Happiness and Social Network Sites: are people learning how to use SNS's in order to increase their happiness?

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Abstract – With the growing use of social network sites (SNS) individuals are facing a new variable that affects their social relations and, thus, their happiness. Using data from the European Social Survey (ESS), we show a learning process associated with the social network sites. The results show how the initial negative impact on general subjective well-being (SWB) slowly turned into positive among individuals who met their friends several times a week or every day. Hence, as people learn to use online social networks together with their offline relationships, their happiness increases.

Resumen – Debido al creciente uso de las redes sociales los individuos se enfrentan a una nueva variable que afecta a sus relaciones interpersonales y, por lo tanto, a su felicidad. Los datos obtenidos del *European Social Survey (ESS)* nos han permitido trazar un proceso de aprendizaje respecto a las redes sociales. Los resultados muestran un primer impacto negativo en el bienestar subjetivo que lentamente se convierte en positivo entre aquellas personas que se reúnen con sus amigos varias veces por semana o todos los días. Por tanto, podemos afirmar que a medida que las personas aprenden a combinar el uso de las redes sociales con sus relaciones interpersonales fuera de línea, su felicidad aumenta.

Resum – A causa de el creixent ús de les xarxes socials els individus s'enfronten a una nova variable que afecta les seves relacions interpersonals i, per tant, a la seva felicitat. Mitjançant les dades obtingudes de l'European Social Survey (ESS), hem estat capaços de mostrar un procés d'aprenentatge amb relació a les xarxes socials. Els resultats mostren un primer impacte negatiu en el benestar subjectiu que lentament es converteix en positiu entre aquelles persones que es reuneixen amb els seus amics diverses vegades per setmana o cada dia. Per tant, a mesura que les persones aprenen a combinar l'ús de les xarxes socials amb les seves relacions interpersonals fora de línia, la seva felicitat augmenta.

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1. Introduction

Income increase and hedonic adaptation have been the cause of most researches that psychologists and economists have done towards a happier life, pulling forward the prevailing theories of well-being.

On one hand, economists based their "more is better" theory on the revealed preference theory, which implies that an increase in one's income can improve one's well-being. On the other hand, psychologists' view on well-being was characterized by a setpoint of happiness each individual is thought to have given his/her genetics and personality traits.

At the beginning of the twenty-first century, Richard A. Easterlin stated what is known as the Happiness Paradox, which creates the outlines of a better theory of how life events affect happiness. In his study, Easterlin found that neither hedonic adaptation nor social comparison operates equally across all domains, as people allocate a higher amount of time to the pursuit of monetary objectives rather than non-monetary. This allocation comes due to people's assumption that the higher the income, comfort, and positional goods, the happier they will be. But the truth is that hedonic adaptation and social comparison have a greater position and get to raise one's aspirations to the same extent as one's actual gains, leading them to feel no happier than before.

With the appearance of Social Network Sites (SNS) individuals are facing a new variable that affects their social relations and, thus, their happiness. Since the first SNS was born in 1997 until 2014 most pieces of research have shown a decrease in both the quality and quantity of social relationships. That social interaction decrease proves there is a direct correlation between a greater SNS's use and a lower level of happiness, which as an outcome could affect social relationships.

Nonetheless, we found a new paradox which shows that from 2014 until now, the greater the use of SNS's the happier we are. It is a clear change which we would like to understand and analyze in the following study.

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So, our main question is: is it possible that this change in people's happiness from 2014 until now is due to a better understanding of how SNS's work?

2. Justification of the topic and personal motivation

In creating a new product, service, or enterprise it is fundamental to identify the individuals who will be willing to buy, use or be part of what is offered. Being able to get additional insight makes it easier to capture someone's attention, as their needs, motivations, and goals are front and center. In addition, since emotions can play an important role in human decision-making, they can shape the collective phenomenon that occurs in the social network environment. So, this study is not only important from a scientific and social point of view, but it will also allow a better understanding on how people's happiness has evolved since the appearance of social networks. For me it is essential to know the level of adaptation of the human being both to get to know them better in the present and to be able to anticipate their future behaviors. Therefore, one could say that is the personal motivation behind this study.

3. Theoretical background

There is a lot of research done in the field of happiness regarding the usage of Social Network Sites and how social connectivity has changed as a consequence of social transformation.

Wilson (1967) describes a happy person as: "young, healthy, well-educated, well-paid, extroverted, optimistic, worry-free, religious, married, with high self-esteem, high job-morale, modest aspirations, of either sex, and of a wide range of intelligence"(294). However, his definition is mainly centered on the socio-demographic determinants of happiness. Following his definition, the literature extends the determinants set on social capital: the relationships of individuals with their environment.

Social capital has three main forms: 1) trust and obligations, 2) information channels, and 3) norms and sanctions (Coleman, 1988). Firstly, trust and obligations coerce both parties to follow certain set of rules of behavior, which benefit them both. If A trust B, then it follows that B will follow the same set of rules of behavior as A and if mutual obligations arise B will reciprocate A for previous good actions of A towards B.

Secondly, since knowing more people and tightening the ties with others implies gaining more information, it is likely that information channels play a significant role in determining social capital (Granovetter, 1977). Thirdly, creating effective norms and sanctions can not only promote actions that benefit common goals, but also restrict non desirable actions for society.

Further research based on Coleman's forms of social capital investigates the importance of social capital in determining happiness (Leung *et al.*, 2011). In this study, sense of belonging, dimension of social network and trust tend to predict happiness.

There are different ways to measure happiness. The most common operationalization is to talk about subjective well-being (SWB) either in general or with reference to specific life domains, such as marriage (Diener *et al.*, 1999), family, ambitions, social relationships (Helliwell and Putnam, 2004), health, and security (Cummins, 1996).

The concept of subjective well-being refers to the way people assess their lives (Diener, 2009), which involves both an emotional assessment of ones' mood and emotions and a cognitive judgment of satisfaction (Diener, 1984).

When it comes to social media sites, they have affected social relationships since their inception in 1997, when the first recognized social media site, Six Degrees, was created. Their main feature is to allow the creation and exchange of user-generated content, such as blog posts or YouTube videos.

The most widely used social media sites are so-called social network sites. Such websites allow users to communicate with others, and three key elements may generally describe

them. First, users create a personal profile, the information of which is constantly changing as a result of up-to-date content. This up-to-date content is provided not only by the user herself, but also by her connections or even by the system. The second element relates to the online social network of users, which is publicly shown as a list of connections. Thirdly, the vast majority of social network sites are structured around a regularly updated source of content (e.g. Instagram's feed) (Verduyn *et al.*, 2017).

Time spent on social network sites has increased dramatically over the last decade, as posting messages and pictures on Facebook or Instagram has become part of daily life for most people. Statistics released in 2015 by the Pew Internet and American Life Project, which monitor Internet usage patterns across time, indicate that 65% of American adults use social network sites. Meaning that its usage has increased by nearly 60% in just 10 years (Perrin, 2015).

Many different sites conform the social network landscape: Instagram, Twitter, Facebook, LinkedIn... From all, Facebook is the most popular with 2.2 billion active monthly users (Facebook, 2019). It is followed by YouTube with 1.5 billion (YouTube, 2019) active users a month and Instagram with 800 million (Instagram, 2019). On average, users spend 144 minutes per day interacting on social network sites. This is more than the time spent participating in sports or exercising (29 minutes) and eating (79 minutes) combined (Bureau of Labor Statistics, 2018).

Why do people spend so much time interacting on social network sites? Most people report doing so to strengthen their ties between friends and relatives (Wellman *et al.*, 2001) and to keep in touch (Joinson, 2008). In a study conducted by Smith (2011) subjects reported other reasons which include (a) reconnecting with old companions, (b) joining with people with whom one shares interests or hobbies, (c) meeting new people, (d) following public figures, and (e) looking for potential romantic partners".

Another aspect to take into account is the number of online connections. The amount of Facebook friends tends to be an accurate representation of individuals' offline social network size (Wang and Wellman, 2010; Lönnqvist and Itkonen, 2014). Consequently,

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those with a higher number of connections spend more time on the Internet to keep in touch. Therefore, these results prove that the change in social connectivity is due to an intricate, multifaceted and fundamental social transformation (Wellman *et al.*, 2001).

To understand the relationship between social network sites and subjective well-being overall levels of social network usage must be assessed. As these sites allow a wide range of activities, we will differentiate two types of users: active and passive. On one hand, active users are the ones producing information and facilitating direct exchanges with others. For example, those who share content on their Facebook timeline or that simply send a private message to another profile. On the other hand, passive users mostly consume information without interacting at all with its owner. For example, people who simply scroll through the news feed.

Does the time spent on social network sites increase the levels of social capital? A first line of researches (Ellison, Steinfield and Lampe, 2007; Steinfield, Ellison and Lampe, 2008), which used cross-sectional designs, found positive correlation between the overall use of social network sites and social capital. More recent studies (Ryan and Xenos, 2011; Matook, Cummings and Bala, 2015) have proved that the type of use (active or passive) must be taken into account. To sum up, there has been found a positive relationship between the active use of SNS and social capital.

"The social media world is multifaceted. Much like the offline terrestrial world, social media allows people to experience an infinite number of healthy and harmful emotional experiences" (Kross and Chandhok, 2020)*.*

Building on the previous literature, the current study focuses on socio-demographic characteristics and subjective well-being using a representative sample of young adults. We think that our results are the first to compare the net effect of social networks on subjective well-being from years 2002-2018. We have not found previous attempts to see if the happiness effects differ as a consequence of a learning process with respect to online social networks.

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4. Hypothesis

As technology keeps on evolving, we are constantly experiencing how online interactions change our everyday life, norms and behaviors. Papers and studies from 2002 to 2014 have presented different opinions and points of view on how these changes affect people's happiness. Nevertheless, none has gone far enough in time to observe data from 2014 until 2016. This gap in time gives us the opportunity to develop and propose a theoretical model with the goal of providing a different point of view to the previous research. Hence, our objective will be to prove that the decrease of happiness and latter increase is due to a learning process and has nothing to do with the great recession.

Figure 1. Evolution of Happiness from 2002 to 2016.
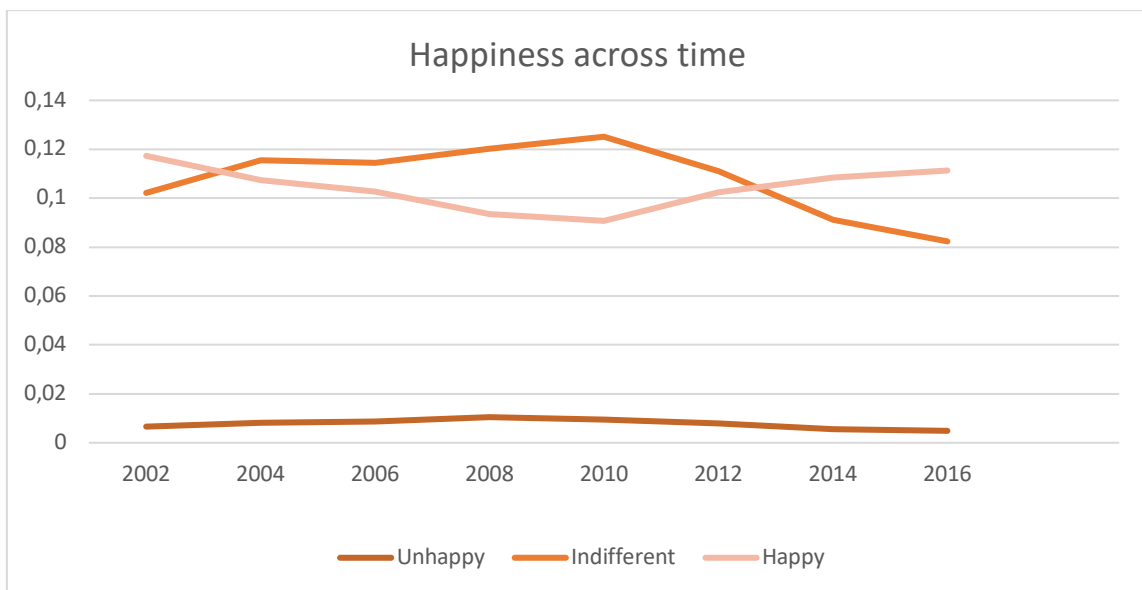
Source: Own elaboration using the European Social Survey.

As clearly seen in the chart above, until 2010 happiness was declining but then it started to increase. Thus, we hypothesize the following:

Hypothesis. People learn to use social networks: happiness declines by 2010 and increases later.

Counterhypothesis. The decline and later increase may be a product of the great recession.

5. Data and Methodology

5.1. Data

The upcoming study will use different articles, studies and scientific papers in order to visualize what has been accomplished until now, which conclusions have other authors reached, and how does previous information differ from more recent data analysis.

Once the theoretical background is finished the subsequent data base will be used to examine how Social Network Sites have affected happiness. These data will be used in a multivariate ordered probit model.

We use the European Social Survey (ESS)[1]. It is a biennial cross-sectional survey which contains information of a representative sample of individuals aged 15 and over, residents within private households. A total of thirty-eight European countries have been covered by the survey between 2002 and 2018. In this study, we do not drop any of them.

The ESS survey covers several topics such as subjective well-being, social trust and various social, political, demographic and economic factors. The final sample consists of 408.023 individuals. After dropping incomplete observations our sample accounts for 323.148.

5.1.1. Dependent Variables

The ESS provides information on Subjective Well-being (SWB); a proxy for happiness. The question asked to assess SWB in the ESS is as follows: "Taking all things together, how happy would you say you are?", with self-reported answers on a 10-point Likert scale (0- extremely unhappy, 10- extremely happy).

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[1] A detailed description of the ESS survey is available at http://www.europeansocialsurvey.org

5.1.2. Explanatory Variables

The explanatory variables include socio-demographic characteristics and location (i.e., age, gender, education, Social Networks, nationality, household income, marital status, job satisfaction, health, social capital, social trust). We will measure these last variables indirectly by Facebook penetration by time.

5.2. Methodology

We define the subjective well-being (SWB) through the following formula:

$$SWB = F(X + t) + \varepsilon \qquad (1)$$

where X is a vector of individual characteristics such as age, sex, marital status, education, income perception, employment relation, subjective health level, and job satisfaction.

In the next step we extend this equation with the variables typically associated with the social networks. Based on the variable "How often do you meet socially with friends" we are able to see the intensity of social relations of an individual (SN). We assume that individuals with larger social networks meet with their friends more often (by the sheer amount of connections) while the contrary stands true for those with smaller networks. This is expressed in the next formula:

$$SWB = F(X + SN + t) + \gamma \qquad (2)$$

This way we are able to measure the net effect of social networks offline on the subjective well-being.

However, in order to be able to observe the effect of online social networks on the subjective well-being (without direct measure of this effect) we will interact in the next step the social interactions offline with the time. We expect here that with introduction and popularization of online social networks (such as Facebook) individuals sacrificed

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their time offline for more interactions online (as described in the literature). However, this effect wanes from 2014 onwards when online social networks become part of normal life and individuals have learnt to use them. And so, we expect a negative sign for the interaction of time with offline social networks around the year 2010-2011 and a positive somewhere after 2014. These expectations can be expressed in the following way:

$$SWB = F(X + SN * YEAR + t) + \gamma \qquad (3)$$

where:

$$SN * 2010 < 0$$
$$SN * 2014 > 0.$$

This way we are able to show that online social networks experienced some sort of learning process: starting with a negative effect for a well-being and slowly ending up with a positive effect in this respect.

Furthermore, by comparing the results from equations (1) and (2) we are able to show the net positive effect of offline social interactions on subjective well-being, while by comparing the results from (2) and (3) we are able to show the effect of online social interactions on the subjective well-being.

6. Results

Below we present results for our study. Firstly, in Table 1 we show the descriptive statistics for our sample. It is readily observable that our sample contains slightly more women than men (52,3% vs. 47,7%). Less than half of our sample is married. The mean age is 49 years. Majority of our respondents are employed. The most frequent levels of education are upper secondary and tertiary, the latter one depicting recent educational expansion throughout Europe. Nearly half of the sample wrestles through on present

income. In a 10-point Likert scale (0- extremely dissatisfied, 10- extremely satisfied) the most frequent level is 8. Levels of subjective health are good for less than half of the sample. Finally, the sample meets socially between several times a month and once a week.

Table 1. Descriptive statistics.

Variable	Mean	Std. Dev.	Min.	Max.
Female	0,523	0,499	0	1
Age	49,317	17,543	14	123
Married	0,424	0,494	0	1
Employed				
1	0,825	0,380	0	1
2	0,112	0,315	0	1
3	0,016	0,124	0	1
Education				
Lower secondary	0,161	0,368	0	1
Upper secondary	0,386	0,487	0	1
Post-secondary	0,045	0,206	0	1
Tertiary	0,300	0,458	0	1
Household Income				
2	0,450	0,497	0	1
3	0,186	0,389	0	1
4	0,074	0,262	0	1
Life Satisfaction				
1	0,013	0,112	0	1
2	0,024	0,152	0	1
3	0,042	0,201	0	1
4	0,045	0,208	0	1
5	0,114	0,318	0	1
6	0,089	0,285	0	1
7	0,167	0,373	0	1
8	0,246	0,431	0	1
9	0,141	0,348	0	1
10	0,101	0,301	0	1
Subjective Health				
2	0,422	0,494	0	1
3	0,272	0,445	0	1
4	0,071	0,256	0	1
5	0,015	0,121	0	1
Social Networks	4,830	1,577	1	7

Source: Own elaboration using the European Social Survey.

We run 3 models, adding gradually more control variables, and observing their behavior. In all models the dependent variable is subjective well-being proxied through happiness. We treat this variable as linear despite its ordinal nature in order to simplify the interpretation of the results. The first model contains basic demographic controls such as gender, age, marital status, employment relation, and educational level. Furthermore, we put controls for the perception of household income and life satisfaction. The first surrogates for the individual income from work and the latter controls for the general satisfaction with life as a whole. We include life satisfaction together with subjective health level in order to control for all factors that could affect happiness that are different from social networking, which is our variable of interest.

In the next step we extend the basic Model 1 with a variable controlling for the social network. This is a categorical variable answering the question about how often an individual in our sample meets their friends. The answers range from never (1) to every day (7). We assume that this variable controls for the intensity of social relations of a person. The more often a person meets their friends, the higher is the intensity of their social relations. Ideally, we would like this variable to measure the size of the social network. However, we are aware that the intensity can come either from meeting often few friends or meeting sporadically many friends. Thus, Model 2 accounts for the social life's effect on general happiness for a representative person in our sample. The results are obvious: the more intensely we meet our friends the happier we are (controlling for the host of factors described before). Finally, in Model 3, our complete model, we show that for the individuals with the highest intensity of meeting friends there are important changes across time. Figures 2 and 3 depict these changes.

Table 2. Linear regression results.

DV: Happiness	Model 1	Model 2	Model 3
Female	0.0755*** (15.37)	0.0780*** (15.98)	0.0779*** (15.96)
Age	-0.00356*** (-22.20)	-0.00222*** (-13.78)	-0.00224*** (-13.91)

Married	0.276***	0.300***	0.302***
	(48.89)	(53.18)	(53.37)
Employment status Ref. Unemployed			
Employee	0.0230*	0.0372**	0.0376**
	(1.97)	(3.21)	(3.24)
Self-employed	0.0209	0.0315*	0.0312*
	(1.54)	(2.33)	(2.31)
Family employed	0.0208	0.0276	0.0271
	(0.92)	(1.23)	(1.20)
Level of education Ref. Primary			
Lower secondary	-0.100***	-0.0815***	-0.0811***
	(-10.48)	(-8.57)	(-8.52)
Upper secondary	-0.110***	-0.0872***	-0.0868***
	(-12.77)	(-10.15)	(-10.09)
Post-secondary non-tertiary	-0.0659***	-0.0420**	-0.0415**
	(-4.69)	(-3.00)	(-2.96)
Tertiary	-0.0736***	-0.0549***	-0.0545***
	(-8.16)	(-6.09)	(-6.05)
Household Income Perception Ref. Living comfortably			
Coping on income	-0.0837***	-0.0627***	-0.0626***
	(-13.82)	(-10.38)	(-10.37)
Income difficulties	-0.259***	-0.221***	-0.221***
	(-32.55)	(-27.77)	(-27.73)
Income hardship	-0.623***	-0.572***	-0.571***
	(-55.44)	(-51.07)	(-50.92)
Life Satisfaction in General Ref. Extremely dissatisfied			
Life satisfaction 1	0.194***	0.185***	0.186***
	(6.99)	(6.70)	(6.75)
Life satisfaction 2	0.578***	0.558***	0.558***
	(24.34)	(23.63)	(23.66)
Life satisfaction 3	1.048***	1.022***	1.022***
	(48.73)	(47.74)	(47.75)
Life satisfaction 4	1.489***	1.454***	1.454***
	(69.52)	(68.18)	(68.18)

Life satisfaction 5	2.063*** (105.04)	2.021*** (103.33)	2.021*** (103.30)
Life satisfaction 6	2.553*** (126.69)	2.503*** (124.69)	2.503*** (124.65)
Life satisfaction 7	3.134*** (160.41)	3.069*** (157.60)	3.068*** (157.57)
Life satisfaction 8	3.787*** (195.36)	3.709*** (191.90)	3.709*** (191.86)
Life satisfaction 9	4.420*** (221.42)	4.334*** (217.76)	4.334*** (217.72)
Life satisfaction 10	5.042*** (247.97)	4.954*** (244.43)	4.954*** (244.39)
Subjective Health Level Ref. Very good			
Good	-0.175*** (-26.75)	-0.168*** (-25.82)	-0.168*** (-25.82)
Fair	-0.364*** (-47.37)	-0.346*** (-45.23)	-0.346*** (-45.25)
Bad	-0.695*** (-60.15)	-0.656*** (-57.06)	-0.656*** (-57.04)
Very bad	-1.132*** (-52.80)	-1.036*** (-48.40)	-1.036*** (-48.35)
Year Ref. 2002			
2004	-0.0241* (-2.35)	-0.0221* (-2.18)	-0.0758 (-1.07)
2006	-0.180*** (-16.78)	-0.204*** (-19.15)	-0.493*** (-6.70)
2008	-0.193*** (-18.77)	-0.211*** (-20.60)	-0.210** (-3.10)
2010	-0.203*** (-19.79)	-0.216*** (-21.13)	-0.367*** (-5.38)
2012	-0.165*** (-16.04)	-0.172*** (-16.87)	-0.273*** (-4.12)
2014	-0.133*** (-12.34)	-0.139*** (-12.93)	-0.257*** (-3.48)
2016	-0.0911*** (-8.65)	-0.0983*** (-9.39)	-0.239** (-3.24)

How often meets with friends (social network) Ref. Never			
Less than once a month (socialnetwork 2)		0.340*** (17.49)	0.288*** (5.06)
Once a month (socialnetwork 3)		0.536*** (27.64)	0.461*** (8.25)
Several times a month (socialnetwork 4)		0.633*** (33.93)	0.545*** (10.31)
Once a week (socialnetwork 5)		0.649*** (34.63)	0.598*** (11.34)
Several times a week (socialnetwork 6)		0.740*** (39.99)	0.613*** (11.82)
Every day (socialnetwork 7)		0.834*** (43.96)	0.666*** (12.50)
Social network*year			
2.socialnetwork#2004			0.0499 (0.62)
2.socialnetwork#2006			0.212* (2.57)
2.socialnetwork#2008			-0.0766 (-1.00)
2.socialnetwork#2010			0.0521 (0.68)
2.socialnetwork#2012			0.0294 (0.40)
2.socialnetwork#2014			0.0979 (1.18)
2.socialnetwork#2016			0.144 (1.76)
3.socialnetwork#2004			0.0495 (0.63)
3.socialnetwork#2006			0.287*** (3.53)
3.socialnetwork#2008			-0.0543 (-0.72)

3.socialnetwork#2010			0.0761 (1.01)
3.socialnetwork#2012			0.0784 (1.07)
3.socialnetwork#2014			0.0979 (1.21)
3.socialnetwork#2016			0.134 (1.66)
4.socialnetwork#2004			0.0652 (0.87)
4.socialnetwork#2006			0.291*** (3.77)
4.socialnetwork#2008			-0.0146 (-0.21)
4.socialnetwork#2010			0.129 (1.80)
4.socialnetwork#2012			0.0829 (1.19)
4.socialnetwork#2014			0.0912 (1.18)
4.socialnetwork#2016			0.119 (1.54)
5.socialnetwork#2004			-0.0210 (-0.28)
5.socialnetwork#2006			0.226** (2.93)
5.socialnetwork#2008			-0.0589 (-0.83)
5.socialnetwork#2010			0.130 (1.81)
5.socialnetwork#2012			0.0628 (0.90)
5.socialnetwork#2014			0.0427 (0.55)
5.socialnetwork#2016			0.0657 (0.85)
6.socialnetwork#2004			0.0610 (0.83)

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6.socialnetwork#2006			0.311*** (4.10)
6.socialnetwork#2008			0.0304 (0.43)
6.socialnetwork#2010			0.205** (2.91)
6.socialnetwork#2012			0.135* (1.96)
6.socialnetwork#2014			0.164* (2.15)
6.socialnetwork#2016			0.158* (2.08)
7.socialnetwork#2004			0.119 (1.58)
7.socialnetwork#2006			0.379*** (4.89)
7.socialnetwork#2008			0.0858 (1.19)
7.socialnetwork#2010			0.225** (3.10)
7.socialnetwork#2012			0.160* (2.27)
7.socialnetwork#2014			0.190* (2.41)
7.socialnetwork#2016			0.232** (2.97)
_cons	4.627*** (180.70)	3.911*** (127.72)	4.011*** (72.48)
N	323148	323148	323148

t statistics in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$
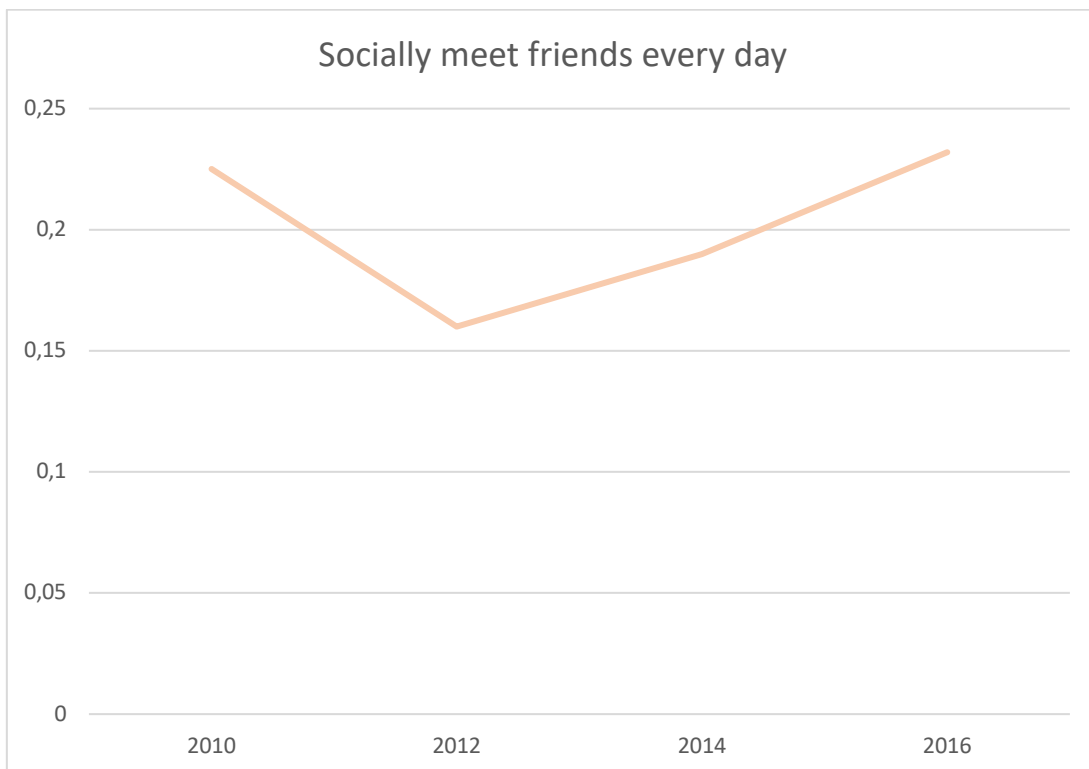
Source: Own elaboration using the European Social Survey.

Figure 2. Evolution of happiness of people who socially meet several times a week when time and social networks are interacted.
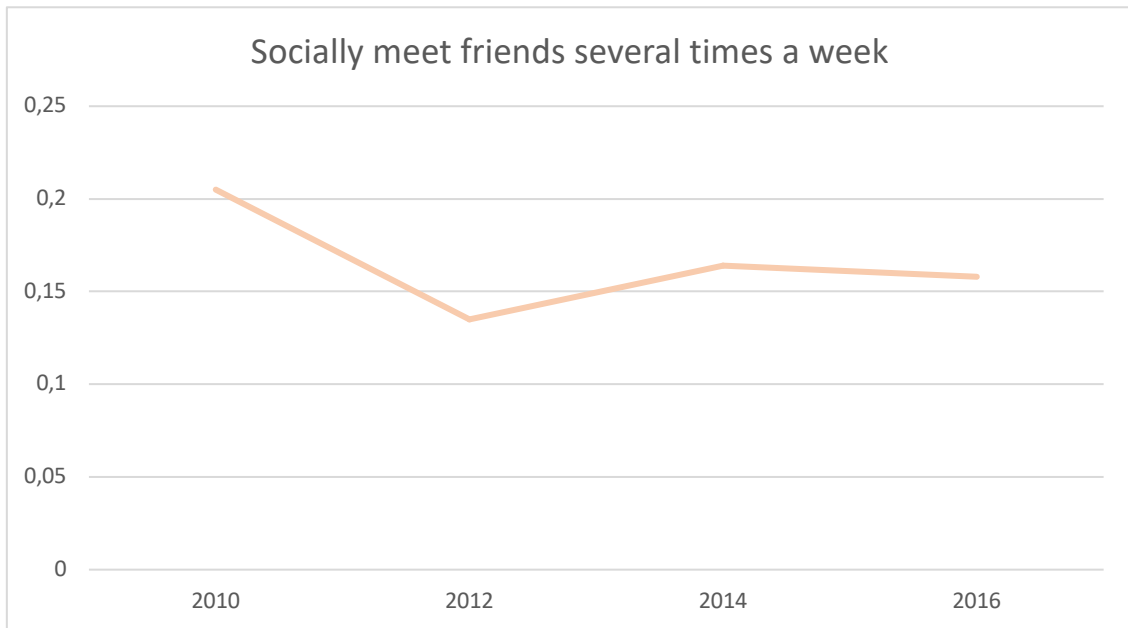
Source: Own elaboration using the European Social Survey.

Figure 3. Evolution of happiness of people who socially meet every day when time and social networks are interacted.

Source: Own elaboration using the European Social Survey.

Consistent with our hypothesis, we can see that people who meet their friends at least several times a week or every day, experienced their happiness to decline in the years 2010-2012 and then slowly rise again towards the 2016. We consider that, given the

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controls for other factors, these changes are due to a learning process of the use of online social networks such as Facebook, WhatsApp or Instagram, among others. Initially, once the social networks become widespread in 2010 individuals in our sample use them **instead** of their live relationships with peers. However, that leads to a decreased general subjective well-being (shown by a decline in the happiness). Only after some time, as people learn to use online social networks **together** with their offline relationships, their happiness increases again. We assume that this is the case and not that the Great Recession of 2007-2008 drives our results, because we control for the time factor explicitly in Model 3. The time dummies capture the effect of the Great Recession leaving our results for social networking net of these causes. Another factor that may be taken into account is the mean age. In Figure 2 the mean age of the sample is 47 years, whereas in Figure 3 people is younger, with a mean age of 44 years. It is clear how in Figure 2 happiness growth stops somewhere near 2014 and stabilizes. Whereas in Figure 3 happiness keeps on increasing throughout the years. We assume that as young people's use of social network sites is more frequent, once they learn how to combine it with offline relationships the effect is higher than for older adults.

7. Discussion

7.1. Summary of findings and implications

In this study, we aimed to examine the extent to which the initial decline and later increase in people's happiness since the popularization of online social networks might be due to a learning process. We used data from the European Social Survey and started by observing individual characteristics such as age, sex, marital status, education, income perception, employment relation, subjective health level, and job satisfaction. Subsequently, we studied the degree to which the net effect of offline social networks regulated subjective well-being. Here, we assumed that individuals with larger social networks met with their friends more often (by the sheer amount of connections) while the contrary stood true for those with smaller networks. Latterly, we interacted the social interactions offline with the time in order to observe the effect of online social networks on the subjective well-being (without direct measure of this effect).

Our main results showed that people who met their friends at least several times a week or every day, experienced their happiness to decline in the years 2010-2012 and then slowly rise again towards the 2016. Since we run 3 different models to be able to control for factors such as individual characteristics and social networks, we believe that these changes in happiness are due to a learning process of the use of online social networks. Also, we assume that the Great Recession of years 2007-2008 does not drive our results as we expressly control for the time factor in Model 3. This finding confirms our hypothesis and enables us to show the evolution of Figure 1 through Figures 2 and 3. Overall, these results are consistent with the view of Arampatzi, Burger and Novik (2018) that as far as happiness is concerned, social network sites cannot replace social connections in real life but, at most, can supplement them.

7.2.   Limitations and suggestions for future research

Although our research raises many future research questions, three of them stick out. To begin with, our use of cross-sectional data limits the validation of the causal relationships. Individuals in our sample change across time, meaning that they are observed only once. Future studies should repeat our results with a panel data for more rigorous examination. Second, we have tried to report personalities by taking into account how frequently individuals in our sample met with friends. That said, specific personality traits should be accounted in future research to avoid generalizing. At last, specific social network sites should be investigated in order to capture the true nature of the learning process. It will be important to investigate Facebook, Instagram, WhatsApp and all the other SNSs individually as each one is associated with different use patterns and user traits.

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8. Bibliography

Appel, H., Gerlach, A. L., & Crusius, J. (2016). The interplay between Facebook use, social comparison, envy, and depression. *Current Opinion in Psychology*, 9, 44–49.

Arampatzi, E., Burger, M. J. & Novik, N. (2016). Social Network Sites, Individual Social Capital and Happiness. *J Happiness Stud* (2018) 19: 99. https://doi.org/10.1007/s10902-016-9808-z.

Berkman, L., and Glass, T., and Brissette, I., and Seeman, T. (2000). From social integration to health: Durkheim in the new millennium. *Social Science & Medicine, 51, 843-857.*

Bollen, J., Gonçalves, B., Ruan, G. & Mao, H. (2011). Happiness Is Assortative in Online Social Networks. *Artificial Life*, 17(3), 237-251.

Chou, H. G., & Edge, N. (2012). ''They are happier and having better lives than I am'': The impact of using facebook on perceptions of others' lives. *Cyberpsychology, Behavior, and Social Networking*, 15(2), 117–121.

Arampatzi, E., Burger, M. J. and Novik, N. (2018) 'Social Network Sites, Individual Social Capital and Happiness', *Journal of Happiness Studies*. Springer Netherlands, 19(1), pp. 99–122. doi: 10.1007/s10902-016-9808-z.

Coleman, J. (1988) 'Social capital in the creation of human development', *The American Journal of Sociology*, pp. 95–120.

Cummins, R. A. (1996) 'The domains of life satisfaction: An attempt to order chaos', *Social Indicators Research*, 38(3), pp. 303–328. doi: 10.1007/BF00292050.

Diener, E. (1984) 'Subjective well-being', *Psychological Bulletin*, 95(3), pp. 542–575. doi: 10.1037/0033-2909.95.3.542.

Diener, E. (1999) 'Subjective well-being: Three decades of progress', *Psychological Bulletin*, 125(2), pp. 276–302. doi: 10.1037/0033-2909.125.2.276.

Ellison, N. B., Steinfield, C. and Lampe, C. (2007) 'The benefits of facebook "friends:" Social capital and college students' use of online social network sites', *Journal of Computer-Mediated Communication*, 12(4), pp. 1143–1168. doi: 10.1111/j.1083-6101.2007.00367.x.

Granovetter, M. S. (1977) *The Strength of Weak Ties*, *Social Networks*. ACADEMIC PRESS, INC. doi: 10.1016/b978-0-12-442450-0.50025-0.

Helliwell, J. F. and Putnam, R. D. (2004) 'The social context of well-being', *Philosophical Transactions of the Royal Society B: Biological Sciences*, 359(1449), pp. 1435–1446. doi: 10.1098/rstb.2004.1522.

Joinson, A. N. (2008) '"Looking at", "looking up" or "keeping up with" people? Motives and uses of Facebook', *Conference on Human Factors in Computing Systems - Proceedings*, pp. 1027–1036. doi: 10.1145/1357054.1357213.

Kross, E. and Chandhok, S. (2020) 'How do Online Social Networks influence People's Emotional Lives?', *Applications of Social Psychology*, pp. 250–263. doi: 10.4324/9780367816407-13.

Leung, A., Kier, C., Fung, T. and Fung L. (2010) 'Searching for Happiness: The Importance of Social Capital', *Journal of Happiness Studies*, 12(3), pp. 443–462. doi: 10.1007/s10902-010-9208-8.

Lönnqvist, J. E. and Itkonen, J. V. A. (2014) 'It's all about Extraversion: Why Facebook friend count doesn't count towards well-being', *Journal of Research in Personality*, 53, pp. 64–67. doi: 10.1016/j.jrp.2014.08.009.

Matook, S., Cummings, J. and Bala, H. (2015) 'Are you feeling lonely? the impact of

relationship characteristics and online social network features on loneliness', *Journal of Management Information Systems*, 31(4), pp. 278–310. doi: 10.1080/07421222.2014.1001282.

Perrin, A. (2015) 'Social Media Usage: 2005-2015', (October), pp. 2005–2015. Available at: www.pewinternet.org/2015/10/08/social-networking-usage-2005-2015/.

Ryan, T. and Xenos, S. (2011) 'Who uses Facebook? An investigation into the relationship between the Big Five, shyness, narcissism, loneliness, and Facebook usage', *Computers in Human Behavior*. Elsevier Ltd, 27(5), pp. 1658–1664. doi: 10.1016/j.chb.2011.02.004.

Steinfield, C., Ellison, N. B. and Lampe, C. (2008) 'Social capital, self-esteem, and use of online social network sites: A longitudinal analysis', *Journal of Applied Developmental Psychology*, 29(6), pp. 434–445. doi: 10.1016/j.appdev.2008.07.002.

Verduyn, P., Ybarra, O., Résibois, M., Jonides, J. and Kross, E. (2017) 'Do Social Network Sites Enhance or Undermine Subjective Well-Being? A Critical Review', *Social Issues and Policy Review*, 11(1), pp. 274–302. doi: 10.1111/sipr.12033.

Wang, H. and Wellman, B. (2010) 'Social connectivity in America: Changes in adult friendship network size from 2002 to 2007', *American Behavioral Scientist*, 53(8), pp. 1148–1169. doi: 10.1177/0002764209356247.

Wellman, B., Haase, A. Q., Witte, J. and Hampton, K. (2001) 'Does the Internet increase, decrease, or supplement social capital? Social networks, participation, and community commitment', *American Behavioral Scientist*, (3), pp. 436–455. doi: 10.1177/00027640121957286.

Wilson, W. R. (1967) 'Correlates of Avowed Happiness', *Psychological Bulletin*, 67(4), pp. 294–306. doi: 10.1037/h0024431.