally, it has been presented variables and aspects that could affect and influence WB; our study will consider and analyze how the internet use influence WB perception of individuals included in the sample. Moreover, they have been related to the six dimensions of Ryff model and Schwartz theory, both basis for the present study

7. Digitization, digital transformation, and Internet

“We started to get a computer in the hands of everyday people, and we succeeded beyond our wildest dreams.”

Steve Jobs (1997)

“The ongoing transformation of communication technology in the digital age extends the reach of communication media to all domains of social life in a network that is at the same time global and local, generic and customized in an ever-changing pattern.”

Manuel Castells (2000)

7.1 Introduction

The progress of technology in daily life and social organization has led to the modernization of information and communication processes and by the end, a social evolution.

We are involved in a knowledge-based economy and information-age society where computer and communications technologies are penetrating homes, workplaces, marketplaces, governments, and communities in general. Moreover, we have evolved into a Network Society organized around networks instead of individual or institutional actors, that works through a constant flow of information over technology (Castells 2010).

Within this information era, Digital technology emerged. First, to exchange data through specific devices or reduced networks, and latterly with the Internet expansion anywhere, resolving significant troubles around the world for many organizations who need to share and preserve information. That is important, due to analogic data typically suffers some loss of quality each time it is copied or transmitted.

In this chapter, it will be presented what **digital** means. Also, how its definition continues changing over time as new technologies, user devices, methods of interaction with other humans, and devices are evolving too.

It is a fact that digital is changing the world, and also, its progress is not linear. As digital is evolving, its capabilities extend, knowledge and data become more widely available. Digitized information can be used, processed, stored, and shared in some digital form, in digital devices without degradation, at a marginal cost, all around the world through the Internet. However, digital technology is not reduced to computers, send e-mails or paperless.

Digital technology is extended to cameras, watches, and other wearable devices, that save and share data, and also refers to the process of the technologically-induced change within traditional industries.

What it is described today as ‘digital’ in short will not need the descriptive word. Digital technology is every day more integrated into our lives, with real-time global exchange information between multiple connected devices (fixed and mobile). As more everyday objects connected, more and closer interconnections are and will be.

In this chapter, it will be done a review through the history and evolution of digital, to understand the potential of the technology is unlimited; because there is a wide range of new technologies, exponential technology advances, and higher consumer power still to come, and because the connection with all this technology is unique: The **Internet**.

The **Internet** is so vital today that if an individual/enterprise/organization is not at the net, it does not exist. The Internet communicates all these new devices and technologies and gives a global sense for them. It allows the process and analyzes information anytime, anywhere. It enforces the individuality because individuals can choose what they want, how and when. Thus, whole segments of society, government, trade, manufacturing industry, mass communications, science, can develop a new way of doing things, business and social change, horizontal organizational and business development, all of them at the net (Taylor et al. 2001), and almost all marketing strategies incorporate social media (Kaplan & Haenlein 2010). In this context, this section will introduce the challenges and risks of using the internet and how it is changing the fundamental skills requirements for the life of citizens, or inclusive how it can be disruptive and transform the way individuals interact with others and variate the structure and business models of the economy.

Moreover, if the internet affects everybody, in the same way, the gap between societies and individuals with access to technology and those people still isolated from technology and information, will create significant differences (Panel 2002). Some critical issues related to infrastructure, technology, skills, or security, among others, will be presented and also will be analyzed the concept from different dimensions: economic, politic, and social ones.

By the end of the section, it will be emphasized the importance of measure and monitor the use of the internet and different ways to measure it, enhancing its particularities.

7.2 Digitization and digital transformation background

Today, most companies and institutions (public and private) are thinking about or pressing ahead with digital transformation initiatives. An imperious for digital innovation and engagement has arisen. Institutions have already realized they require to use digital waterways to involve with their crucial stakeholders and to maintain or increase their competitiveness and engagement.

Digital technology and digital transformation could, among others: 1) spur innovation and competitiveness because they promote creativity, interactivity, and connectivity. 2) Sponsor personalization and engagement because they allow access to customers' preferences and foster social creation or inclusion in specific groups or broader communities. 3) Affect the economy improving productivity growth, and promoting new jobs or education opportunities. 4) Improve communications, saving and sharing information, and transparency between people and organizations. 5) Reduce physical storage space and 6) become more widely

available knowledge and data. Thus, as there will be presented, they offer a vast potential with many implications, but previously some concepts should be agreed upon.

Digitization refers to the adoption or increase in the use of such digital or computer technology by a country, organization, industry, sector, among others (OECD 2017). Nevertheless, digitization also refers to the process of converting information from analogic format (paper, waves, alternating frequency) into a digital format. In this format, information is organized into discrete units of data (called bit) that can be separately addressed (usually in multiple-bit groups called bytes) (Flew 2008). The product is the representation of an object, image, sound, document, or signal (usually an analogic signal) by producing a series of numbers that describe a distinct set of its points or samples to get a digital representation or a digital image. Because, surprisingly, almost every digital thing is formed by a series of numbers.

The Oxford English Dictionary (OED) defines “*digitization*” as “*the action or process of digitizing or to the conversion of analog data (esp. in later use images, video, and text) into digital form.*” Moreover, “*digitalization*” is defined as “*the adoption or increase in the use of digital or computer technology by an organization, industry, country.*”

However, taking those definitions, nobody can imagine the potential digital technology has. That is because the process of digitization goes further, and conversion analogic data into digital data is only the first step. That translation is crucial to process, store and transmit data, as it permits information of all varieties in all formats to be carried with the equivalent efficiency and combined (McQuail 2000), but here is not referring to that process.

Thus, we should be open mind and look at what is behind this concept and the potential it has, and then start to consider digitization as a process. This process is known as Digital

Transformation.

Digital Transformation does not mean only the usage of more IT. It should be understood as a stage where digital usages inherently enable new types of innovation and creativity in a domain, rather than merely enhance and support traditional methods. It represents the first single communication infrastructure that links all activities in society (van Dijk 2006). Moreover, it should be considered one of the significant historical events that have transformed our world/live is the diffusion and deepening of the information technology revolution (Castells 2010).

Moreover, in this process, **the internet** – a concept with huge potential and relatively short life – plays an important role. It allows access and shares data whenever, wherever, in a few seconds. For its particular relevance and considerations, there is one epigraph in this chapter specifically to introduce it.

Castells⁵ wrote maybe the most important book about this issue, “*The Information Age*” (Castells 2010) where he analyses: 1) the new social structure, the network society; 2) social movements and political processes and 3) macro-social processes, all of them in the framework of interaction with the network society. He affirms “*The network society is not produced by information technology, but without information technology revolution it could not be such comprehensive, pervasive social form, able to link up, or de-link, the entire realm of human activity*” (Castells 2010, 162)

⁵ Spanish sociologist specialized with research on the information society, communication and globalization. The world's fifth most-cited social science scholar period 2000–2014.

Regarding technological issues, digitization was not a one-time event. It takes place in different waves encompassed by technological progress and diffusion of innovations (Katz 2017)⁶. Here it is resumed how to start all this process and its evolution. Also, how digital transformation becomes so crucial in a few years.

Digitization starts during World War II (1939-1945) when military needs drove the development of the first electronic computers to provide data calculation and manipulation faster than people can do, and the invention of the **transistor** (1947) (McCartney 1999). As this technology was expensive to buy and maintain, initially was limited to a few scientific institutions, large corporations, and government agencies. However, as transistor technology evolved quickly, computing power size increased sharply, giving direct access to **computers** to ever smaller groups of people. Then emerges the digital revolution⁷ (McCartney 1999). It was the first wave of digitization.

The second wave of digitization started with the **first e-mail**⁸ and latterly with the **internet** (coined in 1974) and the **World Wide Web** in 1989. Then appear search engines, marketplaces, enterprises, and private networking with different utilities. It was the beginning of the **Digital Age**, where industrialization gives place to an economy based on information technology.

⁶ Social and Economic Impact of Digital Transformation on The Economy. Raul L. Katz, ITU expert, under the direction of the ITU/BDT Regulatory and Market Environment Division.

⁷ The Digital Revolution refers to the adoption and proliferation of digital computers and digital record keeping that began anywhere from the late 1950s to the late 1970s, by these times there wasn't data sharing between individual computers and later appeared first magnetic tape and later floppy disks.

⁸ It was as message-sharing system, born in the 1960s first with limited network, as intercompany, or in ARPANET (Advanced Research Projects Agency Network (ARPANET) created by the United States Department of Defense in 1969)

The third wave of digitization is what we are experiencing from the past decade. It involves the adoption of advanced technologies (**big data/analytics, Internet of Things, robotics, and artificial intelligence**), and it is focused to manage information and improve aids decision-making processes, as well as to automate routine tasks in organizations.

Regarding social issues, Prof. Castells remarks three independent processes that have historically converged and whose interaction produces this network society we are immersed in. They are 1) the cultural, social movements and feminism/ecologism (the 1960s - 1970s); 2) the Information Technology Revolution (1970s paradigm); and 3) the restructuring of capitalism and statism (1980s).

It should also be pointed out that digital evolution or revolution has been exponential. Each wave evolves the technologies and characteristics of the elder ones. The introduction of wireless networking in the 1990s, combined with the proliferation of communications satellites in the 2000s, allowed digital transmission without the need for cables. This technology led to digital television, GPS, tablets, laptops and satellite radio, mobile phones, through the 1990s and 2000s, combining and extending abilities of computing, mobility, and information sharing.

Today's computer industry has advanced considerably, making smaller, robust, and cheaper devices, and technology becomes more accessible for broader groups of people. That, accompanied by more accessibility connections and lower prices in telecommunications, has influenced digital technology to become so popular and important. However, if the internet costs were higher, this situation could be different.

7.3 Digital transformation components and dimensions

As it has been presented, digital transformation is not a single process. It is a broad one that involves different components and dimensions. They could be grouped by type sector, industry, customer, or technology they attend, among others. Here it will be presented one or more possible classifications, trying to include all relevant concepts in presented classification. We should remember that it is an evolving concept that is overgrowing.

7.3.1 Components:

Different components influence digital transformation: technology, infrastructures, security, or skills, among others, could play an important role and should be taken into consideration. Here are presented significant aspects of each one.

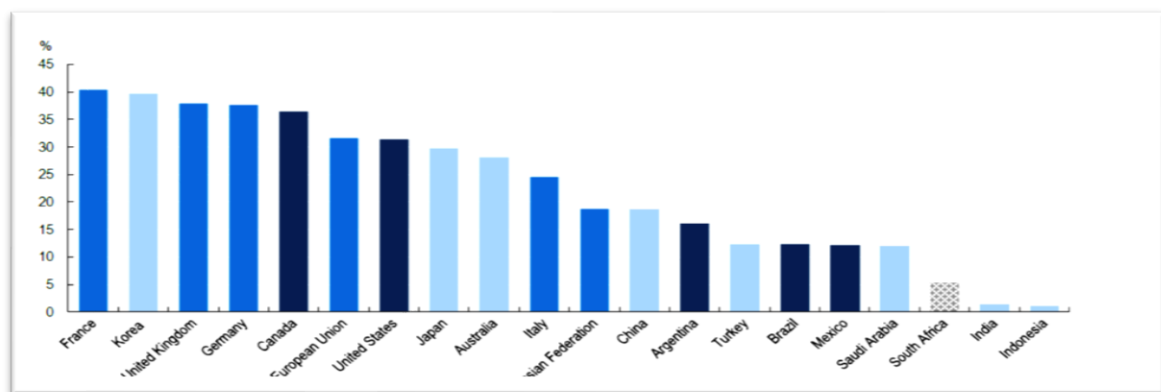
- ***Infrastructures***

High-speed infrastructures are one of the main bases for digital economies. They are collected from broad and diverse local, national, and global networks that allow many new services, applications, and business models could be developed. They are crucial for enabling digital transformation and revolve of Industry 4.0.

Traffic on mobile broadband networks is also quickly increasing around the world, and by 2020 global internet traffic will be 92 times superior to in 2005 (Cisco 2016). In OECD countries, the size of mobile broadband data grew 71% between 2014 and 2015 (OECD 2016).

As Figure 7 shows, among the G20, there exist significant differences across countries on fixed broadband penetration. France has the highest average (almost 40.5 subscriptions per 100 inhabitants), closely followed by Korea, the UK, and Germany. Significant differences come from although for emerging economies (OECD 2017).

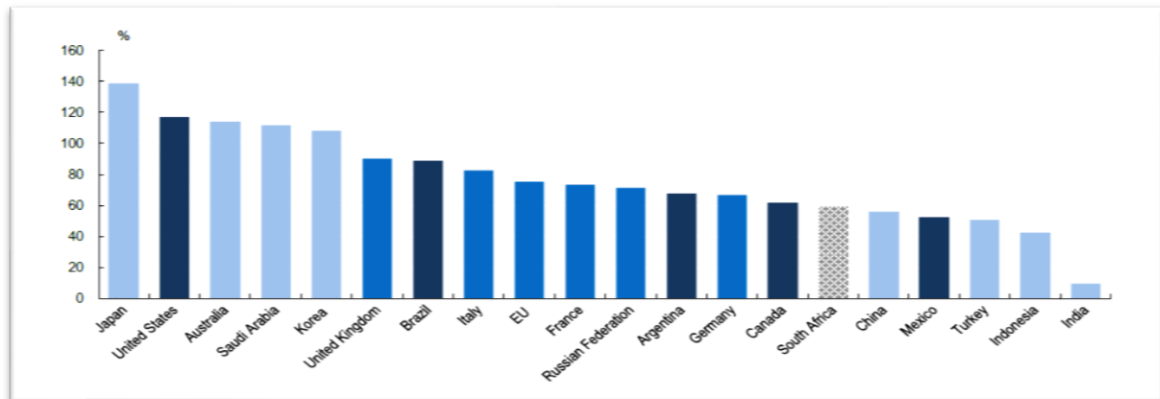
Figure 7. Fixed broadband subscriptions per 100 inhabitants – December 2015



Source: OECD for OECD G20 economies; European Commission (DG CONNECT) for European Union; ITU for other G20 economies.

It should also be pointed mobile broadband data is essential for supporting the developing Internet of Things (IoT). An increasing number of mobile devices will need an internet connection over mobile networks. As Figure 8 shows, Japan, followed by the US, leads G20 in mobile broadband penetration. One more time should be commented that considerable variation exists across countries, remarking differences with developed and emerging economies.

Figure 8. Mobile broadband subscriptions per 100 inhabitants – December 2015



Source: OECD for OECD G20 economies; European Commission (DG CONNECT) for European Union; ITU for other G20 economies.

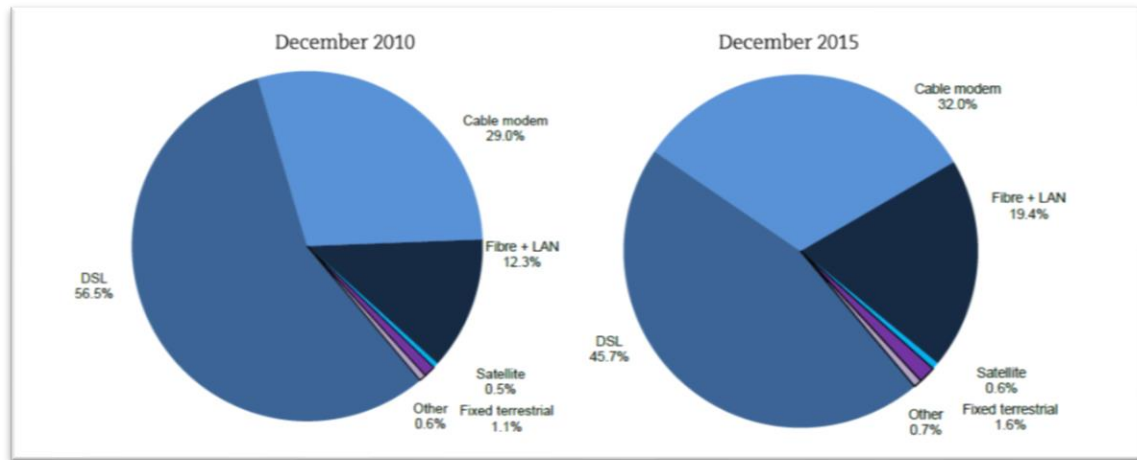
Moreover, while the gap between developed and developing countries for 2G mobile services was overcome rapidly, new differences emerged as cellular wireless networks appeared developing 3G and then 4G. Each new generation and standard require higher demand for data usage; thus, the market should be ready for so-called 5G.

- **Technology**

Regarding technology, we can analyze how Cable Modem, Fibre Lan, Satellite, Fixed terrestrial, or DSL have evolved.

As Figure 9 shows, connections through DSL are moving to the fiber by the way broadbands are becoming more popular and accessible over countries. Remark Among G20 economies, Japan and Korea, have the highest shares of fiber in fixed-line broadband at 73% and 71%, respectively (OECD 2017)

Figure 9. OECD fixed and mobile broadband subscriptions, by technology



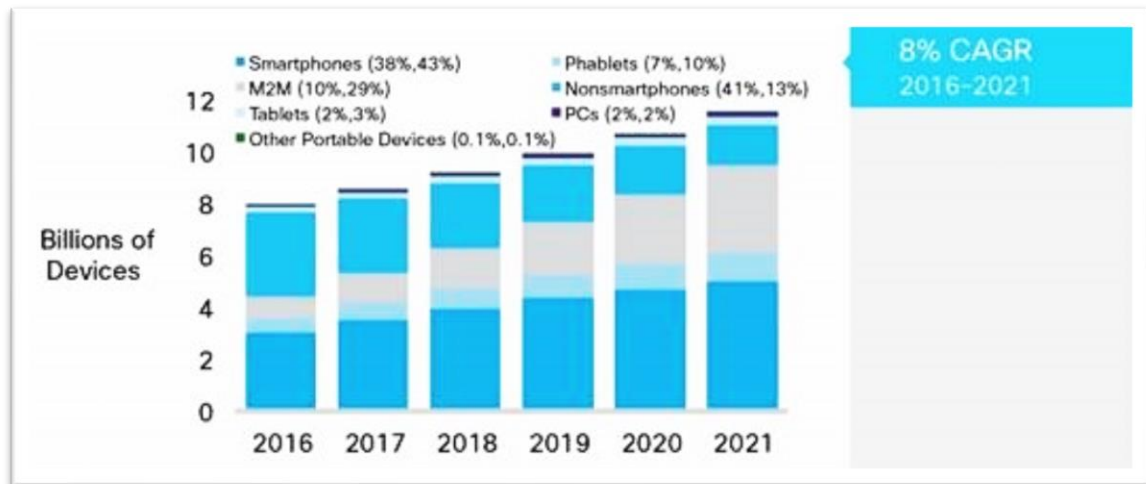
Source: OECD Broadband Portal

Regarding technology too, it also should be pointed the evolution of devices. Over time, different devices and software or services as Smartphones, IoT, Big Data, and Artificial Intelligence have emerged. Here will be presented an overview of some data for each one.

- **Smartphone**

The smartphone is a device that has transformed computing by enabling constant mobile connectivity and providing individuals access to a varied range of new applications and services. Since its introduction in 2007, the use of smartphones has been continuously increasing, going from 50M units sold all around the world in the 1st quarter 2010 to near 250M units in the 2nd quarter 2013 (OECD 2014). Moreover, as Figure 10 shows, the number of non-smartphones will decrease from over 40% in 2016 (3.3 billion) to 13% by 2021 (1.5 billion), while the number of smartphones will increase from 38% in 2016 to 43% by 2021.

Figure 10. Evolution smartphone devices



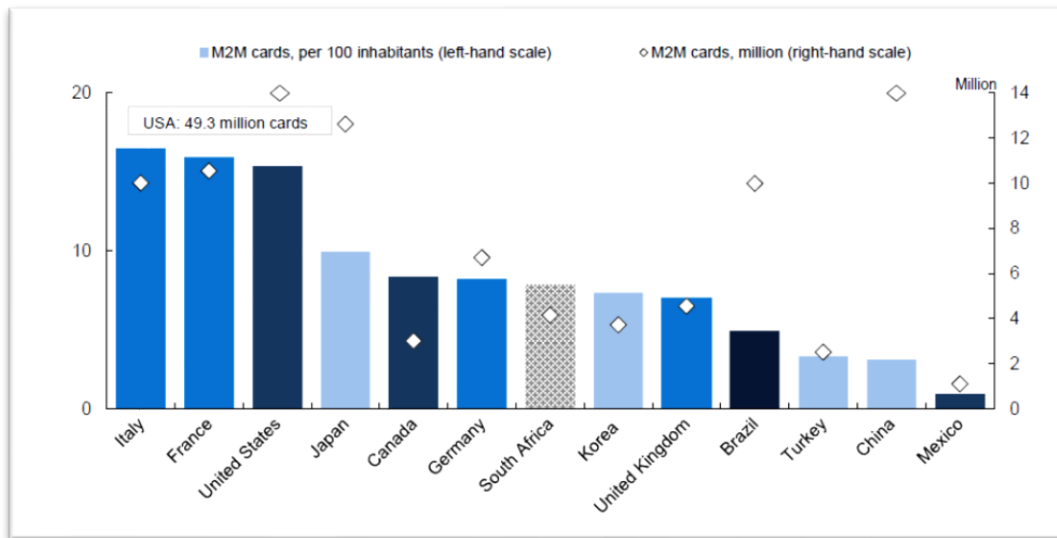
Source: CISCO VNI, Mobile 2017

Internet of things

There are also other devices as wearables that provide *The Internet of Things (IoT)*. Wearables are objects whose state can be altered via the Internet, with or without the active involvement of individuals. They include sensors that gather data and exchange it with one another device, and for instance, they serve to monitor the health, location, and activities, among other applications, or also with humans.

One way of calculating the IoT is the number of SIM cards and phone numbers allocated to M2M (Machine to Machine) communication devices on mobile networks. As Figure 11 shows, in 2015, there were 162 million SIM cards for Machine to Machine communication in the 13 countries for which data is available. The US, with more than 49 million SIM cards in circulation, leads the G20 economies.

Figure 11. Penetration of Machine to Machine SIM cards – December 2015



Source: OECD for OECD G20 economies; European Commission (DG CONNECT) for European Union; ITU for other G20 economies.

The amount of connected devices in and around people’s homes in OECD countries is projected to grow from 1 billion in 2016 to 14 billion by 2022, so it is clear the vast growing impact they could have in daily life (OECD 2015).

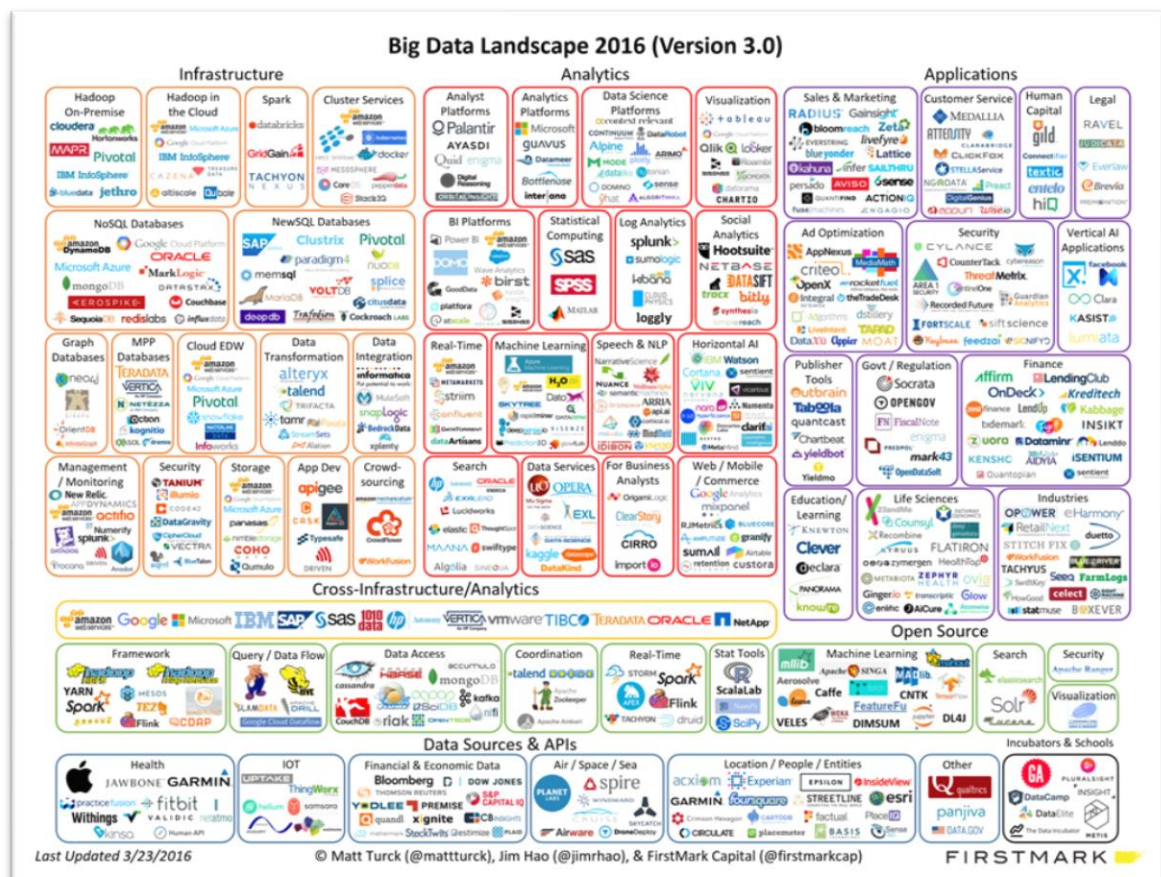
- **Big data**

Big data is the term used to refer to large or complex data sets that cannot be processed adequately for traditional data-processing application software. Big data is associated with a considerable volume, variety, and velocity of data (Laney 2001; Turk 2016), but also with predictive analytics and user behavior analytics.

Its growly expansion is related to one piece of technology (like Hadoop or anything else), but also in putting together a collection line of technologies, people, and processes. It englobes the process of capture, store, clean, query, analyses, and visualizes data.

Figure 12 shows the global landscape of entrepreneurial activity in 2016. As we could imagine, there are increasingly active tech giants (Amazon, Google, and IBM in particular), and the number of companies developing/using Big Data keeps increasing due to its vast potential and impact on business and economy as it will display in short.

Figure 12. Big Data Landscape 2016



Source: Turk M 2016

- ***Artificial intelligence (AI)***

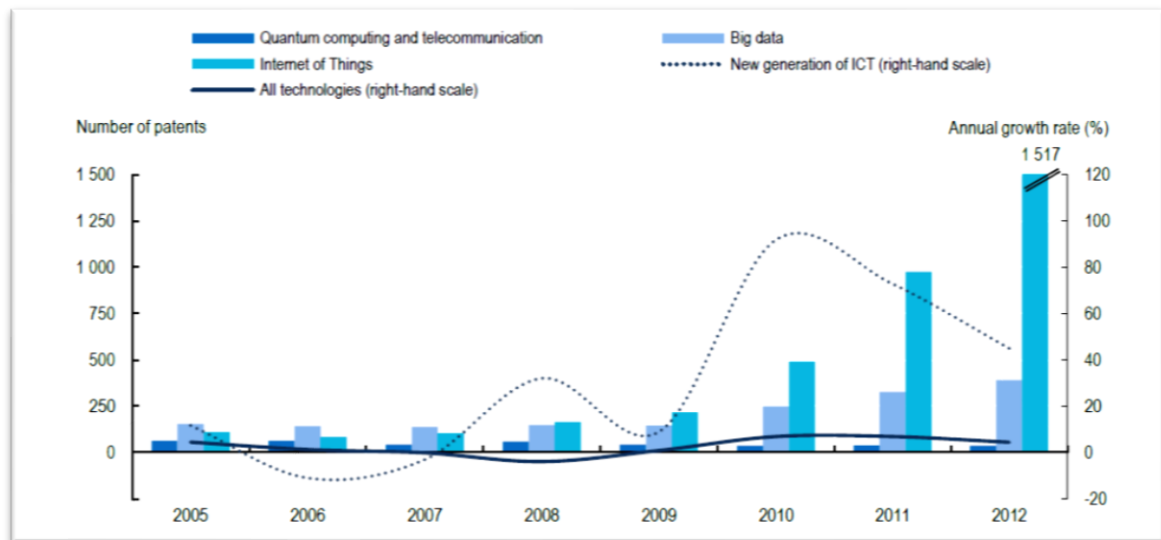
Artificial Intelligence is defined as the capability of machines and systems to acquire and apply knowledge and to carry out intelligent behavior. AI helps to analyze massive amounts of data and derives predictive insights.

It will serve to understand the customer experience, and also for creating intelligent systems that could replace human force. That means performing a wide variety of cognitive tasks, e.g., sensing, oral processing language, reasoning, learning, making decisions, and indicating an ability to move and use objects accordingly, machines could replace individuals at specific tasks.

AI implementation also has a vast potential and impact on business and economy. In the United States, output and productivity in firms that adopt data-driven decision making are 5% to 6% higher than expected, given those firms' other investments (Brynjolfsson et al. 2011).

Moreover, all these technologies are growing and evolving quickly. Innovation in digital technologies supports the expected growth of the internet and internet-based applications. Next Figure 13 shows, how in the past AI have evolved and developed through waves (rapid growth followed by periods of slower activity)

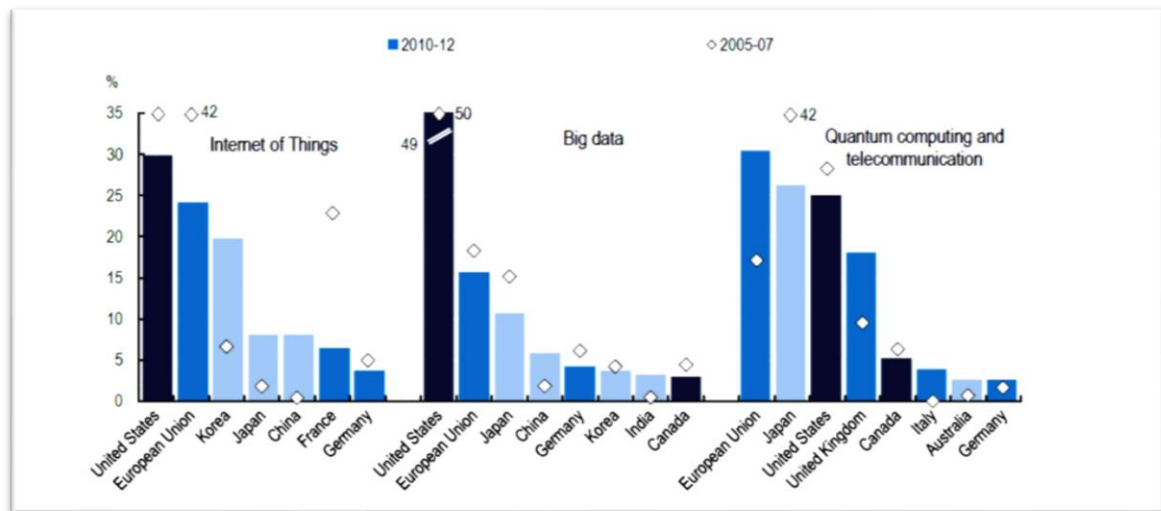
Figure 13. Patents in a new generation of Internet Communication Technologies- Number of IP5 patent families and annual growth rates



Source: OECD 2015d

Additionally, as Figure 14 displays, also the evolution of quantum computing and telecommunication activities established the basis for the development of other Internet Communication Technologies (ICT). Patenting in the field peaked in 2006, fell and then stabilized. EU states, especially the United Kingdom, led developments in quantum computing, while the US advances in both big data and the IoT.

Figure 14. Top Players in IoT, Big data, and quantum computing tech. 2005-07 and 2012-12- Economies' share of IP5 patent families filed ad USPTO and EPO.



Source: OECD 2015d

7.3.2 Dimensions:

It has been introduced three critical dimensions: economics, social, and political, that should be analyzed better.

7.3.2.1 Economic dimension:

In the past two decades, this globalization has developed a fully-fledged system, by ICT that was previously not available. Now the global economy reaches out to the whole planet, but not includes the entire of it. It scans and links inputs, markets, and individuals, but it excludes unskilled labor and poor markets (Castells 2010).

Digital transformation has considerable potential in the economy in general. It promises to spur innovation, generate efficiencies and improve services, the majority because of its low cost and huge impact. It will result in stronger opportunities to transform and change existing business models, consumption patterns, socio-economic structures, legal and policy measures, organizational patterns, cultural barriers (Chew et al. 2013; Cochoy et al. 2017).

Digital transformation has created new marketplace challenges and opportunities within a space where nimble competitors can take a quick advantage because of the low barrier to entry that technology provides (Grossman 2016). Also, due to its widespread use, it brings the enormous potential for revenues, profits, and opportunities (Bughin et al. 2017).

The digitalization and globalization of the economy have then exposed countries control redesigned conceptions of materiality and place, and enable new movements of culture, capital, commodities, and people. In finance, for instance, digital media is now central to global capital flows (Knorr Cetina & Bruegger 2002).

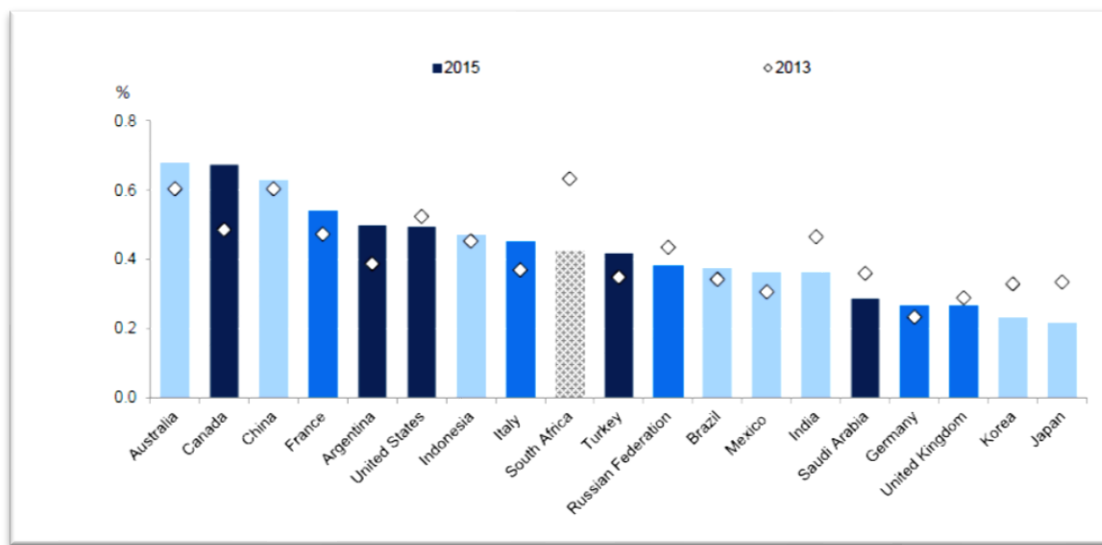
Investments in technology are required and profitable. Investment in telecommunication infrastructure in G20 economies, ascend to USD 262.5 billion in 2015 (comparatively constant in the past several years- USD 266 billion in 2013), representing 18% of the general average share of telecommunication revenue – this average varies between years due to different factors such as the introduction of a new generation of mobile network infrastructure – (OECD 2017).

Also, it should be remarked, the US and Japan, the two most technologically advanced economies, display a low rate of unemployment (Castells 2010).

As Figure 15 shows, recently, countries as Australia have made substantial investments (26% of total telecommunication revenue) in national broadband networks. The more

infrastructure investment a country does, the more developed are nationally fixed (fiber) and mobile (4G) broadband network in these countries, and countries that have better mobile broadband coverage, latterly need lower revenue to infrastructure investment.

Figure 15. Telecommunication infrastructure investment as a percentage of GPC, 2015- Non-OECD G20 economy data is for 2014 instead of 2015.



Sources: OECD for OECD economies; ITU for the other G20 economies.

At last, it should be remarked productivity and competitiveness of firms and countries depend, more than ever, on information, knowledge, and technology. Technology is essential for process and manage information and knowledge, for spur dynamism and creativity, for solving problems and for management of technology (Castells 2010).

7.3.2.2 Social dimension:

Digital transformation has changed the way people interact, and networks transform relationships; thus, it could be affirmed that social infrastructure is growing below the influence of communication networks (van Dijk 2005).

Social organization is evolving through a “network society” (Castells 2000), but there is some controversial towards the base unit of this network society: networks (Castells 2000), individuals (van Dijk 2005), or “networked-individuals” (Rainie & Wellman 2012). In other words, for van Dijk, a “network society” it is the “*mutual shaping processes between social structure and communication technology*” (van Dijk 2005), while Castells, remarks its social and technical forces so that “*technology is society, and society cannot be understood or represented without its technological tools*” (Castells 1996, 5).

Digital transformation has enabled new ways to communicate and relation, providing speed and immediacy, new power relationships. It promotes engagement. It places the individual at the center of all targets; now, he/she decides how and when he/she wants to access data and information, and that is the clue of digital transformation.

Almost everybody today knows tools for communicating as Skype, WhatsApp, Facebook, Twitter, tools for file sharing as Google, Dropbox; tools for finding talent as LinkedIn; tools for making business and sales as Alibaba, Amazon; or for payment transactions as PayPal.

Furthermore, digital transformation has also altered the way people work and jobs. It has induced flexibility of business and labor, increased self-employment, temporary and part-time rates among countries (Castells 2010). Moreover, today, more than ever, it becomes essential to pay attention to skills and education necessary in order to value or to devalue

people in their work, in order to avoid growing inequality, polarization, and social exclusion. Because, as it has been explained before, AI could replace human force on several repetitive or inclusive cognitive tasks, although more advanced countries as the US and Japan present lower unemployment rates until date.

7.3.2.3 *Politic dimension:*

Digital has changed the way governments interact with citizens allowing them to have bidirectional communication. This issue has a broad relevance because it provides crucial information for the government and politicians and allows them to respond to transparency requirements of citizens to know what is being done with their money and offer broader and more complete information about what, where, and when they are doing. In other words, it permits better citizen-government communication. Digital also allows politicians to reach specific groups with information most relevant to their needs and be a substantial driver of improved services to exposed groups in society (Mickoleit 2014), and it becomes crucial at specific moments of political campaigns (Castells 2010).

Moreover, *Big data analytics*⁹ provide firms; governments access extraordinary volumes of data that help inform real-time decision-making by joining an extensive range of information from different sources.

Digitalization has redefined “spatiotemporal orders.” It has enabled new procedures of cross-border politics, has extended the political playing field to more resources, poor entities, and

⁹ It is defined as a set of techniques and tools used to process and interpret large volumes of data that are generated by the increasing digitisation of content, the greater monitoring of human activities and the spread of the IoT. It can be used to infer relationships, establish dependencies, and perform predictions of outcomes and behaviours.

individuals. It has created scales of action and information that cross-regional and countrywide, and has provided more contexts for connecting local sites with global networks. It also has enabled non-state market forces to enhance economic contemplations on national administrations and influence policymaking (Sassen 2006).

Until here, it has been explained the dimensions and components digitization, and digital transformation has, balanced within them. We could deepen in more technologies or classifications, but it would be the object of another dissertation. In this way, we looked for a connection between digitization and digital transformation and realized all of them have the internet in common. Thus, we examined the evolution of digital technology and the transformation process in order to understand better what is behind all of this. Results and findings are presented in the following epigraph, that analyzes internet use.

7.4 The Internet

7.4.1 The actual status of internet usage

It is well-known countries differ substantially in their starting conditions for the digital transformation and thus connectivity through the internet because both are related. Internet implementation is affected and conditioned by the level of economic development, geography, structural make-up, trade specialization of the economy, institutional policies, or characteristics of each country (OECD 2017). Also, despite the quick blow-out of the internet, nearly 60% of the world's population, or four billion people, remain offline (OECD 2017).

It is a fact; internet users are growing year by year, faster or slower depending on all these characteristics, but with nonstop. Attending, data published by Nielsen Online – by ITU, the International Telecommunications Union, by GfK, by local ICT Regulators and another reliable source, in June 2017 – as Figure 16 shows, there were 3.885 billion internet users in the world. Moreover, although Asia is the continent with more Internet users (because it has a more % population of World), North America, followed by Europe, are the regions with higher Internet penetration, being more than 80% of people using the internet.

Figure 16. World Internet usage

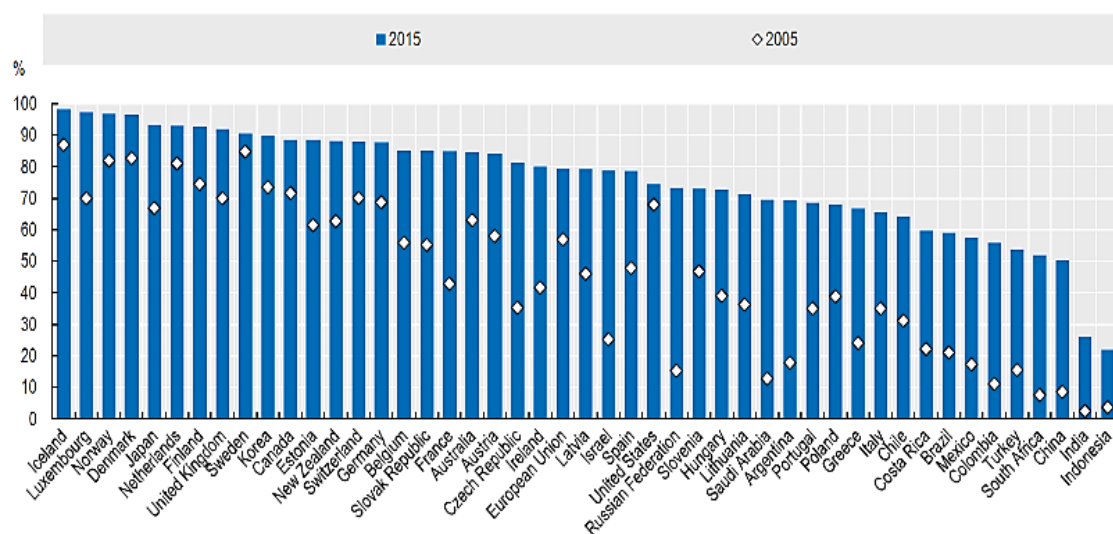
| WORLD INTERNET USAGE AND POPULATION STATISTICS JUNE 30, 2017 - Update | | | | | | |
|--|------------------------------------|----------------------------------|--|--------------------------------------|-----------------------------|-----------------------------|
| World Regions | Population (2017 Est.) | Population % of World | Internet Users 30 June 2017 | Penetration Rate (% Pop.) | Growth 2000-2017 | Internet Users % |
| Africa | 1,246,504,865 | 16.6 % | 388,376,491 | 31.2 % | 8,503.1% | 10.0 % |
| Asia | 4,148,177,672 | 55.2 % | 1,938,075,631 | 46.7 % | 1,595.5% | 49.7 % |
| Europe | 822,710,362 | 10.9 % | 659,634,487 | 80.2 % | 527.6% | 17.0 % |
| Latin America / Caribbean | 647,604,645 | 8.6 % | 404,269,163 | 62.4 % | 2,137.4% | 10.4 % |
| Middle East | 250,327,574 | 3.3 % | 146,972,123 | 58.7 % | 4,374.3% | 3.8 % |
| North America | 363,224,006 | 4.8 % | 320,059,368 | 88.1 % | 196.1% | 8.2 % |
| Oceania / Australia | 40,479,846 | 0.5 % | 28,160,356 | 69.6 % | 269.8% | 0.7 % |
| WORLD TOTAL | 7,519,028,970 | 100.0 % | 3,885,567,619 | 51.7 % | 976.4% | 100.0 % |

Source: Data published by Nielsen Online, by ITU, the International Telecommunications Union, by GfK, by local ICT Regulators and another reliable source.

We have examined if these differences are maintained within regions, and we realized they do. OECD¹⁰ confirms that asymmetrical use of the internet, although, there are lots of countries missing in OECD data, mainly the more undeveloped ones, that decrease rates. As Figure 17 shows, while nearly all (95%) adults in Iceland, Norway, Denmark, and Luxembourg accessed the Internet in 2015, only half of the adult population did so in Turkey and Mexico, and 20% or less in India and Indonesia.

¹⁰ OECD based on ITU World Telecommunication/ITC Indicators Database and Eurostat Information Societe Statistics. Database, January 2017

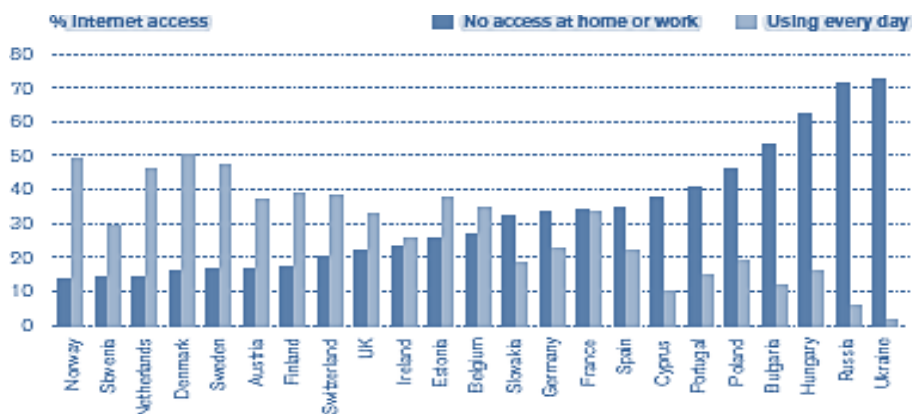
Figure 17. Internet users, 2005 and 2015, as a percentage of total individuals.



Source: OECD based on ITU World Telecommunication/ITC Indicators Database and Eurostat Information Societe Statistics. The database, January 2017 –

Moreover, focusing on data across Europe, also it is confirmed significant disparities in the country’s level of internet penetration – measured by online access at home or work – and daily internet usage, depending on each country. As Figure 18 shows, there are distinct groups of countries lead by Nordic countries when fewer than 2 in 10 people had no internet access, compared to over 7 in 10 Russians or Ukrainians who did not.

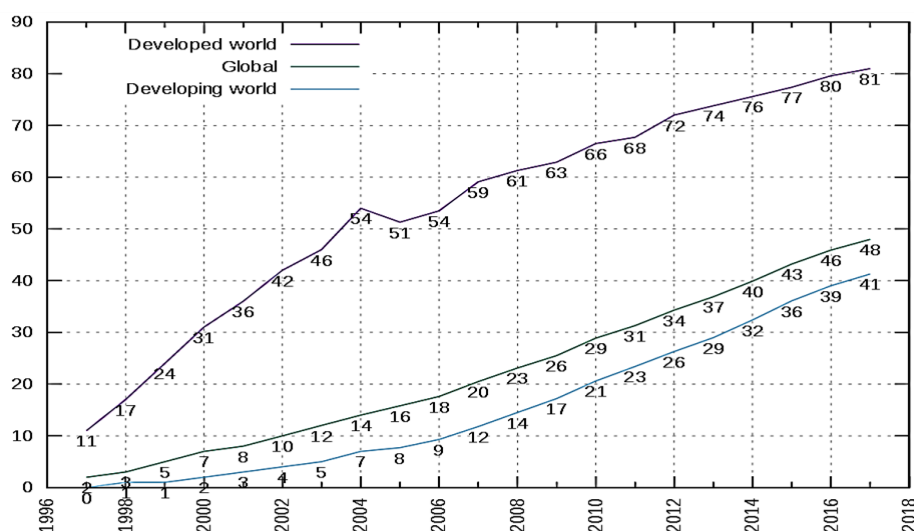
Figure 18. Internet users 2006



Source: European Social Survey- Round 7 data

Those differences exist because digital infrastructures, necessary for support internet access, are nearly fully deployed and overgrowing beyond across OECD countries, while in other countries lasts more. As Figure 19 displays, although internet access has grown in 20 years, there are still vast differences that base the more developed world regions present more internet usage. Thus, 81% population in the developed world has internet access versus to 41% in the developing world.

Figure 19. Internet Users per 100 inhabitants developed and developing world



Source: International Telecommunications Union ^{11,12}

So, it is a fact, digital divide – a widely acknowledged term with an uncertain origin that refers to the gap that separates those individuals who have access to new forms of information technology from those who do not (Gunkel 2003) – exists at last between

¹¹ "Individuals using the Internet 2005 to 2014", Key ICT indicators for developed and developing countries and the world (totals and penetration rates), International Telecommunication Union (ITU). Retrieved 25 May 2015.

¹² "Internet users per 100 inhabitants 1997 to 2007", ICT Data and Statistics (IDS), International Telecommunication Union (ITU). Retrieved 25 May 2015. Archived May 17, 2015, at the Wayback Machine.

developed and developing world, and it affects countries advance. **The digital divide** consists of the technological, economic, and political divide, a divide that sets the standings of access to citizenship itself, both within technologically developed regions and between wealthy and impoverished areas in the global system (Barney 2004).

However, the digital divide concept has evolved and not should be reduced to the classic binary division between those who have access to the internet and those who do not. It tends deep the understanding of demographic and socioeconomic differences between users' adopters and non-adopters and their characteristics (Ferro et al. 2011). Furthermore, it also refers to the usage and revenue that everyone is capable of getting from it (Norris 2001).

The digital divide generates social and economic inequalities caused by geographical, economic, physical, and linguistic barriers (de Los Santos et al. 2001; Goslee & Conte 1998; OECD 2000b), and it is a vicious circle. So, technological change could be a powerful driver for reducing disparities (Panel 2002; DiMaggio et al. 2001).

Consequently, the digital divide is an important issue that should be taken into consideration in our study – that pretend to contrast if the internet use influences WB and happiness – because it could differentiate two groups of the population. The ones that have access to technology, communication, and by the end, more education and employment opportunities, who maybe have a better impact on WB perception, and the others that have worse access to technology who could have a lower level of WB.

7.4.2 Challenges Internet usage

Internet use presents vast potential and challenges. It can influence society positively and reduce inequalities. Maybe it could be so ambitious by itself, but, when it is considered within all the process of digital transformation, as it has been presented here, it is possible.

The Internet involved in the digital transformation process can be so disruptive that it transforms the way how individuals interact with society and change the structure and business models of the economy. Social networks and e-commerce are some examples of these changes.

The Internet helps disadvantaged groups connect and cooperate. Mobile telephony has been used intensively in many inclusive innovation initiatives that aim to improve the welfare of lower-income and excluded groups in developing countries (OECD 2015).

Furthermore, providing access for all individuals and businesses would help people in specific areas or disadvantaged groups benefit from the education, employment, and health opportunities enabled by the digital network.

However, all these changes should be accompanied and combined simultaneously with high levels of fear and hope. As more people and things become connected to networks, new technologies can emerge. Nevertheless, if people do not think this technology will improve the previous one and perceive the usefulness and ease of use of technology, they will not use it, and the same occurs with fear (Porter & Donthu 2006). Trust is fundamental in this process.

Individuals, businesses, and governments need reliable, affordable, and widespread access to digital networks and services to benefit from digital opportunities and boost growth and WB. Without trust, individuals, firms, and governments will not be able to use digital

technologies, and a significant source of potential growth and social progress will be left unexploited.

Consequently, digital and the internet raises essential policy challenges that can help seize its benefits and mitigate the challenges and requirements to make it possible. In this way, within the OECD context, significant progress on key aspects of policies inherent to lack of security in the IoT has been made through many recent OECD instruments and recommendations (*Council on Principles for Internet Policy Making, Council on Digital Government Strategies OECD - 2014b and the Declaration on the Digital Economy: Innovation, Growth, and Social Prosperity*). However, a whole-of-government approach to the digital transformation still lacks in most countries.

Greater international cooperation in developing coherent strategies for digital ***security and privacy***, enhancing the trust of individuals, and implementing security and privacy risk management frameworks are essential to ensure the protection of individuals engaged in online activities, and at last, to foster internet expand (OECD 2014b).

At last, remark each time people use technology, (read an electronic book, listen to music) is making a copy of intellectual property, so laws should consider it (Groys 2008), so there are crucial challenges to afford.

7.4.3 Digital transformation and Internet skills and behavior

The Internet offers significant challenges, but all individuals cannot benefit the Internet in the same way. Differences in how successful people use the internet result in unequal opportunities to satisfy needs and extract benefits. Access to digital technologies can affect

people's WB in a variety of ways, both positive and negative and affect outcomes such as health (Van Dijk 2006; Afradi et al. 2017; Nowland et al. 2018; Lifshitz et al. 2018; Kraut et al. 2002; Heo et al. 2015; Khalaila & Vitman-Schorr 2018).

A growing body of research focuses on skills differences citizens have and usages of the Internet they do, but also on the political and social consequences of this new form of digital inequality (Van Deursen & Van Dijk 2011). Skilled internet users are more able to bargain with different kinds of information online and improve their cultural capital. They can reach out to more extensive networks of people and can exploit online opportunities to engage and participate in public life (Norris 2001).

Digital skills play a crucial role in the appropriation of digital technology. A framework of six digital skills is introduced: two medium-related ones consisting of operational skills (technical abilities to command digital media) and formal skills (browsing and navigating, above all on the web) and four content-related ones consisting of information abilities (to search, select and evaluate information in digital media), communication one (the ability to communicate on mostly the Internet), content creation one (the ability to generate content) and strategic one (using a digital medium as a means for a particular personal or professional goal) (OECD 2013).

Considering skills is essential because all potential technologies only will happen if individuals have the necessary abilities to use digital tools (Van Dijk 2006). Therefore, indicators of online skills have been established as indexes that measure the number of tasks that the individual claims to be able to develop on the internet (Krueger 2002).

Overall, the digital skill levels of the population need to be improved. In this way, possible solutions are making digital media and technology more accessible or usable and apply

educational solutions (Van Deursen & Van Dijk 2014). So, policymakers, governments, businesses, educational institutions, and organizations have an essential role.

Nowadays, over 1 billion smartphones connect to the internet, and over half of internet activities take place via these smartphones (Attíe & Meyer-Waarden 2016). The original 'Internet of PCs' is becoming an 'Internet of Things,' with 50 to 100 billion internet-connected things expected by 2020 (Attíe & Meyer-Waarden 2013; Chitturi et al. 2008). Also, it is expected to considerably transform the way consumers and persons live (Dobbs et al. 2012; Porter & Heppelmann, 2014). It generates the use of the internet is constantly changing, resulting in new *social behaviors*.

Active internet usage looking at the extent (as opposed to directly access) varies across different population sub-groups, and gender effects, for example, men and women have different attitudes (Bimber 2000). That is because of its high perceived usefulness, defined as the degree to which people believe that using technology will help to improve their performance (Adams et al. 1992), although it is not enough to explain internet consumer attitude by itself (Chitturi et al. 2008; Christodoulides & Michaelidou 2010). Moreover, because people are more likely to adopt a technology when it is associated with functional benefits (King & He 2006; Venkatesh & Davis 2000). By this way, enjoyment, and positive experiences related to the use of social networks have been associated (Dabholkar & Bagozzi 2002; Durahim & Coşkun 2015; Bruner & Kumar 2005; Hirschman & Holbrook 1982; Kim & Forsythe 2008; Kulviwat et al. 2007; Lee et al. 2003; Tadajewski et al. 2014; Van der Heijden 2004; Venkatesh et al. 2012).

At last, it should be point other aspects the internet has on people's behavior. It offers access to massive affluence of information, but the process of search information, its own use, and its applications influence people's cognitive processes. So, the internet represents an

intellectual cost for humanity that could have a negative impact on the processes of deep and creative thought (Carr 2011).

7.4.4 *Internet use measurement*

Once explained the considerations and potential of the internet, it will be examined different ways to measure it. In precedent epigraphs, there have been presented differences in internet infrastructure, access, and evolution, so in this epigraph, it will be analyzed from another point of view, attending its usage. As the internet is an incredibly diverse medium, the average internet user reports doing lots of different activities. Thus it must be specified what kind of use it has been examined, and the amount and type of use, when it is measured. Here has been listed the main classifications we have considered:

- ***Variety of use:*** It measures the number of different activities individuals can undertake online (e.g., go into Facebook or browse in the Website) (Blank & Grosej 2016).
- ***Amount of use:*** It measures the frequency of internet use in day-to-day life, with a continuous variable that refers to the time (hours and minutes spent online for each day/week) (Blank & Grosej 2016).
- ***Type of Internet Use:*** It describes the activity carried on the internet. It includes anything from sending an e-mail, share data, make investments to gambling. It has been identified ten distinct types of internet activities: entertainment, commerce, information seeking, socializing, email, blogging, production, traditional mass media, school, and work (Blank & Grosej 2014; 2016).

- ***Channel or device:*** It describes the physical Internet access and distinguishing various devices people use to go online, for example, by their degree of mobility (DiMaggio et al. 2004; Van Dijk 2013; Van Deursen & Van Dijk 2011).

Attending this classification, it has been examined how people were using the internet all around the world, and it was found¹³ in Europe, and concretely in Britain, in 2013, 37% of households had access to a tablet; 57% internet users access on displacement. Mobile phones are increasingly used for a range of internet-related activities: email (54%), internet browsing (52%), using social network sites (43%), playing games (43%) and listening to music (43%) (Oxford Internet Surveys (OxIS) 2013).

However, it is not an isolated picture. On the other side of the world, the internet also is so accessible. As Figure 20 shows, American people increased their online time from 3,34 hours in 2011 to 5,56 hours in 2017, according to the eMarketer benchmarks. In 2017, also 57% of internet users' access was on displacement. We should point a low decrease on desktop/laptop connection time from 2011 to 2017, and we suppose it is due to a vast majority of American adults are already using mobile devices, there changed the channel access.

Rates of internet-related activities differ because in a US survey exists the field "other activities" represents near 40% of the time.

¹³Oxford Internet Surveys (OxIS) 2013 Report: "Cultures of the Internet: The Internet in Britain 2013

Figure 20. Average Time Spent per Day with media by US adults (1)

| Average Time Spent per Day with Major Media by US Adults, 2011-2017 | | | | | | | |
|--|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| <i>hrs:mins</i> | | | | | | | |
| | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 |
| Digital | 3:34 | 4:10 | 4:48 | 5:09 | 5:29 | 5:45 | 5:56 |
| —Mobile (nonvoice) | 0:46 | 1:28 | 2:15 | 2:37 | 2:54 | 3:08 | 3:18 |
| —Radio | 0:16 | 0:26 | 0:32 | 0:39 | 0:44 | 0:49 | 0:52 |
| —Social networks | 0:04 | 0:09 | 0:18 | 0:23 | 0:27 | 0:30 | 0:32 |
| —Video | 0:03 | 0:09 | 0:17 | 0:22 | 0:26 | 0:29 | 0:32 |
| —Other | 0:23 | 0:44 | 1:08 | 1:14 | 1:17 | 1:20 | 1:22 |
| —Desktop/laptop* | 2:30 | 2:24 | 2:16 | 2:14 | 2:12 | 2:11 | 2:10 |
| —Video | 0:12 | 0:20 | 0:22 | 0:23 | 0:24 | 0:25 | 0:25 |
| —Social networks | 0:21 | 0:22 | 0:17 | 0:16 | 0:15 | 0:14 | 0:13 |
| —Radio | 0:12 | 0:07 | 0:06 | 0:06 | 0:06 | 0:06 | 0:06 |
| —Other | 1:45 | 1:35 | 1:31 | 1:28 | 1:27 | 1:26 | 1:25 |
| —Other connected devices | 0:18 | 0:18 | 0:17 | 0:19 | 0:23 | 0:26 | 0:28 |
| TV** | 4:34 | 4:38 | 4:31 | 4:22 | 4:11 | 4:03 | 3:58 |
| Radio** | 1:34 | 1:32 | 1:30 | 1:28 | 1:27 | 1:25 | 1:24 |
| Print** | 0:46 | 0:40 | 0:35 | 0:32 | 0:30 | 0:28 | 0:27 |
| —Newspapers | 0:28 | 0:24 | 0:20 | 0:18 | 0:17 | 0:16 | 0:15 |
| —Magazines | 0:19 | 0:17 | 0:15 | 0:13 | 0:13 | 0:12 | 0:11 |
| Other** | 0:39 | 0:38 | 0:31 | 0:26 | 0:24 | 0:22 | 0:21 |
| Total | 11:08 | 11:39 | 11:55 | 11:57 | 12:00 | 12:04 | 12:05 |

*Note: ages 18+; time spent with each medium includes all time spent with that medium, regardless of multitasking; for example, 1 hour of multitasking on desktop/laptop while watching TV is counted as 1 hour for TV and 1 hour for desktop/laptop; *includes all internet activities on desktop and laptop computers; **excludes digital*
Source: eMarketer, Oct 2015

196818 www.eMarketer.com

Source: eMarketer

When the type of internet use was analyzed, we found most of the time spent on the internet was within apps. In 2017, people spent an average of 3 hours and 23 minutes a day using mobile apps and 52 minutes on mobile browser activities, and the most important, both have duplicated its rate during this period, reflecting its popularity.

Figure 21. Average Time Spent per Day with media by US adults (II)

**Average Time Spent per Day with Mobile Internet
Among US Smartphone and Tablet Users, In-App vs.
Mobile Web, 2011-2017**
hrs:mins

| | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 |
|-------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| In-app | 1:04 | 1:40 | 2:28 | 2:51 | 3:05 | 3:15 | 3:23 |
| —Smartphone | 0:35 | 0:56 | 1:24 | 1:35 | 1:43 | 1:49 | 1:52 |
| —Tablet | 0:29 | 0:44 | 1:04 | 1:16 | 1:22 | 1:27 | 1:31 |
| Mobile web | 0:29 | 0:38 | 0:50 | 0:51 | 0:51 | 0:51 | 0:52 |
| —Tablet | 0:15 | 0:19 | 0:24 | 0:25 | 0:26 | 0:27 | 0:27 |
| —Smartphone | 0:14 | 0:20 | 0:26 | 0:25 | 0:25 | 0:25 | 0:24 |

Note: ages 18+; time spent with each device includes all time spent with that device, regardless of multitasking; for example, 1 hour of multitasking on a smartphone while on a tablet is counted as 1 hour for smartphone and 1 hour for tablet
Source: eMarketer, Oct 2015

196859 www.eMarketer.com

Source: eMarketer

Other studies have analyzed demographic and drive variables (perceived ease of use, enjoyment, usefulness) related to internet usage activities (defined in terms of messaging, browsing, downloading, and purchasing). They found males are more likely to participate in downloading and purchasing activities while females are more likely to engage in messaging activities, and younger users engage in messaging and downloading activities than older users (Teo 2001).

Here have been presented data from European and American people. Aggregate data is similar everywhere, but individually could differ long. Individuals use extensively from one user to others, attending multiple variables. It is difficult to establish “normal internet use.” While one person can spend hours in one activity, others can do lots of activities in a short or long period. The real question is how to differentiate between ‘normal’ internet use and addictive or compulsive use.

There are no standards or use rates. Internet usage accommodates within other activities and interests among healthy internet users, but it is critically important when people only want to be online and reject other activities, it is becoming an addictive use. There are lots of studies analyzing the impact in how many hours spent online avoiding interpersonal

relationships with real and known people, as a way of escape from real-life difficulties, could be an essential criterion in the clinical interview to diagnose the internet-addiction.

Internet use is considered into the formal category of addiction or not depending on if it interferes with their daily activities, their relations, and their health. Usually, there is an association between the lost interest in communicating with real people and psychological symptoms such as anxiety and depression, and sensation seeking or poor self-esteem predicts more extensive internet use (Armstrong et al. 2000; Dowling & Quirk 2009; Gross 2004; Tonioni et al. 2012; Tripathi & Ahad 2017; Pal 2017; Odacı & Çıkırıkçı 2014; Pednekar & Tung 2017).

What is clear and well known is internet use becomes compulsive or addictive¹⁴ when: 1) users lose track of time while online or lies about it. When 2) sacrifices needed hours of sleep, time with family or friends, or chores to spend time online, checks messages compulsively throughout the day. Alternatively, when 3) becomes agitated or angry when not online or online, time is interrupted or 4) escapes into the internet to avoid responsibilities or real-life, among others.

7.5 Conclusion

In this chapter, it has been introduced the digitization and digital transformation concepts. They refer to the adoption or increase in the use of such digital or computer technology by a country, organization, industry, sector, among others. However, it can not be reduced to those

¹⁴Extract from: <http://www.safetyweb.com/internet-addiction#References>, and Kimberly Young, Director of the Center for Internet Addiction Recovery who identified the following potential warning signs for children with pathological Internet.

single definition, because they relate to more than the usage of more IT. They should be understood as a stage where digital usages inherently enable new types of innovation and creativity in a domain, rather than merely enhance and support traditional methods.

There exist different components and dimensions that affect and influence digital transformation. Here there has been introduced how technology, infrastructures, among others, could play an important role and should be taken into consideration, but also, economic, social, and politic dimensions.

Regarding components, infrastructure refers to broadband development- fixed or mobile; while technology relates to devices, individuals use to access (smartphones, IoT, Big Data, Artificial Intelligence).

Concerning dimensions, economic one refers to impact digital has on the economy, measured by investments, revenues, new marketplace challenges, and opportunities. Social dimension relates to new ways of relation and communication individuals have, providing speed and immediacy. Moreover, the politic dimension provides crucial information for the government and politicians governments, allowing them interaction with citizens and bidirectional communication.

Relate internet use, there exist vast differences among countries all over the world because its implementation is affected and conditioned by a level of economic development, geography, and institutional policies of each country, among others. In 2017, despite the quick expansion of the internet, nearly 60% of the world's population, remain offline, creating the digital divide. Although the digital divide refers not only to the unique distinction of having access to the internet or not, it also includes the use individuals have of it. Moreover, that is related to behavior, level of skills and trust individuals have towards the

internet, and perceived usefulness of it.

Finally, remark there exist different ways for measuring internet use, attending variety of use (number of different activities individuals can undertake online); amount of use (frequency of internet use in day-to-day life); type of internet use (activity carried on the internet) and channel or device used (distinguishing various devices by their degree of mobility).

8. Digital transformation, Internet and Well- Being

“Understanding and improving well-being requires a sound evidence base that can inform policymakers and citizens alike where, when, and for whom life is getting better...

To be most useful... subjective well-being data need to be collected with large and representative samples and in a consistent way across different population groups and over time... Subjective well-being data can provide an important complement to other indicators already used for monitoring and benchmarking countries' performance...”

Martine Durand

OECD Chief Statistician, Director of the OECD Statistics Directorate- Foreword to OECD
Guidelines on Measuring Subjective Well-being, 2013

8.1 Introduction

As we have seen in previous chapters, the internet has become an integral part of our lives, leading to an increase in the number of users year by year. The growth of technology in our everyday life makes it difficult to switch off. Most people use it at work, at home, at school, and at leisure. However, there is a controversy among the researchers about the impact of electronic media and internet devices on social behavior. Moreover, that is one of the core issues that involve our study that pretends to analyze the impact of internet use in WB perception.

It is a fact that the internet provides advantages such as improving communication, accessibility to information, low cost, and minimal location constraints. Also, digital technology and modern devices such as smartphones, tablets, and computers, have led to endless and innovative ways of using the Internet (Wu et al. 2015), and they affect everywhere and everybody, from the world of business to social behavior.

They also have essential influences¹⁵ on WB and can support more inclusive growth. For example, the introduction of the internet (information searches, e-commerce, among others) and digital technologies create a whole range of collaborative networks and businesses. They can promote social inclusion by creating better access to quality education or offer new opportunities for skills development. Furthermore, they also can improve access to health care, to free and low-cost information, knowledge, and formation or government services and entertainment content.

However, digital transformation also has and has had other effects and challenges that should be considered. Here have been resumed the main effects of three different digitization waves

15 EU. 2018 Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the regions on the digital education action plan - Brussels, 17.1.2018 com(2018) 22 final {swd(2018) 12 final}

we have introduced in the previous chapter:

The first wave of digitization derived on:

- a) Improve productivity as a result of having more efficient business processes supported by ICT (Atkinson et al. 2009).
- b) Increase in revenue resulting from extended market coverage (Varian et al. 2002; Gillett et al. 2006).
- c) The growth of IT industries and services sector and job creation in service industries as financial, education, or health (Crandall et al. 2007).
- d) Reduction in the unemployment rate (Katz & Callorda 2016), although specific industries were prone to reduce their workforce (Katz et al. 2010; Thompson & Garbacz 2011).
- e) Multiplication of high-tech jobs in Europe (Goos et al. 2015).
- f) Increase in average household income as a result of broadband access (Katz 2017).
- g) And also reinforce the social divide as a result of having or not have access to technology (Katz 2017).

The second wave of digitization derived on:

- h) Spur extensive innovation and development of new products and services generated by a collaborative business (as Uber or Airbnb) (Katz 2017).
- i) Enlarge markets and create B2B and B2C platforms, although also emerged cybercrime of political shutdown related to Internet blackout (Katz 2017).
- j) Creation of direct jobs related to the digital industry and indirect employment (& Frey 2016a; Lin, 2011).

- k) Reduction and adverse effects on low and middle-skilled workers due to automatization have been produced (Brynjolfsson & McAfee 2014).
- l) Degradation of the quality of human relationships due to its intensity implementation (Turkle 2015).
- m) A decline in conducting other knowledge gathering activities such as reading (Katz 2012).

The third wave of digitization:

- n) It is still in its inception, innovations such as robotics, 3D printing, machine learning, and big data, among others, are yet at its infancy. However, some effects and risks can be anticipated.
- o) The effects of the second wave should be added to this one because both are ongoing.
- p) Automatisation of repetitive tasks linked to technology, IA, and robotics will eliminate specific jobs and increase competitiveness and productivity all over the world. Thus, other jobs should be created to maintain or improve living standards (Katz, 2017).
- q) Skills (including digital skills), innovation, learning capacity, and disruption play an essential role in the labor market; geographic mobility (reduction of relocation costs, subsidized housing) should be taken into consideration (Katz 2017).
- r) Privacy protection, privacy, cybersecurity, or trust aspects should be mitigated (Greenwald 2017).

Different effects and challenges that influence diverse aspects of life, affecting to a large extent the social and economic dimension. That is the reason for sustain our study that pretends to analyze how all these technology impacts on social behavior and at the end of people's WB perception; furthermore, how it affects our happiness and WB.

As will be presented in this chapter, current data are contradictory and support opposite positions to those questions. Although the digital transformation and internet can be highly advantageous, it has positive effects on users and provides significant benefits for WB, the risks of adverse outcomes are real, and the negative effects should not be neglected. They cannot entirely overcome some of the inherent barriers that prevent the specific disadvantaged group from benefiting from these technologies.

For example, even though those technologies enhance access to education, there is little evidence that more open education decrease existing inequalities in educational opportunities. Moreover, older people – that are the most could benefit from applications in the health area – are less likely to use digital tools than younger people.

Thus, the challenge is how to maximize the advantages while minimizing the negative impacts. Consequently, in line with the global constant increasing rates of internet use, nowadays, researchers are looking at the debate on the effects of the internet for people's WB cautiously. There are lots of studies analyzing this issue. In the following epigraph, there have been listed a sample of them, the most critical, organized attending its different stage of life (childhood, adolescence, adulthood and elderly), although the conclusions are varied and studies could be criticized due to small samples or lack of consistency and reliability in measurement.

8.2 Internet impact on a different stage of life

8.2.1 Impact on Childhood:

Starting for studies that relation internet usage with the younger stage age, childhood, there have been analyzed studies that relation children with the internet, but also with media or technology usage and obviously, WB. Table 7 resumes some interesting researches that analyze general issues, and the following main findings are presented:

Table 7. Impact of Internet use at childhood

| Topic | Authors |
|--|--|
| Time spent online | Ofcom 2015; 2016 |
| Supplant other more enriching activities | Ferguson 2017 Przybylski & Weinstein 2017 Chassiakos et al. 2016 Hale & Guan 2015 |
| Influence obesity and health problems | Rosen et al. 2014 |
| Rural and urban differences | Neethu 2016 |
| Improve illness treatments | Spence et al. 2006 Rooksby et al. 2015 Jan et al. 2007 Trautmann & Kröner-Herwil 2010 |
| Education | Owen 2016 Jackson et al. 2006 Bartau et al. .2018 |

Source: Own elaboration

Children are a specific collective to whom researches have been focused. Academies of Paediatrics all over the world recommend limited screen time for kids and no screen time under the age of 2 years, but they usually do not consider what to do with preteens and teenagers. However, despite those recommendations, when exist, time spent on screen is not being attended, on any group.

Research demonstrates that **time spent online** with screen-based media, and related technologies have been increasing in recent years (Ofcom 2015, 2016). Children from 2 to 5 years old do not respect limits of (< 1 or < 2 hr/day) established by Academies. Data obtained with telephone interviews with parents of nearly 20.000 children in the United States analyzed children's digital screen use and psychological WB in terms of caregiver attachment, resilience, curiosity, and positive affect conclude screens replace physical activity and promote sedentarism that is harmful to WB (Ferguson 2017).

Furthermore, other positive and negative growing consequences of digital media and internet use in childhood have been found. They can **enhance early learning**, exposure to new ideas and knowledge and information (Chassiakos et al. 2016), but also **supplant other more enriching activities** as exploratory play, connecting with caregivers, or interacting with peers, and also adverse effects on sleep, attention, unhealthy habits (Chassiakos et al. 2016; Hale & Guan 2015; Przybylski & Weinstein 2017).

However, children are not an isolated case. Preteens and teenagers are also spending massive amounts of media and time online, and at last, their WB is negatively affected. Rates of **obesity** have increased and **reduced health** or physical activity. In this way, Rosen et al. carried on a study with 1030 parents and children where daily exercise, meals, and screen data were monitored. That study demonstrates that rates of daily technology use would predict increased obesity and behavior/ attention /physical/psychological problems among children, preteens and

teenagers (Rosen et al. 2014).

No differences or associations between the level of impact of electronic media usage among **rural and urban school** children have been found (Neethu 2016). Neither electronic media usage reduces the introduction to traditional games and transmission of cultural values through the generations (Neethu 2016).

Focusing on the internet impact on illness treatment in childhood, it has been found that the internet could **improve treatment results**. Therapies based on internet delivery on cognitive – behavior help treatment childhood anxiety (Spence et al. 2006; Rooksby et al. 2015); improve asthma outcomes (Jan et al. 2007) and help to control recurrent headache – although further studies are needed to improve their quality and efficacy (Trautmann & Kröner-Herwil 2010).

At last, introduce and remark the internet and **education** on children and WB. There are lots of studies regarding education and the internet on children, and although they will be presented in the next chapter, here should be mentioned only a few ones that involve the WB dimension.

The research concludes the internet impacts positively on children's education. The Internet led to the creation of “*teacher professional learning communities*” that is highly effective in supporting teachers in changing their beliefs and practices, improving teaching and learning processes among students (childhood and adolescents). Moreover, it also concludes there are benefits for professional teacher learning but also potentially for student learning and WB (Owen 2016). Also, children in low-income families that used the internet had higher scores on standardized tests of reading achievement and higher-grade than did children who used it less (Jackson et al. 2006). However, it could not have plenty of positive effects if there no exists digital competence among parents that influence parental control and mediation strategies through laying down rules, the organization of time and space for internet use, limits, and

supervision, among others (Bartau Rojas et al. .2018).

8.2.2 Impact on Adolescents

Following, adolescents, the second age group analyzed, some interesting researches, and main findings are in this epigraph. Table 8 resumes the main findings on this stage:

Table 8. Impact of Internet use at adolescence

| Topic | Authors |
|--|---|
| Decreasing age first use | Wartella et al. 2005 Vatavu et al. 2015 |
| Types of use | Gross 2004 Wartellae et al. 2016 Gupta & Kumar 2016 |
| Affect intimate relationship | Shim 2007 |
| Affect negatively mental health | Çikrikci 2016 Younes et al. 2016 Gross et al. 2002 Raccanello et al. 2017 |
| Influences positively specific mental health | Opsenica-Kostić & Panić 2017 Mitchell et al. 2011 |
| Reduce psychological WB | Afradi et al. 2017 Nowland et al. 2018 |
| Excessive Use | Park et al. 2014 Akin 2012 Tripathi & Ahad 2017 Pal 2017 Odacı & Çikrikçi 2014 Pednekar & Tung 2017 Yao et al. 2014 |

Source: Own elaboration

There exist lots of sociodemographic data, analyzing internet use and adolescence. Interesting, but not enough related to present research, that is looking for how this technology impacts on adolescents' WB.

For instance, it was found that the **age of first use** is **decreasing** over time. Adolescents use the internet much more than children do, although perhaps it is because they are more autonomously and have more resources than children. Nevertheless, the age of first internet use is rapidly descending (Wartella et al. 2005; Vatavu et al. 2015) and will be interesting to analyze the reason for that; for sure, several aspects influence that, but it is not the target in this study.

Examining the **type of use** adolescents do, it has been found that adolescents use digital technologies and internet majority for communication (Gross 2004, Wartella et al. 2016). Remark also higher age group people, mainly females use social networking, especially through mobile more than to the lower age group. In the same way, higher age group adolescent spends more time mass media especially mobile, internet and other media than the younger age ones (Gupta & Kumar 2016).

Deepen on the WB dimension, internet use influences behavior and **affects** teenagers and **intimate relationships**, displacing the time they spent – and also their desire for spending time – with family. Internet use has been associated with the teens' loss of desire for face-to-face communication with family and friends, it may even change their attitude toward family and make them withdraw from their parents and other immediate members, and it has been linked to specific motives for going online and try to find an escape in cyberspace. In other words, the more time teenagers spend online, the less desire they have for seeing and talking with their immediate family members (Shim 2007).

Furthermore, it has been found that adolescent people demand to be connected at any time and

anywhere, a fact that could **affect negatively** their stress levels and **mental health** affecting by the end to their WB, because the more connection dependence, the more stress levels individuals have, and vice-versa (Çikrikci 2016). This dependency or addiction has also been associated with insomnia, depression, anxiety, and self-esteem (Younes et al. 2016)

Other authors are less pessimistic and show no correlation between internet use and WB. They maintain time spent online was not associated with dispositional or daily WB, although, as proposed by Gross' theory, the intimacy of instant channel communication partners was linked with daily social anxiety and loneliness in college, above and beyond the influence of other dispositional measures (Gross et al. 2002). Alternatively, that the amount of time for virtual and non-virtual activities influenced emotions differently, but it is not related to life satisfaction, when measured the amount of time spent virtually and non-virtually for different purposes (social, learning, and leisure Internet use, and social non-virtual use) and WB in terms of emotions and life satisfaction (Raccanello et al. 2017).

Nevertheless, sometimes internet use could **influence positively specific mental health**. The internet could enhance positive effects that improve mental health in teenagers specifically on cyberbullying episodes, introducing behavior tendency and last actions for prevention it (Opsenica-Kostić & Panić 2017). Furthermore, specific types of internet use, including gaming and entertainment usage, can predict perceived social support, introversion, and happiness (Mitchell et al. 2011).

Digital technology and the internet as modern communication tools could affect negatively and **reduce psychological WB** (Afradi et al. 2017). Excessive dependence on-line through a mobile phone or internet addiction of adolescents is related to the disinterest of the real world and physical inactivity and disrupted daily living (due to frequent calls, text messages, and surfing the Web and forums). Altogether, it could cause feelings of less obligation to society, family,

jobs, friends. Moreover, online dependence could increase the possibility of deviant behavior factors, creates tension and mental distress, dysregulation of sleep, disruption of daily tasks, and at last, decrease happiness and social interaction or cause depression, anxiety, and social isolation. That is important to remark because people who have high psychological WB feel less depression, anxiety, and helplessness, and they rarely have a dependence on a mobile phone and internet addiction. Specifically, related to Ryff dimensions, dependence on mobile phones has an inverse relation with purposefulness in life and personal growth, while internet addiction only with purposefulness in life; and both together have significant negative relations to environmental mastery (Afradi et al. 2017).

On-line dependence causes depression, failure, and loneliness even compared with self-report measures of internet use and the breadth of one's network of friends. Sometimes the internet is used for enhancing existing relationships. In that case, it can replace and fill social loneliness needs, and by the end, reduce loneliness, understood as social loneliness, but not emotional ones. There are other cases when social technologies are used to avoid the social world or “social pain of interaction” – then, feelings of loneliness understood as emotional loneliness are increasing. So, it is crucial to distinguish among two types of loneliness because isolated individuals may need support with their internet use in order to employ it to enhance existing friendships and to forge new ones to enhance their WB (Nowland et al. 2018).

Excessive use of the internet has also been related to several problems among adolescents, including poor academic performance, family and interpersonal problems, and even physical weakness (Park et al. 2014). These conclusions are related to the replacement of activities have been considered before (time with family, or unhealthy habits, among others).

Until here, it has been presented some controversial opinions on whether the internet affects more or less positively to adolescents WB. What is clear, and exists consensus about it, is

excessive internet use or *internet addiction* affects negatively to people WB. Besides, teenagers with high levels of subjective vitality and subjective happiness present less predisposition to have internet addiction (Akın 2012).

The core issue is how to measure it and what is considered too much or addiction, also named problematic or Compulsive Internet Use (CIU) that refers to excessive internet use that interferes with daily life. CIU influences various aspects of human behavior and cognitive development. In this way, a study carried on with more than 500 youngsters from New Delhi, analyze how cognitive development, understood as the mental process that includes reasoning, attention, perception, problem solving, memory, and comprehension, is influenced by CIU. Results of this study infer that several aspects of human behavior, personality traits, lifestyle, cognitive development, academics, and WB are being affected to a great extent (Tripathi & Ahad 2017). It could not be found bibliography to contrast if geography affects and influences those results, because in Sweden, for instance, there are no differences in psychological WB among upper high school students, neither difference in males and females about CIU (Pal 2017), and we consider those facts should be corroborated in future.

Therefore, it could be affirmed that there exist significant correlations among CIU, attachment styles, and WB (Odacı & Çıkırıkçı, 2014; Pednekar & Tung 2017). Moreover, feelings of loneliness would increase over time, showing a worrisome vicious cycle between loneliness and internet addiction. By contrast, offline social contacts with family and friends would help to reduce symptoms of internet addiction and social isolation (Yao & Zhong 2014).

8.2.3 Impact on Adults:

Adulthood is the third age group analyzed, some interesting researches and main findings are in this epigraph. Table 9 resumes the main findings on this stage:

Table 9. Impact of Internet use at adulthood

| Topic | Authors |
|--------------------------------------|---|
| Comparisons with adolescents' group | Tomyn et al. 2013 |
| Loneliness and depression | Kraut et al. 1998; 2002 Shaw & Gant 2002 Steinfeld et al. 2008 Rains & Young 2009 Kraut & Burke 2015 Nowland et al. 2018 |
| Social anxiety | Prizant-Passal et al. 2016 Weinstein et al. 2015 |
| Illness treatment | Fernández-Álvarez et al. 2017 Mitchell et al. 2009 Kunovski et al. 2017 Wilpsbäumer 2017 Wurm et al. 2017 |
| Activities displaced by Internet Use | Hall et al. 2018 |
| Compulsive Internet Use Behaviors | Kim et al. 2009 Muusses et al. 2014 Young & Rogers 1998 |

Source: Own elaboration

Although quantitative **comparisons between adult and adolescent** WB data are validated (Tomyn et al. 2013), here have been listed some other conclusions observed after reading more researches.

There exists a discrepancy between some effects of internet use: **loneliness and depression** on adulthood. Some studies argue that internet use is positively correlated with depression, loneliness, and stress (Kraut et al. 1998; 2002), while others defend that internet use decrease loneliness and depression significantly, and perceived social support and self-esteem increase significantly (Shaw & Gant 2004; Steinfield et al. 2008; Rains & Young 2009). However, there has been a recent consensus consistent depending on the use of the internet; it affects in one or other way. For instance, communicating online with close friends and family declines in depression, loneliness, and stress, while other uses of the internet, including gaming, searching information, entertainment, or communicating online with weaker ties, generate worse impact (Kraut & Burke 2015). And also, it is crucial to distinguish among social and emotional loneliness to predict effects explained before (Nowland et al. 2018).

Regarding **social anxiety**, it has been found it is positively correlated with feelings of comfort online, and although it is not correlated with total time spent online, email use, or browser, it is related to time spent gaming and with CIU. It is essential to remark also age influences a positively correlation between social anxiety and internet use; thus, as age increases, social anxiety becomes stronger (Prizant-Passal et al. 2016). An exception is when there exists CIU, that behaviors, preoccupations, and distress are altered. In that case, cross-sectional studies confirm internet use influences affective disorders (including depression), anxiety disorders (generalized anxiety disorder, social anxiety disorder), and attention-deficit / hyperactivity disorder (Weinstein et al. 2015).

Until here, previous conclusions obtained in other stage ages, have been confirmed. Thus, we continued investigating the impact of another usage of the internet and its effects on adults. Maybe including wellness or health and illness treatment topics, further conclusions could be obtained.

Regarding **illness treatment**, the internet offers vast potential in the treatment and controls specific illnesses because it offers the potential to disseminate these interventions to a broad audience in an accessible and sustainable manner. In adults, it has been found some evidence demonstrating the efficacy of internet interventions for enhancing WB, but little is known about mental illness treatment and prevention.

It appears possible to enhance the cognitive component of WB via a self-guided internet intervention, while no changes in mental illness were detected by group or time when positive psychology internet-based intervention (Mitchell et al. 2009). Neither for the treatment of people who suffer posttraumatic stress disorder, when effectiveness and cost-effectiveness are evaluated (Kunovski et al. 2017). Neither on the effectivity of the self-help intervention when counselor behaviors in the e-mail support have been shown (Wilpsbäumer, 2017). Neither improvements could be seen on pain problems when the internet delivered therapist guided transdiagnostic treatment with the telephone is offered (Wurm et al. 2017).

Going further, the findings are diverse, and studies are often criticized due to small samples and lack of consistency in measurement. Failure rate from protocols of emotional disorders internet-based treatments is high, and although this rate is usually reported with studies, generally few ones explore the experience of patients who drop out those treatments. In the mid and long-term, ideographic interventions for examining the experiences of those patients who drop out of internet-based treatments would be vital to decrease dropout rates and increase expectations management (Fernández-Álvarez et al. 2017).

Concerning **activities displaced by internet use**, remark the internet use influences daily activities; however, usually, it does not replace necessary or pleasant activities. Social media primarily displaces unpleasant or neutral activities like working, childcare, and cooking or cleaning (Hall et al. 2018).

Individuals who were lonely or not had excellent social skills could develop strong **Compulsive Internet Use behaviors (CIU)**, resulting in adverse life outcomes (e.g., harming other significant activities such as work, school, or significant relationships) instead of relieving their original problems. Such augmented adverse outcomes were expected to isolate individuals from healthy social activities and lead them into more loneliness (Kim et al. 2009).

CIU is associated with significant levels of depression (Young & Rogers 1998); it is linked to lower WB, and it may affect health. It is used as predicted increases in depression, loneliness, and stress over time, and a decrease in happiness in adults over time, although it does not affect nor change the self-esteem of individuals. Eventually, remark happiness is proposed to be a safeguard for developing CIU (Muusses et al. 2014).

8.2.4 Impact on the Elderly:

Finally, the internet impact on older people has been analyzed. There have been found more studies of this age group. Maybe because the number of older people is continuously increasing and they are growing collective, or maybe because the better they are, the fewer costs for public policies generate. Table 10 resumes the main findings on this age stage:

Table 10. Impact of Internet use at the elderly

| Topic | Authors |
|--------------------------|-------------------------------|
| Loneliness | Khalaila & Vitman-Schorr 2018 |
| | Sum et al. 2008 |
| | Heo et al. 2015 |
| | Cotten et al. 2012 |
| | Fokkema, & Knipscheer 2007 |
| Leisure | Lifshitz et al. 2018 |
| Illness | Clarke et al. 2017 |
| Autonomy | Shapira et al. 2007 |
| Psychosocial functioning | Mellor et al. 2008 |
| | Heo et al. 2015 |

Source: Own elaboration

On this collective, it has been found the internet use can enhance the WB and quality of life of older adults directly or indirectly by reducing **loneliness**. However, these effects are conditional on other variables as the time the elderly spends with their families or ethnicity (Khalaila & Vitman-Schorr 2018).

Broader use of the internet as a communication tool is associated with a lower level of social loneliness (Sum et al. 2008, Heo et al. 2015), being the decline in loneliness, depression (Cotten et al. 2012). Regarding emotional loneliness, there exist positive findings and a correlation between internet use and emotional loneliness. Significant use of the internet to find new people has been associated with a higher level of emotional loneliness. Results are more conclusive as higher education elderly have, maybe because they are more predisposed to use new

technologies (Fokkema & Knipscheer 2007; Sum et al. 2008).

However, not all activities carried on the internet effect in the same way. Interpersonal communication, information seeking, and online recreation functions are positively correlated with life satisfaction. Task performance and leisure are negatively correlated with depression. However, after controlling for sociodemographic variables, only **leisure** is associated with the WB measures (Lifshitz et al. 2018).

Regarding **illness** treatment, it has been analyzed if there is a positive relationship between frequent internet use and use of any other community-based health services (physiotherapist, osteopath/chiropractor, dentist, optician/ optometrist, counseling service, smoking cessation service, chiropodist/podiatrist, emergency services, other non-specific health services) and no relationship with the other types of care. No observed relationship between frequent internet use and primary or secondary care use has been found, suggesting that older adults without internet access are not disadvantaged regarding healthcare use (Clarke et al. 2017)

At last, remark digital technologies and internet use improve **autonomy** and contribute to older adults' WB and feelings of empowerment by influencing their interpersonal interactions, promoting their cognitive functioning, and contributing to their experience of control and independence (Shapira et al. 2007).

Thus, although a broader psychometrically impact analysis is required, data suggest higher levels of internet use can **improve psychosocial functioning**, including self-esteem, positive affect, personal WB, optimism, and social connectedness in older adults (Mellor et al. 2008) and better life satisfaction and psychological WB among older adults (Heo et al. 2015).

8.3 Conclusions

In this chapter, it has been analyzed the impact of internet use at different life stages, presenting both positive and negative findings.

Age of first use is decreasing, and despite pediatrics, organizations recommend limit and reduce internet use on childhood, time spent online is increasing, it supplants other more enriching activities for kids like playing and exploring, and it influences obesity and health problems. However, it also can improve engagement on illness treatments or improve education methodologies and resources.

On adolescents, it has been found that internet use can affect and displace intimate relationships and family relations. There exists controversy about its influence positively and negatively on mental health, depending on the type of use individuals do. Because specific types of internet use can predict perceived social support, introversion, and happiness, although connection dependence and compulsive internet use are related to stress levels, insomnia, depression, anxiety, and self-esteem.

On adults, there have been presented existing controversy about the impact of internet use on loneliness and depression, although recently, there has been a consensus on depending on the use of the internet it influences on one or another way. Furthermore, age influences positively correlation between social anxiety and internet use; and also exists compulsive internet use, resulting in adverse life outcomes instead of relieving their original problems.

Finally, the impact on the elderly has been presented. Internet use increases communication on older adults; thus, it decreases loneliness and depression. At this stage, it is an essential education level of individuals because the higher education elderly have, the more predisposed

to use new technologies they are, and the more autonomous and empowered they are. Furthermore, it fits leisure activities and decrease loneliness and depression, improve psychosocial functioning, including self-esteem, positive affect, increasing WB levels of individuals.

Thus, as the results of this study may indicate, the internet itself is not a problem. The real problem is how people use it.

9. Digital transformation, Internet and Education

“It is absurd that American classrooms are still based on teachers standing in front of the blackboard and using textbooks. All the books, all the learning material, and the tasks should be digital and interactive, made for each student, and offering feedback in real-time.”

“Computers have had, so far, little impact on schools-less than in other areas of society such as the media, medicine, and law. For a change, this trend, computers, and mobile devices should focus on presenting more personalized lessons and motivational feedback.”

Bill Gates, 2011

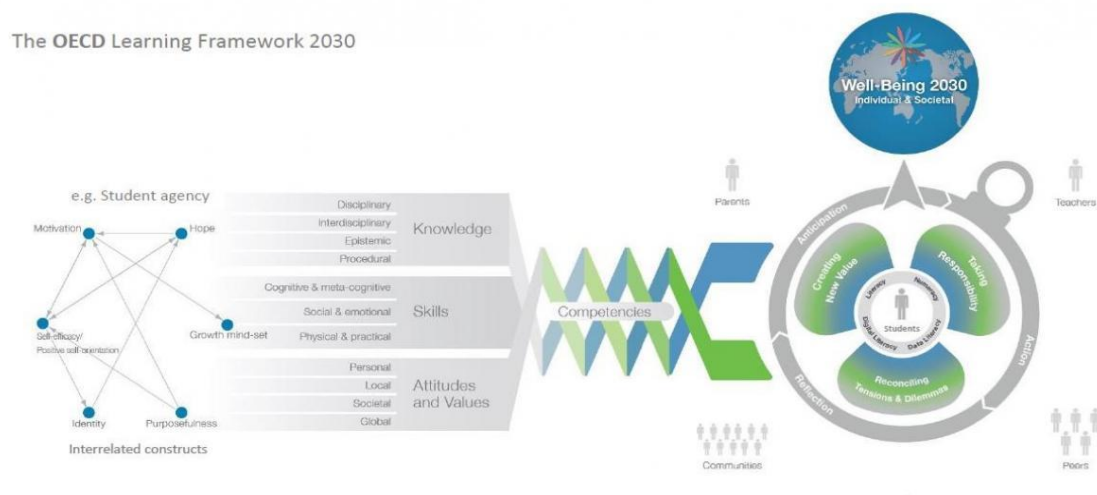
7.1 Introduction

As it has been presented in previous chapters, education has a direct effect on WB. Therefore, it has been considered necessary deepen in its characteristics and intricacies in order to understand better its influence.

Education contributes to the development of knowledge, skills, attitudes, and values that enable people to benefit from an inclusive and sustainable future. Education enhances active, responsible, and engaged citizens, and increases WB.

In the era of digital transformation, knowledge, and skills for effectively and critically navigate, evaluate and create information using digital technologies, are becoming increasingly essential, as part of physical health and mental WB (OECD 2018). In this way, as Figure 22 displays, OECD Education 2030 stakeholders have co-developed a “learning framework” that illustrates how young people can navigate their lives and their world.

Figure 22. The learning framework developed by OECD Education in 2030.



Source: OECD Learning framework 2030

As anticipated in chapter 4, education affects and improves people's WB. Education raises potential earnings, increases their job satisfaction and job opportunities, increase goods at one's disposal and gives people more choices about how to live their life (Garcia- Aracil et al. 2018). Moreover, education fosters competitiveness, productivity, or mobility, among others. It keeps an aging workforce productive, and at last, it contributes to developing economies and its welfare state (Cuñado & de Gracia 2012; MC Gowan & Andrews 2015).

In this chapter, it will not be analyzed all knowledge, skills, and attitudes or values considered for proficiency use of digital technologies, because it would be the object of another dissertation. However, it will be explained the leading different paths education has to incorporate essential competencies for individuals' basic use.

Individuals can follow different paths to improve their knowledge, education, training, and competencies. Some of them are regulated by national governments who determine duration, content, and issues that should be learned, while others depend on the institution and organization that offers the program. Some of them are compulsory to specific collectives – e.g., children and adolescents until a certain age – while others are selected directly by people, jobs, or the environment to promote the acquisition of certain kinds of skills. Indeed, we are referring to formal and non-formal education.

Education has a wide range of diversity and variability, in the age stage – from childhood to adulthood – but also from the content. As skills required by enterprises and society are evolving, people cannot rely on the knowledge and skills they acquired at school/university on formal education, or on additional activities on non-formal education, to last them until the end of their working lives. Indeed, many of the knowledge and skills which lead to success in a job career have not been learned at school or university. They have been learned in informal activities at home, in social interaction, in interaction with media, and during work (Dufura et al. 2013).

The European Commission Council Recommendation of 20th December 2012 declared: *“The validation of learning outcomes, namely knowledge, skills, and competencies acquired through non-formal and informal learning can play an important role in enhancing employability and mobility, as well as increasing motivation for lifelong learning, particularly in the case of the socioeconomically disadvantaged or the low-qualified”* (The Council of the European Union, 2012, p.1).

Consequently, education is not limited a one period or event in life; it could take place at different stages and moments of life and within different paths or ways. So, it should be considered as a lifelong learning strategy.

In this chapter, it will be presented different types of education: formal, informal, and non-formal education. Moreover, it will be emphasized how Information and Communication Technology (ICT) (understood as digitization, internet, technology) influences it. ICT offers an alternative flexible pathway to improve skills and also innovation on the new educational resource. Moreover, it also offers new ways of delivering services such as e-learning, pedagogic tools, among others.

ICT opens vast potential and lots of possibilities. However, it will not achieve if people who learn through digital technology do not have the necessary knowledge and skills to manage it. Therefore, they must familiarize themselves with digital technologies and later, with learning programs.

9.2 Types of education

Education is defined as “*organized and sustained communication designed to bring about learning*” (OECD glossary). In other words, it is a process of facilitating learning or acquisition of knowledge, skills, values, beliefs, and habits that can take place in different environments.

Formal education is the structured one whose explicit purpose is teaching students. It is not limited only to the one carried on in a classroom environment with multiple students physically attending and learning together. Neither to an environment where a teacher explains lessons, based on one-way direction knowledge as it used to be, first using chalk-and-blackboard and paper books, and latterly overhead projector or recent digital technologies (computers, digital boards, and the Internet). Formal education includes articulated schools and different stages of scholarship¹⁶ by the primary purpose of making available schooling to children and young people in educational settings, today based on two-way direction knowledge and interacting to higher extent teachers and students.

Non-formal education is a type of education that is institutionalized, intentional, and planned by an educational provider (even volunteering, social service or enterprises). It is carried on generally out-of-school- although it could be inside the school as extra-scholar activities-; face-to-face or distance. Non-formal education is in a position intermediate between formal and informal education. It represents an educational organized and systematic activity developed outside the framework of the official field that facilitates certain kinds of skills and learning to students, sometimes complementary to the formal education, with the methodology, learn by doing. At its origins, it was closely linked to adult education, but today it has acquired a vast heterogeneity of populations, affecting from children to older adults. Although non-formal

¹⁶ Preschool or kindergarten, primary and secondary school and then college, university.

education can be extensive and diverse, including sometimes non-academic teachers or trainers, it should achieve some specific objectives and goals determined previously by the program (García-Peñalvo 2016).

Informal education or education carried on outside of a standard school setting is the one resulting from daily life activities whereby every individual acquires attitudes, values, skills and knowledge from daily experience related to work, family or leisure that influences and resources in his or her environment. It is focused on direct and practical training, with the guidance of a reference person, a peer, or an expert, to guide the learner. This kind of education is characterized by being natural and spontaneous – over daily interactions and shared relationships among members of the specific team, through a spontaneous and continuous process that is not intentionally-. It could take place in a variety of places and allow individuals to acquire and accumulate knowledge and skills through repetitive experiences and relationships with the environment. Informal learning could be considered a part of non-formal learning, and often it is referred to as experience-based learning that sometimes can be understood as accidental learning (UNESCO, 1972).

Moreover, informal education is never organized, has no set objective in terms of learning outcomes and is never intentional from the learner's standpoint, and often it is referred to as learning by experience or just as experience (OECD 1996)¹⁷

It has been essential to making distinctions within different types of education because, as it will be explained later, ICT affects differently to each one. However, before addressing this affair, some other considerations should be made regarding the organization's educational process.

¹⁷ <http://www.oecd.org/education/skills-beyond-school/recognitionofnon-formalandinformallearning-home.htm>

The educational organization **varies from one country to another** all around the world. It refers not only to content but also on duration and organization of learns or compulsory education. School schemes are designed around a set of values or principles that govern all educational choices in that country. Such acceptances include curriculum, organizational models, the design of the physical learning spaces (e.g., classrooms), student-teacher interactions, the model of assessment, class size, educational activities, gender issues, and more.

Around the world, nearly 93% of children aged six to twelve years are enrolled in primary education, and this proportion is rising (UNESCO 2014). At least 90% of students of OECD countries will have education for an average duration of 14 years, even if this varies from 10 years in Mexico and Turkey to 17 years in Norway (OECD 2017). Furthermore, across OECD countries, rates of studying time are increasing among young adults, and the enrolment of 20-year-old people in education has increased 7% points from 2005 to 2015; being in 2015, 85% of 15-19 year-olds still in education – 37% of them in general upper secondary education programs, 25% in vocational upper secondary education programs and 23% in a level other than upper secondary (OECD 2017).

Formal education organization and distribution differ substantially from one country to another, depending on the educational system. Today, in most countries, full-time education and school are compulsory for all children up to a certain age, although the division between primary and secondary education generally occurs around the adolescence age. That is relevant for understanding why rates of schooling are so low in the developing world.

Also, that is important because our study analyzes how education influences WB, and because it also affects international comparisons. In this way, it has been used ISCED¹⁸ classification to

¹⁸ The ISCED classification - International Standard Classification of Education - was developed by UNESCO in the mid-1970s and was first revised in 1997. A further review of ISCED was undertaken between 2009 and 2011 involving extensive global consultations with countries, regional experts and international organisations. Finally, ISCED 2011 was adopted by the UNESCO General Conference in

categorize and equate data and education values between countries.

ISCED allows to standardize and compare levels of education programs and classification of educational attainment regarding qualifications resulting from formal education programs. It considers the changes in education systems that occurred over the last decade, mainly relating to the Bologna process in tertiary education, but also the expansion of education programs for very young children. Table 11 reflects the main ISCED classifications today within a formal education structure.

Table 11. ISCED 2011

| |
|---|
| ISCED 0: Early childhood education ('less than primary' for educational attainment) |
| ISCED 1: Primary education |
| ISCED 2: Lower secondary education |
| ISCED 3: Upper secondary education |
| ISCED 4: Post-secondary non-tertiary education |
| ISCED 5: Short-cycle tertiary education |
| ISCED 6: Bachelor's or equivalent level |
| ISCED 7: Master's or equivalent level |
| ISCED 8: Doctoral or equivalent level |

Source: International Standard Classification of Education (ISCED)

For a long time, **formal** education has been regulated for access to **children and adolescents'** majority. ISCED 0, for instance, relates to early childhood education (usually for younger than six years old). Compulsory education usually starts with Primary (ISCED 1). Attending OECD

data (OECD, 2018), ISCED1 usually takes from 4 to 8 years, (most common: 6 years), and secondary (ISCED 2) usually takes from 2 to 6 years (most common: 3 years). Furthermore, cumulative duration of primary and secondary education usually takes from 8 to 11 years (most common: 9 years) that increases until 11-13 years (most common: 12 years) when it gets access to higher education levels (ISCED 3). People who are around 16 usually have finished secondary (IESCED 2) and continue to higher studies (IESCED 3/4/5) or introduce in the labor market. Lower ISCED degrees relate to younger people, and usually, they are growing with the age of people when formal education is considered.

However, the relationship between the increasing age is not similar when other paths of education are taken. **Informal and non-formal education**, although also exist in childhood, are more focused on **adults** and older people, and for all these younger that have finished their formal education or who are learning a new job. The Adult Education Survey¹⁹ monitors participation in education activities (formal, non-formal, and informal learning). In 2011, over 40%²⁰ of adults aged 25 to 64 years participated in some education. Attending this Survey, non-formal and informal education were the most claimed by an adult's education and training in the EU-28, instead of colleges or universities²¹. That is reasonable when the criterion of the age of this survey is considered because people older than 25 years should have completed their university' studies (if the case) and, if not, should be at working age.

That is essential because although for some people, education is only a way to get a job, for another one not. The world is changing so fast, employment needs and competencies required

¹⁹ The Adult Education Survey, abbreviated as AES, is a household survey which is part of the European Union (EU) Statistics on lifelong learning. People living in private households are interviewed about their participation in education activities (formal, non-formal and informal learning). The survey takes place every five years and its results are published on Eurostat website.

²⁰ This survey shows the rate of UE-28. But there was a considerable variation between participant countries. For instance, in Sweden and Luxembourg, the share of the working-age population participating in education and training rose to over 70 %, while Greece (11.7 %) and Romania (8.0 %) recorded much lower participation rate.

²¹ Adult learning statistics - characteristics of education and training. Source: **Eurostat** - Data extracted in October 2015.

are incessantly changing, and much knowledge becomes obsolete quickly. Skills are uninterruptedly evolving, and they will change more and more during working lives. Thus, individuals must continue studying to **improve employment opportunities** and to **adapt to changes in society**, and also, to improve their WB by the economic dimension.

Adults with low educational level usually earn lower than average earnings and occupy jobs more vulnerable and precarious in the labor market²², because a lack of skills affects their employability and promotion opportunities. Moreover, this is important since, due to the digitization and digital transformation we are involved in, some skills considered essentials today; adults could not be acquired at school because those technologies did not exist when they were studying at school, college, or university.

Therefore, some governmental bodies²³ suggest compulsory life-long education, due to longer life expectancies increase the need to learn. However, for some people, it is difficult to come back to the educational system at a certain age. They cannot be forever in school, college, or university. They need to work. Consequently, they choose informal learning and non-formal education, sometimes through digital technology, to improve skills and their employment opportunities and lives in general. That is the reason for these types of learnings are becoming so popular.

9.3 Digital transformation on education:

Digital transformation plays an essential role in education. It converts to digital format lessons and learning processes, and it incorporates technology and the internet. Thus, it facilitates and

²² Eurostat Data - extracted in October 2015.

²³ Like the Finnish Innovation Fund Sitra in Finland.

expands access to knowledge. It has transformed learning and teaching procedures, and not only changing blackboards for digital boards but also in concepts, methodologies, e-learning, and skills, as it is presented in this section.

Digital transformation also promotes innovative pedagogic models and international and multicultural collaborations for schools and trainers, carrying on similar methodologies in different environments. It can provide real-time formative, and skills-based assessment and simulations or virtual scenarios to test and train competencies people are learning, among others. It makes more dynamic and emotional the process of learning, improving experiences and knowledge. For instance, eTwinning is a community for schools in Europe that offers a platform for schooling staff to communicate, collaborate, develop projects, and share methodologies and practices of European countries involved in the community.

Furthermore, today, in the information-era, where data and information are evolving and can be anywhere, digital transformation is essential. Thus, it should be enhanced the use of ICT as a complementary tool for education to provide learning about and through digital technology to teach skills for learning by oneself.

9.3.1 Access to digital technologies and learning about them

There are vast differences in **knowledge and skills for using computers**, tablets, or smartphones **people have**. While today babies are considered fully native digital generation, to whom technology has been immersed in all their lives, this process has not ever been like that; it has been evolving by the time (Joiner et al. 2003; Bennet et al. 2008). For instance, older

people have learned the use of these technologies through other informal or non-formal ways, while the typical 15-year-old student in 2012 had at least five years of experience using computers²⁴.

The introduction of digital technologies at schools began elsewhere a long time ago. It started in a few schools and latterly expanded to most of them. It was a non-linear process, and there could exist a wide diversity between countries and within them, due to political or governmental reasons. Today, as will be shown in this chapter, technology is present in most schools around the world. Of course, it refers to **formal education**, because it is more difficult to monitor the evolution of it in other paths.

Governments have the responsibility to promote digital skills, and it depends not only on policies but also on budgets. Each country determines the skills included in the curriculum, and it also comprises digital strategies and the promotion of the internet and digital technologies into schools. Most OECD Countries²⁵ claim that students should be able to use modern technology as a tool for knowledge-seeking, communication, creation, and learning once completed compulsory education. Thus, they made considerable investments in training teachers, infrastructure and materials, or computers.

PISA- the Programme for International Student Assessment²⁶ is a survey carried on schools to students that are attending formal education. PISA monitors to compare the proficiency of students from a wide range of different nations, and it also analyzes penetration data of the internet and computers in schools all around the world.

²⁴ OECD, 2015- How Students' Use of Computers has Evolved in Recent Years.

²⁵ Most OECD countries, and concretely referred to data from Sweden, Germany and United States. In the United States the Obama administration give all students across the country the chance to learn computer science in school. And in Germany the national digital agenda aims to promote Internet and Computer Technologies studies through the organisation of nationwide competitions.

²⁶ Programme for International Student Assessment (PISA) is a triennial international survey which aims to evaluate education systems worldwide by testing the skills and knowledge of 15-year-old student, promoted by OECD - Organisation for Economic Co-operation and Development

As Figure 23 shows, the ratio of computers per student around countries varies a lot from one country to another. For instance, Australia, Iceland, United States, New Zealand, and the Czech Republic are on the top with more than one computer per student, while Greece, Poland, Germany, Japan, and Italy are on the bottom, sharing one computer with four students. In any case, they all agree on the need to be connected to the internet. Attending PISA 2015 Results - Volume II Policies and Practices for Successful Schools, nearly every computer independently of the country is connected to the Internet (OECD 2015).

Figure 23. Computers at schools in OECD countries

| OECD | Number of computers per student | | Percentage of computers connected to the Internet | |
|-----------------|---------------------------------|--------|---|-------|
| | Mean ratio | S.E. | % | S.E. |
| Australia | 1.52 | (0.05) | 99.1 | (0.2) |
| Austria | 1.10 | (0.05) | 98.7 | (0.5) |
| Belgium | 0.90 | (0.04) | 97.1 | (0.9) |
| Canada | 1.05 | (0.04) | 99.2 | (0.3) |
| Chile | 0.65 | (0.04) | 93.3 | (1.7) |
| Czech Republic | 1.02 | (0.04) | 99.0 | (0.5) |
| Denmark | 0.94 | (0.04) | 99.9 | (0.1) |
| Estonia | 0.78 | (0.03) | 99.0 | (0.5) |
| Finland | 0.79 | (0.05) | 80.4 | (2.4) |
| France | 0.81 | (0.05) | 97.7 | (0.5) |
| Germany | 0.55 | (0.03) | 96.4 | (0.9) |
| Greece | 0.25 | (0.01) | 98.1 | (0.5) |
| Hungary | 0.75 | (0.05) | 98.2 | (0.7) |
| Iceland | 1.49 | (0.01) | 95.8 | (0.1) |
| Ireland | 0.66 | (0.03) | 98.0 | (0.6) |
| Israel | 0.43 | (0.03) | 85.4 | (2.6) |
| Italy | 0.50 | (0.03) | 95.8 | (1.5) |
| Japan | 0.51 | (0.03) | 94.0 | (1.3) |
| Korea | 0.37 | (0.02) | 98.4 | (0.6) |
| Latvia | 0.90 | (0.02) | 98.9 | (0.3) |
| Luxembourg | 0.87 | (0.00) | 98.6 | (0.0) |
| Mexico | 0.29 | (0.02) | 79.2 | (2.5) |
| Netherlands | 0.63 | (0.03) | 99.2 | (0.4) |
| New Zealand | 1.12 | (0.06) | 99.5 | (0.2) |
| Norway | 0.86 | (0.03) | 99.7 | (0.2) |
| Poland | 0.46 | (0.02) | 99.3 | (0.4) |
| Portugal | 0.43 | (0.03) | 97.9 | (0.7) |
| Slovak Republic | 0.91 | (0.03) | 97.6 | (0.6) |
| Slovenia | 0.59 | (0.00) | 99.3 | (0.0) |
| Spain | 0.74 | (0.04) | 98.8 | (0.6) |
| Sweden | 0.91 | (0.03) | 99.1 | (0.6) |
| Switzerland | 0.72 | (0.07) | 99.1 | (0.3) |
| Turkey | 0.16 | (0.02) | 89.3 | (2.4) |
| United Kingdom | 1.03 | (0.05) | 98.4 | (0.5) |
| United States | 1.22 | (0.14) | 98.0 | (0.8) |
| OECD average | 0.77 | (0.01) | 96.4 | (0.2) |

Source: PISA 2015 Assessment and Analytical Framework PISA 2015 Results (Volume II)

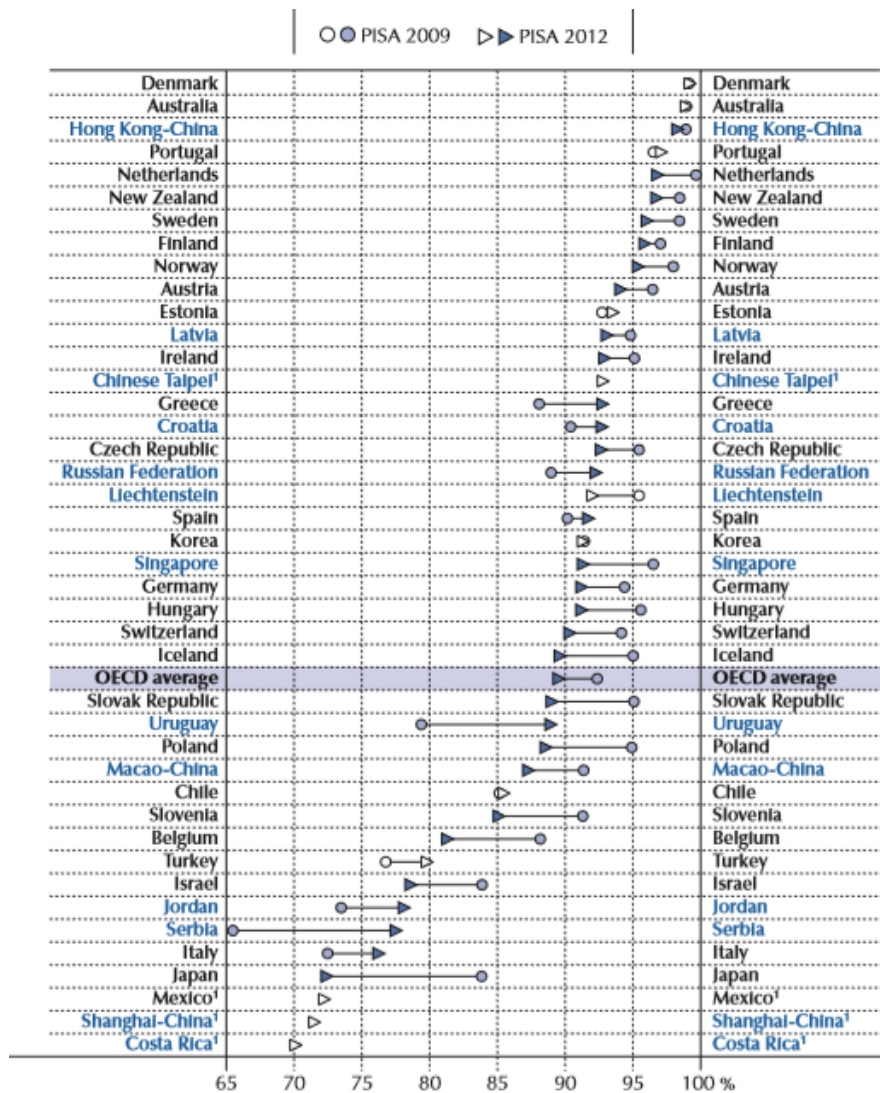
Nevertheless, school data reflects only a part of education; thus, using PISA data, the situation at home has also been checked.

In this way, the number of computers that students have at home had increased between 2009 and 2012 in all countries. Across OECD countries, on average, in 2012, almost two out of three students had at least one computer at home, while only 4% of 15-year-old students lived in homes where no computer was present. The exceptions were students from Indonesia (74%) or Vietnam (61%) who do not have any computer at home (OECD 2015).

Regarding time spent online, within a typical school week (Monday to Sunday), students were using the internet at school and home indistinctly, being significant activities outside of school (2,29 hours on average) than at school time (0,69 hours on average). Furthermore, the amount of time spent on weekends does not differ across socio-economic groups on average across OECD countries (OECD 2015).

Consequently, the **digital divide**, a concept introduced in chapter 5, is not a myth. It exists a separation between those who have access to the digital and connected world from those who are left behind on the analog side of the divide, although this divide is reducing, at last at OECD schools, as Figure 24 displays.

Figure 24. The change between 2009 -2012 in the share of students with access to the Internet at schools



Source: OECD, 2012 PISA- How Students' Use of Computers has Evolved in Recent Years

Until here, accessibility to the internet, computers, and digital technology at school has been analyzed. It would be interesting to know what happens **outside** this **formal education** and analyze the access for other individuals, workers, and anyone outside schools.

Thus, we deepen in the adult learning process, because, both nonformal and informal education, play an essential role because people learn with digital technologies using computers, phones,

digital television as part of their natural day-to-day lives (Sefton-Green 2004; Sefton-Green & Erstad 2018).

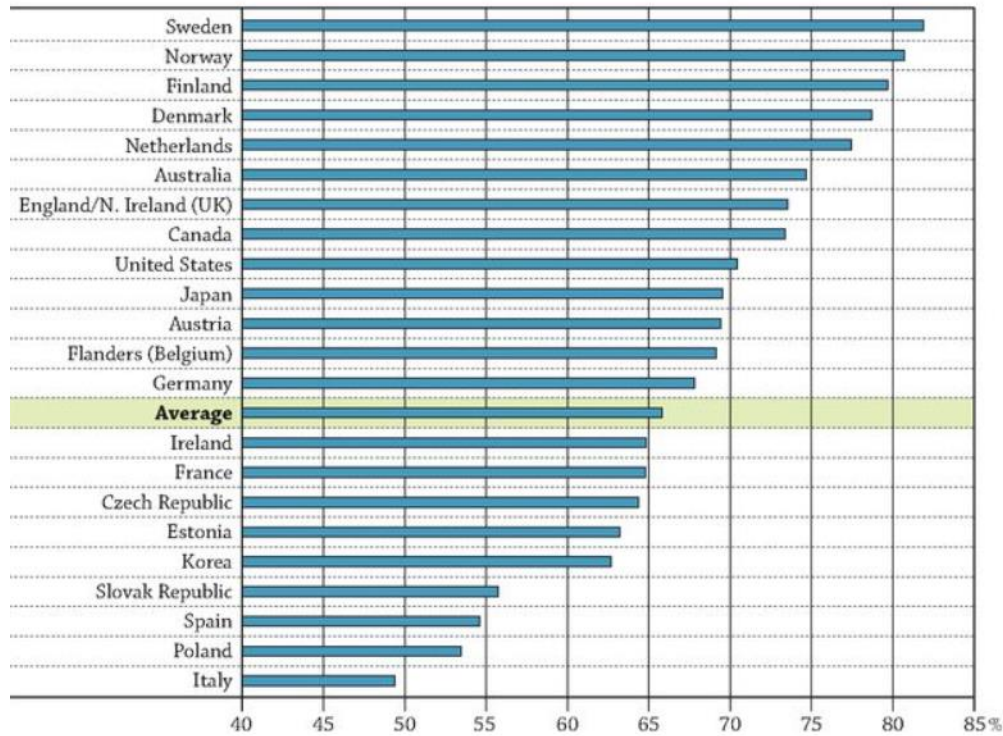
Moreover, at adult age, they usually have covered formal education – consequently, PISA was not a suitable database because it does not collect data from this range age. Though, there exists the Survey of Adult Skills based on the Programme for the International Assessment of Adult Competencies (PIAAC)²⁷ that measures adults' proficiency in essential information-processing skills²⁸ and how adults use them at home, at work, and on the broader community.

Some people use the internet for work, while others none. As Figure 25 shows, in 2012, 66% of the average workers in OECD countries use a computer at work. Of course, this is the average, being at the top Nordic countries (Sweden, Norway, and Finland) where around 80% of adults use a computer at work, and on the bottom Italy, or Poland and Spain, when less than 50% and 55% respectively of adults do it (OECD 2013).

²⁷ It is an international survey conducted in over 40 countries that measures the key cognitive and workplace skills needed for individuals to participate in society and for economies to prosper

²⁸ Literacy, numeracy and problem solving in technology-rich environments

Figure 25. % of workers who use the computer at work



Source: Survey of Adult Skills (PIAAC 2012)

Remark also, the rates and averages have been increasing over time²⁹. The most important is, attending OECD data, workers who use e-mail regularly at work earn 9% more per hour, on average, than workers who are equally proficient in PISA competences, but not use e-mail frequently, so use of technology is not only a fashion or tendency (OECD 2015a).

Subsequently, OECD countries have implemented policies to promote digital literacy and inclusion for specific groups of the population (older people, women...) to ensure equality in all segments of the population. The digital transformation is already affecting individuals not only

²⁹ An updated Figure cannot be found. Nevertheless, it only pretends offer a wide view of the situation. In next section will be analysed, with uploaded data different skills associated to the computer use at work.

by changing the demand for skills but also by disrupting entire industries. Thus digital skills generate a significant return and outcome for those who have them. So, it must be pushed in all segments of the population, and for that, non-formal and informal education are essential.

9.3.2 Learning through digital technology

ICT could become an essential provider of knowledge and skills, playing a gradually weighty role in improving access to education for people living in disadvantaged areas and developing countries, but also in developed countries for people who cannot attend the class physically for different reasons.

ICT in education can deliver content, connect learners, and enable anytime, anywhere learning but keeping students engaged in is still a challenge (Henrie et al. 2015). It is not yet ‘transforming’ the nature of university teaching and learning or disrupting the ‘student experience’ because universities should continue developing their repositories of digital resources and improve the consistency and ‘user-friendliness’ of learning management systems (Henderson et al. 2017). However, it is not a generational effect; the age of students have low transcendent (Lai & Hong 2015).

Once examined general aspects related to ICT impact on education, different kinds of programs will be analyzed:

- ***e-learning programs***

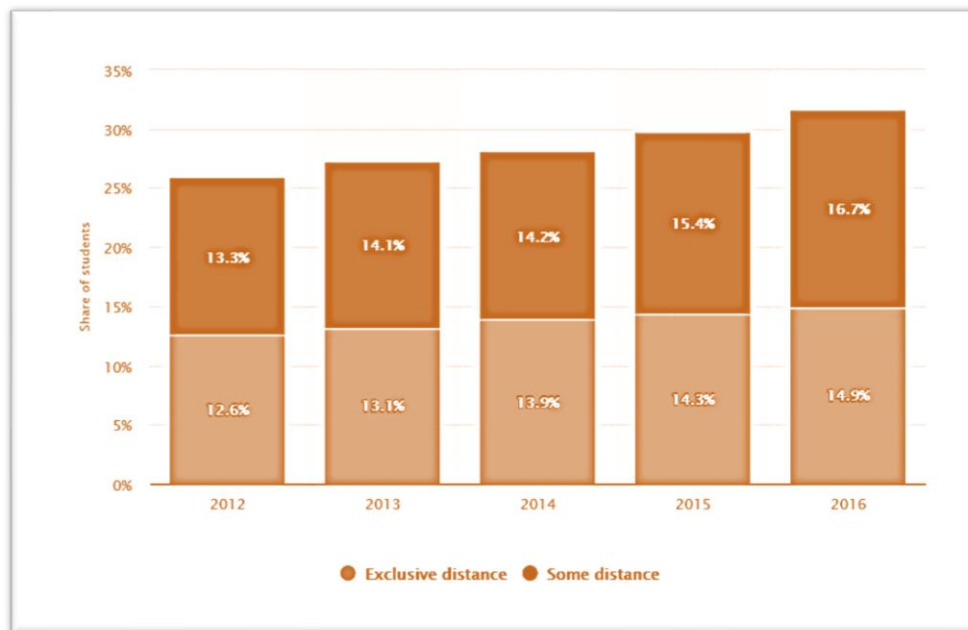
E-Learning programs - understood as internet-based distance learning programs- emerged from the modern use of electronic educational technology with the aim everybody can afford education, allow remote access and attendance to classes over the internet people all over the

world. They promote social equity and facilitate access to learning and knowledge for larger groups of people (those who have internet access) and promote adaptation to a changing society.

These kinds of programs have become popular, and they are offered through many schools and universities all over the world, and their instructors usually teach through online activities and projects. They enable online and forums discussion, over time and all over the world. They have lower costs than conventional education. Also, they allow prestigious schools and universities that have oversupply offer more places than they could do by the conventional education system. Furthermore, they could be addressed to younger and working people. For the first ones, when to respond to formal education, online classes are trained with the same curriculum as physically being in class. For the second one, they increase competitiveness and productivity. Employees can learn either at the work-place or home, with great flexibility and low cost. Thus e-learning programs ensuring that the work-force is continually learning and improving, without the high costs of travel and time away from work allow companies to become 'learning organizations' (Senge 1990; Serrat 2017).

Enrolment in e-learning programs is increasing over time. As Figure 26 shows, attending Statista data, in the United States, the percentage of students in higher education taking distance learning courses has increased from 25,9% in 2002 to 31,6% in 2016. At the same time, it has also increased both rates from students who took exclusively distance learning courses (from 12,6% in 2012 to 14,9% in 2016) and also rates from who followed at least one distance education course (from 13,3% in 2012 to 16,7% in 2016).

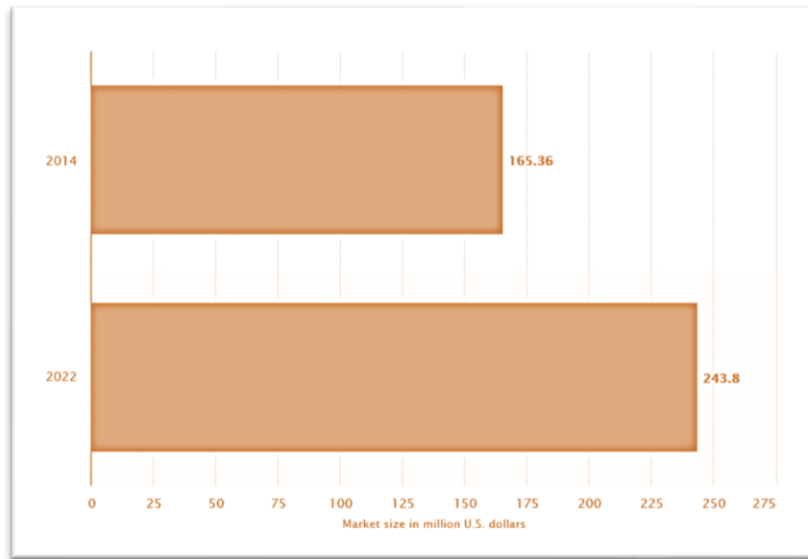
Figure 26. Percentage of students in the United States taking distance learning courses from 2012 to 2016



Source: Statista.com 2019

The United States is a representative sample of what is happening around the world. The size of the e-learning market worldwide is increasing. As Figure 27 shows, in 2016, attending Statista data, the global e-learning market is expected to increase more than 78 M\$ from 2014 to 2022, growing 165.36 M\$ in 2014 to 243 M\$ in 2022.

Figure 27. Size of the e-learning market in 2014 and 2022



Source: Statista.com 2019

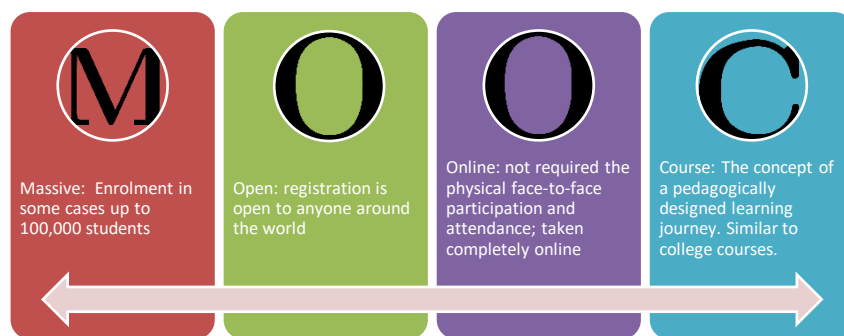
There is no doubt e-learning is a profitable business, where the alliance of software firms with publishers will enhance its results and allows e-learning firms to overcome some of the limits of their growth model and maintain sustainable business models (Calvo & Villarreal 2018).

Moreover, remark its effectiveness has been analyzed (Bates 2005; Clar & Mayer 2016, Noesgaard & Ørngreen 2015), with favorable conclusions. However, it cannot be forgotten many people may still desire to choose traditional campus education for social and cultural reasons (Swain 2012).

- **MOOCs**

Alongside e-learning and open educational resources, emerged massive open online courses (MOOCs) as a new type of distance learning in line with other developments such as e-learning or open educational resources. MOOCs have been defined as digitized materials offered freely and openly for educators, students, and self-learners to use and reuse for teaching, learning, and research (OECD 2016). Figure 28 defines the main characteristics of MOOCs.

Figure 28. Definition MOOC

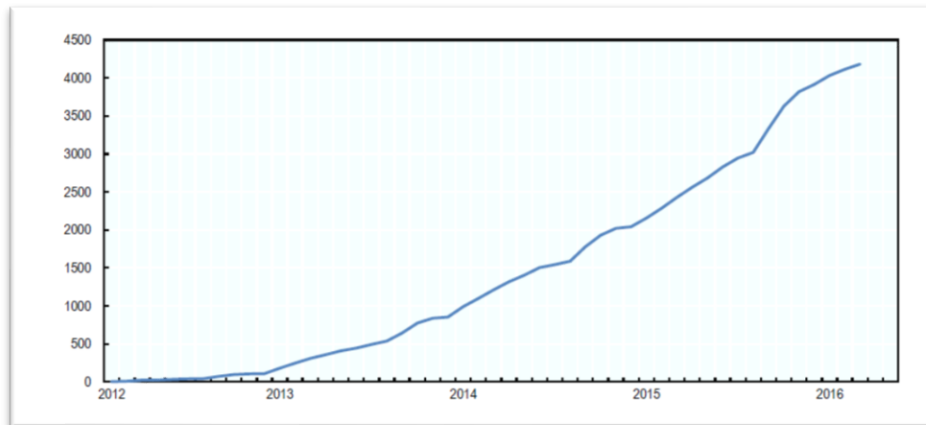


Source: Own elaboration

Generally, MOOCs seem to meet the definition of non-formal education as outlined in the ISCED 2011 manual: *“Like formal education (but unlike informal, incidental or random learning), non-formal education is education that is institutionalized, intentional and planned by an education provider. The defining characteristic of non-formal education is that it is an additive, alternative, and/or complement to formal education within the process of lifelong learning of individuals. It is often provided in order to guarantee the right of access to education for all. (...)”*

Since their emergence in 2012, MOOCs have extended over time. As Figure 29 shows, attending OECD 2016, the number of online courses has significantly increased, reaching more than 4.200 courses available in 2016.

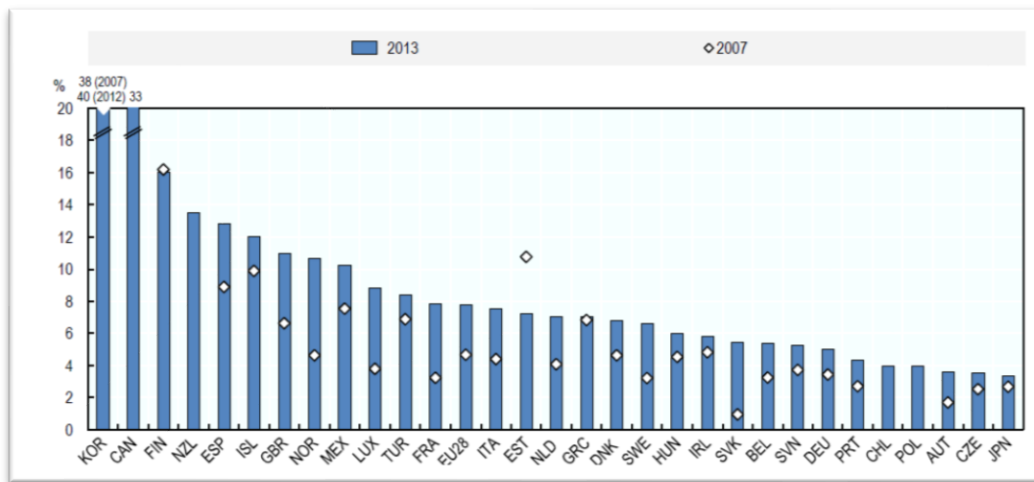
Figure 29. Evolution number of MOOCs (2012-2016)



Source: Class Central, 2016- OECD 2016

The number of registered students also has been increasing over time, being up to 35 million in 2015 (Shah 2015). As Figure 30 shows, in 2013, the share of internet users in the European Union that enrolled on an online course has near duplicated 2007 values (7,8% in 2013 versus 4,7% in 2007). This rise was generalized across countries, where, on average, for the 30 OECD countries for which data are available, 9,4 % of internet users followed an online course in 2013. This evolution was led by Korea and Canada (40 and 33% respectively) and incipient by Austria, the Czech Republic, Japan, and Poland (less than 4%) (OECD 2014).

Figure 30. Individuals who attended an online course (2007 and 2013) as a percentage of individuals who used the internet in the last three months



Source: OECD, ICT Data Base and Eurostat, Information Society Statistics May 2014

Whereas it is recognized that online pedagogy is different from classroom one, there has been underestimated the importance of approaching learning as a process that can be engineered (Unesco 2016). Quality indicators for MOOCs are like the ones used in ordinary quality development models of e-learning and open online learning. The model relies on different features (openness to learners, learner-centered approach, quality focus), and each feature has sub-indicators and benchmarks to ensure quality (Rosewell & Jansen 2014).

So, all around e-learning programs are potential and possibilities, but still, they have not yet delivered improvements expected. The reason is the existence of gaps in the digital skills of both teachers and students, and difficulties in locating high-quality learning resources. Educators need time and effort to learn how to use technology in education while staying decisively focused on student learning.

9.3.3 Skills and requirements associated with digital transformation

Digital learning tools usually require internet access. Many learning tools employ audio and video resources and other bandwidth-heavy technologies that require broadband internet access. It is demonstrated that excellent broadband infrastructure influence most proficient students, maybe because they increase educational resources available, as online encyclopedias or other multimedia content. Thus, aware of the potential of the internet and digital technology for education countries have been investing in improving their connections (OECD 2015).

Online tools can help teachers and schools exchange ideas through a collaborative process. It also enhances learning through teachers' shares and enriches teaching materials. Technology can amplify excellent teaching, allowing teachers and students to access specialized materials beyond textbooks, although high technology cannot replace poor teaching.

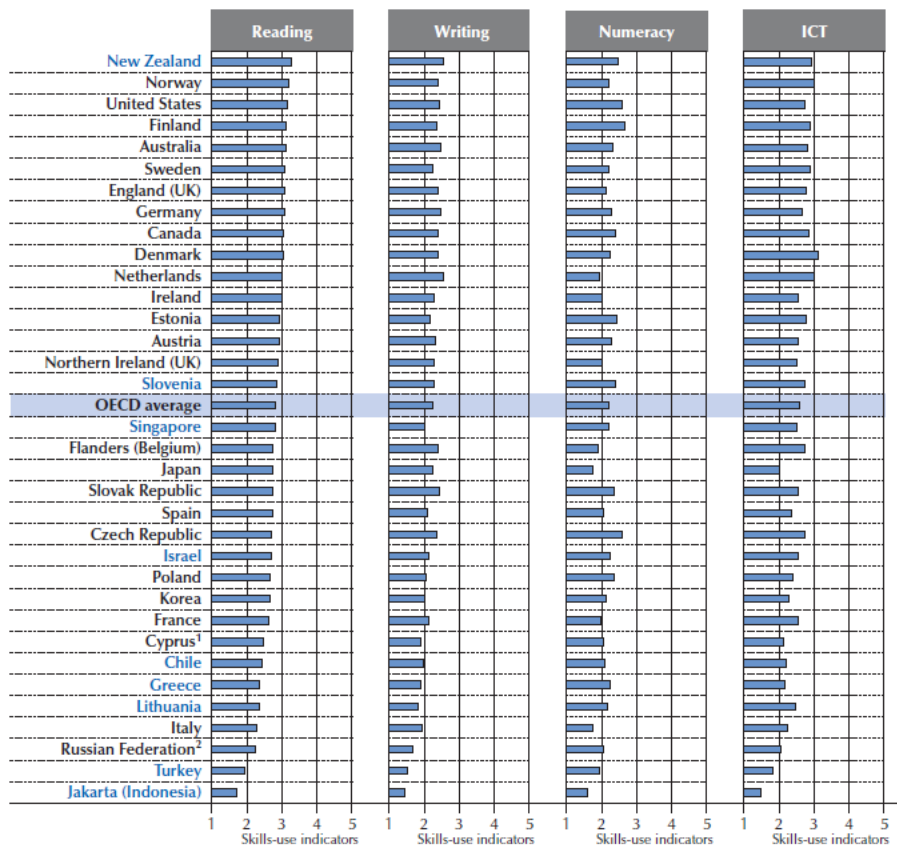
Giving students and people the necessary skills to pick up new knowledge is one possible way that encourages individuals to continue learning and improving competencies necessary to adapt to an evolving society. However, it is not an easy task because people usually do not know how to learn. Education should emphasize teaching the skills of learning.

Some of the skills that are essential for online navigation may also be taught and learned with conventional pedagogies and tools. ICT skills associated with the use of a computer, as checking e-mail, internet, spreadsheets, word processors, programming languages, conducting transactions online, participating in online discussions (conferences, chats) are on the focus (OECD 2016). In fact, those represent **digital skills**, that are defined as the '*capacity to respond*

pragmatically and intuitively to challenges and opportunities in a manner that exploits the internet’s potential’ (DiMaggio et al. 2004, p. 378), and as “user’s ability to locate content on the web effectively and efficiently’ (Hargittai 2005 p. 372).

Figure 31 shows in almost all OECD countries, individuals require ICT skills and use them frequently. On average, on OECD countries, ICT skills are near as used as reading and more used than writing or numeracy skills, enhancing their relevance. That is significant because work and personal life skills are related, and adults’ sociodemographic characteristics and personal dispositions define their level of engagement (OECD 2016, 2018).

Figure 31. Information processing skills used in everyday life (population aged 16-65)



Source: OECD 2016- Skills matter

Indeed, depending on the type of industry, the level of ICT skills will differ. As Figure 32 shows, industries related to information service, financial, insurance, consultancy, or computer programming require higher levels of ICT skills than more manufacturing services industries.

Figure 32. Industries with the highest and lowest skills use at work

| Skills use at work | Top 5 industries (ISIC 2-digit code) | Bottom 5 industries (ISIC 2-digit code) |
|--------------------|--|---|
| ICT | 63 - Information service activities 66 - Activities auxiliary to financial service and insurance activities 64 - Financial service activities, except insurance and pension funding 70 - Activities of head offices; management consultancy activities 62 - Computer programming, consultancy and related activities | 81 - Services to buildings and landscape activities 56 - Food and beverage service activities 16 - Manufacture of wood and of products of wood and cork, except furniture; manufacture of articles of straw and plaiting materials 49 - Land transport and transport via pipelines 96 - Other personal service activities |

Source: OECD 2016- Skills matter

Furthermore, digital skills can be classified on different types of skills: operational, information, strategic, and formal (van Deursen & van Dijk 2010; Hargittai 2010). Operational skills refer to the capacity to function hardware and software, information skills to searching, choosing, analyzing, and processing online information. Strategic skills relate to using the computer and the Internet to achieve specific goals; and formal skills to navigating in a multimedia framework.

Regarding its measurement, outside institutional evaluations, digital skills are usually measured by self-reported evaluations, although there could be significant differences in efficacy and effectiveness to complete a task (Litt 2013). Furthermore, most of the research has focused on operational and information skills (van Dijk 2006), and age is negatively related only to operational and formal skills (van Deursen & van Dijk 2010).

However, there are other skills also associated with digital transformation and the digital world. Data from the OECD Survey of Adult Skills³⁰ show that, on average, 55% of workers lack necessary problem-solving skills in technology-rich environments, suggesting weak prospects for capitalizing on the opportunities offered by the digital economy (OECD 2013).

Nevertheless, it is not an isolated problem because ICT technologies will require continuous skill adaptation as new technologies are adopted in the workplace (Spitz-Oener 2006; Bessen 2015). Their dynamism requires continuous learning, learning by doing, and in this way, skill policies should promote employee mobility, recognition of informal learning, and work experience (Bessen 2015).

Other **skills** like critical thinking, creativity, and imagination within other more traditional should be fostered through appropriate teaching and practices. Current initiatives in the EU include the Opening-up Education initiative to modernize education for the digital age and **the e-skills for Jobs'** awareness-raising campaign about ICT professional jobs through the Grand Coalition for Digital Jobs (a cross-European multi-stakeholder partnership).

Pedagogical methodologies should evolve, and critical pedagogical practices should be included. Students become more active in the process; they must contribute, provide their knowledge, thoughts, and perspectives in class. They must investigate and make connections between the school and the broader community. Learning to procedure clear and purposeful goals, work with people with different perspectives, find unexploited opportunities, and identify several solutions to large problems will be essential. Teachers and instructors must listen to students and encourage them to question assumed knowledge and understandings and explore and learn by themselves through coaching methodologies expected knowledge.

³⁰ On average on the 22 countries that implemented the survey.

In this affair, innovation will be essential to bring qualitative changes in education as well as improve the quality and equity of learning opportunities³¹. Future students need to exercise agency in their education and throughout life. Agency implies a sense of responsibility and influences a better purpose. In all this process, ICT can play an important role. It facilitates access to knowledge, expands innovate teaching methodology, and creates associations between different learning experiences and opportunities³². It also generates a personalized learning environment that supports and encourages students to nurture their passions. Moreover, it enables educators to recognize learners' individuality on a broader set of relationships – with their teachers, peers, families, and communities – that influence their learning (OECD 2016).

9.4 Conclusions

In this chapter, there has been presented different types of education, formal, non-formal and informal one, to understand its content, organization and classification, and possible differences among countries, compulsory for understand analysis and considerations we take in our model study, that pretends to analyze impact of internet use on WB perception, including influence of education.

Internet and digital technology allow innovating in education models. They expand access to knowledge, offer updated information, facilitate personalized learning and specific programs for one specific group or person. However, it is not an easy task because they need to develop infrastructures and broadbands and also specific skills for using technologies and learning through them.

³¹OECD publishing, Paris Innovating Education and educating for innovations: “The power of digital technologies and skills”

³²Second Global Education Industry Summit held in Jerusalem on 26-27 September 2016.)

On formal education presented data displays, all over the world, schools are making significant efforts to introduce computers to the learning process. It has been evidenced digital divide is still present, although that divide is reducing, at least at OECD schools.

Outside the school, informal and non-formal education plays an essential role. It is increasing the rate of countries whose workers use the internet at work, and this is important also because those who use it report higher income levels. Subsequently, OECD countries have implemented policies to promote digital literacy.

Furthermore, e-learning programs and MOOCs could become an essential provider of knowledge and skills. They are revolving the education market playing a gradually weighty role in improving access to education.

However, it should not be forgotten there are need specific skills to optimize those learning processes. In this way, the education sector should, therefore, introduce the changes need to adapt to societal requirements. As more skills, more usage of digital technologies in various spheres of life, and vice versa as more popular are digital technologies in everyday lives, more need for specific skills are.

Finally, remark digital technologies can play an essential role due to its vast potential to improve and innovate teaching methodology, on formal education, but also on non-formal education and training, and particularly on concerning job-related learning activities.

10. Methodology

“The European Social Survey has developed a unique scientific methodology for mapping changes in social attitudes... providing an authoritative source of EU data for academics and policymakers.”

*Janez Potocnik,
EU Commissioner for Science and Research*

10.1 Introduction

In order to obtain data for carrying on this study that analyzes the relationship between WB and internet use, there have been examined different existing questionnaires that could include those concepts.

There has been found several public questionnaires and data that offer information about social issues: The International Social Survey Programme, The European Social Survey, and National Statistical Points of each country. Those surveys that here will be presented have a crucial

common factor, as they are carried on by institutional organizations; thus, consistency and comparability of international data could be guaranteed.

The **International Social Survey Programme (ISSP)** is a cross-national collaboration program that conducts annual surveys on diverse topics relevant to social sciences. Role of Government, Social Networks, Social Inequality, Family and Changing Gender Roles, Work Orientations, Religion, Environment, National Identity, Citizenship, Leisure Time and Sports, Health and Health Care, are examples of topics included in this survey.

ISSP was established in 1984, and currently, it includes 57 nations: the founding four - the United States, Germany, Great Britain, and Australia - plus Argentina, Austria, Bangladesh, Belgium, Bolivia, Brazil, Bulgaria, Canada, Chile, China, Croatia, Czech Republic, Cyprus, Denmark, the Dominican Republic, Estonia, Finland, France, Georgia, Hungary, Iceland, India, Italy, Ireland, Israel, Japan, Latvia, Lithuania, Mexico, the Netherlands, New Zealand, Norway, Palestine, the Philippines, Poland, Portugal, Romania, Russia, Slovakia, Slovenia, South Africa, South Korea, Spain, Suriname, Sweden, Switzerland, Taiwan, Thailand, Tunisia, Turkey, Ukraine, Uruguay and Venezuela. East Germany was added to the German sample upon reunification. Figure 33 resumes participant countries in ISSP.

ISSP participation is not limited to its members. Countries as Albania, Bosnia, East Timor, Indonesia, Kenya, Kosovo, Macedonia, Montenegro, Serbia, Singapore, Sri Lanka, and Tanzania have participated in ISSP surveys. At least, since its foundation, over one million respondents have engaged in the ISSP surveys.

Figure 33. Countries participants in ISSP



Source: ISSP

Topics analyzed by ISSP were, 2018-Religion IV, 2017-Social Networks III (first release), 2016-Role of Government V, 2015-Work Orientation IV, 2014-Citizenship II, 2013-National Identity III, 2012-Family and Changing Gender Roles IV, 2011-Health and Healthcare, 2010-Environment III, 2009-Social Inequality IV, 2008-Religion III, 2007-Leisure Time and Sports, 2006-Role of Government IV, 2005-Work Orientations III, 2004-Citizenship, 2003-National Identity II, 2002-Family and Changing Gender Roles III, 2001-Social Networks II, 2000-Environment II, 1999-Social Inequality III, 1998-Religion II, 1997-Work Orientations II, 1996-Role of Government III, 1995-National Identity I, 1994-Family and Changing Gender Roles II, 1993-Environment I, 1992-Social Inequality II, 1991-Religion I, 1990-Role of Government II, 1989-Work Orientations I, 1988-Family and Changing Gender Roles I, 1987-Social Inequality I, 1986-Social Networks I, 1985-Role of Government I.

The European Social Survey (ESS) is an academically driven cross-national general social survey of attitudes and behavior that has been steered across Europe since 2002, every two years. It was established to increase knowledge and availability of data related to attitudes, beliefs, and values, and chance the reduced availability of academically rigorous cross-national data.

The issues enclosed at least once by the ESS since its commencement include media and social trust, politics, SWB, gender, household, sociodemographics, human values, immigration, citizen involvement, health and care, economic morality, family, work and WB, timing of life-goal and welfare attitudes, ageism, justice, democracy, health inequalities, climate change, and energy use.

Until 2013 participation was negotiated on a round-by-round basis. In total, 36 countries have taken part in at least one round of the ESS since its inception. The relationship between participant countries is detailed in Figure 34.

Figure 34. Countries taking part in EES round data

| | Round 1 [2002] | Round 2 [2004] | Round 3 [2006] | Round 4 [2008] | Round 5 [2010] | Round 6 [2012] | Round 7 [2014] | Round 8 [2016] | Round 9 [2018] |
|--------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| Albania | | | | | | • | | | • |
| Austria | • | • | • | • | • | | • | • | • |
| Belgium | • | • | • | • | • | • | • | • | • |
| Bulgaria | | | • | • | • | • | | | • |
| Croatia | | | | • | • | | | | |
| Cyprus | | | • | • | • | • | | | • |
| Czechia | • | • | | • | • | • | • | • | • |
| Denmark | • | • | • | • | • | • | • | | • |
| Estonia | | • | • | • | • | • | • | • | • |
| Finland | • | • | • | • | • | • | • | • | • |
| France | • | • | • | • | • | • | • | • | • |
| Germany | • | • | • | • | • | • | • | • | • |
| Greece | • | • | | • | • | | | | |
| Hungary | • | • | • | • | • | • | • | • | • |
| Iceland | | • | | | | • | | • | • |
| Ireland | • | • | • | • | • | • | • | • | • |
| Israel | • | | | • | • | • | • | • | • |
| Italy | • | • | | | | • | | • | • |
| Kosovo | | | | | | • | | | |
| Latvia | | | • | • | | | • | | • |
| Lithuania | | | | • | • | • | • | • | • |
| Luxembourg | • | • | | | | | | | |
| Montenegro | | | | | | | | | • |
| Netherlands | • | • | • | • | • | • | • | • | • |
| Norway | • | • | • | • | • | • | • | • | • |
| Poland | • | • | • | • | • | • | • | • | • |
| Portugal | • | • | • | • | • | • | • | • | • |
| Romania | | | • | • | | | | | |
| Russian Federation | | | • | • | • | • | | • | |
| Serbia | | | | | | | | | • |
| Slovakia | | • | • | • | • | • | | | • |
| Slovenia | • | • | • | • | • | • | • | • | • |
| Spain | • | • | • | • | • | • | • | • | • |
| Sweden | • | • | • | • | • | • | • | • | • |
| Switzerland | • | • | • | • | • | • | • | • | • |
| Turkey | | • | | • | | | | | |
| Ukraine | | • | • | • | • | • | | | |
| United Kingdom | • | • | • | • | • | • | • | • | • |

• Countries taking part in ESS round but data not yet released

Source: ESS

Moreover, at a lower level, by country, there are lots of “**national statistical points**” or institutions that collect and monitor information individually about each state, but unfortunately, they cannot ensure comparability among other countries.

For instance, in **Austria** Institute for Advanced Studies (IHS); in **Belgium**: University of Liège, in **Czech Republic**: Institute of Sociology of the Czech Academy of Sciences; in **Estonia**: University of Tartu; in **Finland**: University of Turku; in **France**: Sciences Po; in **Germany**: Institute for the Social Sciences; in **Hungary**: Hungarian Academy of Sciences; in **Iceland**: University of Iceland; in **Ireland**: Mary Immaculate College, in **Israel**: Tel Aviv University, in **Italy**: University of Milan; in **Lithuania**: Kaunas University of Technology; in **Netherlands**: Radboud University; in **Norway**: Norwegian University of Science and Technology (NTNU); in **Poland**: Polish Academy of Sciences; in **Portugal**: Institute of Social Sciences (ICS); in **Russia**: Institute for Comparative Social Research (CESSI), in **Slovakia**: Slovak Academy of Sciences; in **Slovenia**: University of Ljubljana; in **Spain**: Centre for Sociological Research (CIS); in **Sweden**: Umeå University; in **Switzerland**: Swiss Centre of Expertise in the Social Sciences; in **UK**: NatCen Social Research; among others.

After revising the questionnaires mentioned above with detail, we have selected the ESS questionnaire and data for carrying on this study, because although the ISSP offers a broader framework and more frequency reports than ESS,

- ISSP focuses on one specific topic each year, and it does not offer recent or specific information and data related to topics (WB or internet use) analyzed in our study.
- ESS includes a core section that could serve to monitor tendencies, and overall, its last rotating module includes concepts examined in our study.

- Also, ESS offers a more comprehensive comparison data and information than National Statistical Points national points.

Once explained different surveys and the reason for selecting ESS, we deepen on the Survey to understand better its functioning.

10.2 ESS structure

ESS was born in 2001 with the collaboration of participants countries, who have been contributing to its maintenance. In 2013, the ESS was awarded European Research Infrastructure Consortium (ERIC) status, becoming a pan-European research infrastructure. It means ESS is enabled to provide freely accessible data for academics, policymakers, civil society, and the wider public, and its work includes organizing a survey every two years measuring social attitudes and behavior. Moreover, also it utilizes and develops the highest standards in cross-national research, offering direct and virtual training programs, and supporting free access to its growing data and documentation archive (www.europeansocialsurvey.org).

The ESS ERIC is governed by a General Assembly which appoints the Director, and its headquarters are hosted by City, University of London. The Director, Professor Rory Fitzgerald, is supported in the design and implementation of the ESS ERIC Work Programme by the Core Scientific Team (CST), comprising eight institutions: University of London (UK); University of Essex (UK); Leibniz Institute for the Social Sciences (Germany); Norwegian Centre for Research Data (Norway); University of Leuven (Belgium); The Netherlands Institute for Social

Research (Netherlands); University of Ljubljana (Slovenia) and Universitat Pompeu Fabra (Spain).

Assisting the Core Scientific Team are National Coordinators selected for each country. National Coordinator is responsible for ensuring that the appointed survey agencies conduct fieldwork to the rigorous standard specified, for coordinating activities, when necessary, and for contributing to the discussion about the ESS methodology and questionnaire design.

10.3 ESS questionnaire

The ESS questionnaire uses a combination of repeated essential items (the core section that permits variation and continuity across several social variables to be monitored) and rotating modules. Moreover, it uses probability samples that are representative of all persons aged 15 and over living within a country to achieve the breadth of coverage required.

In each round of the ESS, multi-national teams of researchers are selected to contribute to the design of two rotating modules for the questionnaire that deepens on a specific topic. In addition to the core and rotating units of the survey, there is also a third section known as the supplemental questionnaire. That third section is used to classify respondents according to their underlying value orientations. It includes the well-established 21-item measure of human values developed by psychologist Professor Shalom Schwartz.

To measure and improve the quality of the questions fielded, the second part of the supplementary questionnaire includes some repeat measures from the main survey that are

asked in a slightly modified form. Using the Multi-Trait Multi-Method (MTMM)³³ approach and repeating essential items with amended wording or response scales, it is possible to evaluate the reliability and validity of the points.

10.4 ESS procurement and size

The ESS is implemented through face-to-face by trained interviewers, using a standardized interviewing approach (where interviewers are trained to ask questions precisely as they are written), and the interview usually is conducted in people's homes. It is designed to last less than 1 hour, including the supplementary questionnaire. No optional country-specific questions have been considered at this time. The questioner interviews and general administration of the contact procedures have been consensed. The use of computer-assisted personal interviewing is strongly recommended to participating countries, although paper-and-pencil is also valid on quizzing.

The ESS questionnaire considers both cross-cultural and translation implications within its design, to apply to each country's population. In cross-national research in which the data collection is administered in various languages, the translation must be undertaken to the highest possible quality, so to limit the number of errors that might occur during conversion, the process includes Translation, Review, Adjudication, Pretesting, and Documentation (TRAPD) procedures.

³³ The Multitrait-Multimethod Matrix is an approach to assessing the construct validity of a set of measures in a study. It was developed in 1959 by Campbell and Fiske (Campbell, D. and Fiske, D. (1959).

Each country must accomplish a minimum adequate sample size of 1500 (after discounting for design effects) to ensure that the ESS data can be an extrapolation of the general population and to minimize the margin of error. For smaller countries (those with a population of less than 2 million), this number is reduced to 800. Taking these factors into account, countries must decide how many participants they will select from their sampling frame (known as the gross sample size). Individuals are selected by strict random probability methods at every stage, where sampling frames of individuals like households and addresses may be used). Also, predict how many completed interviews they will need to achieve (their net sample) to meet their effective sample size (substitution of non-responding households or individuals -whether 'refusals,' 'non-contact' or 'ineligible'- posterior quota sampling is not permitted at any stage).

10.5 ESS and WB

SWB operationalized by the construct of 'global life satisfaction,' has been used in numerous large-scale surveys (including the core ESS module) and produced a wealth of reliable data (Helliwell & Putnam 2004; Huppert et al. 2004; 2005; Donovan et al. 2002; Frey & Stutzer 2010).

Since the 3rd round, it has been included a question module regarding WB within the ESS, which establishes the value of such internationally comparable WB accounts. This module aims to achieve a more systematic and detailed understanding of the levels and distribution of WB across Europe and within European nations. Also, it helps to create a new development model adapted to the challenges of the 21st Century at promoting the WB of their citizens.

Thus, since the 3rd round, there have been monitored both distinct conceptions of WB. The

hedonic concept concerns feelings and evaluations (such as happiness and life satisfaction). Moreover, the eudaimonic theory which relates capabilities and functioning's, as well as measured social WB - how people feel about their society and how engaged they are in 'pro-social' behavior.

The bringing together in one inquiry of two distinct philosophical perspectives of the good life – the hedonic and eudaimonic – advances this critical area of research, between and within nations. Differences in experiences and aspirations or fears at different stages in the life-course have substantial effects on both hedonic and eudaimonic WB. Because variations in critical factors such as age structure of the population, family composition and divorce rates, employment rate, retirement and pension policies, and immigration rates may all have profound effects on average levels and distributions of subjective WB.

Monitoring WB with higher quality data internationally comparable allows deepening theoretical understanding of WB constructs. It also deepens on how individuals relate to one another. Moreover, as well as what contributes to people's WB or how it varies across Europe while assessing the impact of different social and political policies on people's personal and social WB.

Although measuring feelings related to WB as how happy is an individual, or how satisfied with life is, can be very subjective, it is a useful complement to more objective data when comparing the quality of life across countries. Subjective data can deliver a personal evaluation of an individual's education, health, income, personal fulfillment, and social conditions.

Next, it is presented the evolution and topics included in different rounds, from Round 1 (2002) to Round 8 (2016), attending two parts involved in all rounds and questionnaires:

- The first part is a collection of questions that classify the core section (also referred to as the ‘core module’). It is focused on a range of different themes (media and social trust, politics, subjective WB, gender, household, socio-demographics, and human values). Those themes, although they have been evolving, are mainly the same in each round.
- Second part or rotating section (also known as ‘rotating modules’) is dedicated to specific themes (citizen involvement, immigration, health and care, economic morality, family work, and WB, time of life, personal WB, welfare attitudes, ageism, justice, democracy, social inequalities in health, or public attitudes to climate change). Those themes are sometimes repeated in later rounds of the ESS, depending on ESS coordinators and discussion.

Figure 35 resumes topics analyzed in each ESS round data.

Figure 35. Topics analyzed in EES round data

| | R1 2002 | R2 2004 | R3 2006 | R4 2008 | R5 2010 | R6 2012 | R7 2014 | R8 2016 |
|------------------------------------|------------|------------|------------|------------|------------|------------|------------|------------|
| Media and social trust | • | • | • | • | • | • | • | • |
| Politics | • | • | • | • | • | • | • | • |
| Subjective well-being... | • | • | • | • | • | • | • | • |
| Gender, Household | • | • | • | • | • | • | • | • |
| Socio demographics | • | • | • | • | • | • | • | • |
| Human values | • | • | • | • | • | • | • | • |
| Immigration | • | | | | | | • | |
| Citizen involvement | • | | | | | | | |
| Health and care | | • | | | | | | |
| Economic morality | | • | | | | | | |
| Family work and well-being | | • | | | • | | | |
| Timing of life | | | • | | | | | |
| Personal ... well-being | | | • | | | • | | |
| Welfare attitudes | | | | • | | | | • |
| Ageism | | | | • | | | | |
| Justice | | | | | • | | | |
| Democracy | | | | | | • | | |
| Social inequalities in health | | | | | | | • | |
| Public attitudes to climate change | | | | | | | | • |

Source: ESS

As Figure 35 presents, *WB* has been considered in several round data. While subjective one perception is analyzed in all-round questionnaires, family work and *WB* were considered in Round 2 and 5 (2004 and 2010); and *SWB* in Round 3 and 6 (2006 and 2012). Specifically, issues contented in each topic are:

- Questions include in “*SWB*” refer to general aspects of one’s perception of life, health, happiness, trust in others, social exclusion, religion, perceived discrimination, and national and ethnic identity.
- Questions regarding “*Family, Work & WB*” provide insights into current issues of work, family, and *WB* and the interactions between them. Also, they refer to deal with the implications for the personal *WB* of changes work and like family and household structures. They provide additional items to examine the impact of 'labor market trajectories' during the crisis and to extend the analysis of 'work-life balance.' Moreover, they consider the everyday experiences of combining work and family obligations are crucial for life satisfaction and psychological *WB* of European citizens. Consequently, of exploring these relations, it has been analyzed the role of national welfare regimes in this process and given the very different institutional contexts of EU member states. Furthermore, they provide insights into the range to which different types of employment and welfare regimes can mediate the impact of the economic crisis.
- Questions regarding “*Personal & Social WB*” allow evaluating the success of European countries at promoting the *WB* of their citizens, relying on repeated measurements of its different facets. They consider both personal and social *WB* and include new items to improve the analysis of some existing concepts. They also incorporate a new

validated scale of positive WB and add questions to identify progress in the evidence base on WB promoting behaviors.

- Questions regarding “*Human Values*” include a well-established 21-item measure of human values, which was developed by the Israeli psychologist, Professor Shalom Schwartz. The 'Human Values Scale' is designed to classify respondents according to their underlying value orientations. The Human Values Scale has been included in every ESS round to date.

Regarding “*internet use*” and its measure, this is a new item included by the first time³⁴ in Round 8 (2016) and offers the capability to measure the digital divide between and within European countries. In these questions, respondents should include all internet use, whether at home, work, or on mobile devices, providing a measure of regularity’s use the internet. That is an essential measure because more significant use of technology is positively correlated with acceptance of its utility. Thus, it would seem reasonable to expect a correlation between frequency of internet use and awareness of what the internet can offer (Porter & Donthu 2006).

Moreover, an exhaustive frequency measure (rather than simple binary use or not use) enables to analyze levels of internet use in countries where internet penetration is high. Moreover, distinguish people who are always online (e.g., through their smartphones) from those who might use the internet every day but not all the time (e.g., just for work or leisure). It should be understood that the frequency of use is not necessarily a consistent measure of productive use or individual skill in using the Internet.

³⁴ An item on internet use was included in the ESS core questionnaire in Rounds 1-5 but dropped after Round 5 as part of series of cuts to the questionnaire intended to reduce questionnaire length

Consequently, for this study, we have chosen information and data available in ESS Round 8 because it is the unique Round that includes questions relative to internet use. Also, because items involved in subjective WB refers to happiness and other aspects analyzed in this thesis. There is no comparative information for early periods or rounds, so, information and analysis apply only to Round 8 data, the year 2016. Regarding the data version, we have considered version 2.0 the most recently available in October 2018. Countries participants in ESS R8 are Austria, Belgium, Switzerland, Czech Republic, Germany, Estonia, Finland, France, United Kingdom, Ireland, Israel, Iceland, Netherlands, Norway, Poland, Russian Federation, Sweden, and Slovenia. That version has the limitation does not include data from Spain nor Portugal that have been updated latterly, and whose inclusion would imply a new edition the complete analysis and statistical.

10.6 Selection of ESS variables

Here are listed variables and questions selected from the ESS R8 questionnaire used in this study dissertation, grouped by topic. Table 12, indicating the number of the item (A2; A3... C1, C2...) and card used in the questionnaire, the real question asked for each one.

Table 12. Questions and responses from ESS questionnaire used

| Question number | Literal question | Responses |
|-----------------|--|---|
| A2 | People can use the internet on different devices such as computers, tablets, and smartphones. How often do you use the internet on these or any other devices, whether for work or personal use? | Given a scale from 1 to 5 being 1.Never; 2. Occasionally; 3. A few times a week; 4.Most days and 5.Everyday |
| A3 | On a typical day, about how much time do you spend using the internet on a computer, tablet, smartphone, or other devices, whether for work or personal use? | Write in duration: hours and minutes |
| B27 | All things considered, how satisfied are you with your life as a whole nowadays? | Given a scale from 0 to 10 being 0. Extremely bad and 10 Extremely good |
| C1 | Taking all things together, how happy would you say you are? | Given with a scale from 0 to 10 being: 0. Extremely unhappy and 10 Extremely happy. |
| C2 | Using this card, how often do you meet socially with friends, relatives, or work colleagues? | Given a scale from 1 to 7, being 1. Never; 2. Less than once a month; 3. Once a month; 4. Several times a month; 5. Once a week; 6. Several times a week and 7. Every day. |
| C6 | How safe do you - or would you - feel walking alone in this area after dark? Do - or would - you feel... | Given a scale from 1 to 4, being 1 very safe, 2 safe, 3 unsafe, and 4 very unsafe. |
| C7 | How is your health in general? Would you say it is ... | Given a scale from 1 to 5, being 1. Very good; 2. Good; 3. Fair; 4. Bad, and 5. Very bad |
| C8 | Are you hampered in your daily activities in any way by any longstanding illness, or disability, infirmity, or mental health problem? If yes, is that a lot or to some extent? | Given a scale from 1 to 3, being 1. Yes, a lot; 2. Yes, to some extent, and 3. No. |
| F15 | Generated variable: the Highest level of education, ES - ISCED | Given a scale from 0 to 7, being 0.Not possible to harmonize into ES-ISCED; 1.ES-ISCED I, less than lower secondary; 2. ES-ISCED II, lower secondary; 3.ES-ISCED IIIb, lower-tier upper secondary; 4. ES-ISCED IIIa, upper-tier upper secondary; 5.ES-ISCED IV, advanced vocational, sub-degree; 6. ES-ISCED V1, lower tertiary education, BA level, and 7. ES-ISCED V2, higher tertiary education, >= MA level |
| F2.1 | Gender. CODE SEX, respondent | Given a scale from 1 to 2, being 1. Male, and 2. Female |
| F31A | And in what year were you born? | WRITE IN NUMBER Year number |

| | | |
|-------------|---|--|
| F31B | Age of respondent, calculated | WRITE IN NUMBER Number |
| F40 | Please consider the income of all household members and any income which may be received by the household as a whole. What is the main source of income in your household? | Given a scale from 1 to 8, being 1 wages or salaries; 2 income from self-employment (excluding farming); 3 income from farming; 4 pensions, 5 unemployment/redundancy benefit; 6 any other social benefits or grants, 7 income from investment, savings, insurance or property an 8 income from other sources. |
| F41 | Household's total net income, all sources | |
| F42 | Feeling about the household's income nowadays | Given a scale from 1 to 4, being 1 living comfortably on present income, 2 coping on present income, 3 finding it difficult on present income, 4 finding it very difficult on present income. |
| F60 | During the last twelve months, have you taken any course or attended any lecture or conference to improve your knowledge or skills for work? | Given a scale from 1 to 2, being 1 yes, and 2 no. |
| TIV | Now I will briefly describe some people. Please listen to each description and tell me how much each person is or is not like you. Use this card for your answer. Important to think new ideas and being creative | Given a scale from 1 to 6, being 1 very much like me, 2 like me; 3 some-what like me; 4 a little like me; 5 not like me and 6 not like me at all. |
| HA | Important to be rich, have money and expensive things | Given a scale from 1 to 6, being 1 very much like me, 2 like me; 3 some-what like me; 4 a little like me; 5 not like me and 6 not like me at all. |
| HB | Important that people are treated equally and have equal opportunities | Given a scale from 1 to 6, being 1 very much like me, 2 like me; 3 some-what like me; 4 a little like me; 5 not like me and 6 not like me at all. |
| HC | Important to show abilities and be admired | Given a scale from 1 to 6, being 1 very much like me, 2 like me; 3 some-what like me; 4 a little like me; 5 not like me and 6 not like me at all. |
| HD | Important to try new and different things in life | Given scale from 1 to 6, being 1 very much like me, 2 like me; 3 some-what like me; 4 a little like me; 5 not like me and 6 not like me at all. |
| HF | Important to understand different people | Given a scale from 1 to 6, being 1 very much like me, 2 like me; 3 some-what like me; 4 a little like me; 5 not like me and 6 not like me at all. |

| | | |
|-----------|---|---|
| HG | Important to do what is told and follow rules | Given a scale from 1 to 6, being 1 very much like me, 2 like me; 3 some-what like me; 4 a little like me; 5 not like me and 6 not like me at all. |
| HI | Important to be humble and modest, not draw attention | Given a scale from 1 to 6, being 1 very much like me, 2 like me; 3 some-what like me; 4 a little like me; 5 not like me and 6 not like me at all. |
| HJ | Important to have a good time | Given a scale from 1 to 6, being 1 very much like me, 2 like me; 3 some-what like me; 4 a little like me; 5 not like me and 6 not like me at all. |
| HK | Important to make own decisions and be free | Given a scale from 1 to 6, being 1 very much like me, 2 like me; 3 some-what like me; 4 a little like me; 5 not like me and 6 not like me at all. |
| HL | important to help people and care for others well-being | Given a scale from 1 to 6, being 1 very much like me, 2 like me; 3 some-what like me; 4 a little like me; 5 not like me and 6 not like me at all. |
| HM | Important to be successful and that people recognize achievements | Given a scale from 1 to 6, being 1 very much like me, 2 like me; 3 some-what like me; 4 a little like me; 5 not like me and 6 not like me at all. |
| HO | Important to seek adventures and have an exciting life | Given a scale from 1 to 6, being 1 very much like me, 2 like me; 3 some-what like me; 4 a little like me; 5 not like me and 6 not like me at all. |
| HP | Important to behave properly | Given a scale from 1 to 6, being 1 very much like me, 2 like me; 3 some-what like me; 4 a little like me; 5 not like me and 6 not like me at all. |
| HQ | Important to follow traditions and customs | Given a scale from 1 to 6, being 1 very much like me, 2 like me; 3 some-what like me; 4 a little like me; 5 not like me and 6 not like me at all. |
| HU | Important to seek fun and things that give pleasure | Given a scale from 1 to 6, being 1 very much like me, 2 like me; 3 some-what like me; 4 a little like me; 5 not like me and 6 not like me at all. |

Source: Own elaboration based on ESS questionnaire

10.7 Type of Analysis

There have been carried two different analyses for examining data and responses obtained from 34.837 individuals at 18 countries regarding the influence of internet use on WB. Specifically, it has been differentiated two stages:

a) Sample descriptive status

At this stage, there has been examined and described the internet use among participant countries attending sociodemographic aspects (gender, age, country, and education level) and frequency of use.

The same description has been made attending to life satisfaction and happiness individuals' report, and also including 2017 GPD country data.

Moreover, at last, the interaction between life satisfaction and happiness and internet use regarding sociodemographic and other aspects and frequency of use will have been presented.

b) Model definition and evaluation

At this stage, selected variables have been linked to six components of the Ryff model and analyzed their relevance on WB perception.

Some variables are comparable and have been evaluated with an Exploratory Factor Analysis (AFE), while others have been analyzed separately for no influencing results. Specifically, variables proposed by Prof. Shalom Schwartz that classify respondents, according to their fundamental value orientations, have been used to identify and create four different profiles through an AFE, and a component matrix rotate.

At last, it has been examined different factors influence WB, and their iteration with internet use influence to predict WB impact on different profiles.

Results are presented for discussion.

The statistical methodology utilized for evaluating the sample relies on:

- ***Test χ^2 de Pearson***: It has been used as a test of association or dependency between two categorical variables.
- ***Student t-test for independent samples***: It has been used to contrast the average equality in continuous-type independent samples and normal distribution.
- ***ANOVA test for independent samples***: It has been used to contrast the average equality in different groups (normal distribution).
- ***Correlation of ranges of Spearman***: It has been used to contrast if there is a relationship between two variables with categories lists (not manuals to a normal distribution).
- ***Multiple linear regression***: In the case of a linear relationship between a dependent variable and another or other independent, regression techniques allow estimating the equation that explains the relationship and use it to make predictions. The estimations of the different carobs of the regression line were clubhead, as well as the typical error and confidence intervals at 95% for the same. The level of significance used in the analyses has been 5% ($\alpha = 0.05$).
- ***Other considerations***:
 - The p-values of the checks are adjusted using the Bonferroni method. The p-value is, assuming that there are no differences between groups, the probability that the results obtained can be due to random. The lower the p-value is, the lower the probability is that the results obtained are due at random, and more evidence will be against the null hypothesis (non-existence of differences). Any p-value less than 0.05 is indicative of a statistically significant relationship. By

cons, a p-value greater than or equal to 0.05 indicates the absence of a relationship.

- Chi² test and equality pair columns - using a Z-test that performs equality pairs column in tables that have at least one category variable in rows and columns analyze data consistency.
- Due to the large size of the sample, data could be considered normo-distributed. Limit Central Theorem considers the distribution of data with more than 30 observations tends to be normal. Other theories applied (Grinstead & Snell 1997; Filmus 2010; Naiman et al. 1987; Levin & Rubin 2004, pp 338; Naiman et al. 1988, pp 38; Stanton 2008).

11. Descriptive Analysis

“Access to high-quality comparative data will help us to improve our understanding of the profound social, political, economic, and demographic changes occurring in Europe as well as the relationship between Europe and the rest of the world.”

Máire Geoghegan-Quinn *European Commissioner for Research, Innovation and Science (2010-14) ESS ERIC, London, 31 January 2014*

11.1 Introduction

In this chapter, ESS Data and variables selected and extracted from the R8 2.0 version of the survey have been analyzed and presented. Individually, variables related to happiness, life satisfaction, or internet use will be examined to understand better its functioning and relationship.

Within the descriptive analysis, first, we have presented an overview of internet use over participant countries. Other sociodemographic variables as gender, age, education level, or country have been taken into consideration. Furthermore, the frequency of internet use and time spent online both have been examined to explore differences among them.

Secondly, the perception of happiness and life satisfaction over participant countries have been analyzed following the same path. Sociodemographic variables and income source of participants in the survey has been taken into consideration.

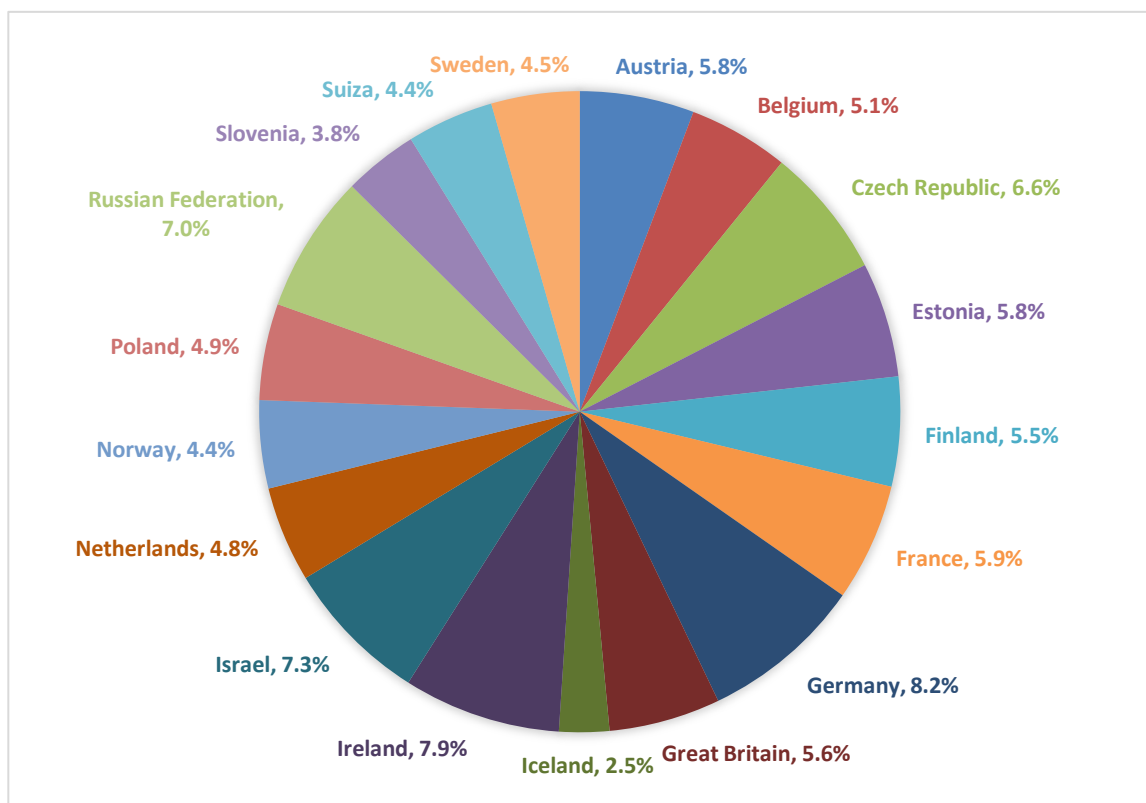
Third, both variables have been related, their interaction analyzed, and their descriptive included this chapter.

At last, remark the present analysis of data is essential to understand the actual status and framework of internet use and its relationship with life satisfaction. Moreover, compulsory for understanding the model proposed in this study, that relation internet use and WB with specific personal profiles, that is presented in the next chapter.

11.2 Sample description

Before starting with analysis, the consistency and comparability of data provided in ESS-Round 8 version 2.0 is required. Figure 36 shows the relation size of the total sample with each country size sample. In general, no significant differences should be remarked. Countries with a higher share of participants, like Germany or the Russian Federation, respond to the larger size of the population. Only note the case of Ireland, that could have more significant participation than required for its size. It represents 7,9% of the sample, more than France or Great Britain, while attending its population, it should be less than 50% of these countries.

Figure 36. Data country distribution

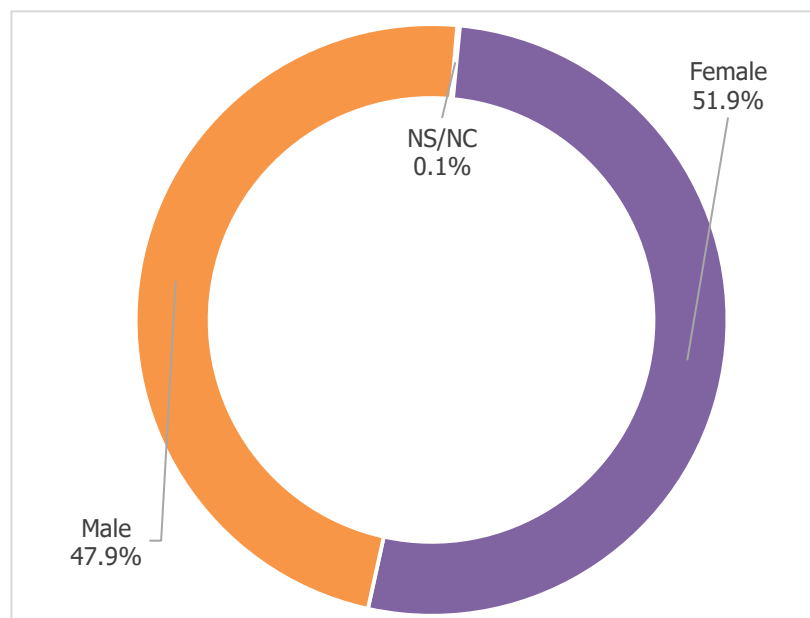


Source: Own elaboration

Regarding gender distribution, none significant differences have been found. As Figure 37 displays, **gender** participation is balanced, with 51% of female respondents and 47,9% male respondents overall.

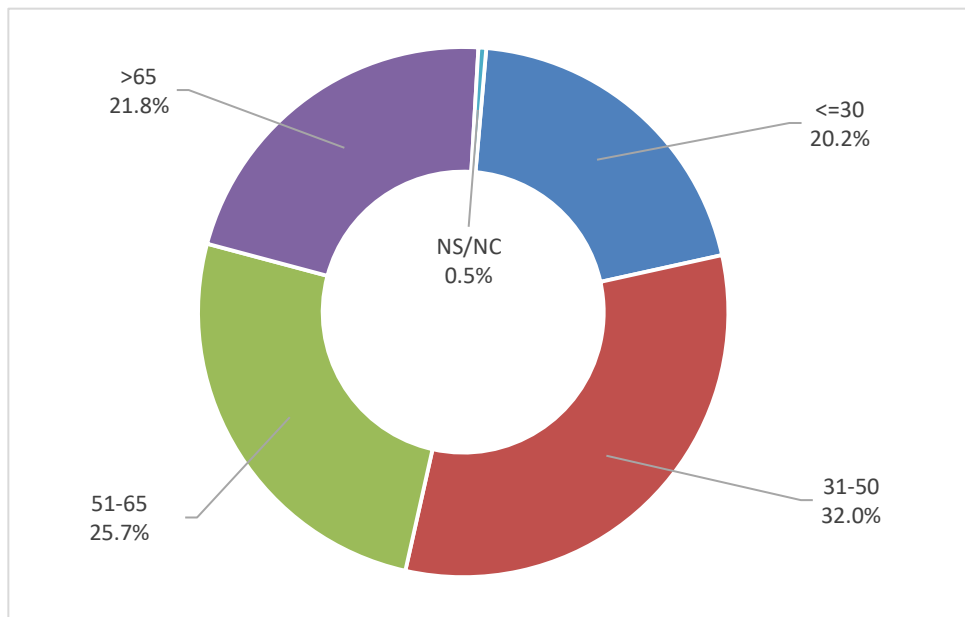
Regarding age distribution, data has been grouped for present balanced distribution and four groups of similar sample size. In this way, individuals from 15 to 30 years old represent the youngest group; those from 31 to 50 represent the young-adults, those from 51 to 65 adults, and those from more than 65 years old, the oldest group. Figure 38 demonstrates there no exists relevant significances between age groups. The youngest individuals represent 20,2% of the sample, the young-adults the 32% of the sample, the adult group the 25,7% of the sample, and the oldest group the 21,8%. So, the young-adults group – those individuals from 31 to 50 years – represents more segment because it involves 20 years (5 more than other groups).

Figure 37. Gender distribution



Source: Own elaboration

Figure 38. Age distribution

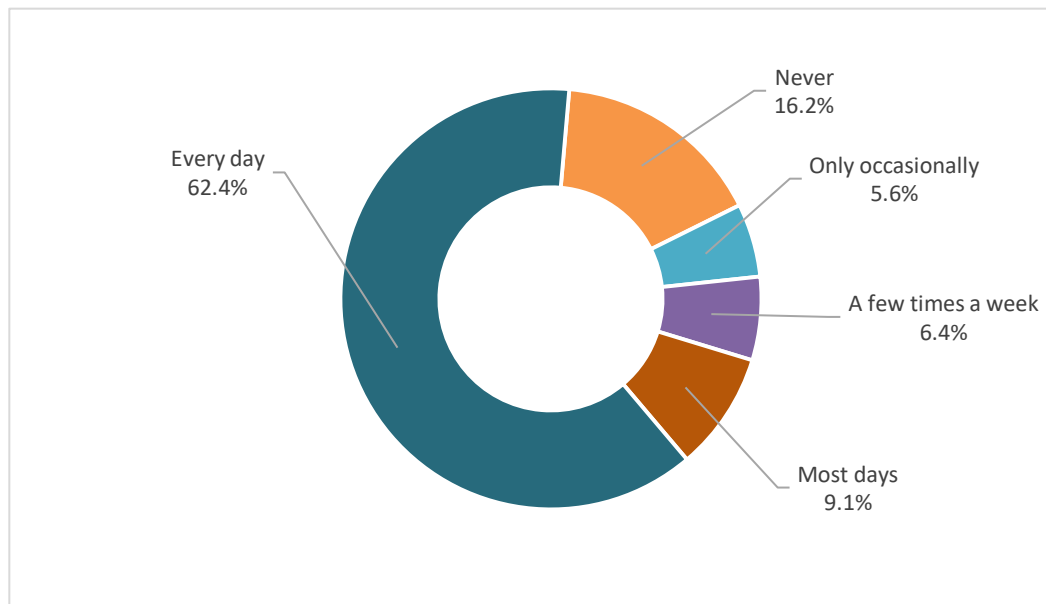


Source: Own elaboration

11.3 Internet Use status description

Regarding the internet use data, as Figure 39 shows, near 85% of interviewed people declare use it. Attending the **frequency of internet use**, 62,4% of individuals use it every day, 9,1% most of the days, 13% sometimes, and only 16,2 % declares not use it at all. Thus, six of each ten interviewed individuals use the internet daily.

Figure 39. Frequency of Internet use



Source: Own elaboration

Taking into consideration the **gender** variable, Table 13 demonstrates there exist significant differences between female and male internet use. While only 14,7% of males declare not use it never, the female rate is 3% higher (17,7%). The same occurs with daily rates, 3% more males than females declare use it daily (64,3% versus 61%).

Table 13. Frequency of Internet use by gender

| USE OF INTERNET | GENDER | | | | | |
|--------------------|--------|--------|--------|--------|-------|--------|
| | Total | | Female | | Male | |
| | Obs | % N | Obs | % N | Obs | % N |
| Total | 34756 | 100,0% | 18069 | 100,0% | 16687 | 100,0% |
| Never | 5653 | 16,3% | 3200 | 17,7% | 2453 | 14,7% |
| Only occasionally | 1963 | 5,6% | 1078 | 6,0% | 885 | 5,3% |
| A few times a week | 2228 | 6,4% | 1160 | 6,4% | 1068 | 6,4% |
| Most days | 3165 | 9,1% | 1606 | 8,9% | 1559 | 9,3% |
| Every day | 21747 | 62,6% | 11025 | 61,0% | 10722 | 64,3% |

Source: Own elaboration

Pearson's Chi² test to compare proportions indicates (P-value 0.000) that there are significant differences among males and females. Comparison tests for column proportions suggest that among women, there is more disuse and occasional internet, while among men, there is more daily use.

Analyzing the **age** of individuals, Table 13 shows internet use all over countries, decrease with an increase in oldness. Thus, 16,23% of individuals never use the internet, and they present the oldest group with a mean age of 68,72 years. Individuals that use it occasionally and a few times a week represent 5,64% and 6,39% of the total, with a mean age of 57,37 and 53,59 years, respectively. The group of people that use the internet most of the days represents 9,11% of the total with a mean age of 49,36% years. While most people, 62,62% of total use it daily,

with the youngest mean age 42,47 years.

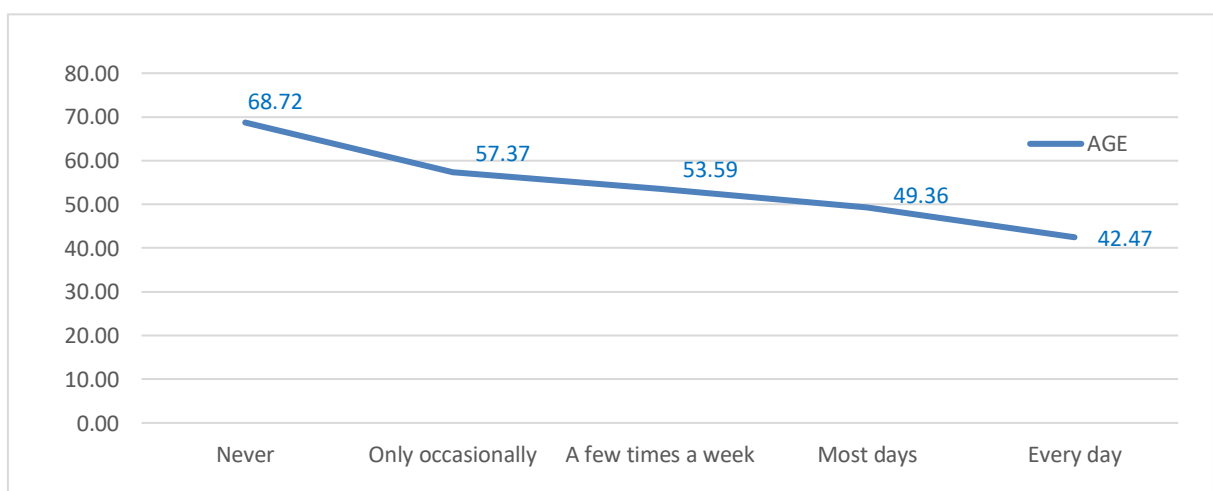
Table 14. Frequency of internet use by the average age

| AGE | USE OF INTERNET | | | | | |
|-------------------|-----------------|--------|-------------------|--------------------|-----------|-----------|
| | Total | Never | Only occasionally | A few times a week | Most days | Every day |
| Obs | 34642 | 16.23% | 5.64% | 6.39% | 9.11% | 62.62% |
| Mean | 48,91 | 68,72 | 57,37 | 53,59 | 49,36 | 42,47 |
| Standar Deviation | 18,60 | 13,35 | 14,85 | 15,57 | 16,37 | 16,46 |
| Median | 49,00 | 70,00 | 59,00 | 55,00 | 50,00 | 41,00 |

Source: Own elaboration

ANOVA test of one factor (P-value 0.000) indicates that there exist significant differences in the mean age of Internet use. The post-hoc Bonferroni-Tukey' tests suggest, as Figure 40 presents, there exist a gradual decrease in the average age of individuals as the frequency of the internet use increase.

Figure 40. Frequency internet use by the average age



Source: Own elaboration

Considering interval ages, the same conclusions are obtained, as Table 15 presents. Pearson Chi² test and comparisons among rows reinforce conclusion the older people are, the lower internet use they do.

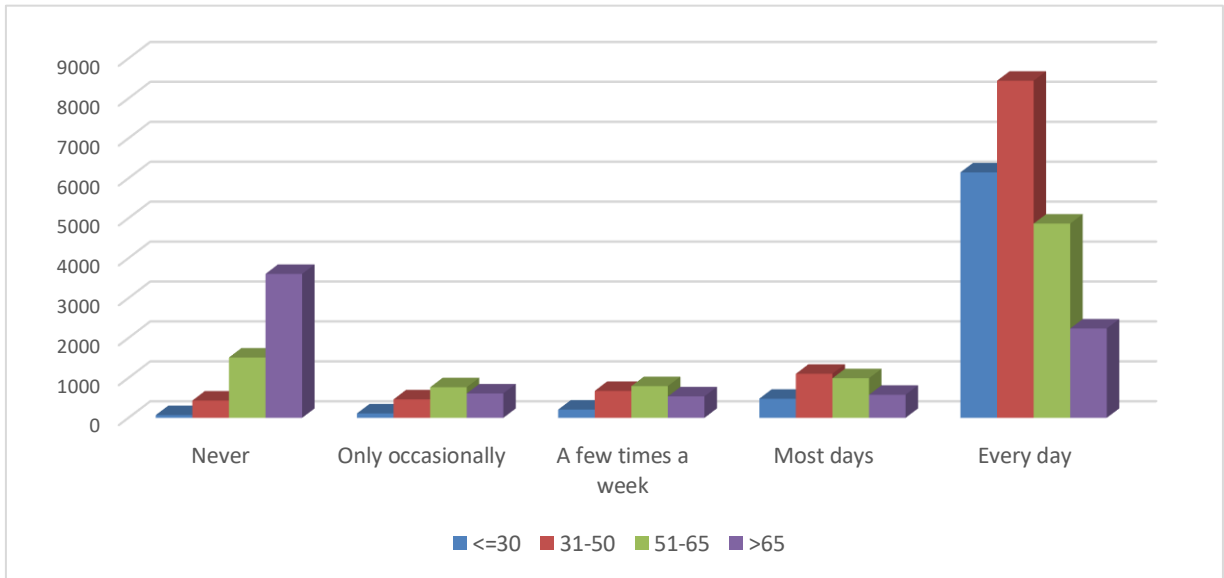
Table 15. Frequency of Internet use by interval age

| USE OF INTERNET | AGE | | | | | | | | | |
|---------------------------|-------|--------|------|--------|-------|--------|-------|--------|------|--------|
| | Total | | <=30 | | 31-50 | | 51-65 | | >65 | |
| | Obs | % | Obs | % | Obs | % | Obs | % | Obs | % |
| Total | 34642 | 100,0% | 7017 | 100,0% | 11122 | 100,0% | 8931 | 100,0% | 7572 | 100,0% |
| Never | 5623 | 16,2% | 71 | 1,0% | 435 | 3,9% | 1511 | 16,9% | 3606 | 47,6% |
| Only occasionally | 1953 | 5,6% | 111 | 1,6% | 464 | 4,2% | 767 | 8,6% | 611 | 8,1% |
| A few times a week | 2215 | 6,4% | 207 | 2,9% | 675 | 6,1% | 795 | 8,9% | 538 | 7,1% |
| Most days | 3157 | 9,1% | 480 | 6,8% | 1105 | 9,9% | 993 | 11,1% | 579 | 7,6% |
| Every day | 21694 | 62,6% | 6148 | 87,6% | 8443 | 75,9% | 4865 | 54,5% | 2238 | 29,6% |

Source: Own elaboration

Examining the absolute values of observations by frequency of use, as Figure 41 displays, most of the individuals (3.606) that report never use the internet are older than 65, and also for daily users, older people are the smallest group (2.238). Individuals from 31 to 50 that use the internet daily represent the highest score group (8443) because their size sample is more significant, although, as next Figure 42 explains, the percentage of users from the total is smaller than for the youngest ones. No huge disparities in intermediate use (occasionally, few times a week, most days) are found.

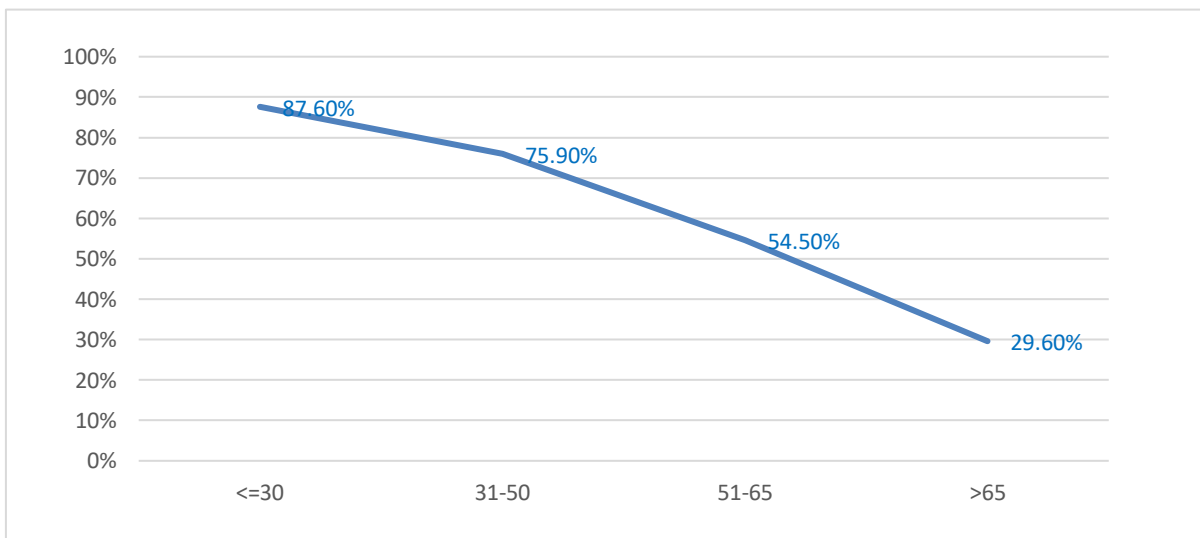
Figure 41. Frequency internet use by the average age



Source: Own elaboration

Near 88% of individuals younger than 30 years use the Internet daily, while only 1% declares not use it never. By contrast, nearly 48% of elders claim not to use the internet at all, and only 29% use it daily, as Figure 42 shows.

Figure 42. Daily Internet use by interval age



Source: Own elaboration

Considering the **education level**, and its relationship with internet use, Table 16 displays a higher education level is correlated with broader internet use. Lower levels of education present lower rates of internet use. 52% of individuals with IESCED 0/1 never use the internet, while that rate descends until 4,6% of higher educated people (IESCED 7/8). By contrast, 79,6% of individuals with the highest educational level use the internet daily, only 28,6% of people with the lowest educational level do it.

Table 16. Frequency of Internet use by education level

| INTERNET USE | Education | | | | | | | | | | | | | | | |
|--------------------|-----------|--------|-----------|--------|---------|--------|---------|--------|---------|--------|---------|--------|---------|--------|-----------|--------|
| | Total | | ISCED 0/1 | | ISCED 2 | | ISCED 3 | | ISCED 4 | | ISCED 5 | | ISCED 6 | | ISCED 7/8 | |
| | Obs | % | Obs | % | Obs | % | Obs | % | Obs | % | Obs | % | Obs | % | Obs | % |
| Total | 34601 | 100,0% | 2438 | 100,0% | 5238 | 100,0% | 6248 | 100,0% | 6209 | 100,0% | 5506 | 100,0% | 3934 | 100,0% | 5028 | 100,0% |
| Never | 5629 | 16,3% | 1267 | 52,0% | 1508 | 28,8% | 810 | 13,0% | 1042 | 16,8% | 636 | 11,6% | 135 | 3,4% | 231 | 4,6% |
| Only occasionally | 1953 | 5,6% | 176 | 7,2% | 364 | 6,9% | 362 | 5,8% | 503 | 8,1% | 308 | 5,6% | 105 | 2,7% | 135 | 2,7% |
| A few times a week | 2218 | 6,4% | 140 | 5,7% | 347 | 6,6% | 457 | 7,3% | 517 | 8,3% | 389 | 7,1% | 128 | 3,3% | 240 | 4,8% |
| Most days | 3150 | 9,1% | 158 | 6,5% | 424 | 8,1% | 568 | 9,1% | 683 | 11,0% | 587 | 10,7% | 310 | 7,9% | 420 | 8,4% |
| Every day | 21651 | 62,6% | 697 | 28,6% | 2595 | 49,5% | 4051 | 64,8% | 3464 | 55,8% | 3586 | 65,1% | 3256 | 82,8% | 4002 | 79,6% |

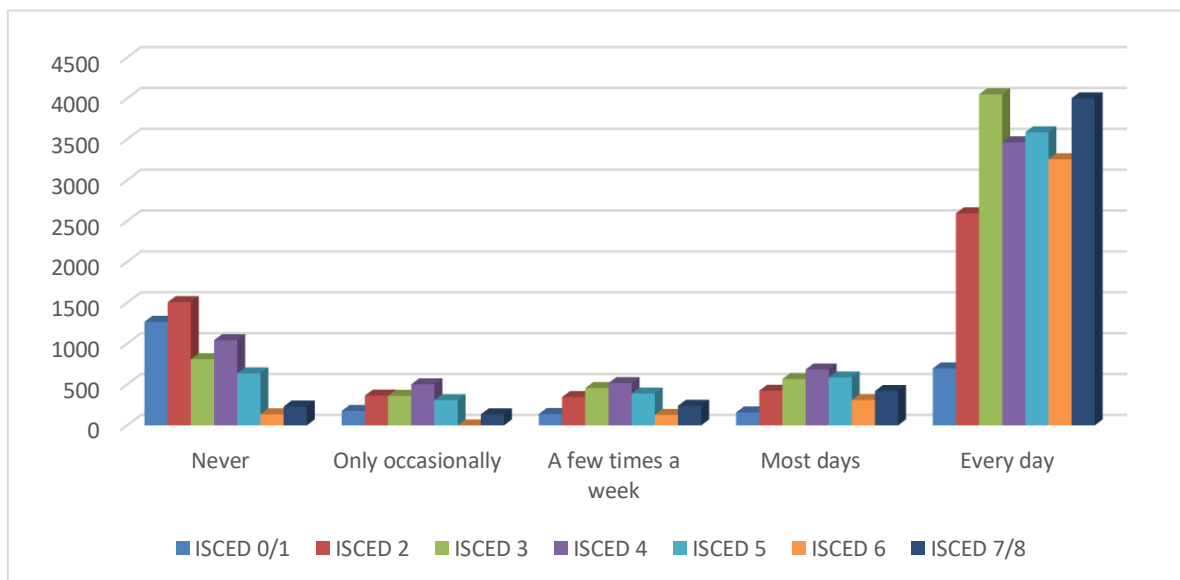
Source: Own elaboration

Chi² test (P-value 0.000) and column comparison tests indicate that there is a positive correlation between education and internet use (in fact, the coefficient of correlation of

Spearman is 0.293). Thus, the higher the education level of individuals is, the greater the use of the internet they present.

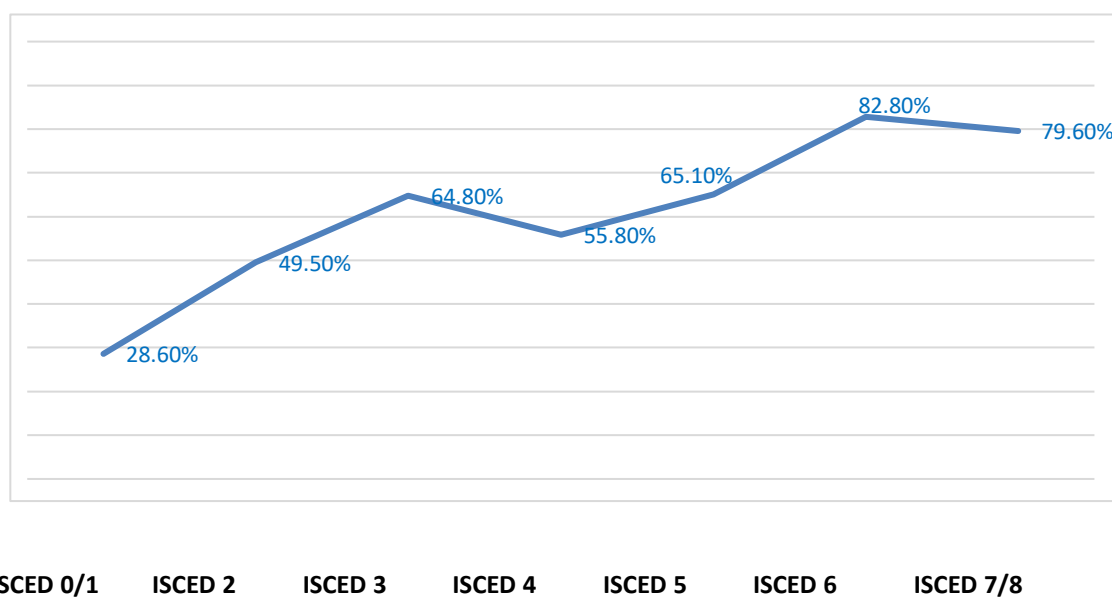
Examining the absolute values of observations by frequency of use by educational level, as Figure 43 displays, most of the individuals (2.275) that report never use internet present lower educational level than compulsory (IESCED 0/1/2), while highest educated ones (231) that never use the internet are a small sample. One reason could be those last ones are older adults, because, as Figure displays, as Figure 44 shows, 79,6% of individuals that have finished Master o doctoral grade (ISCED 7/8) use the internet daily while this rate decreases until near one tertiary (28,6%) of individuals that completed (or not) primary studies (ISCED 0/1). Thus, higher educational levels are related to more internet use.

Figure 43. Frequency internet use by the education level



Source: Own elaboration

Figure 44. Daily Internet use by education level



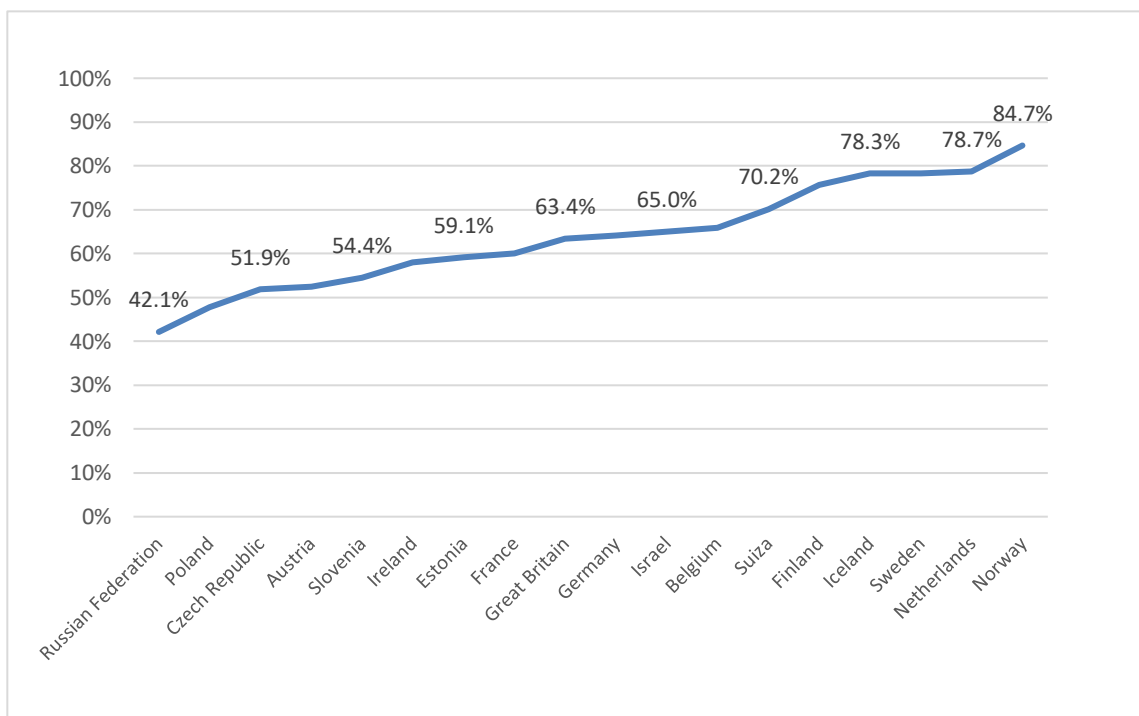
Source: Own elaboration

Deepen in the 62,4% of individuals that declare using the internet daily presented in Figure 37; Figure 45 displays differences in use among **countries** and citizens. While in the Russian Federation, Poland, and the Czech Republic, less than 55% of individuals use the internet daily, in Norway, the Netherlands, Sweden, and Iceland, more than 78% do it. That is an interesting classification because, although there exist exceptions as Austria or Ireland, it remarks western EU countries, in general, present lower rates of daily internet use. We could anticipate infrastructure and broadbands could be one possible explanation for those differences. Comparing data from previous Round – European Social Survey- Round 7 data – presented in Figure 18, results are similar, and although they are slightly evolved,³⁵ there are distinct groups of countries lead by Nordic countries with higher penetration access and fully deployed,

³⁵ Attending data Round 7, in 2016 on Nordic countries fewer than 2 in 10 people had no internet access, compared to over 7 in 10 Russians or Ukrainians who did not.

and overgrowing digital infrastructures necessary for support internet access, and at the bottom are the Eastern countries with poorer digital infrastructures. So, the digital divide is a fact, although differences among countries are reducing.

Figure 45. Distribution of everyday Internet use by country



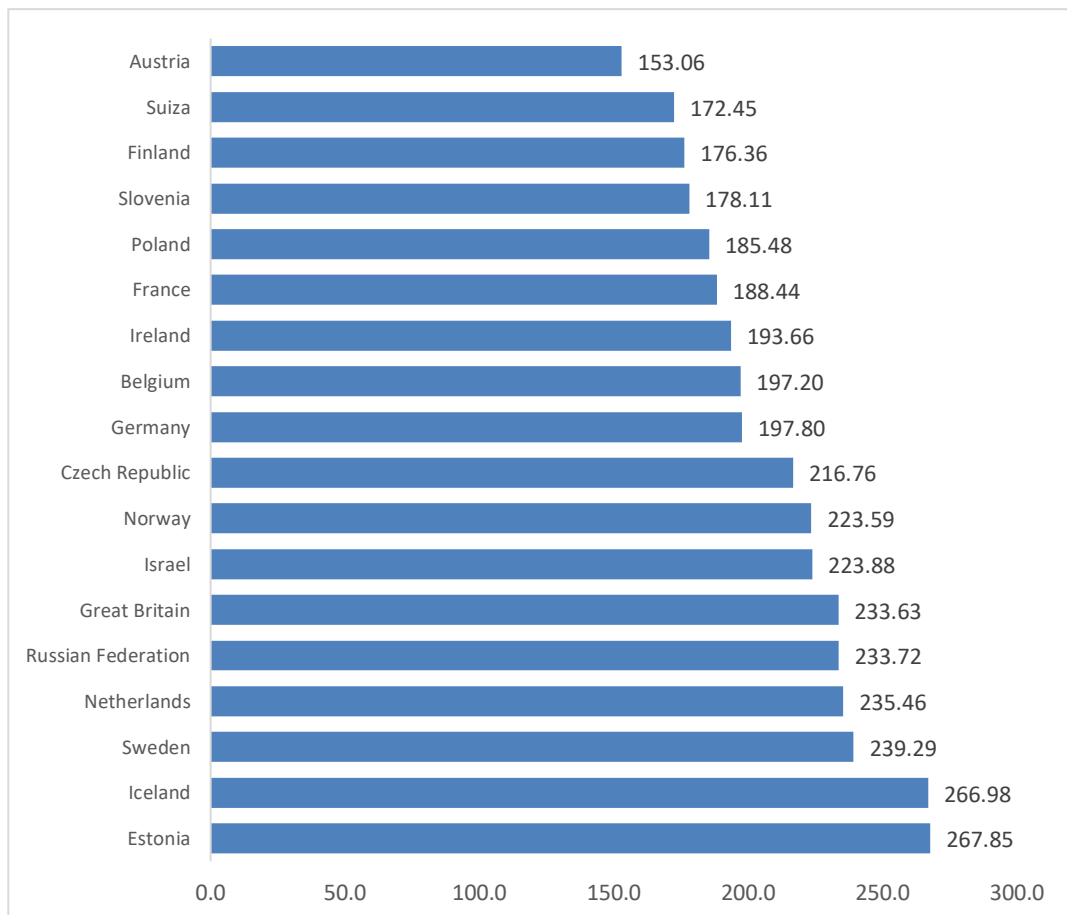
Source: Own elaboration

However, this classification only provides information about the percentage of citizens that daily use the Internet, and perhaps there could be considerable divergencies among the **time users spent online**. In this way, time spent online of individuals that report using the internet every day in different countries has been analyzed. Moreover, as Figure 46, there not exist a correlation between the % of internet users and time spent online between countries. For instance, in Norway, where nearly 85% of citizens use the internet every day, it is not the

country that more time spent-online has. Norway citizens use by mean 3,7h at day (216,76 minutes), while Estonia, which has 25% of citizens less using the internet daily, citizens do it 4,46h/day (267,85 minutes).

Consequently, the frequency of internet use does not correlate with time spent online.

Figure 46. Daily time spent online by country (on minutes)



Source: Own elaboration

At last, the relationship between **income source** and internet use has been analyzed. As Table 17 presents, there is a positive correlation between income source and internet use.

Chi2 test (P-value 0.000) and column comparison tests indicate that individuals whose income

comes from investments, savings, self-employment, and wages or salaries are those whom more frequent use of the internet does. From 70 to 77% of individuals in this group use the internet daily. Individuals whose income comes from social benefits or grants and unemployment use the internet daily a few less. 60% of individuals in this group do it every day. At last, individuals whose income comes from farming and pensions are those that lowest daily use present. Around 30-40% of individuals at this group use it daily, while similar rates (30-45%) never do it.

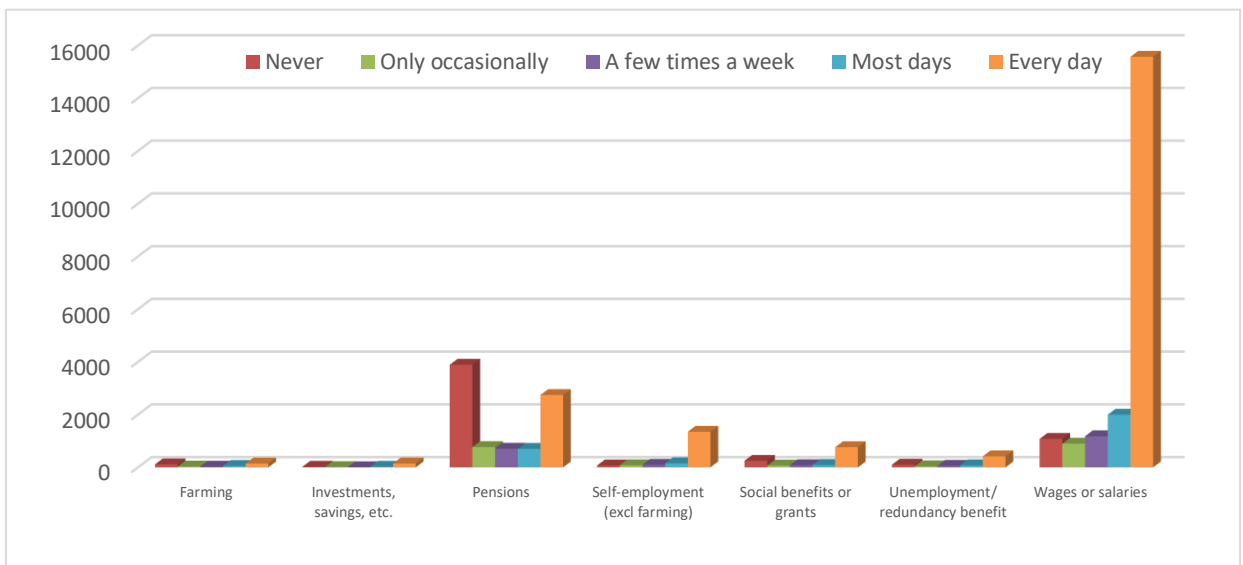
Table 17. Frequency of internet use by income source

| USE OF INTERNET | Income | | | | | | | | | | | | | | | |
|--------------------|--------|--------|---------|--------|----------------------------|--------|----------|--------|--------------------------------|--------|---------------------------|--------|----------------------------------|--------|-------------------|--------|
| | Total | | Farming | | Investments, savings, etc. | | Pensions | | Self-employment (excl farming) | | Social benefits or grants | | Unemployment/ redundancy benefit | | Wages or salaries | |
| | N | % | N | % | N | % | N | % | N | % | N | % | N | % | N | % |
| Total | 33853 | 100,0% | 372 | 100,0% | 213 | 100,0% | 8822 | 100,0% | 1756 | 100,0% | 1258 | 100,0% | 707 | 100,0% | 20725 | 100,0% |
| Never | 5533 | 16,3% | 114 | 30,6% | 22 | 10,3% | 3893 | 44,1% | 72 | 4,1% | 249 | 19,8% | 103 | 14,6% | 1080 | 5,2% |
| Only occasionally | 1905 | 5,6% | 31 | 8,3% | 12 | 5,6% | 773 | 8,8% | 80 | 4,6% | 68 | 5,4% | 43 | 6,1% | 898 | 4,3% |
| A few times a week | 2165 | 6,4% | 28 | 7,5% | 7 | 3,3% | 709 | 8,0% | 98 | 5,6% | 83 | 6,6% | 59 | 8,3% | 1181 | 5,7% |
| Most days | 3105 | 9,2% | 54 | 14,5% | 23 | 10,8% | 703 | 8,0% | 156 | 8,9% | 93 | 7,4% | 80 | 11,3% | 1996 | 9,6% |
| Every day | 21145 | 62,5% | 145 | 39,0% | 149 | 70,0% | 2744 | 31,1% | 1350 | 76,9% | 765 | 60,8% | 422 | 59,7% | 15570 | 75,1% |

Source: Own elaboration

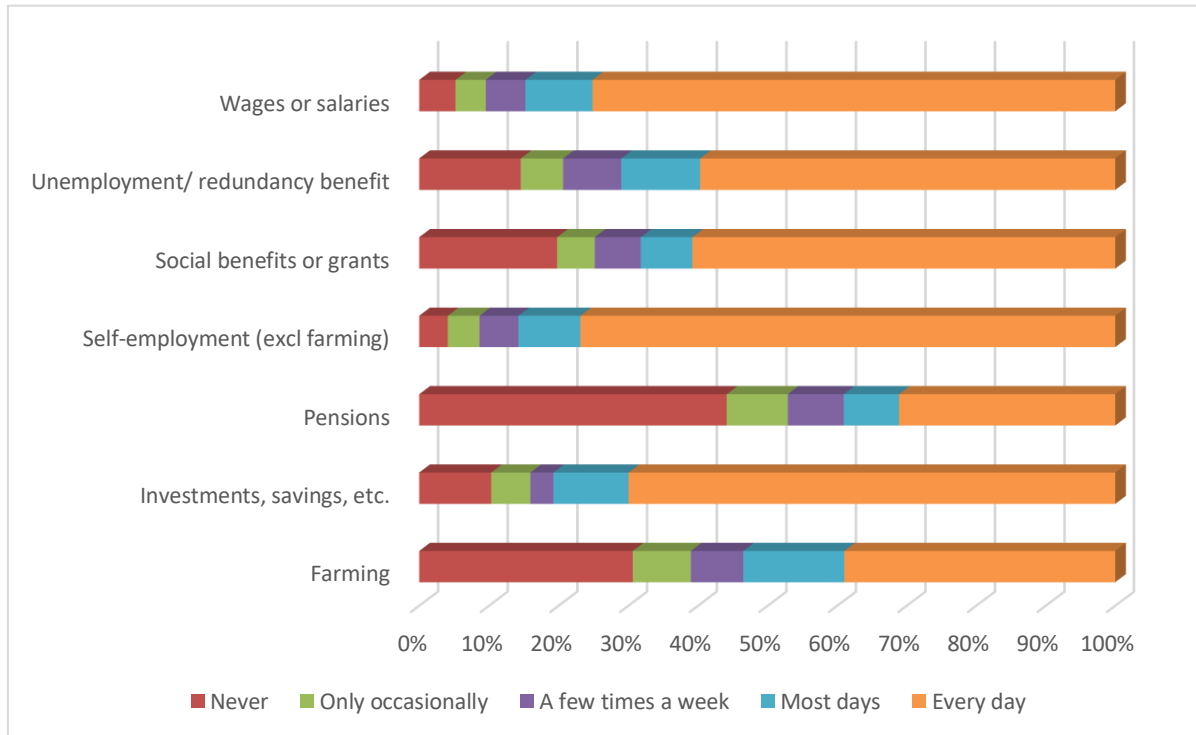
Figure 47 displays how, depending on the primary income source of a family, individuals use at different extend internet. For instance, those who obtain revenues from wages or salaries, represent major daily use than other groups; although, as Figure 48 shows, that is because also, they represent major sample rate. Lowest use is presented by individuals that obtain sources from pensions and farming. The criterion age could explain the lower rates from the first ones; however, for the farming ones, it could be interesting to deep on the reason for that disparities because it could be due to infrastructure technology or economic resources.

Figure 47. Frequency of internet use by income source (1)



Source: Own elaboration

Figure 48. Frequency of internet use by income source (2)



Source: Own elaboration

11.4 Life satisfaction and Happiness description

In this section, it is shown the statistical description of happiness and life satisfaction perception of individuals. Both concepts have been analyzed simultaneously to contrast if there exist differences among them or if people tend to assimilate both terms as literacy anticipated, as has been presented in previous chapters.

None significant differences among satisfaction level and happiness reports have been found. As table 18 resumes, at **average rates of life satisfaction and happiness** are similar among participants on the survey. Mean of life satisfaction is asked by question *B27: All things considered, how satisfied are you with your life as a whole nowadays?* And it is measured

with a scale from 0 to 10 being 0. Extremely bad and 10 extremely good is 7,31 points. While the mean of happiness evaluation that has been asked by question *C1: Taking all things together, how happy would you say you are?* and it is measured with a scale from 0 to 10 being: 0. Extremely unhappy and 10 extremely happy is 7,55 points.

Table 18. Life Satisfaction and Happiness perception

| | Obs | Min | Max | Mean | Std Dev |
|-------------------|-------|-----|-------|--------|---------|
| LIFE SATISFACTION | 34711 | .00 | 10,00 | 7,3107 | 2,03007 |
| HAPPINESS | 34648 | .00 | 10,00 | 7,5534 | 1,80925 |

Source: Own elaboration

Regarding **gender** issues, as Table 19 shows, it has been found life satisfaction perception is the same among females and males, 7,31 (to 10), while happiness is 0,02 points higher in females than males.

Comparing means through the T-student test, and their p-values 0.979 y 0.011 respectively, we could conclude men and women have the same life satisfaction, although women are a bit happier than men.

This fact could be explained because, over worldwide, women are happier than men (Fortin et al. 2015). Fortin et al. argue women have higher life evaluations than males, although there are substantial variations among regions. For instance, in Asia, women present higher evaluations in Africa lower ones, while their differences are insignificant in Western Europe and Latin America. Similar conclusions obtained Arrosa & Gandelman, that remark at the

country level the happiness gap favor females in some cases and males in others (Arrosa & Gandelman 2016). They argue although results for both genders are similar, they found observable characteristics that disfavor situation of women, concluding women tend to respond better to individual happiness determinants than men do, so, if women had the same objective individual characteristics than men, they would be even happier that they are.

Thus, it will be analyzed more detailed to check if there exist differences among countries that explain these similar results.

Table 19. Life satisfaction and happiness perception by gender

| | | GENDER | | |
|-------------------|----------|--------|--------|-------|
| | | Obs | Female | Male |
| LIFE SATISFACTION | Obs | 34701 | 18035 | 16666 |
| | Mean | 7,31 | 7,31 | 7,31 |
| | Std. Dev | 2,03 | 2,05 | 2,01 |
| | Median | 8,00 | 8,00 | 8,00 |
| HAPPINESS | Obs | 34639 | 18019 | 16620 |
| | Mean | 7,55 | 7,58 | 7,53 |
| | Std. Dev | 1,81 | 1,82 | 1,80 |
| | Median | 8,00 | 8,00 | 8,00 |

Source: Own elaboration

Pearson correlation between life satisfaction/happiness and age is negative; thus, the older age individuals have, the lower life satisfaction/happiness they report. Although, attending their small size (- 0.046 p-value 0.000 y -0.052 p-value 0.000) existing correlation is relatively low.

Deepen on **interval ages**, as Table 20 presents, youngest individuals are happiest and most life satisfied, and perceptions decrease until elderly that increase once again. That phenomenon is termed “U Curve on happiness” (Graham & Pozuelo 2017, Twenge et al. 2016) and remarks a lower happiness perception by adulthood age.

Specifically, younger than 30 years individuals present a valuation of 7,55 points in happiness, while individuals group from 51 to 65 have worse perceptions of 7,12 points.

Table 20. Life Satisfaction and Happiness perception by interval age

| | | AGE | | | | |
|-------------------|----------|-------|------|-------|-------|------|
| | | Obs | <=30 | 31-50 | 51-65 | >65 |
| LIFE SATISFACTION | Obs | 34590 | 7008 | 11111 | 8915 | 7556 |
| | Mean | 7,31 | 7,55 | 7,28 | 7,12 | 7,35 |
| | Std. Dev | 2,03 | 1,82 | 1,99 | 2,18 | 2,08 |
| | Median | 8,00 | 8,00 | 8,00 | 8,00 | 8,00 |
| HAPPINESS | Obs | 34530 | 7004 | 11101 | 8897 | 7528 |
| | Mean | 7,55 | 7,72 | 7,58 | 7,42 | 7,52 |
| | Std. Dev | 1,81 | 1,67 | 1,78 | 1,87 | 1,89 |
| | Median | 8,00 | 8,00 | 8,00 | 8,00 | 8,00 |

Source: Own elaboration

ANOVA tests of a factor with its P-values 0.000 indicate that there are differences in life satisfaction and happiness according to age section. The post-hoc tests suggest that the youngest are the most satisfied /happiest, and the most unhappy/proud are those from 51-65 years, increasing valuations once again on older than 65, as Figure 49 presents.

Figure 49. Life satisfaction and Happiness perception by interval age



Source: Own elaboration

Considering how **education level** influences life satisfaction and happiness perception, it has been corroborated there exists a positive relationship among education and both terms, as previous research announced (Michalos 2017; Nikolaev & Rusakov 2016). Thus, the more education level, the more satisfied/ happy individuals are.

ANOVA of a factor (P-values 0000) and post-hoc tests indicate there exists a positive correlation between life satisfaction/happiness and the level of education one individual has.

As Table 19 reports, individuals with ISCED 7/8 (Master o doctoral grade) have 7,51 points to 10 on life satisfaction evaluation (0,25 points more than average of perceptions) while lower educated individuals ISCED 0/1 (primary and not finished one) reports 6,99 points (0,61 points under the average of opinions).

The same occurs on happiness evaluations, where ISCED 0/1 individuals report on average 7,30 points (0,42 points lower average of all perceptions) and upper educated ISCED 7/8 report 7,72 points (0,18 above the average).

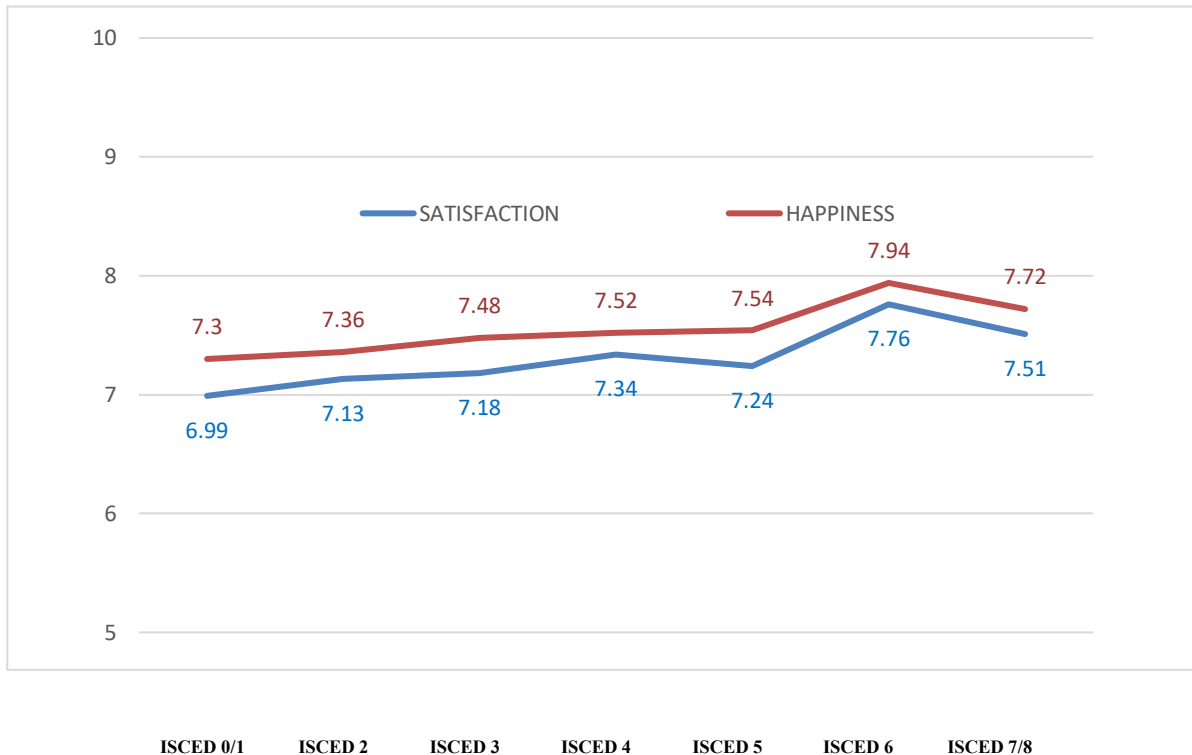
Table 21. Life Satisfaction and Happiness perception by education level

| | | EDUCATION | | | | | | | | |
|-------------------|----------|-----------|-----------|-------|---------|---------|---------|---------|---------|-----------|
| | | Total | ISCED 0/1 | Other | ISCED 2 | ISCED 3 | ISCED 4 | ISCED 5 | ISCED 6 | ISCED 7/8 |
| LIFE SATISFACTION | Obs | 34621 | 2439 | 74 | 5227 | 6239 | 6198 | 5500 | 3926 | 5018 |
| | Mean | 7,31 | 6,99 | 7,09 | 7,13 | 7,18 | 7,34 | 7,24 | 7,76 | 7,51 |
| | Std. Dev | 2,03 | 2,36 | 2,35 | 2,17 | 2,05 | 2,08 | 2,03 | 1,59 | 1,83 |
| | Median | 8,00 | 7,00 | 8,00 | 8,00 | 8,00 | 8,00 | 8,00 | 8,00 | 8,00 |
| HAPPINESS | Obs | 34560 | 2435 | 74 | 5207 | 6224 | 6192 | 5488 | 3936 | 5004 |
| | Mean | 7,55 | 7,30 | 7,58 | 7,36 | 7,48 | 7,52 | 7,54 | 7,94 | 7,72 |
| | Std. Dev | 1,81 | 2,10 | 1,97 | 1,96 | 1,83 | 1,84 | 1,81 | 1,45 | 1,61 |
| | Median | 8,00 | 8,00 | 8,00 | 8,00 | 8,00 | 8,00 | 8,00 | 8,00 | 8,00 |

Source: Own elaboration

As Figure 50 shows, it has been observed that the unhappiest and worst life satisfaction individuals are those with the lowest education level (Level 0/1), and it is increasing until IESCED 6 that is the happiest/most satisfied and descend gradually on IESCED 7/8.

Figure 50. Life satisfaction and Happiness perception by education level



Source: Own elaboration

It is essential to remark satisfaction increases with education level until the highest grade when it decreases slightly. Thus, as results display individuals with the highest education levels - Master, and Doctoral (IESCED 7/8) are less happy than graduates (IESCED 6) we deepen in data to analyze it better and contrasting effectively. In this way, like life satisfaction and happiness values are similar, we consider only one (life satisfaction) to make this test.

Table 22 examines the life satisfaction of individuals attending a more specific education level. It is observed that although life satisfaction increases with education level, that increase is not linear. Thus, for instance, individuals with general lower secondary education completed that

have not acceded to upper secondary education (7,25 points) have 0,6 points lower satisfaction than individuals that only completed primary education (6,99 points). Moreover, the same occurs on upper and lower master education that, at average, present near 0,5 points of difference. At last, remark doctorate individuals (7,88 points) presents higher rates than the master (7,83- 7,41 points).

Table 22. Life Satisfaction and Happiness perception by education level (2)

| Detailed education level harmonized | LIFE SATISFACTION | | |
|--------------------------------------|-------------------|------|-----------|
| | Obs | Mean | Std. Dev. |
| 0/1 Primary | 2157 | 6,99 | 2,36 |
| 2A/2B, access ISCED 3 vocational | 990 | 7,25 | 2,06 |
| 2C < 2 years, no access ISCED 3 | 3 | 6,33 | 1,15 |
| 3 >=2 years | 380 | 7,65 | 1,99 |
| Acces 3A | 3454 | 7,12 | 2,20 |
| 3A, access ISCED 5B/ lower tier 5A | 2761 | 7,62 | 1,98 |
| 3A, access upper | 3351 | 7,22 | 2,01 |
| 3A, access upper tier ISCED 5A/all 5 | 2707 | 7,07 | 2,11 |
| 3A/3B, access ISCED 5B/lower tier 5A | 181 | 7,98 | 1,66 |
| 3C < 2 years, no access ISCED 5 | 783 | 7,03 | 2,14 |
| 3C >= 2 years, no access ISCED 5 | 3057 | 7,05 | 2,13 |
| 4 without access ISCED 5 | 497 | 7,40 | 1,80 |
| 4A, access upper tier 5A/all 5 | 98 | 7,99 | 1,63 |
| 4A, access upper tier ISCED 5A/all 5 | 1224 | 7,33 | 1,86 |
| 4A/4B, access ISCED 5B/lower tier 5A | 403 | 7,55 | 1,98 |
| 5A medium bachelor lower | 1832 | 7,86 | 1,49 |
| 5A medium, bachelor upper | 2094 | 7,68 | 1,67 |
| 5A short | 209 | 7,81 | 1,94 |
| 5B short | 3069 | 7,07 | 2,14 |
| 7. Master lower | 749 | 7,83 | 1,61 |
| 7. Master upper | 3867 | 7,41 | 1,89 |
| 8. Doctoral | 402 | 7,88 | 1,51 |

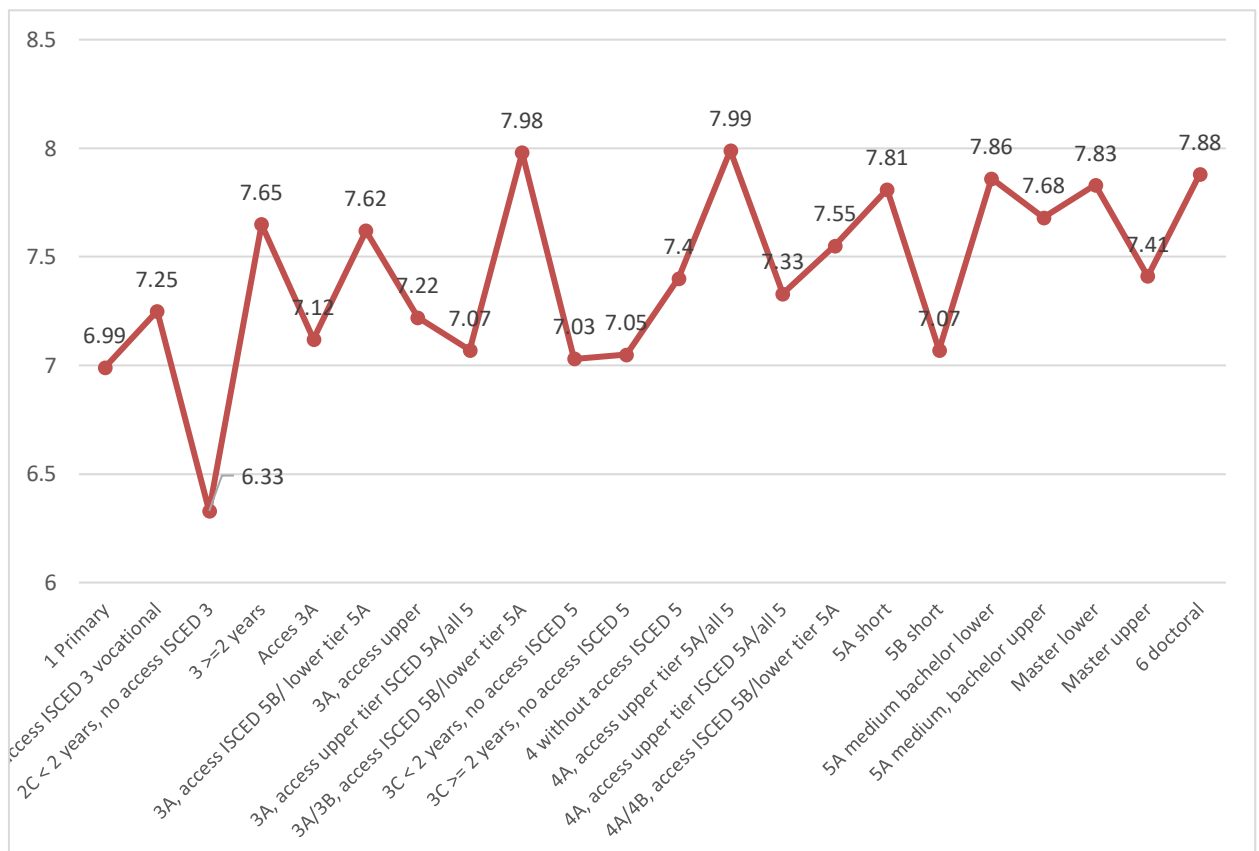
Source: Own elaboration

Figure 47 displays life satisfaction average attending specific educational level and marks individuals that have finished secondary and short-cycle tertiary education that allow them to

access higher education levels, but they do not follow them, have higher satisfaction at average than those individuals that have increased their education level.

Regarding differences between Doctorate and Master (IESCED 7/8) and graduated (IESCED 6) individuals, although Doctorate individuals have higher evaluations, when mixed with Master the average descend. That is because Master upper individuals have, at average, 0,4 lower assessment than doctorate ones, and due to the size of this group, the global average decrease. Thus, diminution on life satisfaction perception on the highest grade could be explained by methodology reasons.

Figure 51. Life satisfaction and Happiness perception by education level (2)



Source: Own elaboration

Consequently, once examined life satisfaction evaluation of individuals within each specific educational level, we could conclude that, although with nuances, education level is positively related to life satisfaction, and the more education level, the more satisfied individuals are.

Analyzed differences among **countries**, Table 23 reports there are significant differences (more than 1,5 points in some cases) among states. For instance, Russian Federation reports lower rates of happiness with 6,24 points while Switzerland reports 8,18 points (5,67 and 8,15, respectively on life satisfaction).

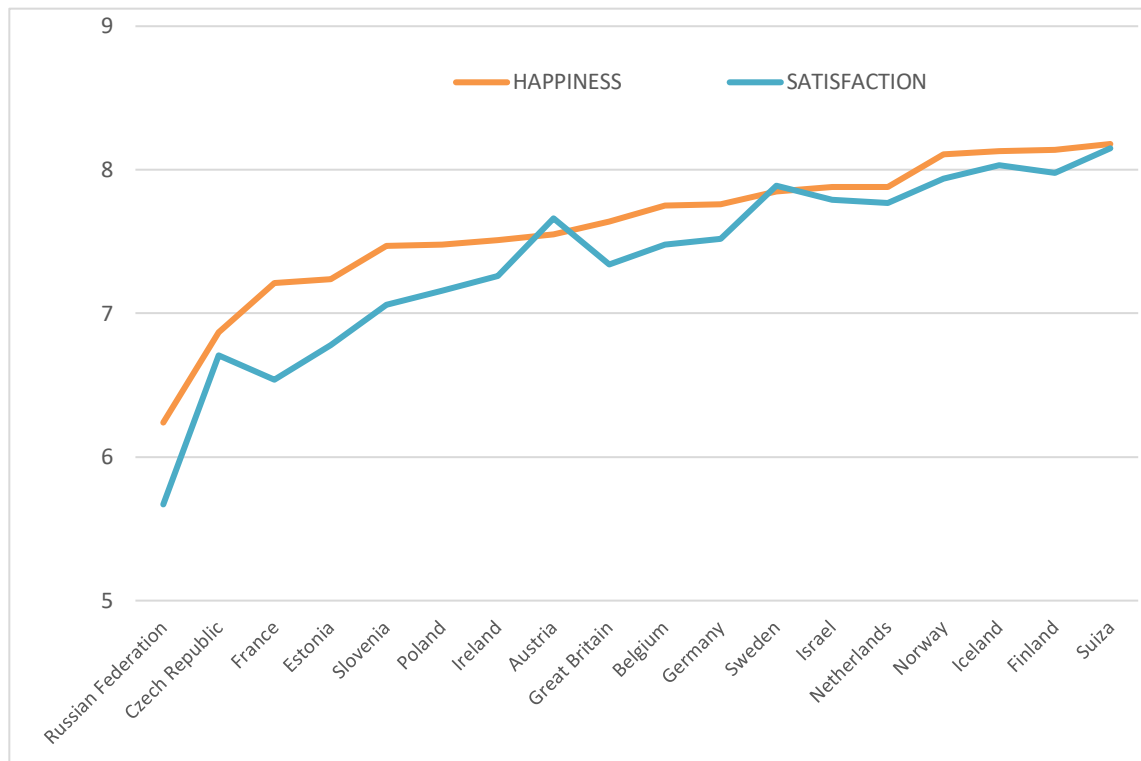
Table 23. Life Satisfaction and Happiness perception by country

| COUNTRY | HAPPINESS | | | | LIFE SATISFACTION | | | |
|--------------------|-----------|------|----------|--------|-------------------|------|----------|--------|
| | Obs | Mean | Std. Dev | Median | Obs | Mean | Std. Dev | Median |
| Austria | 2001 | 7,55 | 1,80 | 8,00 | 2008 | 7,66 | 1,85 | 8,00 |
| Belgium | 1765 | 7,75 | 1,47 | 8,00 | 1763 | 7,48 | 1,62 | 8,00 |
| Czech Republic | 2263 | 6,87 | 1,83 | 7,00 | 2265 | 6,71 | 1,89 | 7,00 |
| Estonia | 2014 | 7,24 | 1,89 | 8,00 | 2019 | 6,78 | 2,05 | 7,00 |
| Finland | 1922 | 8,14 | 1,44 | 8,00 | 1923 | 7,98 | 1,60 | 8,00 |
| France | 2068 | 7,21 | 1,79 | 8,00 | 2068 | 6,54 | 2,27 | 7,00 |
| Germany | 2849 | 7,76 | 1,73 | 8,00 | 2846 | 7,52 | 2,01 | 8,00 |
| Great Britain | 1958 | 7,64 | 1,81 | 8,00 | 1957 | 7,34 | 2,02 | 8,00 |
| Iceland | 878 | 8,13 | 1,49 | 8,00 | 878 | 8,03 | 1,67 | 8,00 |
| Ireland | 2756 | 7,51 | 1,78 | 8,00 | 2752 | 7,26 | 1,89 | 7,00 |
| Israel | 2537 | 7,88 | 1,75 | 8,00 | 2544 | 7,79 | 1,91 | 8,00 |
| Netherlands | 1678 | 7,88 | 1,32 | 8,00 | 1679 | 7,77 | 1,51 | 8,00 |
| Norway | 1544 | 8,11 | 1,52 | 8,00 | 1543 | 7,94 | 1,68 | 8,00 |
| Poland | 1653 | 7,48 | 1,91 | 8,00 | 1680 | 7,16 | 2,11 | 8,00 |
| Russian Federation | 2395 | 6,24 | 2,16 | 6,00 | 2413 | 5,67 | 2,34 | 6,00 |
| Slovenia | 1302 | 7,47 | 1,92 | 8,00 | 1306 | 7,06 | 2,18 | 8,00 |
| Switzerland | 1523 | 8,18 | 1,48 | 8,00 | 1524 | 8,15 | 1,69 | 8,00 |
| Sweden | 1542 | 7,85 | 1,63 | 8,00 | 1543 | 7,89 | 1,77 | 8,00 |

Source: Own elaboration

Figure 52 distributes countries attending their Happiness, and Life satisfaction reported. Russian and the Czech Republic are the unhappiest countries, while Norway, Iceland, Finland, and Switzerland the ones that higher scores report.

Figure 52. Life satisfaction and happiness perception by country



Source: Own elaboration

That is not an isolated case. Precedent Studies (Djankov et al. 2016; Frey 2018) have demonstrated the Nordic region leads the happiest countries (Frey 2018, OECD 2016)), while citizens from Eastern Europe are unhappier and less satisfied with life than their peers in other countries (Djankov et al. 2016). Deepen on that issue, Djankov et al. (2016) link the happiness gap with differences of evaluation citizens in post-communist countries do to their governments, considering Eastern Europeans associate their life satisfaction to higher perceived corruption and weaker government performance. While Frey (2018), using questions related to daily observations, argues the Nordic countries, above all Denmark and Switzerland, are the happiest, whereas all Africa, except for Syria, present the lowest average of life satisfaction.

Furthermore, it should be remarked the case of France, that with any public argument occupies a low position on the rank, in the middle of eastern countries, although results are similar as obtained by OECD Better Index Life 2017.

To deepen in this analysis, dummy variables for each country have been created and applied linear regression. We wonder to know how life satisfaction (dependent variable) relates to independent variables (dummies created) and observe if some countries are better or worse related to others. By this way, as Table 24 demonstrates, 15 of 18 countries are related to life satisfaction, by the way:

- Switzerland, Iceland, Finland, Norway, Sweden, Israel, Netherlands, Austria have positive coefficient B. Thus, life satisfaction in those countries increases with the other countries, at this order from higher to lower increase.
- Russia, France, Czech Republic, Estonia, Slovenia, Poland, Ireland, Great Britain have negative coefficient B. Thus, life satisfaction in those countries decreases when other countries increase, at this order from higher to lower decrease.
- Slovenia, Germany, and Belgium are not related to the fluctuation of the life satisfaction of other countries.
- Consequently, the moderator variable has been formed with a variable of five categories: the two happiest countries, the two unhappiest and the others. Thus, it could be compared if, for happier countries or unhappier ones, there are different relationships.

Table 24. Regression Life Satisfaction by country

| Model | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. | 95,0% Confidence Interval for B | | Collinearity Statistics | |
|-------|-----------------------------|------------|---------------------------|---------|------|---------------------------------|-------------|-------------------------|-------|
| | B | Std. Error | Beta | | | Lower Bound | Upper Bound | Tolerance | VIF |
| | 2 (Constant) | 7,507 | ,028 | | | | 264,393 | 0,000 | 7,452 |
| SUI | ,642 | ,057 | ,065 | 11,277 | ,000 | ,531 | ,754 | ,786 | 1,272 |
| ICE | ,525 | ,071 | ,041 | 7,391 | ,000 | ,385 | ,664 | ,862 | 1,160 |
| FIN | ,470 | ,052 | ,053 | 8,978 | ,000 | ,367 | ,572 | ,747 | 1,339 |
| NOR | ,431 | ,057 | ,044 | 7,593 | ,000 | ,319 | ,542 | ,784 | 1,275 |
| SWE | ,382 | ,057 | ,039 | 6,736 | ,000 | ,271 | ,493 | ,784 | 1,275 |
| ISR | ,287 | ,048 | ,037 | 6,023 | ,000 | ,193 | ,380 | ,695 | 1,438 |
| NET | ,268 | ,055 | ,028 | 4,870 | ,000 | ,160 | ,375 | ,770 | 1,298 |
| AUS | ,153 | ,052 | ,018 | 2,970 | ,003 | ,052 | ,254 | ,739 | 1,353 |
| GRB | -,171 | ,052 | -,019 | -3,289 | ,001 | -,273 | -,069 | ,744 | 1,344 |
| IRE | -,252 | ,046 | -,034 | -5,430 | ,000 | -,343 | -,161 | ,680 | 1,470 |
| POL | -,348 | ,055 | -,037 | -6,330 | ,000 | -,455 | -,240 | ,770 | 1,298 |
| SLO | -,445 | ,060 | -,042 | -7,368 | ,000 | -,564 | -,327 | ,810 | 1,235 |
| EST | -,732 | ,051 | -,084 | -14,221 | ,000 | -,832 | -,631 | ,738 | 1,354 |
| CZE | -,796 | ,049 | -,097 | -16,092 | ,000 | -,893 | -,699 | ,717 | 1,394 |
| FRA | -,967 | ,051 | -,113 | -18,946 | ,000 | -1,067 | -,867 | ,734 | 1,362 |
| RUS | -1,837 | ,048 | -,230 | -37,919 | ,000 | -1,932 | -1,742 | ,705 | 1,418 |

a. Dependent Variable: SATISFACTION

Source: Own elaboration

We could not check the reason for those relationships, neither we found similar researchers or results to compare. Nevertheless, the **GPD values** of each country also have been considered and related to evaluations of each state to check this influence. 2017 GPD data of each country has been correlated with life satisfaction perception. A negative significant small correlation was found (-0,037). Thus, instead of a correlation, it could refer to a tendency that indicates that at major GPD, lower life satisfaction. We deepen on that result, because, it could

contradict previous conclusions as Nordic countries are happier than Eastern countries; thus, we created four different groups of countries attending their GDP.

Table 25 shows different intervals of GDP that have been considered, and the distribution of population within four categories depending on their GDP. 54,8% of population presents low-medium GDP while 45,2% presents medium-high GDP.

Table 25. Distribution of observations attending GDP intervals

| GDP Group | Obs | Percent | Valid Percent | Cumulative Percent |
|---------------------|------------|----------------|----------------------|---------------------------|
| Low | 6763 | 19,4 | 19,4 | 19,4 |
| Low-Medium | 12312 | 35,3 | 35,3 | 54,8 |
| Medium- High | 6451 | 18,5 | 18,5 | 73,3 |
| High | 9311 | 26,7 | 26,7 | 100,0 |
| Total | 34837 | 100,0 | 100,0 | |

Source: Own elaboration

Calculated ANOVA of a factor as Table 26 presents, new conclusions have been found. ANOVA P-Value (p-value 0.000) and contrast post hoc demonstrate there exists a positive relationship between GDP and life satisfaction at medium-high levels of GDP countries. However, the life satisfaction of higher GDP is lower than other intervals.

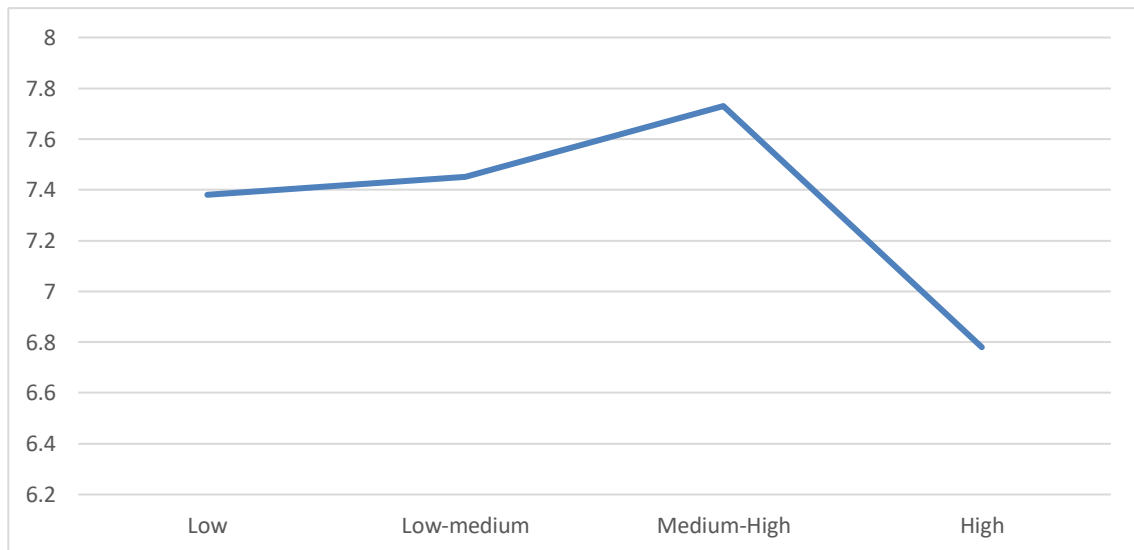
Table 26. Analysis of GPD and life satisfaction

| | | GDP | | | |
|--------------------------|--------------------|------|------------|-------------|------|
| | | Low | Low-medium | Medium-High | High |
| LIFE SATISFACTION | Observations | 6747 | 12254 | 6426 | 9284 |
| | Mean | 7,38 | 7,45 | 7,73 | 6,78 |
| | Standard Deviation | 2,04 | 1,83 | 1,82 | 2,29 |
| | Median | 8,00 | 8,00 | 8,00 | 7,00 |

Source: Own elaboration

Graphically, Figure 53 displays that relationship.

Figure 53. Life satisfaction perception by GPD country level



Source: Own elaboration

This conclusion could fit with previous studies commented on chapters 3 and 4, that offer controversial results regarding economic growth and GDP, concluding their influence on life satisfaction is at a modest level of affluence (Layard 2011; Bartolini & Bilancini 2010; Easterlin 2013).

At last, the relationship between life satisfaction / happiness and **income source** also has been analyzed. Table 27 display information about different sources of income: 1) farming; 2) investment or savings; 3) other sources; 4) pensions; 5) self-employment (exclude farming); 6) social benefits or grants; 7) unemployment or redundancy benefit and 8) wages or salaries.

It is crucial to remark income source influences satisfaction. As Table 27 displays, there exist significant differences among income sources, that could be of more than 1 point depending on the circumstances.

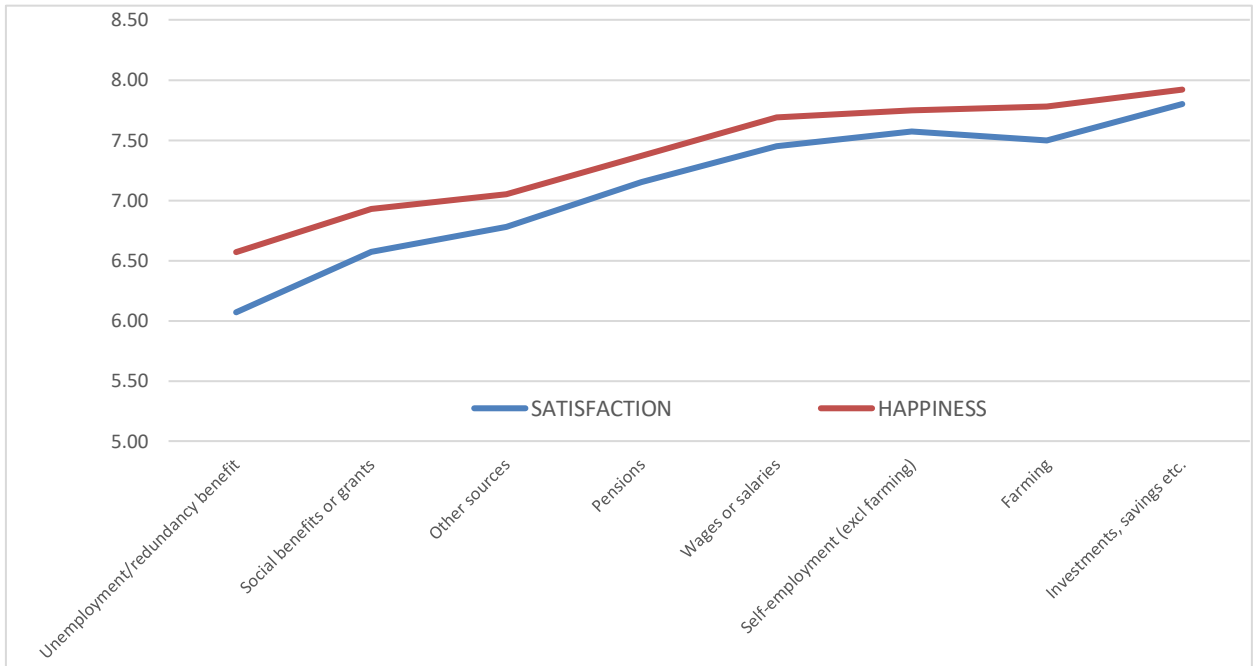
Table 27. Life satisfaction / happiness perception by income source

| | INCOME | | | | | | | | | |
|--------------------------|--------------------|---------|---------------------|---------------|----------|-----------------|---------------------------|---------------------------------|-------------------|-------|
| | Obs | Farming | Investment, savings | Other sources | Pensions | Self-employment | Social benefits or grants | Unemployment/redundancy benefit | Wages or salaries | |
| LIFE SATISFACTION | Observations | 34252 | 372 | 212 | 452 | 8801 | 1748 | 1256 | 707 | 20704 |
| | Mean | 7,31 | 7,50 | 7,80 | 6,78 | 7,15 | 7,57 | 6,57 | 6,07 | 7,45 |
| | Standard Deviation | 2,03 | 1,81 | 1,93 | 2,31 | 2,18 | 1,86 | 2,48 | 2,49 | 1,88 |
| | Median | 8,00 | 8,00 | 8,00 | 7,00 | 8,00 | 8,00 | 7,00 | 7,00 | 8,00 |
| HAPPINESS | Observations | 34194 | 369 | 212 | 452 | 8774 | 1751 | 1254 | 705 | 20677 |
| | Mean | 7,56 | 7,78 | 7,92 | 7,05 | 7,37 | 7,75 | 6,93 | 6,57 | 7,69 |
| | Standard Deviation | 1,80 | 1,62 | 1,63 | 2,14 | 1,95 | 1,65 | 2,21 | 2,20 | 1,67 |
| | Median | 8,00 | 8,00 | 8,00 | 8,00 | 8,00 | 8,00 | 7,00 | 7,00 | 8,00 |

Source: Own elaboration

ANOVA test of a factor (p-values 0.000) and their respective posthoc tests shows individuals that obtain income from unemployment or redundancy benefit are the most unsatisfied and unhappiest. Second less happy are those who receive income from social benefits, and other sources followed pensions. The most satisfied and happiest individuals are those who get benefits from investment and savings, followed by farming, self-employed, and salaried workers with those orders, as Figure 54 shows.

Figure 54. Life satisfaction and Happiness perception by income source



Source: Own elaboration

11.5 Life satisfaction and Happiness and Internet use

Once life satisfaction, happiness, and Internet use have been analyzed by themselves, and significant differences have been presented, the relationship between internet use and life satisfaction /happiness will be analyzed.

In this way, two ANOVA tests of a factor have been applied to check if an individual's life satisfaction or happiness varies with the frequency of internet use.

Table 28 presents the mean value of individual perceptions of life satisfaction and happiness attending frequency of internet use.

Individuals that never use the internet report 6,7 points of life satisfaction and 7,04 of happiness. Those rates are increasing with the frequency of use. For instance, individuals that use occasionally or a few times a week report from 0,15 to 0,5 points higher, those that use it most days near 0,30 higher than previous ones, and those that use it daily report near 0,8 points higher than those never do.

Thus, as precedent studies have demonstrated (Lissitsa & Chachashvili-Bolotin 2016; Castellace & Tveito 2018), although, with some nuances, internet use impacts positively on WB perception.

Table 28. Life satisfaction / happiness perception by internet use

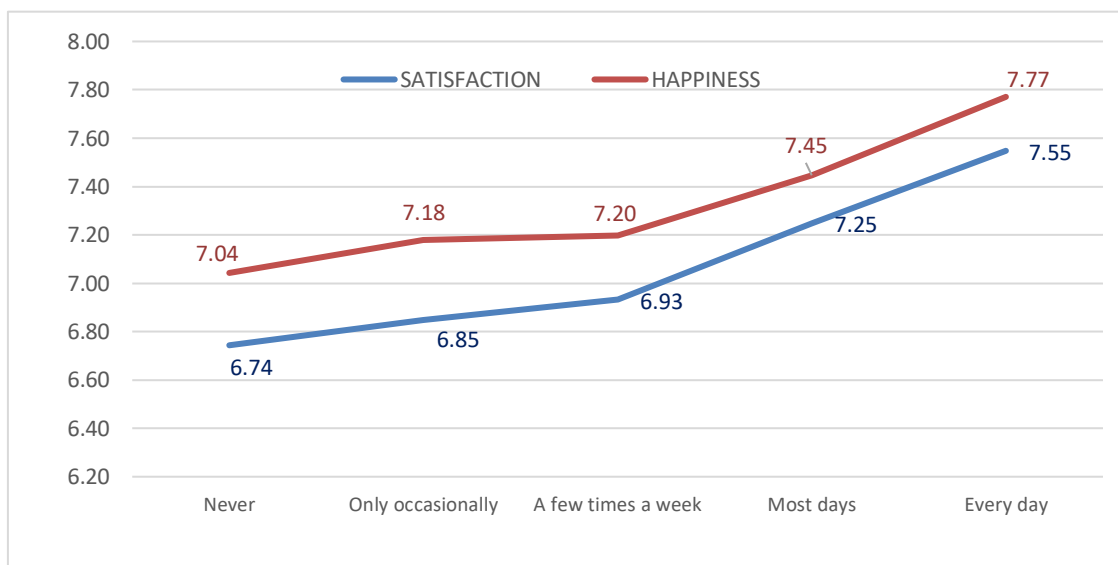
| | Obs | Mean | Std. Dev | Error std. | 95% confidence interval | | Min | Max | |
|--------------------|--------------------|-------|----------|------------|-------------------------|-----------|--------|--------|-------|
| | | | | | Lower lim | Upper lim | | | |
| LIFE SATISFACTION | Never | 5634 | 6,7435 | 2,41814 | ,03222 | 6,6804 | 6,8067 | ,00 | 10,00 |
| | Only occasionally | 1953 | 6,8484 | 2,35188 | ,05322 | 6,7441 | 6,9528 | ,00 | 10,00 |
| | A few times a week | 2224 | 6,9317 | 2,08713 | ,04426 | 6,8449 | 7,0184 | ,00 | 10,00 |
| | Most days | 3155 | 7,2475 | 1,89195 | ,03368 | 7,1815 | 7,3136 | ,00 | 10,00 |
| | Every day | 21717 | 7,5478 | 1,85170 | ,01257 | 7,5231 | 7,5724 | ,00 | 10,00 |
| | Total | 34683 | 7,3109 | 2,03021 | ,01090 | 7,2896 | 7,3323 | ,00 | 10,00 |
| | HAPPINESS | Never | 5599 | 7,0427 | 2,16169 | ,02889 | 6,9861 | 7,0993 | ,00 |
| Only occasionally | | 1949 | 7,1786 | 2,05443 | ,04654 | 7,0873 | 7,2698 | ,00 | 10,00 |
| A few times a week | | 2217 | 7,1971 | 1,85129 | ,03932 | 7,1200 | 7,2742 | ,00 | 10,00 |
| Most days | | 3158 | 7,4465 | 1,73474 | ,03087 | 7,3860 | 7,5070 | ,00 | 10,00 |
| Every day | | 21698 | 7,7709 | 1,64609 | ,01117 | 7,7490 | 7,7928 | ,00 | 10,00 |
| Total | | 34621 | 7,5534 | 1,80941 | ,00972 | 7,5344 | 7,5725 | ,00 | 10,00 |

Source: Own elaboration

P-values of the ANOVA test of a factor are 0.000 for both variables. Thus, it indicates that there exist significant differences in the means value of happiness and life satisfaction perception of individuals according to their frequency of use of the internet. The Bonferroni-Tukey post-hoc contrast used to identify between which categories are given differences indicates that both for life satisfaction and happiness, there is a gradual increase as the frequency of use of the internet increases.

Figure 55 displays individuals who never use the internet have, at average, 0,7 points lower life satisfaction and happiness than those who use it every day.

Figure 55. Life satisfaction and Happiness perception by Internet use



Source: Own elaboration

If we consider the frequency of use of the internet as an ordinal variable and the correlation of Spearman with happiness and life satisfaction is obtained positive values (0.150 and 0.145, respectively) and moments (P-values 0.000).

Pearson's correlation between happiness and life satisfaction is 0.711 (P-value 0.000), i.e., they are highly correlated. Thus, the multivariate model is indistinct chosen one or the other as the dependent variable.

We wonder to know if sociodemographic values influence the relationship between internet use and WB. As Table 16 indicates, life satisfaction and happiness were closely correlated between them, and furthermore, they relate to internet use similarly. Thus, to analyze moderation, only one has been selected: life satisfaction.

Regarding **gender**, linear regression in two steps has been applied. In the first one, independent variables and moderator have been included, and in the second step, is added interaction between them. When that interaction is significative, then it could be referred to as moderation.

Table 29 represents both interactions. It is observed in the second step as neither sex nor interaction between sex and Internet use have significative differences (SIG. > 0.05). Thus, it indicates that gender does not moderate at all the relationship between satisfaction and the use of the internet. Consequently, this more structured analysis contrasts with the previous descriptive study presented in Table 12 that displayed differences among males and females on internet Use, and no significative differences in life satisfaction between gender have been found (Table 17). Therefore, altogether, after examining data, it has been verified do not exist no demarcated correlation.

Table 29. Life satisfaction and internet use by gender

| Model | Non-Std. Coef. | | Std. Coef | t | Sig. | 95,0% confidence Interval to | | Estat. Colineal. | |
|---------------|----------------|-------|-----------|---------|------|------------------------------|-----------|------------------|-------|
| | B | Std. | Beta | | | B | | Toler. | VIF |
| | | Error | | | | Lower Lim | Upper Lim | | |
| 1 (Constant) | 6,487 | ,031 | | 208,843 | ,000 | 6,426 | 6,548 | | |
| INTERNET USE | ,211 | ,007 | ,160 | 30,222 | ,000 | ,198 | ,225 | ,998 | 1,002 |
| GENDER | -,027 | ,022 | -,007 | -1,272 | ,204 | -,070 | ,015 | ,998 | 1,002 |
| 2 (Constante) | 6,514 | ,040 | | 163,849 | ,000 | 6,436 | 6,592 | | |
| INTERNET USE | ,204 | ,009 | ,155 | 21,611 | ,000 | ,186 | ,223 | ,545 | 1,833 |
| GENDER | -,088 | ,060 | -,022 | -1,471 | ,141 | -,205 | ,029 | ,130 | 7,699 |
| Interaction | ,015 | ,014 | ,017 | 1,085 | ,278 | -,012 | ,043 | ,114 | 8,734 |

a. Dependent variable: Life Satisfaction

Source: Own elaboration

Regarding **age**, the same exercise has been done. The first step includes internet use and age variable, and the second one its moderation. As Table 30 presents, in the second step is observed as both age and the interaction between age and the use of the internet are significant (SIG. < 0.05). Consequently, it indicates that age moderates the relationship between satisfaction and the use of the internet. This conclusion corroborates results displayed

in Table 15, that anticipated as younger individuals are, more internet use they have, and also Table 18, as younger are more satisfied are (despite the U-curve age on happiness) and offers additional information about it.

Table 30. Life Satisfaction and Internet use by age

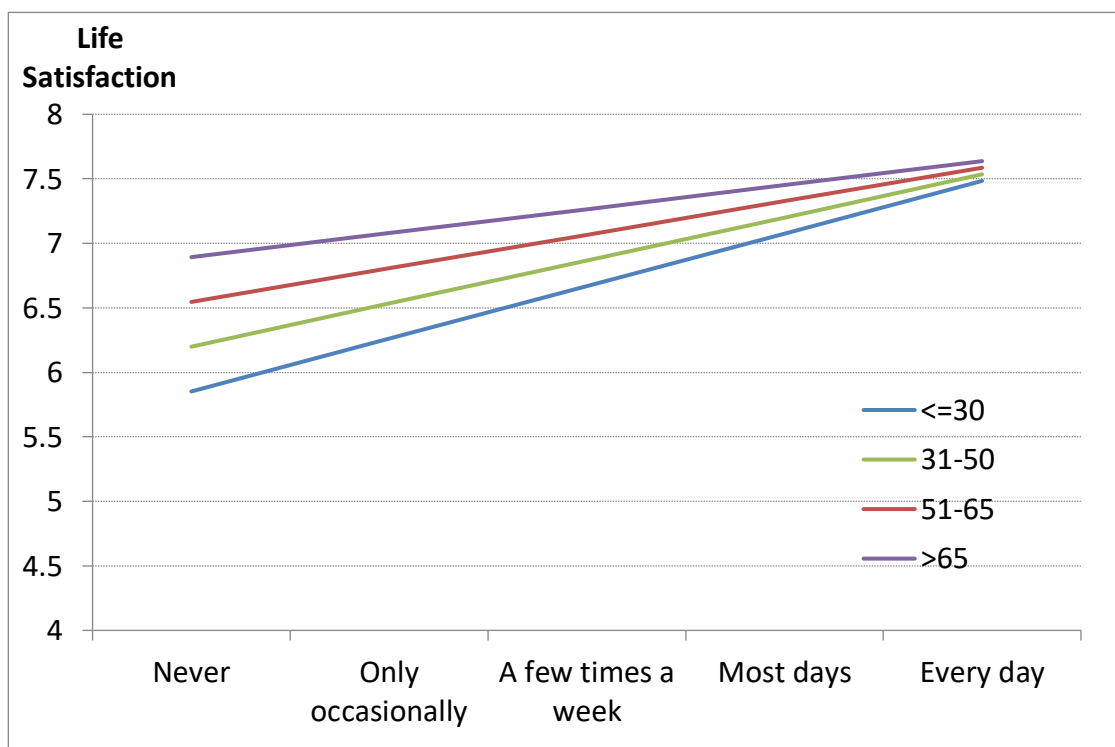
| Model | Non-Std. Coef. | | Std. Coef | t | Sig. | 95,0% confidence Interval to | | Estat. Colineal. | |
|---------------------|---------------------|------------|-----------|--------|------|------------------------------|---------|------------------|--------|
| | B | Std. Error | Beta | | | Lower Lim | B | Std. Error | Beta |
| | 1 (Constant) | 6,054 | ,054 | | | | 111,883 | ,000 | 5,948 |
| INTERNET USE | ,248 | ,008 | ,189 | 30,935 | ,000 | ,233 | ,264 | ,757 | 1,322 |
| AGE | ,109 | ,012 | ,056 | 9,193 | ,000 | ,086 | ,132 | ,757 | 1,322 |
| 2 (Constant) | 5,023 | ,126 | | 39,850 | ,000 | 4,775 | 5,270 | | |
| INTERNET USE | ,482 | ,027 | ,366 | 17,834 | ,000 | ,429 | ,535 | ,067 | 15,024 |
| AGE | ,421 | ,036 | ,217 | 11,553 | ,000 | ,350 | ,492 | ,080 | 12,544 |
| interaction2 | -,074 | ,008 | -,177 | -9,056 | ,000 | -,090 | -,058 | ,073 | 13,691 |

a. Dependent variable: Life Satisfaction

Source: Own elaboration

Figure 56 displays how internet use influences individuals WB attending their interval age. While for people older than 65 years internet use influences barely WB perception (line slope is nearly inexistent), for individuals younger than 30, the relationship between life satisfaction and internet use is more positive and accurate (near 2 points), thus, a major use, better life satisfaction (increasing positive pendent).

Figure 56. Relationship life satisfaction and internet use moderated by age



Source: Own elaboration

Regarding how **education** influences internet use and life satisfaction, the same exercise has been done with the education variable. First, interaction analyses interaction between internet use and education, while the second one includes its moderation. As Table 31 presents, in the second step is observed as both education and the interaction between education and the use

of the internet are significant (SIG. < 0.05). Thus, it is indicating that education moderates the relationship between satisfaction and the use of the internet. This conclusion corroborates results displayed in Table 16, that anticipated as higher educated individuals are, more internet use they have, and also Table 20, as higher educated, more satisfied individuals are and offers additional information about it.

Table 31. Life satisfaction and Internet use moderated by education

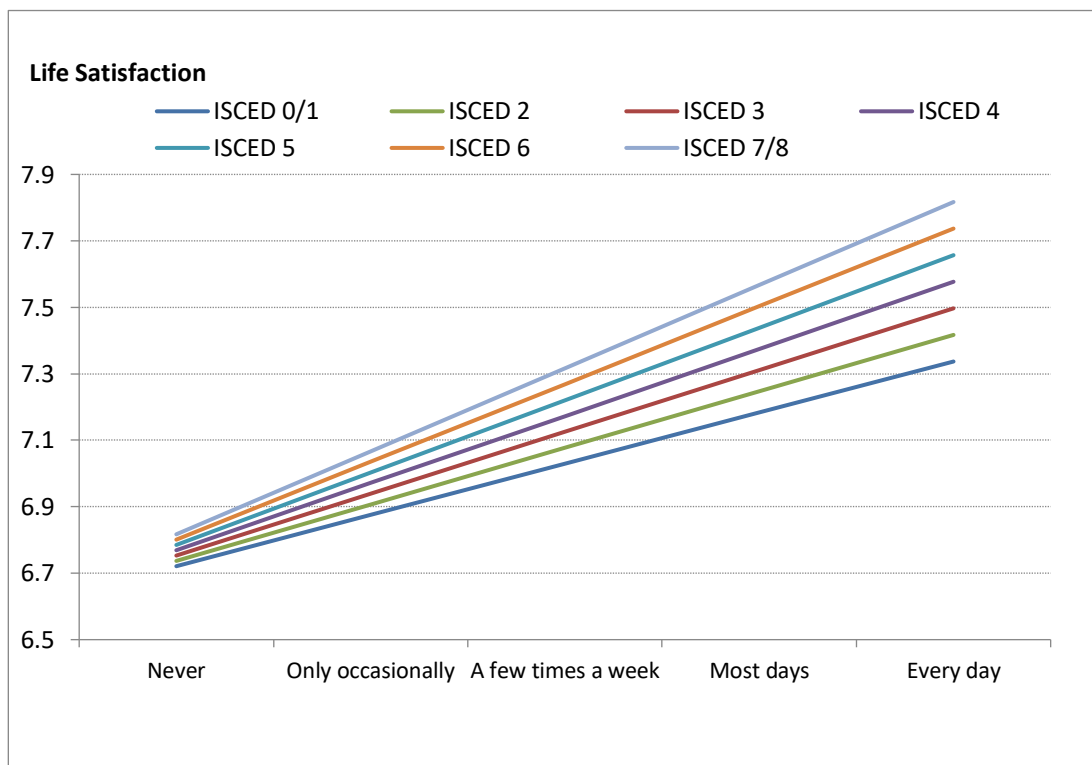
| Modelo | Non-Std. Coef. | | Std. Coef | t | Sig. | 95,0% confidence | | Estat. Colineal. | |
|--------------|----------------|------------|-----------|---------|------|------------------|-------|------------------|--------|
| | B | Std. Error | Beta | | | Interval to B | | Std. Error | Beta |
| | | | | | | Lower Lim | B | | |
| 1 (Constant) | 6,353 | ,034 | | 186,995 | ,000 | 6,287 | 6,420 | | |
| INTERNET USE | ,194 | ,007 | ,148 | 26,406 | ,000 | ,180 | ,209 | ,901 | 1,110 |
| EDUCATION | ,046 | ,006 | ,041 | 7,324 | ,000 | ,033 | ,058 | ,901 | 1,110 |
| 2 (Constant) | 6,567 | ,063 | | 104,064 | ,000 | 6,443 | 6,690 | | |
| INTERNET USE | ,138 | ,016 | ,105 | 8,766 | ,000 | ,107 | ,169 | ,196 | 5,106 |
| Education R | -,020 | ,018 | -,018 | -1,164 | ,244 | -,055 | ,014 | ,112 | 8,897 |
| interaccion3 | ,016 | ,004 | ,086 | 4,010 | ,000 | ,008 | ,024 | ,061 | 16,293 |

a. Dependent Variable: LIFE SATISFACTION

Source: Own elaboration

Figure 57 displays how Internet use influences individuals' WB attending their education level. Individuals with high education levels are influenced by a more upper extent by internet use than individuals with lower education. The slope of lines regarding the use and life satisfaction increases with education level, being more accurate in higher grades than in lower ones.

Figure 57. Relationship life satisfaction and internet use moderated by education level



Source: Own elaboration

Income source has been analyzed with the same methodology. Table 32 displays results found at both interactions, concluding, as well as precedent variables, income source influences significant (Sig < 0.05) life satisfaction. Thus, it could be affirmed Income sources moderate the relationship between internet use and life satisfaction. This conclusion corroborates results

displayed in Table 27 and Table 17 that anticipated income source influences WB and internet use offers additional information about it.

Table 32. Life satisfaction and Internet use moderated by income source

| Modelo | Non-Std. Coef. | | Std. Coef | t | Sig. | 95,0% confidence Interval | | Estat. Colineal. | |
|---------------------|----------------|------------|-----------|---------|------|---------------------------|-------|------------------|--------|
| | B | Std. Error | Beta | | | to B | | Std. Error | Beta |
| | | Lower Lim | | | | B | | | |
| 1 (Constant) | 6,582 | ,038 | | 174,261 | ,000 | 6,508 | 6,656 | | |
| INTERNET USE | ,220 | ,008 | ,168 | 28,212 | ,000 | ,205 | ,236 | ,811 | 1,233 |
| INCOME | -,024 | ,007 | -,022 | -3,626 | ,000 | -,036 | -,011 | ,811 | 1,233 |
| 2 (Constant) | 6,880 | ,076 | | 90,268 | ,000 | 6,731 | 7,030 | | |
| INTERNET USE | ,135 | ,021 | ,103 | 6,566 | ,000 | ,095 | ,175 | ,117 | 8,527 |
| INCOME | -,091 | ,016 | -,084 | -5,571 | ,000 | -,124 | -,059 | ,127 | 7,844 |
| INTERACTION | ,018 | ,004 | ,111 | 4,502 | ,000 | ,010 | ,026 | ,048 | 20,939 |

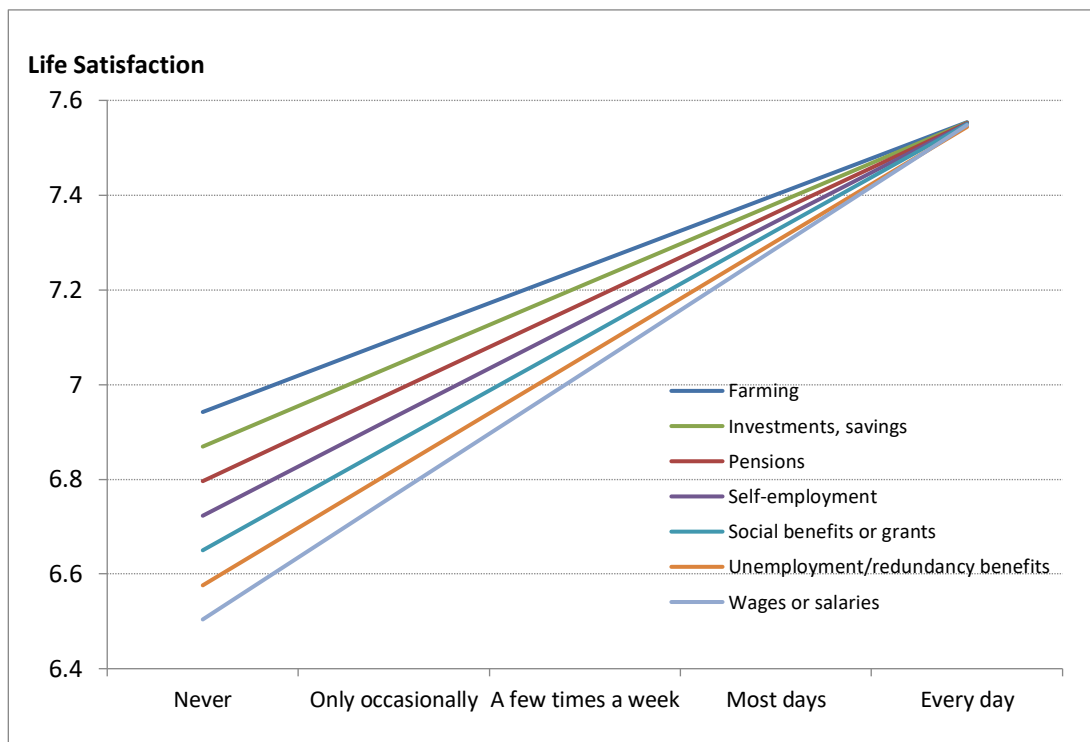
a. Dependent Variable: LIFE SATISFACTION

Source: Own elaboration

Figure 58 displays how income source influences the slope of the frequency internet use line. While differences between daily users are nearly inexistent for all individuals, there exist moderate differences for non-users. Individuals with wages or salaries and unemployment and redundancy benefits are approximately 0,5 points less satisfied than those who have farming

or saving incomes.

Figure 58. Relationship life satisfaction and internet use moderated by income source



Source: Own elaboration

At last, regarding disparities among **countries**, Table 33 summarizes the same exercise. The first step analyses interaction between internet use and Country, while the second one includes its moderation, concluding, as well as precedent variables, as the country variable is significant ($\text{Sig} < 0.05$) at life satisfaction evaluation. Thus, it could be affirmed Country variable moderate relationship between internet use and life satisfaction. This conclusion corroborates results displayed in Figures 45 and 52, that anticipated country variable influences the internet use and also life satisfaction and offers additional information about it.

Table 33. Life satisfaction and Internet use moderated by country

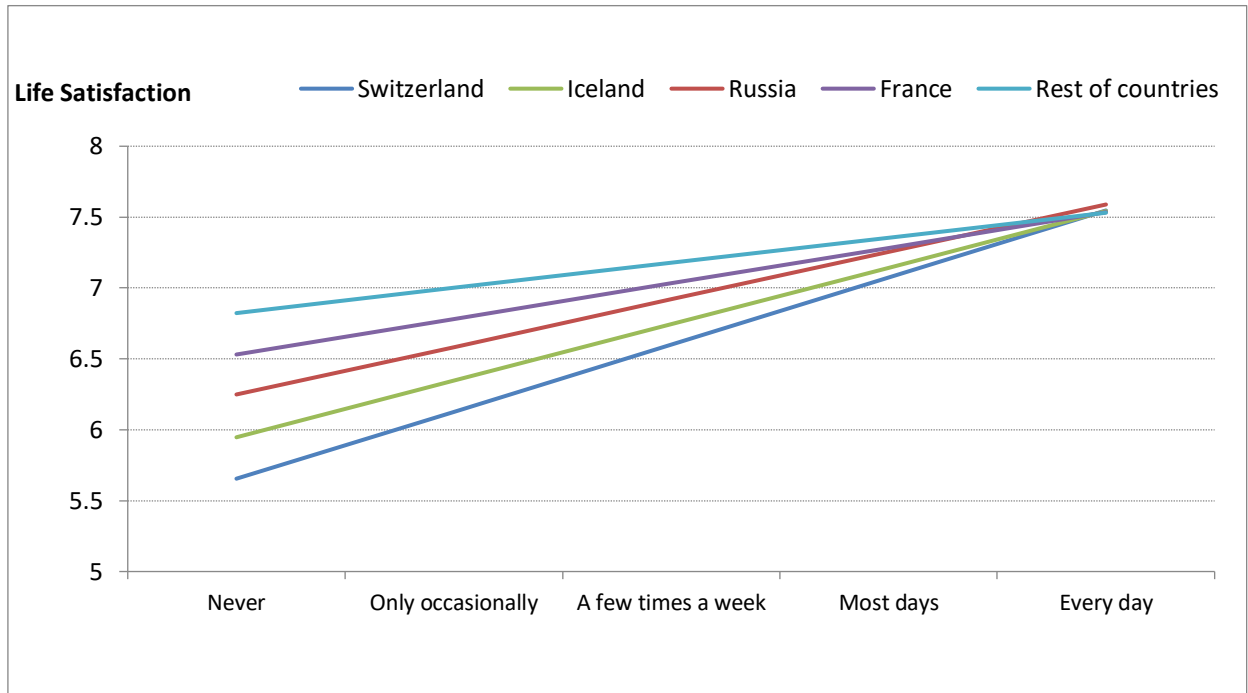
| Model | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. | 95,0% Confidence Interval for B | | Collinearity Statistics | |
|---------------------|-----------------------------|------------|---------------------------|---------|------|---------------------------------|-------------|-------------------------|--------|
| | B | Std. Error | Beta | | | Lower Bound | Upper Bound | Tolerance | VIF |
| | | | | | | | | | |
| 1 (Constant) | 6,186 | ,056 | | 111,069 | ,000 | 6,077 | 6,295 | | |
| INTERNET USE | ,210 | ,007 | ,160 | 30,161 | ,000 | ,197 | ,224 | 1,000 | 1,000 |
| COUNTRY | ,064 | ,010 | ,033 | 6,135 | ,000 | ,044 | ,084 | 1,000 | 1,000 |
| 2 (Constant) | 4,816 | ,142 | | 33,970 | ,000 | 4,538 | 5,094 | | |
| INTERNET USE | ,547 | ,033 | ,415 | 16,681 | ,000 | ,483 | ,611 | ,045 | 22,163 |
| COUNTRY | ,366 | ,031 | ,186 | 11,968 | ,000 | ,306 | ,426 | ,116 | 8,631 |
| INTERACTION | -,074 | ,007 | -,305 | -10,504 | ,000 | -,088 | -,060 | ,033 | 30,084 |

a. Dependent Variable: LIFE SATISFACTION

Source: Own elaboration

Figure 59 presents real differences among countries. While for the two most satisfying countries- Switzerland, Iceland- the relationship between internet use and life satisfaction is more accurate, (more inclined lines), for the two most unsatisfied countries- Russian Federation and France, this relationship has lower influence (less inclined lines), although in both cases, slopes are more inclined than most countries.

Figure 59. Relationship life satisfaction and internet use moderated by country



Source: Own elaboration

11.6 Conclusions

The present chapter has examined internet use and life satisfaction evaluations of individuals include in the study, first individually and later taking into consideration its interaction.

Regarding **internet use**, we could conclude that gender, age, education, countries, and income influence it. Overall, males use more internet than females. There exist significative differences between males and females that claim to use the internet daily, but also between those who declare not use it never. In both cases, disuse of females is 3% higher than males. Older people present lower rates of use than younger ones. It could be expected that that effect will be mitigated with time because middle-age individuals are more active than older ones.

The more educated individuals are, the more internet use they do.

Furthermore, there are significant differences in use among countries that could be explained by disparities in digital infrastructure development. Nevertheless, there is no correlation between internet access and time spent online by countries. Western countries present lower rates of daily internet use, although more intensive use for those who declare use it. Finally, remark individuals whose income comes from pensions and farming present the lowest rate use. This could be because of the age effect (they are older) or the poor infrastructures that generally exist in farming spaces. By contrast, self-employed or salaried individuals present a higher rate of use.

Concerning **life satisfaction**, we could conclude that age, education, country, and income source influence it, while no gender differences have been found in the sample. It has been demonstrated “U Curve on happiness” that displays the youngest individuals are happiest and most life satisfied, and perceptions decrease until elderly that increase once again, being the lower happiness perception by adulthood age. Furthermore, the more education level, the more satisfied/ happy individuals are, despite that relationship is not linear. We also found differences among countries' perceptions, not explained by country GPD, which influence on life satisfaction is at a modest level of affluence. Finally, the remark income source influences satisfaction. Individuals who obtain income from unemployment or redundancy benefit are the most unsatisfied and unhappiest. Second less happy are those who receive income from social benefits, and other sources followed pensions. The most satisfied and happiest individuals are those who get benefits from investment and savings, followed by farming, self-employed and salaried workers.

Concerning **interaction among internet use and life satisfaction**, the present study demonstrates, internet use influences positively on WB perception of individuals. Overall, people that use daily internet report at average 0,7 points higher life satisfaction and happiness than those who never do, although that impact is moderated by sociodemographic variables. Age is one of the most influencing variables, as younger individuals are more positive and accurate is the influence of internet use on WB, being barely inexistent that influence on older people. Education also influences WB, and furthermore, the education level moderates the internet influence on WB. The more educated individuals are, the more impact has the internet on their WB. While there exist slight differences in WB perceptions for individuals that never use the internet (independently of their education level), those differences become stronger for individuals that use it daily. Slopes are more accurate as a higher level of education individuals have, so, it means as higher education level, the higher impact has internet use on WB perception. Other variables present a different influence. Income source influences only for people that not use it daily. While for individuals that access the internet every day, there are nearly inexistent differences, for those who have less access income source are significative. Individuals that obtain income from farming or saving earnings report almost 0,5 points more satisfaction than those who do from wages or salaries and unemployment and redundancy benefits. Also, there exist disparities among countries, being the two most satisfied and the two most unsatisfied countries more influenced by internet use than the average.

At last, point, gender does not moderate at all the relationship between the satisfaction and the use of the internet.

12. Model definition

“Instead of censoring people, let's try to flunk it. Let's try to figure out why they do what they do. That is much more profitable and more interesting than criticism, and from it arises sympathy, tolerance, and kindness.”

Dale Carnegie, 1997

12.1 Introduction

In this chapter, it has been defined and analyzed our model of study that pretends to examine the correlation between internet use and WB. WB has an essential subjective component, and values can provide predictive and explanatory power in the analysis of attitudes, opinions, and actions of individuals. Thus, attending prof. Schwartz values and questions established on ESS survey and relating those questions to the six dimensions Ryff Model propose (Environmental Mastery, Autonomy, Positive Relationship, Personal Growth, Purpose in life, and Self-Acceptance), different profiles have been defined.

Individually, there have been analyzed and classified 23 selected variables from ESS. Some of them that are measured with the same scale and are comparable have been examined using exploratory factor analysis (AFE). Results from AFE provide four different profiles and groups of individuals. We have named “Curious,” “Ambitious,” “Altruistic,” and “Polite” profile. The name of the group responds to the variables and characteristics prevalence on each collective, attending the prevalence values of each one. Thus, each profile will have similar principles and attitudes that will impact on their WB perception, and also on their internet use.

Consequently, it has been analyzed and described different characteristics of each profile with the sociodemographic variables examined in the previous chapter that influences internet use and WB (age and education level). No gender issues have been analyzed because no significative differences have been detected on precedent descriptive analysis.

The other variables that cannot be used in the AFE have been analyzed involving their relationship to life satisfaction on different profiles.

Finally, the relationship between each profile and internet use and life satisfaction have been analyzed.

12.2 Selected Variables

We consider that the Ryff model could offer a comprehensive basis and enforce our model. Thus, different variables selected from the ESS questionnaire have been linked to each Ryff dimension. Some of them³⁶ refer to the values and attitudes of individuals and conditionate

³⁶ Introduced by prof. Schwartz on ESS questionnaire, and explained in chapter 4.

behavior and attitude of people. Moreover, altogether, give consistency and complementary to our model.

As Table 34 presents, there are 23 selected variables of ESS, and at least 3 or 4 have been related to each Ryff dimension.

Table 34. Relationship Ryff dimension with selected variables

| Ryff dimension | Nº | Variable |
|------------------------|----|---|
| Autonomy | 1 | Importance to be rich, have money and expensive things |
| | 2 | Importance to do what is told and follow rules |
| | 3 | Importance to make own decisions and be free |
| | 4 | Hampered in daily activities by illness/disability/infirmity/mental problem |
| Environmental mastery | 5 | Importance to seek adventures and have an exciting life |
| | 6 | Important to think new ideas and being creative |
| | 7 | Feeling of safety of walking alone in local area after dark |
| Personal growth | 8 | Highest level of education |
| | 9 | Importance to try new and different things in life |
| | 10 | Improve knowledge/skills: course/lecture/conference, last 12 months |
| Positive relationships | 11 | Importance to follow traditions and customs |
| | 12 | Importance to behave properly |
| | 13 | Importance to be humble and modest, not draw attention |
| | 14 | Frequency of meeting with friends |
| Purpose in life | 15 | Importance to seek fun and things that give pleasure |
| | 16 | Importance to have a good time |
| | 17 | Importance that people are treated equally and have equal opportunities |
| | 18 | Importance to understand different people |
| | 19 | Importance to help people and care for others well-being |
| Self-acceptance | 20 | Importance to show abilities and be admired |
| | 21 | Feeling about household's income nowadays |
| | 22 | Subjective general health |
| | 23 | Importance to be successful and that people recognize achievements |

Source: Own elaboration

Unfortunately, not all variables were measured on the same scale. Thus, to avoid disparities in measurement influence results and conclusions, we decided to analyze the comparable ones

separately (because they were asked with the same language and evaluation scale) to the others.

Table 35 describes the type of evaluation process each variable has followed. The comparable ones (16) will be evaluated with an Exploratory Factor Analysis (AFE), while the others (7) that are measured with another type of scale will be examined separately with later analysis.

Table 35. The evaluation process for each selected variable

| Ryff dimension | | Variable | Evaluation process |
|------------------------|----|---|--------------------|
| Autonomy | 1 | Importance to be rich, have money and expensive things | AFE |
| | 2 | Importance to do what is told and follow rules | AFE |
| | 3 | Importance to make own decisions and be free | AFE |
| | 4 | Hampered in daily activities by illness/disability/infirmity/mental problem | Posterior analysis |
| Environmental mastery | 5 | Importance to seek adventures and have an exciting life | AFE |
| | 6 | Important to think new ideas and being creative | AFE |
| | 7 | Feeling of safety of walking alone in local area after dark | Posterior analysis |
| Personal growth | 8 | Highest level of education | Posterior analysis |
| | 9 | Importance to try new and different things in life | AFE |
| | 10 | Improve knowledge/skills: course/lecture/conference, last 12 months | Posterior analysis |
| Positive relationships | 11 | Importance to follow traditions and customs | AFE |
| | 12 | Importance to behave properly | AFE |
| | 13 | Importance to be humble and modest, not draw attention | AFE |
| | 14 | Frequency of meeting with friends | Posterior analysis |
| Purpose in life | 15 | Importance to seek fun and things that give pleasure | AFE |
| | 16 | Importance to have a good time | AFE |
| | 17 | Importance that people are treated equally and have equal opportunities | AFE |
| | 18 | Importance to understand different people | AFE |
| | 19 | Importance to help people and care for others well-being | AFE |
| Self-acceptance | 20 | Importance to show abilities and be admired | AFE |
| | 21 | Feeling about household's income nowadays | Posterior analysis |
| | 22 | Subjective general health | Posterior analysis |
| | 23 | Importance to be successful and that people recognize achievements | AFE |

Source: Own elaboration

Thus, taking into consideration the 16 variables marked with an Exploratory Factor Analysis, an AFE has been defined. AFE consistency relies on the method of the main components with VariMax rotation and criterion of auto values higher than 0,9. By this way, on AFE presented:

- The entire correlation matrix through Bartlett's sphericity contrast provides the statistical probability required for the correlation matrix of the variables to be an identity matrix. It is obtained from the transformation of the Chi-square of the determinant of the correlation matrix. As higher is this statistic, being the level of significance lower than 0.05, it is rejected the null hypothesis that the matrix is an identity matrix.
- The statistician of Kaiser-Meyer-Olkin (KMO). This index varies between 0 and 1, reaching 1 when each variable is correctly predicted without error by the other variables. If KMO value is 0.8 or higher, the sample suitability measure is outstanding; if it is 0.7 or higher, the measurement is regular, if it is 0.60 or higher, the measurement is mediocre; 0.50 or above negligible and below 0.50 unacceptable for exploratory analysis. This measure of adequacy or sample sufficiency increases as the sample size increases, the average correlations increase, the number of variables increases, or the number of factors decreases.

Therefore, as Table 36 presents, 14 of the 16 variables could have been included in the AFE, while two variables (*3. Importance to make own decisions and be free, and 6. Important to think new ideas and being creative*) have been rejected because they do not correlate with any other item, and their level of significance is lower than 0,5.

Furthermore, as the KMO test is higher than 0,7 and Chi^2 is significative, AFE defined with 14 variables is adequate. Additionally, the four resulting factors explain more than 50% of the variance, so the presented model seems to be respectable.

With those variables and identified four components, have been created the following four different individual profiles.

Table 36. Component Matrix rotated profile

| | Component | | | |
|---|---|------|------|------|
| | 1 | 2 | 3 | 4 |
| 15. Importance to seek fun and things that give pleasure | ,800 | | | |
| 16. Importance to have a good time | ,724 | | | |
| 5. Importance to seek adventures and have an exciting life | ,684 | | | |
| 9. Importance to try new and different things in life | ,646 | | | |
| 23. Importance to be successful and that people recognize achievements | | ,793 | | |
| 20. Importance to show abilities and be admired | | ,762 | | |
| 1. Importance to be rich, have money and expensive things | | ,683 | | |
| 17. Importance that people are treated equally and have equal opportunities | | | ,761 | |
| 18. Importance to understand different people | | | ,736 | |
| 19. Importance to help people and care for others well-being | | | ,676 | |
| 12. Importance to behave properly | | | | ,727 |
| 2. Importance to do what is told and follow rules | | | | ,695 |
| 13. Importance to follow traditions and customs | | | | ,692 |
| 13. Importance to be humble and modest, not draw attention | | | | ,506 |
| 3. Importance to make own decisions and be free | - | - | - | - |
| 6. Important to think new ideas and being creative | - | - | - | - |
| Barlett test: | KMO test = 0.793% | | | |
| Chi ² =92260 sig. 0,000 | Variance explained by the factors of each AFE (with self-values >0.9) = 56,89% | | | |

Source: Own elaboration

Table 37 resumes profiles and variables related to each one, attending the six dimensions of the Ryff Model, and indicating the aspect each profile majority fills. Most of the profiles have

a mix of dimensions; for instance: the Curious one enhances the importance of seeking fun, pleasure, and a good time, which refers to Purpose in Life dimension of Ryff. However, it also highlights to seek adventures (Environmental Mastery) or to try new things in life (Personal Growth). Ambitious one enhances the self (Self-acceptance) and money (Autonomy). While Altruistic one emphasizes the others (Purpose in Life) and Polite, one improves the correctness (Positive relationship).

Table 37. Relationship individual profiles with Ryff dimensions

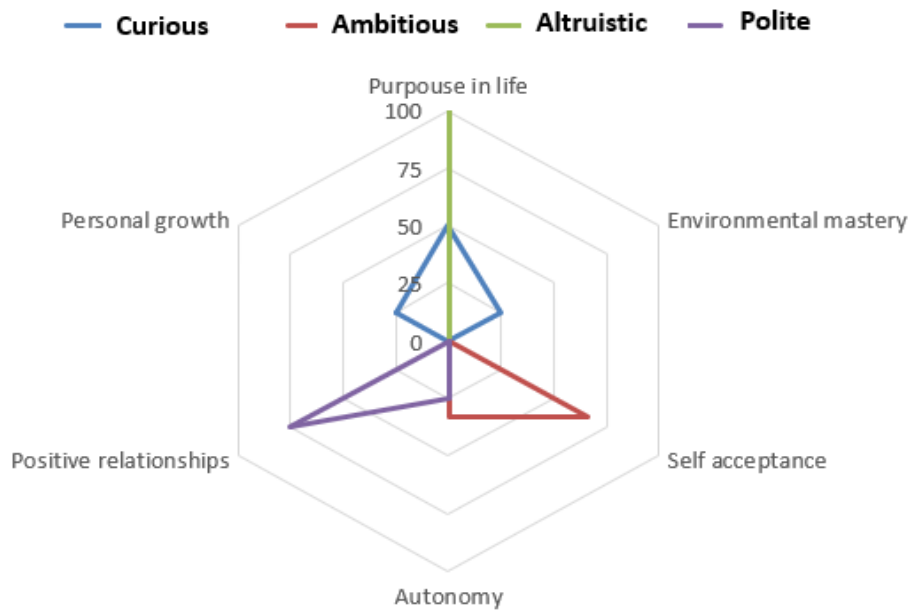
| Profile | Variable | Ryff dimension |
|------------|--|------------------------|
| Curious | Importance to seek fun and things that give pleasure | Purpose in life |
| | Importance to have a good time | Purpose in life |
| | Importance to seek adventures and have an exciting life | Environmental mastery |
| | Importance to try new and different things in life | Personal growth |
| Ambitious | Importance to show abilities and be admired | Self-acceptance |
| | Importance to be successful and that people recognize achievements | Self-acceptance |
| | Importance to be rich, have money and expensive things | Autonomy |
| Altruistic | Importance people are treated equally and have equal opportunities | Purpose in life |
| | Importance to understand different people | Purpose in life |
| | Importance to help people and care for others well-being | Purpose in life |
| Polite | Importance to follow traditions and customs | Positive relationships |
| | Importance to behave properly | Positive relationships |
| | Importance to be humble and modest, not draw attention | Positive relationships |
| | Importance to do what is told and follow rules | Autonomy |

Source: Own elaboration

As Figure 60 displays, except the Altruistic profile that focuses 100% specifically on Purpose in life, the other ones have a mix of different dimensions. Polite profile enhances positive

relationships mixed with autonomy dimension, while Ambitious profile remarks self-acceptance and autonomy dimension.

Figure 60. Relationship individual profiles with Ryff dimensions



Source: Own elaboration

Next, the other variables presented in Table 38, classified with posterior analysis, have been considered to complete the analysis. Those variables, included in Table 35, also have been related to different Ryff dimensions. They have been analyzed by themselves relating to each of the four profiles created before, to complete the information and characteristics related to each one.

Table 38. Additional variables to profile

| Variable | Ryff dimension address |
|--|------------------------|
| 4. Hampered in daily activities by illness/disability/infirmity/mental problem | Autonomy |
| 7. Feeling of safety of walking alone in local area after dark | Environmental Mastery |
| 8. Highest level of education | Environmental Mastery |
| 14. Frequency of meeting with friends | Positive relationship |
| 10. Improve knowledge/skills: course/lecture/conference, last 12 months | Personal Growth |
| 21. Feeling about household's income nowadays | Self-acceptance |
| 22. Subjective general health | Self-acceptance |

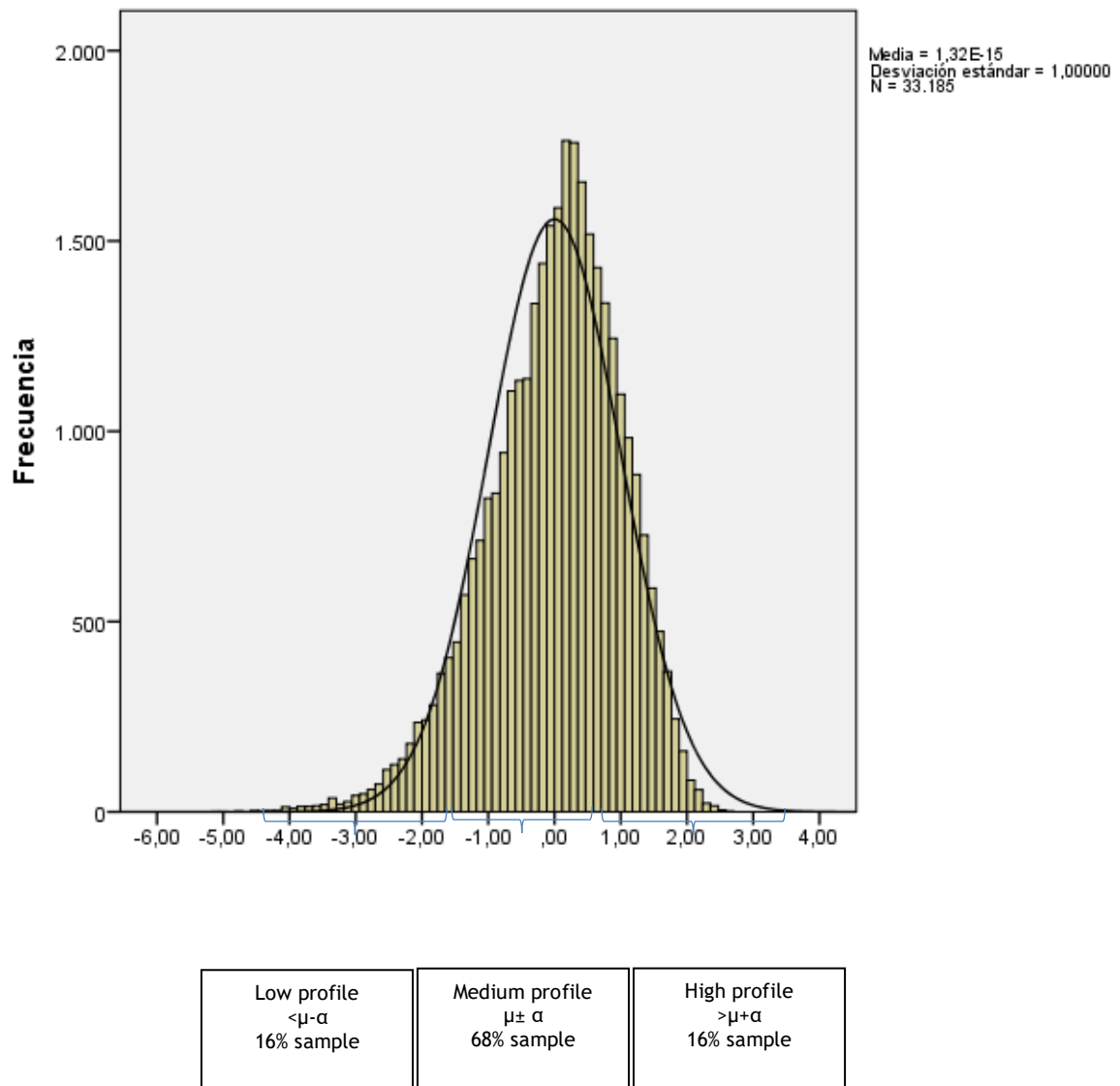
Source: Own elaboration

12.3 Individuals Profile Definition

First of all, it will be explained how different profiles have been created.

The factors of a factorial analysis have defined each different profile. By factor definition, this is a normal variable with mean 0 and standard deviation 1. Therefore, to define the profiles has been taken a standard deviation as a measure of differentiation. Low-profile individuals are those persons below -1, middle-profile ones are those that are between -1 and 1, and high-profile ones are those that are above 1. By normal variable definition, the percentage of the sample that remains between minus a standard deviation and more a typical deviation is 68%. So below minus a standard deviation will be 16% of the sample and above more a standard deviation, there will be another 16%, as Figure 61 displays.

Figure 61. Definition profiles of sample



Source: Own elaboration

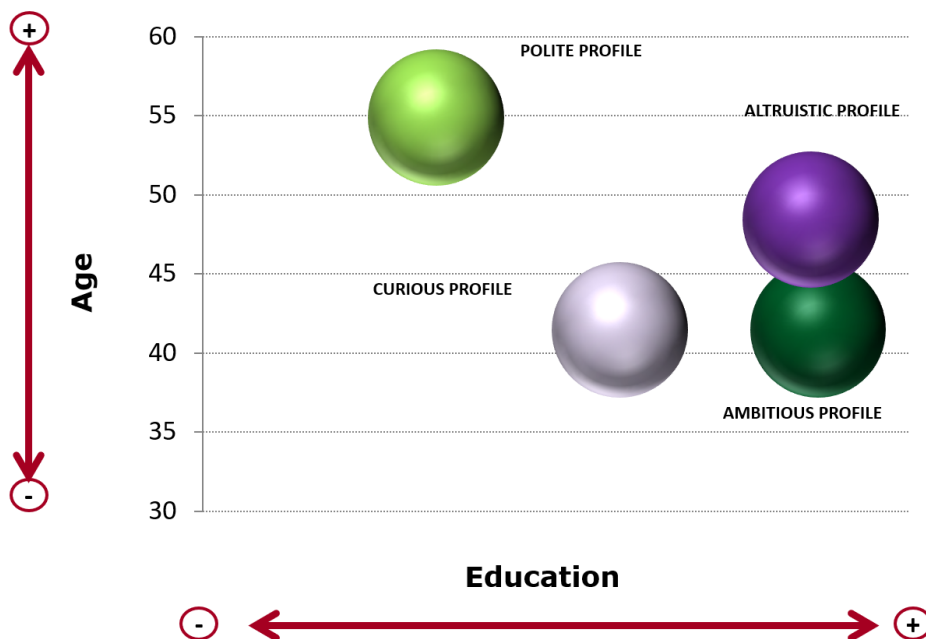
As high-profile defines a person that has a dominant prevalence of this profile, there will be 16% of people with each one of the profiles. Consequently, the ball chart that represents each profile will have the same size for all of them.

Deepen in each profile created; there have been found significant differences among individual profiles; thus, before to analyze the influence of Internet use on Life Satisfaction, general considerations as education, age, and other formal aspects about each profile should

be made.

Regarding **education**, understood as the highest formal education level reported by individuals on the survey, Figure 62 displays the main differences among profiles. Curious and Ambitious profiles are the youngest groups of individuals, both have with similar age, although an Ambitious group is higher educated than the curious one. The Altruistic group is similarity educated as to the Ambitious one, even if a bit older, while the Polite group refers to the oldest and lowest educated people.

Figure 62. Age and education at different profiles



Source: Own elaboration

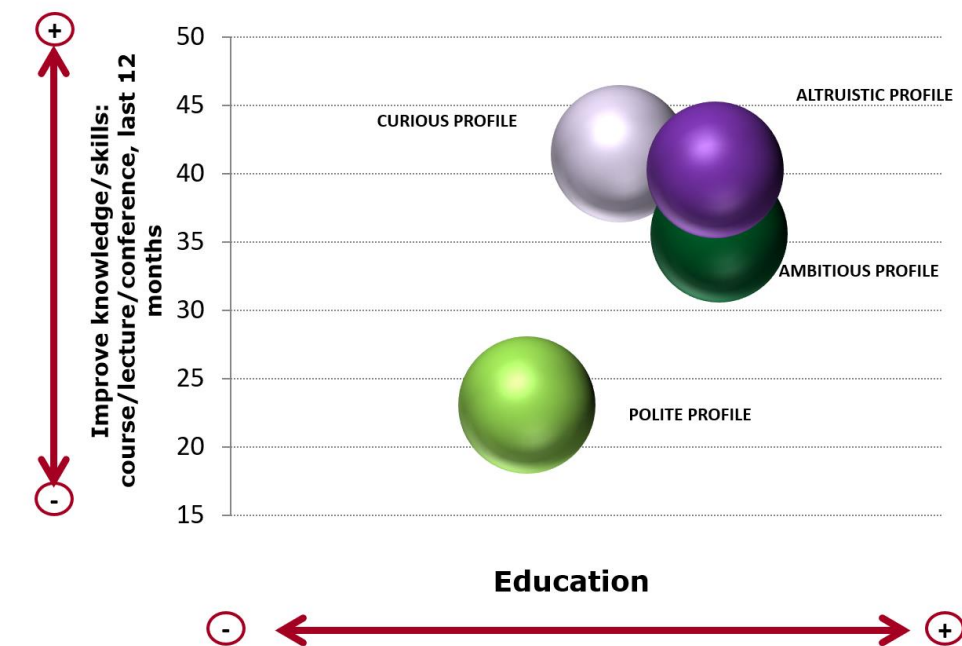
Nevertheless, as formal education refers only a part of individuals education, it also has been

considered interesting using the information of assistance to a course, conference, lecture to improve skills in the last 12 months it is available. Thus, the relationship between that actualization, that could be assimilated to a part of **non-formal education**, for each profile and formal education level has been analyzed.

As Figure 63 displays, Polite individuals are the ones that less worried are about improving their knowledge, although their education level is the lowest, they do not do anything to develop their skills. It could make sense when considering are the oldest group, at latterly working age or retired. Curious individuals and Altruistic ones are the most active collective; they attend courses, lectures, and conferences with regular frequency to improve their skills.

The Curious group, as young, middle educated, and restless individuals, is proactive in developing their skills in specific areas. While Altruistic one, a bit older and better educated, does it for ongoing improving knowledge. By contrast, the Ambitious group- although looks forward to recognizing- does not take excessive care of improving their skills.

Figure 63. Non-formal education and formal education at different profiles



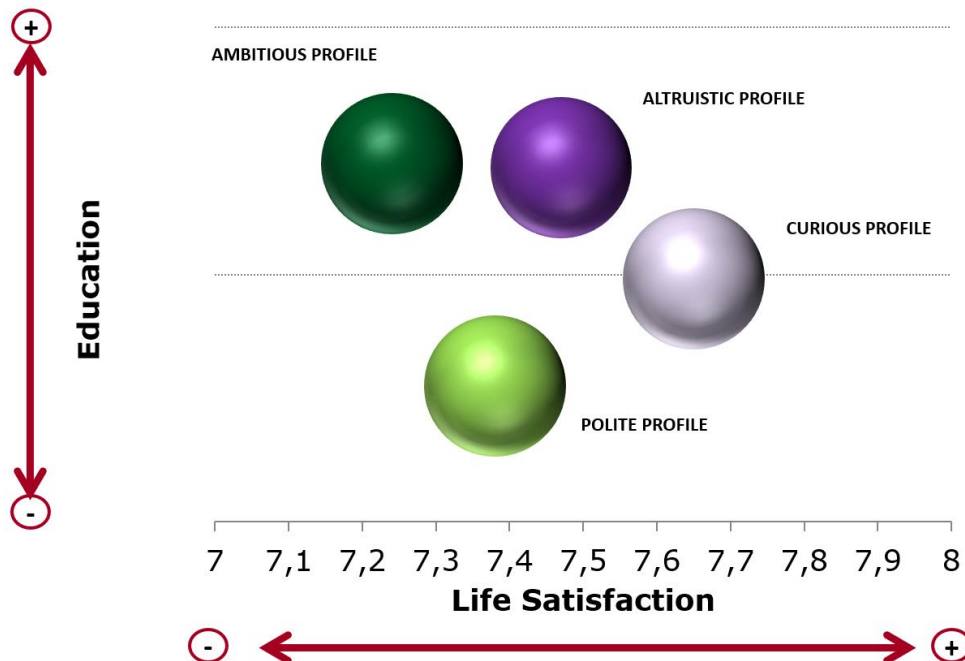
Source: Own elaboration

Regarding **life satisfaction**, several complimentary analysis to each profile groups, that include aspects explained in chapters before (formal education, age, the frequency of meeting with friends, feelings of safety, income, and subjective health) and also internet use have been differentiated.

Figure 64 shows the relationship between the level of education of individuals (that we can assimilate to formal education) and life satisfaction. As Figure 63 remarks, although Ambitious and Altruistic individuals have a similar level of education, the life satisfaction of the Ambitious one is lower than the Altruistic group. The reason for this difference could be that Altruistic individuals are older and focused on a search a purpose in life, enhancing others (understand, help, take care, treat equally different people) while Ambitious individuals are centered on themselves. The Curious group is the most satisfied collective; it represents young

middle educated individuals. Also, the Polite group is the middle-low satisfied collective that represents the oldest and lowest educated individuals.

Figure 64. Formal education and Life Satisfaction at different profiles

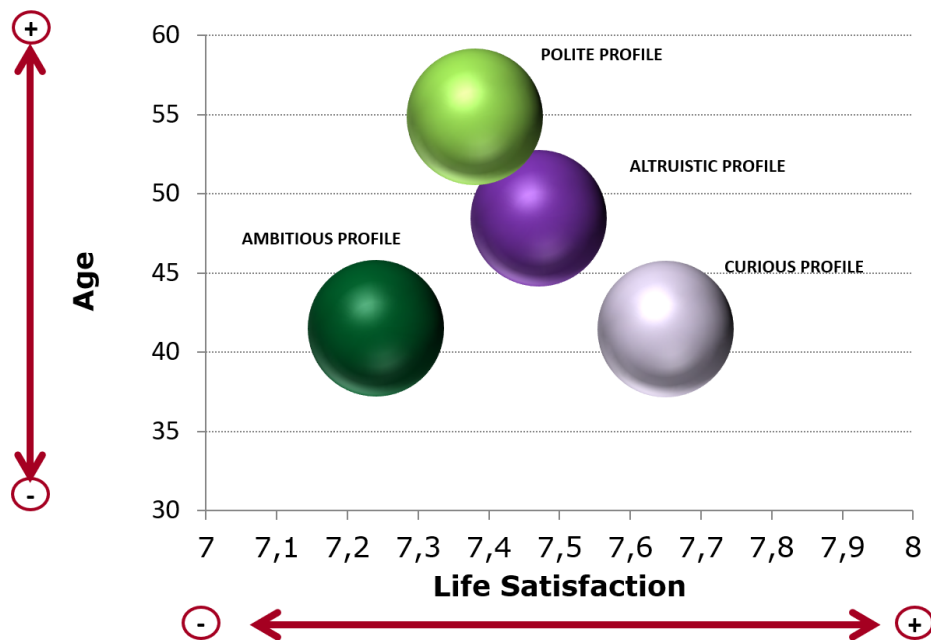


Source: Own elaboration

Thus, although education influences WB (OECD 2016, 2018, Boarini et al. 2012; OECD 2013a), it has been demonstrated individuals' profiles, values or attitudes, also play an essential role in this influence.

Attending to **age**, Figure 65 displays the relationship between age and life satisfaction for each collective. It should be commented at the same age group, differences among Ambitious and Curious group. The Ambitious collective is nearly 0,5 points less satisfied than the Curious one, and both represent the extremes of perceptions.

Figure 65. Age and Life Satisfaction at different profiles

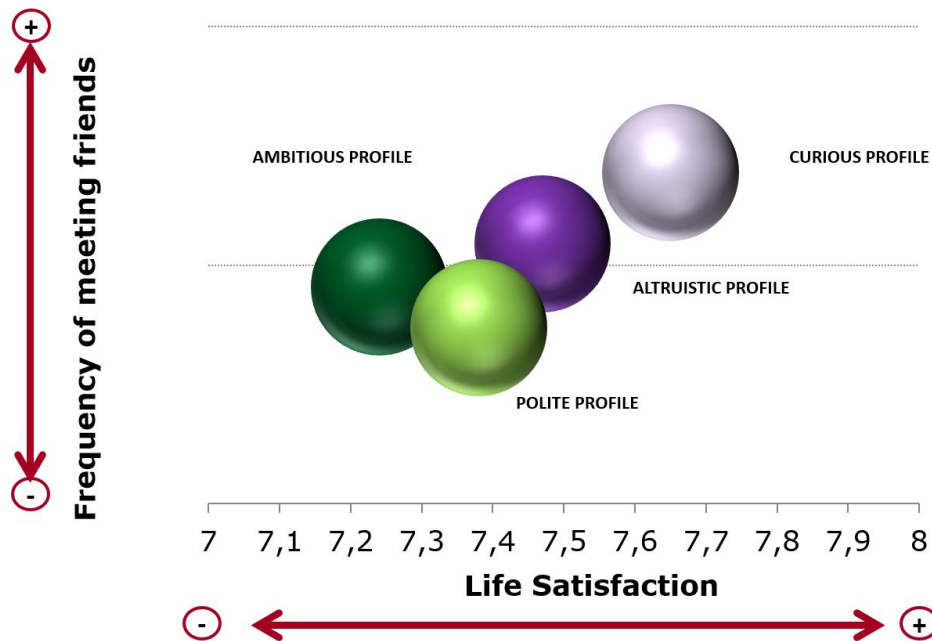


Source: Own elaboration

Another factor that has been examined is **the frequency of meeting with friends**. It is commonly agreed that social relationships influence and are positively related to WB (Coleman 1988; Putnam 1995, 2000).

Figure 66 reaches the same conclusion. No matter the profile, as more frequency of meeting with friends, more life satisfaction reports different collectives. At this level, remark the Ambitious group that is more focused on the self, reports the lowest satisfaction, while the Curious group that is a more opened group report the highest satisfaction.

Figure 66. The frequency of meeting friends and life satisfaction at different profiles

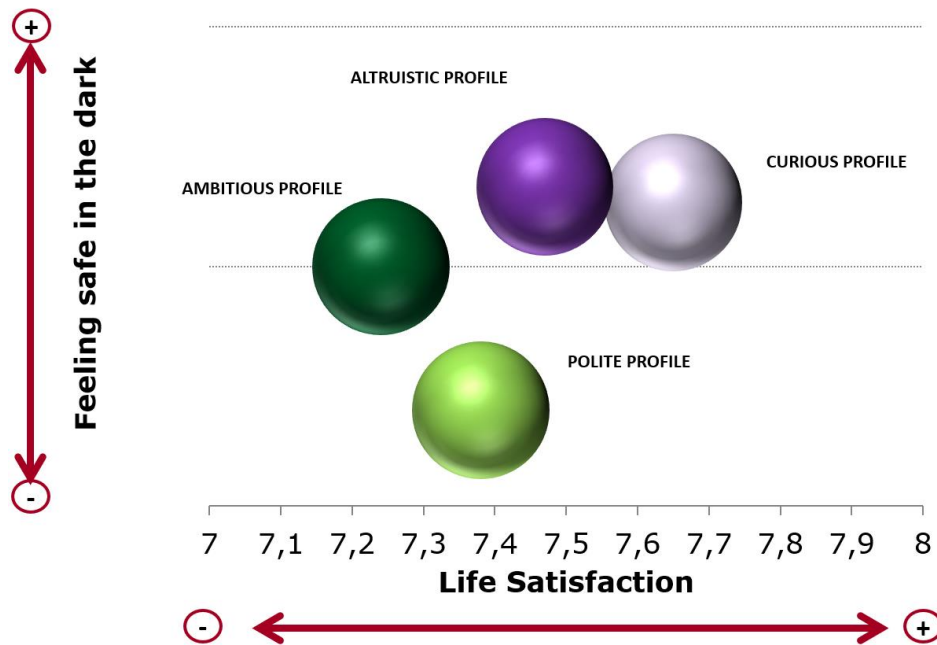


Source: Own elaboration

Personal safety, as a core element in individuals' WB (OECD 2011, 2017), has also been considered. Feelings of insecurity have a variety of adverse effects on society and tend to limit people's daily activities (OECD 2017) and autonomy. Thus, it has been analyzed how different safe profiles feel in the dark, in their natural environment.

Figure 67 displays how rates of security feelings influence WB and how they differ among profiles. Although the Polite group feels be the unsafest, it seems not to influence in extending their life satisfaction perception. The same occurs with the Ambitious group, that although they seem to be conformable (in the middle) at safety level, they report the lowest satisfaction rates.

Figure 67. Feeling safe in the dark and Life Satisfaction at different profiles



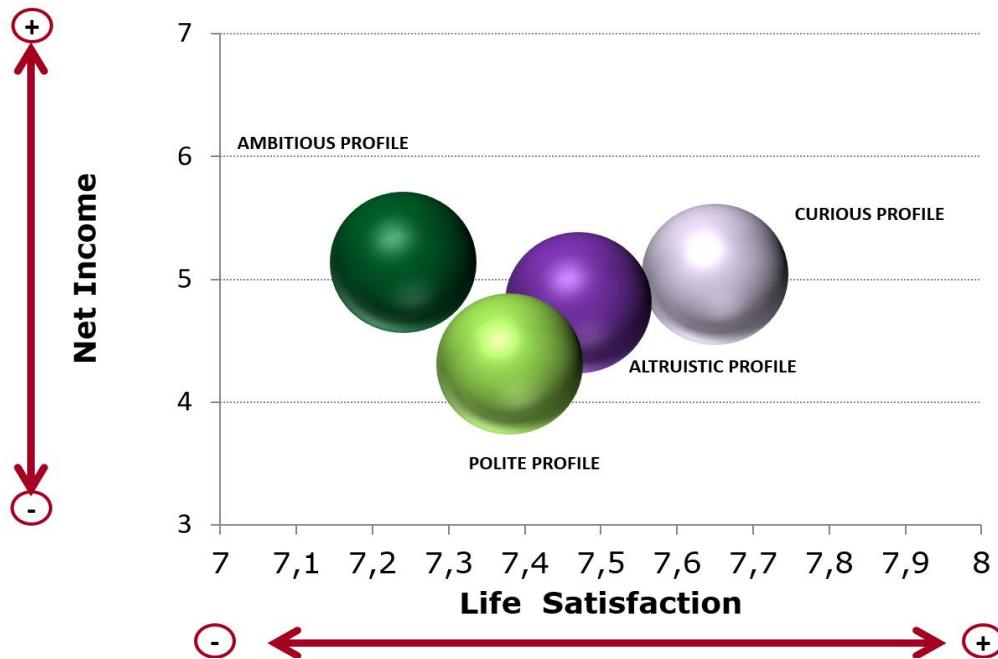
Source: Own elaboration

Regarding **Income issues**, it is a fact they influence WB perception (Deaton 2008; Diener & Diener 1995; Diener et al. 1993, 2013; Hudson et al. 2016; Easterlin et al. 2010; 2012).

Deepen on income data, it has been considered interesting to distinguish among Net income that responds to an objectivated numeric value, and comfort feeling related to household income. Thus, two different analysis has been elaborated.

Figure 68 displays how Net income influences WB perception at different profiles. The Ambitious collective - although it presents the highest net income group- has the lowest satisfaction. By contrast, Curious collective -with slightly lower income- offers the highest satisfaction rate. That is because, for Ambitious individuals, money and materialistic issues play an essential role in their life, so they rarely will have enough. Furthermore, the Altruistic group, at a similar income level than the Curious group, present lower life satisfaction.

Figure 68. Net income and Life Satisfaction at different profiles



Source: Own elaboration

Complementary, it has been evaluated how comfortable or uncomfortable individuals feel about households' income nowadays. Figure 69 relates that perception with their life satisfaction. That is interesting because it confirms that even though the Altruistic and the Curious collective have a similar medium net income, the fact of being comfortable with its influence on their life satisfaction. By contrast, the Ambitious group, despite having the highest net income, as they need to have and dispose of expensive things, they feel uncomfortable with it, so have the lowest life satisfaction.

Consequently, for evaluating WB, it is not only important taking into consideration the absolute value of income, but also subjective perception and comfortable with that value should be taken into consideration. Moreover, those values depend mainly on individuals' profiles.

Figure 69. Feeling about household's income and Life Satisfaction at different profiles

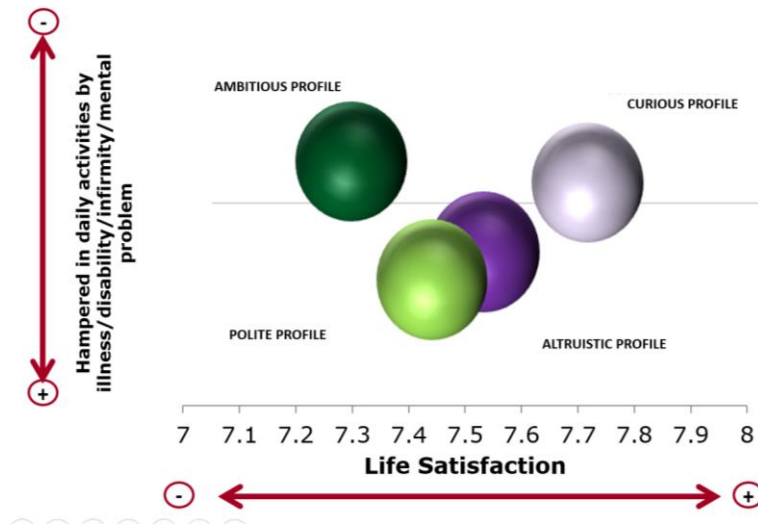


Source: Own elaboration

At last, individuals' perception of their **general health** has been examined. It has been evaluated as a subjective evaluation provided by individuals' perception, but also introducing an objectivated aspect that refers to how hampered in daily activities by illness/disability/infirmity or mental problem they have.

As Figure 70 displays, the Ambitious and the Curious collectives are rarely hampered (both are young individuals), and they offer different evaluations. It seems the Ambitious group does not take into consideration this healthy aspect of their evaluation, because they present lower satisfaction rates. The Polite group represents the oldest group, and by the end, the most disabled one, although it neither seems to influence to an extent their satisfaction.

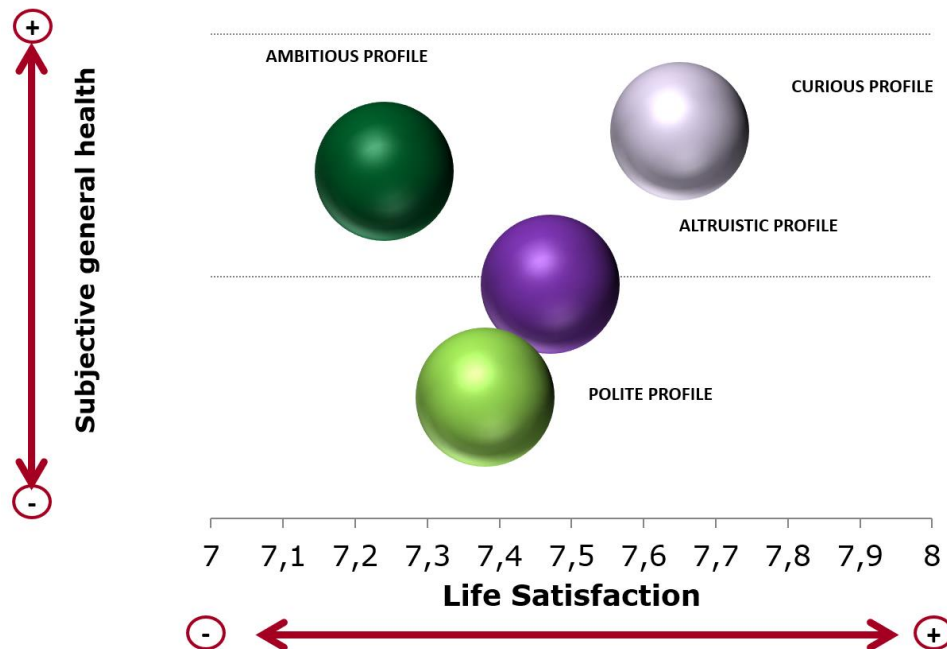
Figure 70. Feeling hampered in daily activities and life satisfaction at different profiles



Source: Own elaboration

The same occurs in Figure 71, and similar conclusions could be extracted. Better subjective general health groups (Ambitious and Curious) represent both extremes of satisfaction evaluations, depending on how each one takes into consideration their health and autonomy it provides.

Figure 71. Subjective general health and life satisfaction at different profiles



Source: Own elaboration

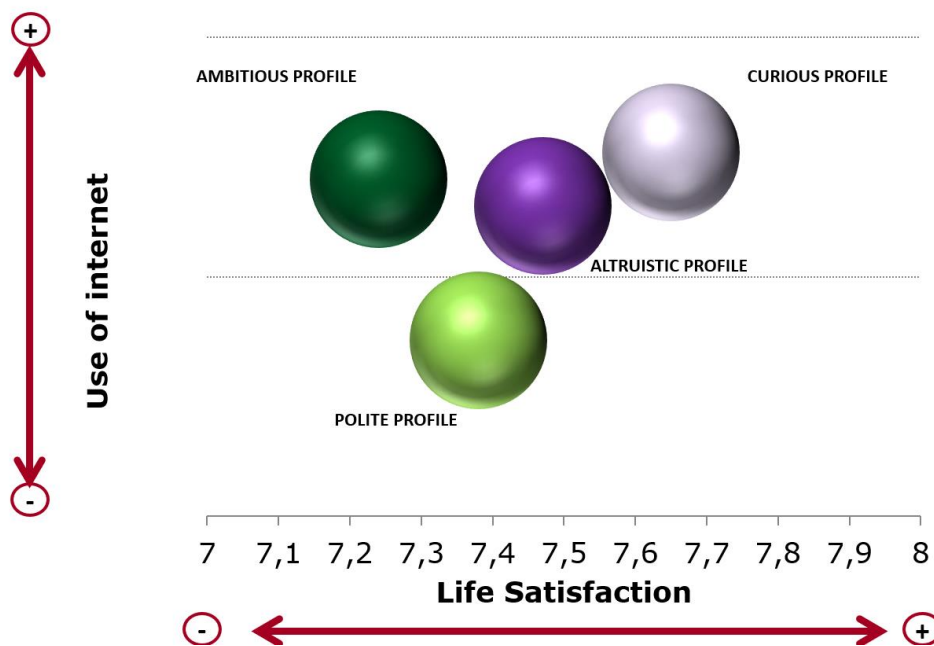
12.4 The relationship between individuals' profile, life satisfaction, and internet use

Once characterized different identified profiles, in this section, we will check if, by one hand, different profiles are related to life satisfaction by themselves. Also, by the other, if the individual characteristics of each profile moderate relationship between life satisfaction and internet use.

As Figure 72 displays, the Ambitious and Curious collectives are the ones that most internet

use do, and it also fits with age criterion explained in the chapter before. It also fits that the Polite profile, attending age criterion, has the lowest use.

Figure 72. Internet Use and Life Satisfaction at different profiles



Source: Own elaboration

Those conclusions could be obvious once there is a better understanding of life satisfaction, internet use, and also of characteristics of different profiles. However, it is not enough to validate or model. We would contrast better how other aspects influence this relationship and perception.

In this way, two linear regressions will be applied. The first one will analyze internet use and individual profile relationship, and the second one will add the interaction between the individual profile and internet use. If this last regression is significative, we could conclude

individual profile moderate relationship between internet use and life satisfaction.

Furthermore, differences between internet use and influence on their life satisfaction for each profile will be presented for discussion.

12.4.1 Curious Profile

Attending the characteristics and description provided in the precedent epigraph, we should remember individuals include in this profile are the most satisfied collective. The Curious group -as young, middle educated, and restless individuals- is proactive to improve their skills in specific areas, it is more opened collective and report the highest rate of meeting with friends. Furthermore, insecurity feelings influence at a lower level, and they have good general health.

To deepen in this profile, different grades or levels of curiosity- low, medium, and high- have been created. Table 39 resumes and analyzes the individual life satisfaction of each section. Remark majority of the population fits in a medium level of curiosity (nearly four times more than low or high section) because of the distribution criterion explained before; moreover, the level of interest is positively related to life satisfaction.

Table 39. Curious Profile and Life Satisfaction

| LIFE SATISFACTION | CURIOUS LEVEL | | |
|-------------------|---------------|--------|------|
| | Low | Medium | High |
| Obs. | 5491 | 22215 | 5417 |
| Mean | 6,88 | 7,36 | 7,65 |
| Std Dev. | 2,25 | 1,93 | 1,98 |
| Median | 7,00 | 8,00 | 8,00 |

Source: Own elaboration

ANOVA test of a factor (p-value 0.000) indicates there exists a relationship between life satisfaction and Curious profile, by the way, at more curious, more satisfaction.

Regarding internet Use, Chi² test, and equality pair columns,³⁷ it could be remarked as more curious grade major internet use. Table 40 resumes, while 29,8% of individuals with low curiosity profile never use the internet, only 8,1% of high curiosity profile does not do it. In the same way, the rates of high restless profiles that use the Internet daily is 28,8% over low restless profiles.

Table 40. Curious Profile and internet use

| INTERNET USE | CURIOUS LEVEL | | | | | |
|---------------------|---------------|--------|--------|--------|------|--------|
| | LOW | | MEDIUM | | HIGH | |
| | Obs | % | Obs | % | Obs | % |
| Obs. | 5502 | 100,0% | 22244 | 100,0% | 5417 | 100,0% |
| Never | 1638 | 29,8% | 3040 | 13,7% | 441 | 8,1% |
| Only occasionally | 398 | 7,2% | 1235 | 5,6% | 207 | 3,8% |
| A few times a week | 394 | 7,2% | 1495 | 6,7% | 239 | 4,4% |
| Most days | 450 | 8,2% | 2186 | 9,8% | 408 | 7,5% |
| Every day | 2622 | 47,7% | 14288 | 64,2% | 4122 | 76,1% |

Source: Own elaboration

³⁷ A Z-test performs equality pairs column in tables that have at least one category variable in rows and columns. The P values of the checks are adjusted using the Bonferroni method.

Table 41 defines the model and interaction between internet use and the Curious profile. The first interaction relates the Curious profile positively to life satisfaction, thus, as more curious, more satisfied are individuals. Moreover, second interaction reflects the level of this influence, concluding interaction is significative, hence the Curious Profile moderate relationship between internet use and life satisfaction.

Table 41. Relationship Curious Profile and Internet Use

| Model | In- Std. Coef | | Std | t | Sig. | 95,0% Confidence Interval for B | | Collinearity Statistics | | |
|-------|---------------|------------|-------|-------|---------|---------------------------------|-------------|-------------------------|------|-------|
| | B | Std. Error | Beta | | | Lower Bound | Upper Bound | Tolerance | VIF | |
| | 1 | (Constant) | 6,614 | | | ,031 | | 211,549 | ,000 | 6,553 |
| | INTERNET USE | ,178 | ,007 | ,135 | 24,323 | ,000 | ,164 | ,193 | ,950 | 1,053 |
| | CURIOUS | ,198 | ,011 | ,098 | 17,727 | ,000 | ,176 | ,219 | ,950 | 1,053 |
| 2 | (Constant) | 6,645 | ,033 | | 203,941 | ,000 | 6,581 | 6,709 | | |
| | INTERNET USE | ,173 | ,008 | ,130 | 22,913 | ,000 | ,158 | ,187 | ,901 | 1,110 |
| | CURIOUS | ,290 | ,029 | ,144 | 9,936 | ,000 | ,233 | ,347 | ,138 | 7,231 |
| | INTERACTION | -,024 | ,007 | -,049 | -3,430 | ,001 | -,037 | -,010 | ,144 | 6,968 |

a. Dependent Variable: LIFE SATISFACTION

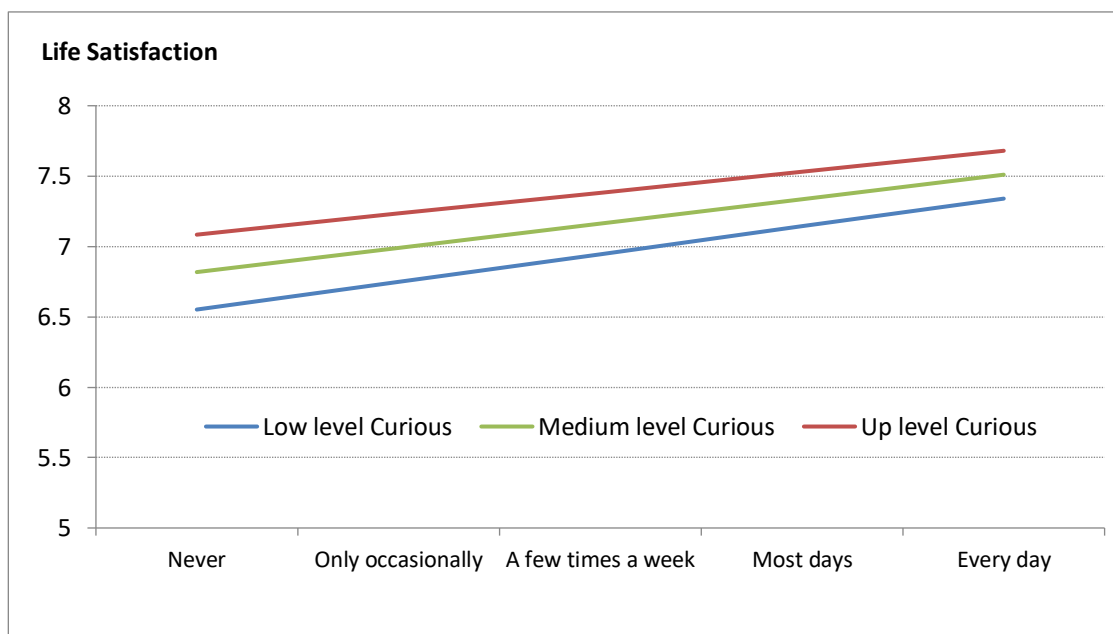
Source: Own elaboration

Figure 73 displays the relationship between Curious profile and internet use. It is observed how, for the more curious, the relationship between the use of the internet and the satisfaction

is weaker than for the fewer ones. Inclinations of slopes at different levels of the profile (low, medium, up) differ slightly because the coefficient of interaction is very low; thus, it could be concluded there exists moderation, although slight.

It could make sense if we consider curious individuals are more used to use the internet. The incidence of daily use of the internet is higher for more curious. Thus, they could have more integrated that use, maybe for searching and researching issues, so it influences lower their satisfaction. The opposite happens with quieter profiles, for those who use the internet with lower frequency; therefore, for those who do, this use influences their satisfaction.

Figure 73. Relationship internet use and life satisfaction moderated by Curious profile



Source: Own elaboration

12.4.2 Ambitious Profile

Ambitious individuals are a young group, and they are focused on the self. They need show abilities, be admired, and people recognize achievements, give importance to have money and expensive things, thus, although they have the highest net income, they do not feel comfortable with it. They report general good health, are medium educated, although they do not take care of improving their skills. They present a low-middle rate of meeting with friends, and safety influences their satisfaction more than other groups.

To deepen in this profile, different grades or levels of ambition- low, medium, and high- have been created. Table 43 resumes and analyzes the individual life satisfaction of each section. Remark majority of the population fits in a medium level of ambition (nearly four times more than low or high section) because of the distribution criterion explained before; moreover, the level of ambition is negatively related to life satisfaction.

Table 42. Ambitious profile and life satisfaction

| LIFE SATISFACTION | AMBITIOUS LEVEL | | |
|-------------------|-----------------|--------|------|
| | Low | Medium | High |
| Obs | 5768 | 21921 | 5434 |
| Mean | 7,47 | 7,31 | 7,24 |
| Std Dev | 2,12 | 1,97 | 2,05 |
| Median | 8,00 | 8,00 | 8,00 |

Source: Own elaboration

ANOVA test of a factor (p-value 0.000) and post-hoc tests indicate there exists a negative relationship between life satisfaction and Ambitious profile, by the way, the more ambitious individuals are, the lower satisfaction they have.

Regarding internet use, Chi² test and equality pair columns comment as more ambitious grade more internet use is. Table 44 resumes, while 21,5% of individuals with low ambitious profile never use the internet, only 10,2% of high ambition profile does not do it. In the same way, the rate of high determination profiles that use the internet daily is 12,8% over lower profiles.

Table 43. Ambitious profile and internet use

| INTERNET USE | AMBITIOUS LEVEL | | | | | |
|--------------------|-----------------|--------|--------|--------|------|--------|
| | LOW | | MEDIUM | | HIGH | |
| | Obs | % | Obs | % | Obs | % |
| Obs. | 5773 | 100,0% | 21947 | 100,0% | 5443 | 100,0% |
| Never | 1244 | 21,5% | 3320 | 15,1% | 555 | 10,2% |
| Only occasionally | 352 | 6,1% | 1255 | 5,7% | 233 | 4,3% |
| A few times a week | 335 | 5,8% | 1474 | 6,7% | 319 | 5,9% |
| Most days | 484 | 8,4% | 2089 | 9,5% | 471 | 8,7% |
| Every day | 3358 | 58,2% | 13809 | 62,9% | 3865 | 71,0% |

Source: Own elaboration

Table 44 defines the model and interaction between internet use and the Ambitious profile. The first interaction relates the Ambitious profile negatively with life satisfaction; thus, as more ambitious, less satisfied are individuals. Second interaction results it is not significant (P-Value 0,063) although this value is as close to acceptance umbral (0,05), as it could be affirmed the Ambitious profile tend to moderate the relationship. Consequently, among more ambitious individuals, the relationship between internet use and life satisfaction tends to be stronger than among lower ambitious ones.

Table 44. Relationship Ambitious profile and internet use

| Model | Non- Std Coef | | Std. Coef. | t | Sig. | 95,0% Confidence Interval for B | | Collinearity Statistics | |
|--------------|---------------|------------|------------|---------|------|---------------------------------|-------------|-------------------------|-------|
| | B | Std. Error | Beta | | | Lower Bound | Upper Bound | Tolerance | VIF |
| 1 (Constant) | 6,468 | ,031 | | 209,921 | ,000 | 6,408 | 6,529 | | |
| INTERNET USE | ,215 | ,007 | ,162 | 29,783 | ,000 | ,201 | ,229 | ,989 | 1,011 |
| AMBITIOUS | -,105 | ,011 | -,052 | -9,571 | ,000 | -,126 | -,083 | ,989 | 1,011 |
| 2 (Constant) | 6,459 | ,031 | | 206,792 | ,000 | 6,398 | 6,520 | | |
| INTERNET USE | ,217 | ,007 | ,164 | 29,759 | ,000 | ,202 | ,231 | ,971 | 1,030 |
| AMBITIOUS | -,159 | ,031 | -,079 | -5,108 | ,000 | -,220 | -,098 | ,122 | 8,166 |
| INTERACTION | ,013 | ,007 | ,029 | 1,859 | ,063 | -,001 | ,028 | ,123 | 8,097 |

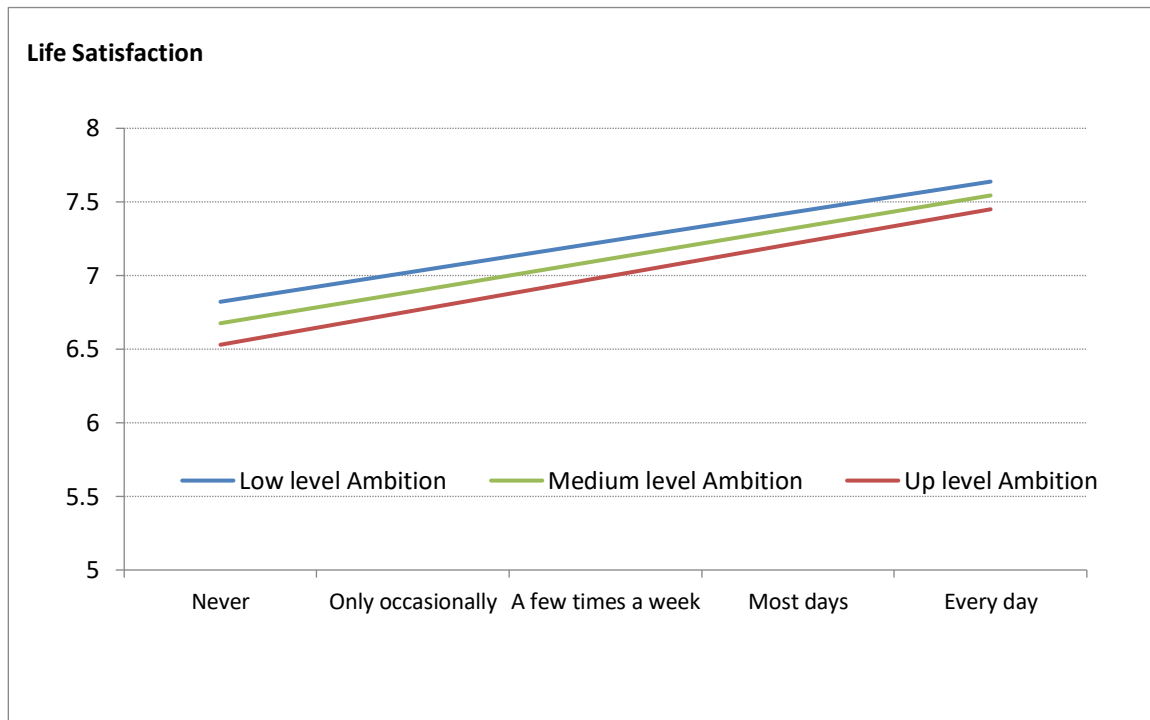
a. Dependent Variable: LIFE SATISFACTION

Source: Own elaboration

Lines displayed at Figure 74 shows how among more ambitious individuals, the relationship between internet use and life satisfaction, tend to be stronger than among lower ambitious. As

lines are closed and nearly with the same slope, moderation has not to result significative; thus, it marks only a tendency.

Figure 74. Relationship internet use and life satisfaction moderated by Ambitious profile



Source: Own elaboration

12.4.3 Altruistic Profile

Altruistic individuals are medium age and focused on a search a purpose in life, enhancing others (understand, help, take care, treat equally different people). They are well educated, although they continue improving knowledge. Report a middle-high rate of meeting with friends, low influence of safety issues, and a medium general health.

To deepen in this profile, different grades or levels of the altruistic- low, medium, and high- have been created. Table 45 resumes and analyzes the individual Life Satisfaction of each section. Mention, once again, the majority of the population fits in a medium level of altruism (nearly four times more than low or high section) because of the distribution criterion explained before; and moreover, the level of altruism is positively related to life satisfaction.

Table 45. Altruistic Profile and Life Satisfaction

| LIFE SATISFACTION | ALTRUISM LEVEL | | |
|-------------------|----------------|--------|------|
| | LOW | MEDIUM | HIGH |
| Obs | 5256 | 22732 | 5135 |
| Mean | 6,90 | 7,39 | 7,47 |
| Std Dev. | 2,05 | 1,95 | 2,16 |
| Median | 7,00 | 8,00 | 8,00 |

Source: Own elaboration

ANOVA test of a factor (p-value 0.000) and post-hoc tests confirms there exists a positive relationship between life satisfaction and Altruistic profile, by the way, the more altruistic individuals are, the more satisfied they are.

Regarding internet use, Chi² test and equality pair columns, conclude as more selflessness grade more internet use. Also, as more solidarity, there is greater use of the internet, but with less difference than in other levels. Table 46 resumes, while 17,4% of individuals with low altruism profile never use the internet, only 14,8% of high altruism profile does not do it. In the same way, the rate of high determination profiles that use the internet daily is 11,6% over lower profiles.

Table 46. Altruistic profile and internet use

| INTERNET USE | ALTRUISM LEVEL | | | | | |
|--------------------|----------------|--------|--------|--------|------|--------|
| | LOW | | MEDIUM | | HIGH | |
| | Obs | % | Obs | % | Obs | % |
| OBS | 5262 | 100,0% | 22759 | 100,0% | 5142 | 100,0% |
| Never | 918 | 17,4% | 3490 | 15,3% | 711 | 13,8% |
| Only occasionally | 339 | 6,4% | 1253 | 5,5% | 248 | 4,8% |
| A few times a week | 442 | 8,4% | 1422 | 6,2% | 264 | 5,1% |
| Most days | 563 | 10,7% | 2091 | 9,2% | 390 | 7,6% |
| Every day | 3000 | 57,0% | 14503 | 63,7% | 3529 | 68,6% |

Source: Own elaboration

Table 47 defines the model and interaction between internet use and the Altruistic profile. The first interaction relates the Altruistic profile positively with life satisfaction; thus, as more altruism more satisfied are individuals. Moreover, second interaction reflects the level of this influence, concluding interaction is significative. So, the Altruistic profile moderate relationship between internet use and life satisfaction, although slightly because the interaction coefficient is shallow.

Table 47. Relationship Altruistic profile and internet use

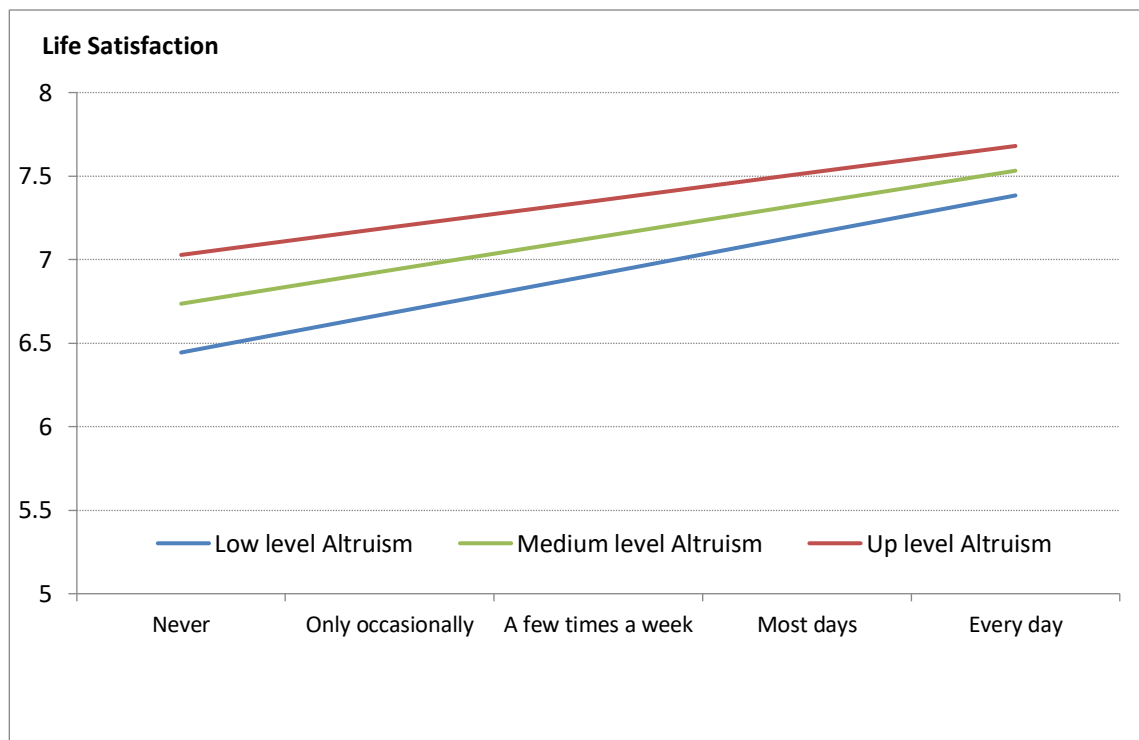
| Model | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. | 95,0% Confidence Interval for B | | Collinearity Statistics | |
|--------------|-----------------------------|------------|---------------------------|---------|------|---------------------------------|-------------|-------------------------|-------|
| | B | Std. Error | Beta | | | Lower Bound | Upper Bound | Tolerance | VIF |
| | | | | | | | | | |
| 1 (Constant) | 6,528 | ,031 | | 213,150 | ,000 | 6,468 | 6,588 | | |
| INTERNET USE | ,200 | ,007 | ,151 | 27,917 | ,000 | ,186 | ,214 | ,996 | 1,004 |
| ALTRUISM | ,187 | ,011 | ,093 | 17,179 | ,000 | ,166 | ,208 | ,996 | 1,004 |
| 2 (Constant) | 6,537 | ,031 | | 213,158 | ,000 | 6,477 | 6,597 | | |
| INTERNET USE | ,199 | ,007 | ,150 | 27,698 | ,000 | ,184 | ,213 | ,995 | 1,005 |
| ALTRUISM | ,328 | ,030 | ,163 | 11,052 | ,000 | ,270 | ,386 | ,134 | 7,469 |
| interaccion | -,036 | ,007 | -,075 | -5,107 | ,000 | -,050 | -,022 | ,134 | 7,454 |

a. Dependent Variable: SATISFACTION

Source: Own elaboration

Figure 75 displays that relationship. It is observed how, for the more altruism, the relationship between the use of the internet and the satisfaction is less intense than for the fewer ones. Inclinations of slopes at different levels of the profile (low, medium, up) differ slightly because the coefficient of interaction is very low. Thus, it could be concluded that there exists moderation, although slight. For the most supportive individuals, the importance of using the internet related to their life satisfaction is less relevant than for the less altruistic ones.

Figure 75. Relationship internet use and life satisfaction moderated by Altruistic profile



Source: Own elaboration

12.4.4 Polite Profile

The Polite group is a middle-low satisfied collective that represents the oldest and lowest educated individuals. Polite individuals are the ones that less worried are about improving their knowledge, although their education level is the lowest, they do not do anything to develop their skills. It could make sense when considering are the oldest group, at latterly working age or retired. Reports the lowest rate of meeting with friends, a small influence of security feelings, and the worst general health (maybe due to its age).

To deepen in this profile, different grades or levels of correctness- low, medium, and high- have been created. Table 48 resumes and analyzes the individual life satisfaction of each section. Comment, once again, the majority of the population fits in a medium level of correctness (nearly four times more than low or high section) because of the distribution criterion explained before; and moreover, the level of correction is positively related to life satisfaction.

Table 48. Polite profile and life satisfaction

| LIFE SATISFACTION | CORRECTNESS LEVEL | | |
|-------------------|-------------------|--------|------|
| | LOW | MEDIUM | HIGH |
| Obs | 5467 | 22497 | 5159 |
| Mean | 7,29 | 7,33 | 7,38 |
| Std. Dev. | 2,04 | 1,96 | 2,17 |
| Median | 8,00 | 8,00 | 8,00 |

Source: Own elaboration

ANOVA test of a factor (p-value 0.063) indicates there not exist a relationship between life satisfaction and the Polite profile. However, this value is as close to acceptance umbral (0,05), as it could be affirmed that life satisfaction tends to increase with correctness.

Regarding internet use, Chi² test and equality pair columns remark as more correctness lower internet use is. Table 49 displays that while 6,4% of individuals with low correctness profile never use the Internet, this rate increases to 28,2% of high ones profile not do it. In the same way, the rates of high determination profiles that use the Internet daily is 29,3% above lower profiles.

Table 49. Polite profile and internet use

| INTERNET USE | CORRECTNESS LEVEL | | | | | |
|--------------------|-------------------|--------|--------|--------|------|--------|
| | LOW | | MEDIUM | | HIGH | |
| | Obs | % | Obs | % | Obs | % |
| Obs | 5476 | 100,0% | 22526 | 100,0% | 5161 | 100,0% |
| Never | 349 | 6,4% | 3314 | 14,7% | 1456 | 28,2% |
| Only occasionally | 211 | 3,9% | 1260 | 5,6% | 369 | 7,1% |
| A few times a week | 246 | 4,5% | 1511 | 6,7% | 371 | 7,2% |
| Most days | 428 | 7,8% | 2140 | 9,5% | 476 | 9,2% |
| Every day | 4242 | 77,5% | 14301 | 63,5% | 2489 | 48,2% |

Source: Own elaboration

Table 50 defines the model and interaction between internet use and the Polite profile. The first interaction relates positively Altruistic profile with life satisfaction; thus, the politer individuals are, the more satisfied they are. Moreover, second interaction reflects the level of this influence, concluding interaction is significant, thus a Politic profile moderate relationship between internet use and life satisfaction.

Table 50. Relationship Polite profile and internet use

| Model | Non-Std. Coef | | Std. Coef | t | Sig. | 95,0% Confidence Interval for B | | Collinearity Statistics | |
|---------------------|---------------|------------|-----------|---------|------|---------------------------------|-------------|-------------------------|-------|
| | B | Std. Error | Beta | | | Lower Bound | Upper Bound | Tolerance | VIF |
| 1 (Constant) | 6,438 | ,031 | | 205,317 | ,000 | 6,376 | 6,499 | | |
| INTERNET USE | ,223 | ,007 | ,168 | 30,253 | ,000 | ,208 | ,237 | ,951 | 1,052 |
| CORRECTNESS | ,102 | ,011 | ,051 | 9,168 | ,000 | ,081 | ,124 | ,951 | 1,052 |
| 2 (Constant) | 6,360 | ,033 | | 191,887 | ,000 | 6,295 | 6,425 | | |
| INTERNET USE | ,237 | ,008 | ,179 | 31,090 | ,000 | ,222 | ,252 | ,881 | 1,135 |
| CORRECTNESS | ,328 | ,033 | ,163 | 9,843 | ,000 | ,263 | ,393 | ,107 | 9,360 |
| INTERACTION | -,055 | ,008 | -,117 | -7,183 | ,000 | -,070 | -,040 | ,111 | 9,023 |

a. Dependent Variable: SATISFACTION

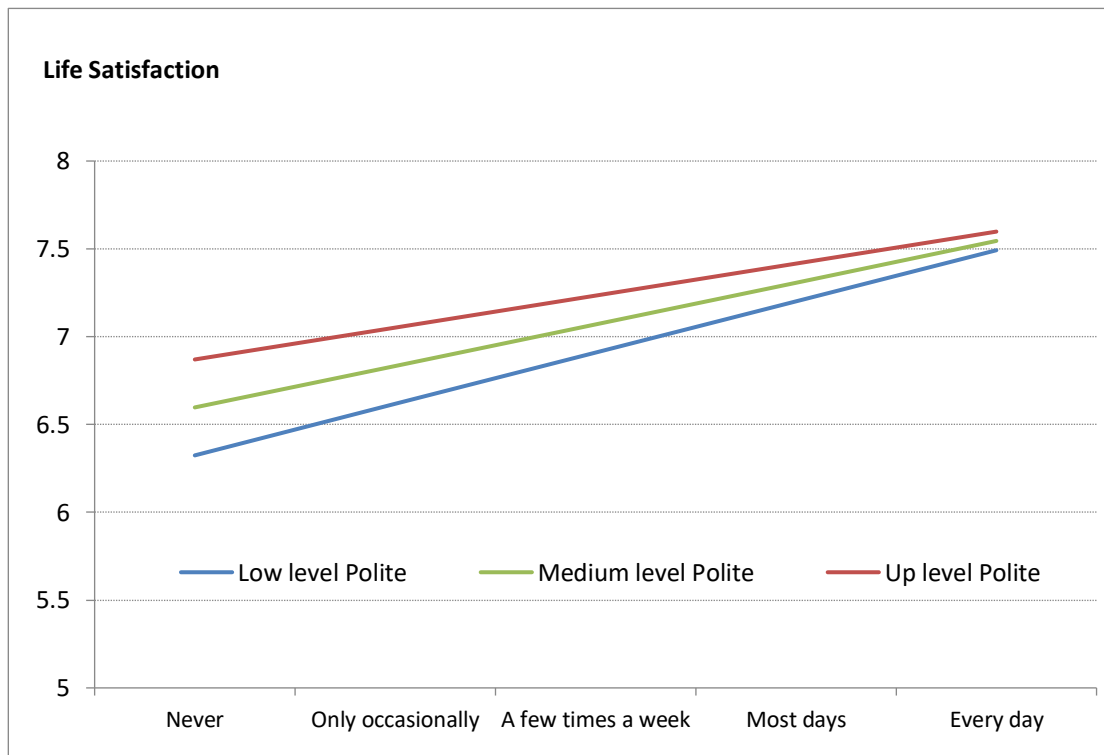
Source: Own elaboration

Figure 76 displays that relationship. It is observed how, for the more correctness individuals, the relationship between the use of the internet and the satisfaction is weaker than for the fewer ones. Inclinations of slopes at different levels of the profile (low, medium, up) differ

slightly because the coefficient of interaction is very low. Thus, it could be concluded that there exists moderation, although slight.

In the end, conclude, as the fewer correctness individuals present greater internet use, for them. For the most correct individuals, the importance of using the Internet related to their relationship between internet use and life satisfaction is less intense than for the other ones.

Figure 76. Relationship internet use and life satisfaction moderated by Polite profile



Source: Own elaboration

12.5 Conclusions

In this chapter, selected questions and variables from the ESS have been linked to the Ryff dimensions attending a personal consideration, and after an AFE analysis, different personal profiles have been defined.

Most of the profiles have a mix of dimensions; for instance: the Curious or Adventurer profile enhances the importance of seeking fun, pleasure, and a good time, which refers to Purpose in Life dimension of Ryff. However, it also highlights to seek adventures (Environmental Mastery) or to try new things in life (Personal Growth). Ambitious profile enhances the self by the importance of being admired or being successful (Self-acceptance) and money (Autonomy). While Altruistic profile emphasizes the others by the importance of treated equally, understand or help others (Purpose in Life), and Polite profile enhances the correctness by following traditions and rules, behave properly or be humble (Positive relationship).

Once defined different profiles, first, there have been examined different variables related to WB, such as personal safety, education, income, health, and social relationship to analyze their influence on each profile, and next, the influence of internet use and WB for each profile.

Examined variables related to WB we found, although personal safety, income, education, health, or social relationships influence on WB, its influence varies with personal values or individuals' profile, existing only consensus on social relationships. By this way, for instance:

- The impact of personal safety is nearly inexistent for Altruistic individuals, those who have a predominant Purpose in life dimension. It could explain the behavior of missionaries or other humanitarian aiders that expose their life to helping others. By

contrast, for Curious and Polite people, it influences their life satisfaction positively, while for Ambitious individuals, it seems not to have influence.

- Income also impacts on the different way depending on profiles. It influences a greater extend to Ambitious individuals that enhance autonomy and self-acceptance components, that although they tend to have medium-high level income, they do not feel comfortable with it. By contrast, Polite individuals- those who domain positive relationships and autonomy, although they present lower income rates and feel uncomfortable about it, they do not influence at high extend their life satisfaction. Curious and Altruistic profiles present are more conformity; they accept and feel comfortable their wages and incomes; thus, it barely influences their WB.
- General health influences positively WB for all profiles. Ambitious collective, although report good general health (subjective and objective- the absence of illness) do not appreciate it. Curious individuals, by contrast, are medium hampered, and they report being good subjective general health. It would be interesting to deep on this collective to analyses why.
- Education also presents different effects depending on each profile. Polite individuals present a lower education level and lower interest in improving knowledge. Thus, it influences al lower level of their WB. Curious individuals- that enhance their personal growth and environmental mastery, although they present medium formal level of education, they are aware of improving knowledge and skills frequently, influencing at a major extent their WB.
- Social relationships, by contrast, influence at all profiles in a similar way. The more frequency of meeting with friends individuals have, the more life satisfaction and WB

they report.

Then, examined the relationship of internet use for each profile, we found internet use influences positively on WB the individuals' perception, and overall, different profiles increase life satisfaction when they increase the frequency of internet use. Furthermore, personal values also influence internet use and life satisfaction, although that influence differs depending on the frequency of use. While for individuals that use the internet with fewer frequency personal values may influence at greater extent their WB perception, for individuals that use it daily differences among low-medium-high profiles tend to be closer. Specifically, the influence of each profile is:

- Curious individuals enhance the importance to seek fun, adventures, pleasure, and a good time, or to try new things in life. The level of curiosity is positively related to life satisfaction and internet use. Thus, the more curious persons are more satisfied and use more internet than restless ones and furthermore, internet use moderates the relationship of their life satisfaction. For lower curious profile, internet use influences at slightly major extent satisfaction than for higher curious profile.
- Ambitious individuals enhance the self, be admired, recognized, and money. The grade of ambition is negatively related to life satisfaction. Hence, the more ambitious persons are more unsatisfied they are. Internet use on this profile is not significative. However, it marks a tendency. Among more ambitious individuals, the relationship between internet use and life satisfaction tends to be stronger than among lower ambitious ones.
- Altruistic individuals boost the importance of treating equally, to understand, and help others. The level of altruism is positively related to life satisfaction and internet use. Thus, the more altruistic persons are more satisfied and use more internet than selfish

ones and furthermore, internet use moderates – although slightly – the relationship of life satisfaction. The most supportive individuals present a lower influence of internet use on life satisfaction than less altruistic ones.

- At last, Polite individuals enhance the importance of following traditions, rules, behave appropriately, and be humble. The level of correctness does not influence life satisfaction, although it affects internet use and moderates relationships among internet use and life satisfaction. The most correctness individuals present the lower internet use they do, due to for them the importance of using the internet related to their relationship between internet use and life satisfaction is less intense than for the other ones.

13. Conclusions

“If you want to be happy, set a goal that commands your thoughts, liberates your energy, and inspires your hopes.”

Andrew Carnegie

“In our lives, change is unavoidable, and loss is unavoidable.

In the adaptability and ease with which we experience change, lies our happiness and freedom.”

Buddha

Well-Being (WB) involves emotional responses and satisfaction individuals have with different aspects of life. It explains perspectives, sense, and affections individuals have and give them a sense of how their lives are going on.

The concept is complex because all concepts and dimensions are related. Moreover, it becomes clear that a better understanding of what does contribute to well-being is needed. Thus, in this thesis, it has been introduced a complete overview of WB. It has been remarked and analyzed its complexity, its components (objective and subjective) and dimensions (economic, psychological and sociological); because WB could not be reduced to a list of

things or the sum of-of satisfaction from particular aspects, and they people different importance to specific areas of life.

It has been demonstrated that there are different factors involved around WB, all of them interrelated, that should be balanced. For instance, education impacts positively on WB. Moreover, the more educated individuals are, the better employment, life expectancy, academic achievement, and mental health, among others they report. The same occurs with personal safety that impacts positively on WB allowing individuals to develop daily activities. However, regarding income level, there exists some controversy regarding the magnitude of its influence (some authors defend it is stronger than others).

Moreover, personality or personal values play an essential role in WB evaluation. Thus, other aspects related to personality, values, purpose in life, physical, intellectual, emotional, occupational, social, or spiritual aspects, linked to the six dimensions of the Ryff model and Schwartz theory, basis of the model study we have analyzed, have been introduced.

Additionally, evolutionary aspects and related theories have been introduced to understand the intricacies of the concept and how to measure it. Governments and researchers around the world realized WB has a huge potential and an important role to play in society, and higher WB contributes to many important outcomes, and several indexes have been presented.

The present study measures WB through self-reported responses individuals done related to life satisfaction and happiness evaluation, both subjective valuations, and also includes data from objective variables related to WB.

Digitization and Digital Transformation concepts also are a complex concept, that should be understood as a stage where digital usages inherently enable new types of innovation and creativity in a domain, rather than merely enhance and support traditional methods.

There are different components as technology related to devices individuals use (smartphones, IoT, Big Data, Artificial Intelligence) or infrastructures (fixed or mobile), among others that affect and influence digital transformation. Furthermore, economic, social, and politic dimension also influence it. Digital transformation impacts on the economy and marketplace. It creates new ways of relation and faster communications tools, and also, it requires politic implication for developing infrastructures and to promote bidirectional communication with citizens. All of them are complementary and necessary for allowing the effectiveness of implementation and potential that revolution 4.0 enhances through digital technology.

Internet use is one consequence of that revolution 4.0. It offers enormous benefits. However, we can not neglect potential adverse effects. For instance, on children, time spent online can supplant other more enriching activities or influence obesity and health problems, but it also can improve engagement on illness treatments or improve education methodologies and resources. On adolescents, it can displace intimate relationship and family relations and influence positively and negatively on mental health, depending on the type of use individuals do – although there is a consensus on compulsive internet use is related to stress levels, insomnia, depression, anxiety, and self-esteem. On adults, also depending on their use of the internet, it influences on loneliness and depression. While on elderly internet use increases self-stem and autonomy, communication with others and decreases loneliness and depression – remarking the higher education elderly have, the more predisposed to use new technologies they are, and the more autonomous and empowered they are.

In this study, it has been examined differences in internet use among countries and individuals. There has been evidenced the existence of the digital divide, which refers to wide disparities among countries all over the world (that could be related to the level of economic development, geography, and institutional policies of each country, among others). However, the digital divide does not only refer to the unique distinction of having access to the internet or not; it also includes the use individuals have of it. Furthermore, that is related to behavior, level of skills and trust individuals have towards the Internet, and perceived usefulness of it.

In this way, education plays a vital role because the internet and digital technology allow innovating in education models. They expand access to knowledge, offer updated information, facilitate personalized learning and specific programs for one specific group or person.

Formal, non-formal, and informal education and possible differences among countries, compulsory for understanding analysis and considerations we take in our model study, have been examined.

On formal education, although all over the world schools are making significant efforts to introduce computers on the learning process, it has been evidenced digital divide is still present, although that divide is reducing, at last at OECD schools. It should be remarked that this is not an easy task, because they need developed infrastructures and broadbands, and also specific skills for teachers who use technologies and teach through them, that take a longer time.

Outside the school, informal and non-formal education plays an essential role. It is increasing the rate of countries whose workers use the internet at work, and this is important also because those who use it report higher income levels. In this way, OECD countries have implemented policies to promote digital literacy, and public and private institutions promote e-learning

programs and MOOCs. They are revolving the education market, playing a gradually weighty role in improving access to education, becoming an essential provider of knowledge and skills. As more skills, more usage of digital technologies in various spheres of life, and vice versa as more popular are digital technologies in everyday lives more need for specific skills are.

Regarding internet measurement, there are different ways for measure it: attending variety of use (number of different activities individuals can undertake online); amount of use (frequency of internet use in day-to-day life); type of internet use (activity carried on the internet) and channel or device used (distinguishing various devices by their degree of mobility).

The present study measures internet use through the frequency of individuals report and furthermore, how does it influence their WB evaluation. It could not be linked to time spent online, neither type of use or channel or device used to connect to the Internet, individuals do.

Thus, taking all together into consideration, based on data from ESS, and after examining data provided by the European Social Survey (2016) on a sample of more than 34.700 respondents from 18 countries, and its relationship with WB perception of individuals, we conclude:

- *There are disparities in WB perception among European countries.*

There exist significative differences in life satisfaction among countries. Western Countries (Russian and the Czech Republic) and France are the unhappiest countries, while Nordic Countries (Norway, Iceland, Finland, and Switzerland) the ones that higher scores report. We wonder to know if country GPD explains those differences, but we found its influence on life satisfaction is at a modest level of affluence.

Age, education, country, and income source influence WB, while no gender differences have

been found on the sample. It has been demonstrated “U Curve on happiness” that displays the youngest individuals are happiest and most life satisfied, and perceptions decrease until elderly that increase once again, being the lower happiness perception by adulthood age. Furthermore, the more education level, the more satisfied/ happy individuals are, despite that relationship is not linear.

Furthermore, income source also influences satisfaction. Individuals who obtain income from unemployment or redundancy benefit are the most unsatisfied and unhappiest, followed by those who receive income from social benefits or other sources and pensions. While the most satisfied and happiest individuals are those who get benefits from investment and savings, followed by farming, self-employed, and salaried workers. So, the first group that obtains lower revenues present lower life satisfaction than the second group that obtains higher revenues.

- *There are disparities in internet use among European countries.*

There exist significative differences in internet use among countries that could be explained by disparities in digital infrastructure development. Western countries present the lowest rates of daily internet use, although more intensive use for those who declare use it.

Gender and age influence internet use. Overall, males use more internet than females, and young people present higher rates of use than older ones. Those second affirmation could be expected due to older adults has been less exposed to technology than younger ones.

Education also impacts internet use enhancing its use. As more educated are individuals more internet use, they do because they enforce the skills necessary for using technology.

Furthermore, income source also influences internet use. Attending their revenues, individuals present different rate use, being those whose income comes from pensions and farming the lowest rate use. That could be because of the type of work individuals do and technology they have access because of the age effect (they are older) or the poor infrastructures that generally exist in farming spaces. By contrast, self-employed or salaried individuals present a higher rate of use.

- *Internet use influence WB among European countries.*

The present study demonstrates internet use influences positively on WB perception of individuals because people that use the internet daily report higher life satisfaction and happiness than those who never do, although that impact is moderated by sociodemographic variables.

Age is one of the most influencing variables. Young individuals display a more positive and accurate influence of the internet use on WB, while older ones are inexistent that influence.

The education level also moderates the internet influence on WB. The more educated individuals present a more positive and accurate impact of internet use on their WB. It should be remarked that for individuals that never use the Internet (independently of their education level), the level of influence is inexistent.

Divergent impact present income source that influences only individuals that not use it daily, while for those that access the internet every day, there are nearly inexistent differences, for those who have less access income source is significative.

Moreover, there exist disparities among countries, being the two most satisfied and the two

most unsatisfied countries more influenced by internet use than the average.

At last, point, gender does not moderate at all the relationship between the satisfaction and the use of the Internet.

Furthermore, selected questions and variables from the ESS have been linked to the Ryff dimensions, and after an AFE analysis, different personal profiles have been defined.

- ***Personal values influence WB perception.***

Although WB evaluation presents a substantial subjective component, there are objective variables that influence its evaluation. We have found education, personal safety, or income influence at a different level evaluation of individuals attending their individuals' profile, and the present study demonstrates individuals' values or attitudes also play an essential role in this influence. Although social relationships, by contrast, influence at all profiles in a similar way — the more frequency of meeting with friends, the more life satisfaction and WB individuals report.

For altruistic individuals that present a predominant purpose in life, personal safety influence on WB is nearly inexistent. Thus, it could explain the behavior of missionaries or other humanitarian aiders that expose their life to helping others. Income level barely influences their WB.

For curious or adventurer individuals that enhance the importance of seeking fun, pleasure, and a good time and polite people, personal safety influences positively their WB. Income level barely influences their WB, although education influences it to a major extent because they are aware of improving knowledge and skills frequently.

For ambitious individuals that prioritize be admired, personal safety seems not to affect their WB. By contrast, income level presents a more significant impact, and although they tend to have medium-high level income, they do not feel comfortable with it. Furthermore, they usually do not appreciate at great extent their good general health (subjective and objective-the absence of illness).

For polite individuals that prioritize positive relationships, although they present lower income rates and feel uncomfortable about it, income level does not influence at high extent their life satisfaction.

- *Personal values influence Internet use.*

Internet use influences positively on WB perception of individuals, and overall different profiles increase life satisfaction when they increase the frequency of internet use.

Furthermore, personal values also influence internet use and life satisfaction, although that influence differs depending on the frequency of use. While for individuals that use the internet with fewer frequency personal values may influence at greater extent their WB perception, for individuals that use it, daily differences among low-medium-high profiles tend to be closer.

For instance, curious or adventurer individuals that enhance the importance of seeking fun, adventures, pleasure and good time, or to try new things in life, the level of curiosity is positively related to life satisfaction and internet use. For lower curious profile, internet use influences at slightly major extent satisfaction than for higher curious profile.

For ambitious individuals that enhance the self, be admired, recognized, and the money, the grade of ambition is negatively related to life satisfaction. Hence, the more ambitious persons

are, the less satisfied they are, although Internet use on this profile is not significant and only marks a tendency. Furthermore, among more ambitious individuals, the relationship between internet use and life satisfaction tends to be stronger than among lower ambitious ones, maybe because of the comparison effect.

For altruistic individuals that boost the importance of treating equally, to understand and help others, the level of altruism is positively related to life satisfaction and internet use. Thus, the more altruistic persons are, the more satisfied and use more internet than selfish ones and furthermore, internet use moderates- although slightly- the relationship of life satisfaction. The most supportive individuals present a lower influence of internet use on life satisfaction than less altruistic ones.

At last, polite individuals enhance the importance of following traditions, rules, behave appropriately, and be humble. The level of correctness does not influence life satisfaction, although it affects internet use and moderates relationships among internet use and life satisfaction. The most correctness individuals present the lower Internet use they do, due to for them the importance of using the Internet related to their relationship between Internet Use and life satisfaction is less intense than for the other ones.

Further research should consider personal values and internet use to reinforce the relationship between internet use and personality of individuals and WB, taking into consideration the impact of compulsive internet use or other adverse effects the internet has.

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15. Annexes

15.1 ISCED classification education programmes

Source: OECD – Institute of Statistics - ISCED

| ISCED 2011 | | | | |
|---|-------|------------------|--------------|---|
| Level label | Level | Category | Sub-category | Notes on sub-categories |
| Early childhood educational development | 0 | 01 | 010 | Education programmes targeting children under 3 years old |
| Pre-primary education | | 02 | 020 | |
| Primary education | 1 | 10 | 100 | |
| Lower secondary education | 2 | 24 General | 241 | Insufficient for level completion or partial level completion, without direct access to upper secondary education |
| | | | 242 | Partial level completion, without direct access to upper secondary education |
| | | | 243 | Level completion, without direct access to upper secondary education |
| | | | 244 | Level completion, with direct access to upper secondary education |
| | | 25 Vocational | 251 | Insufficient for level completion or partial level completion, without direct access to upper secondary education |
| | | | 252 | Partial level completion, without direct access to upper secondary education |
| | | | 253 | Level completion, without direct access to upper secondary education |
| | | | 254 | Level completion, with direct access to upper secondary education |
| Upper secondary education | 3 | 34 General | 341 | Insufficient for level completion or partial level completion, without direct access to tertiary education |
| | | | 342 | Partial level completion, without direct access to tertiary education |
| | | | 343 | Level completion, without direct access to first tertiary programmes (but may give direct access to post-secondary non-tertiary education) ¹ |
| | | | 344 | Level completion, with direct access to first tertiary programmes (may also give direct access to post-secondary non-tertiary education) ¹ |
| | | 35 Vocational | 351 | Insufficient for level completion or partial level completion, without direct access to tertiary education |
| | | | 352 | Partial level completion, without direct access to tertiary education |
| | | | 353 | Level completion, without direct access to first tertiary programmes (but may give direct access to post-secondary non-tertiary education) ¹ |
| | | | 354 | Level completion, with direct access to first tertiary programmes (may also give direct access to post-secondary non-tertiary education) ¹ |
| Post-secondary non-tertiary education | 4 | 44 General | 441 | Insufficient for level completion, without direct access to tertiary education ² |
| | | | 443 | Level completion, without direct access to first tertiary programmes ² |
| | | | 444 | Level completion, with direct access to first tertiary programmes ² |
| | | 45 Vocational | 451 | Insufficient for level completion, without direct access to tertiary education ² |
| | | | 453 | Level completion, without direct access to first tertiary programmes ² |
| | | | 454 | Level completion, with direct access to first tertiary programmes ² |

1. May include programmes previously classified at ISCED level 4 if they are equivalent to ISCED level 3 programmes.
2. Except programmes previously classified at ISCED level 4 if they are equivalent to ISCED level 3 programmes.

| ISCED 2011 | | | | | |
|--------------------------------|-------|--|--------------|--|---|
| Level label | Level | Category | Sub-category | Notes on (sub-)categories | Notes |
| Short-cycle tertiary education | 5 | 54 General | 541 | Insufficient for level completion | |
| | | | 544 | Sufficient for level completion | |
| | | 55 Vocational | 551 | Insufficient for level completion | |
| | | | 554 | Sufficient for level completion | |
| Bachelor's or equivalent level | 6 | 66 ¹ Orientation unspecified | 661 | Insufficient for level completion | |
| | | | 665 | First degree (3-4 years) | |
| | | | 666 | Long first degree (more than 4 years) (Bachelor's or equivalent programme) | |
| | | | 667 | Second or further degree (following a Bachelor's or equivalent programme) | If equivalent to programmes already classified in level 6 |
| Master's or equivalent level | 7 | 76 ¹ Orientation unspecified | 761 | Insufficient for level completion | |
| | | | 766 | Long first degree (at least 5 years) (Master's or equivalent programme) | Unless equivalent to programmes already classified in level 6, then 666 |
| | | | 767 | Second or further degree (following a Bachelor's or equivalent programme) | |
| | | | 768 | Second or further degree (following a Master's or equivalent programme) | |
| Doctor or equivalent level | 8 | 86 ¹ Orientation unspecified | 861 | Insufficient for level completion | |
| | | | 864 | Sufficient for level completion | Programmes that lead directly to a doctoral degree only |

1. The correspondences (or concordances) for academic and professional programmes at ISCED levels 6, 7 and 8 are identical to those for programmes where orientation is unspecified.

15.2 Questionnaire ESS