

# The active and passive use of Facebook: measurement and association with Facebook addiction

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## SUMMARY

### Objectives

The present study created and validated a questionnaire to measure active and passive Facebook use, and evaluated its association to Facebook addiction.

### Methods

Two samples of undergraduate students ( $n = 533$ ,  $M \pm SD = 22.73 \pm 2.77$  years old, 51.1% females; and  $n = 222$ ,  $M \pm SD = 22.45 \pm 2.83$  years old, 49.5% females, respectively) were recruited. The Active and Passive Use of Facebook Scale (APUF) comprises a list of 17 Facebook activities, covering both active usage (e.g. "commenting on friends' posts") and passive usage (e.g. "viewing posts").

### Results

With regard to scale dimensionality, the best-fit measurement model includes four factors: Active use-social connection, Active use-online self-presentation, Passive use-social connection, and Passive use-social comparison ( $\chi^2/df = 2.34$ ; RMSEA [90%CI] = .08 [.06-.09]; CFI = .96). With regard to reliability, internal-consistency Cronbach's alpha ranges from .78 to .89. Convergent validity is demonstrated with significant correlations between APUF and time spent online, Generalized Problematic Internet Use Scale 2 score, and Bergen Facebook Addiction Scale score. Passive users who monitor other people lives (i.e. social comparison factor) were more likely to report higher levels of Facebook addiction.

### Conclusions

The present findings indicate that the APUF is a useful measure with good psychometric properties for assessing whether people use Facebook actively or passively. Having good measures of this aspect could really provide an important empirical contribution since the way people use social networks has an important role in determining how these sites impact subjective well-being.

**Key words:** Facebook use, active Facebook use, passive Facebook use, Facebook addiction, Facebook scale

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### Conflict of interest

The Authors declare no conflict of interest

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## Introduction

Facebook is the world's most popular social network site that enables registered users to connect with friends, family and colleagues. As social network site, Facebook allows individuals to construct a public or semi-public profile within a bounded system, articulate a list of other users with whom they share a connection, and view and traverse their list of connections and those made by others within the system<sup>1</sup>.

Activity on Facebook takes essentially the form of content creation (i.e. posting opinions, photos, videos, personal information, and knowledge) and content consumption (i.e. viewing posts, observing others' profiles). In particular, prior research indicates that Facebook activities can be classified into active and passive usage<sup>2,3</sup>. Active usage refers to activi-

ties that implies an active engagement with the social network site, like posting a content or commenting on posts; passive usage involves consuming information without contributing in the form of posts and comments, like scrolling through news feeds or viewing posts. A further difference between active and passive Facebook use deals with the level of exposure online. Online, passive use is also known as “lurking,” and such behavior allows the user to observe contents of other people while maintaining relatively anonymous. Active use implies showing opinions, interests, and pictures in order to communicate or share something with friends. The distinction between active and passive forms of Facebook usage is important because different outcomes and consequences on psychological well-being have been identified. A recent review on this topic<sup>4</sup> concluded that passive use was associated with decreases in subjective well-being over time (i.e. negative affect, and a global sense of dissatisfaction with life). Active usage was positively related with psychological well-being (in particular reduced loneliness<sup>5,6</sup>), although this association received a more tenuous empirical evidence<sup>4,7,8</sup>. With regard to the mechanisms underlying the effects of social network sites usage on psychological well-being, the above-mentioned review<sup>4</sup> revealed that, on the one hand, the positive effect of active usage of Facebook on subjective well-being may be partially due to an increase in social capital and associated feelings of social connectedness and social support. On the other hand, passive usage of social network sites seems to elicit social comparison and, in some cases, feelings of envy, that could lead to declines in subjective well-being<sup>9</sup>.

Facebook use has been mainly conceptualized as the time spent on Facebook and the number of Facebook friends. Results from a recent systematic review<sup>10</sup> found these aspects of Facebook use associated with several mental health problems, like Facebook addiction, anxiety, depression, body image and disordered eating, drinking cognitions and alcohol use. Concerning Facebook addiction, time spent on Facebook was found to predict addictive use<sup>11-13</sup>. Moreover, Turel<sup>14</sup> found a “vicious cycle” of Facebook addiction: an increase in Facebook use in the past three months drives to higher levels of Facebook addiction, which, in turn, leads to increased logins to Facebook, daily time spent on Facebook, and active Facebook status updates. Across the other psychological problems related to Facebook use, some empirical evidence emerged for a relevant role of passive use, especially in relation to social anxiety<sup>15</sup> and depression<sup>16</sup>. As Frost and Rickwood stated<sup>10</sup>, Facebook social comparison tendency could mediate the association between Facebook use and psychological problems. De Vries and Kuhne<sup>17</sup> found that Facebook

use was associated with negative social comparison, which would foster to negative perception about a person's social competence.

According to the social skill model of problematic Internet use<sup>18,19</sup>, the self-perception of social incompetence causes a preference for online social contexts (characterized by anonymity and reduced evaluative non-verbal cues), which, in turn, leads to a compulsive use of Internet social services<sup>20</sup>. Passive Facebook use, consisting of observing contents produced by others and monitoring other people lives, could elicit negative self-evaluations in relation to others, which could be responsible for Facebook addiction and problematic Internet use. Unfortunately, the association between passive use of Facebook and Facebook addiction has not been investigated so far.

In previous studies Facebook use has been mostly measured through the self-reported amount of time spent on Facebook (per day or week), the number of Facebook friends and the self-estimated frequency of use of some Facebook activities (like posting photos, updating personal information etc.) measured with unidimensional scale. No measure designed to assess the active and passive form of Facebook use has been developed. Therefore, the first aim of the present study is to create and validate a questionnaire to measure active and passive Facebook use. Moreover, since no previous study to the best of our knowledge has evaluated the association between passive use of Facebook and Facebook addiction, the second aim of the current study is to investigate this relationship.

## Materials and methods

### Participants

533 undergraduate students ( $M \pm SD = 22.73 \pm 2.77$  years old; 51.1% females) were recruited in the study rooms of six randomly selected faculties of the University of Florence, Italy. A second sample of 222 undergraduates ( $M \pm SD = 22.45 \pm 2.83$  years old; 49.5% females) was recruited in the study rooms of four randomly selected faculties of the Universities of Florence, Salerno and Foggia, in order to perform Confirmative Factor Analysis (CFA). Four research assistants have approached the students at the end of the lectures. Participation was voluntary and anonymous. Informant consent has been obtained for each participant. Study procedures were designed in accordance with the principles of the 1983 Declaration of Helsinki.

### Measures

Demographic information as well as self-reports regarding the hours spent online in a typical week (excluding study-related use) were collected.

To create the questionnaire, first we made a list of activities people can do on Facebook and then we divided it into two broad categories: “active” and “passive”, by consulting the literature<sup>3,21,22</sup> and taking into account the level of personal engagement and online exposure for each activity. The initial version of the Active and Passive Use of Facebook Scale (APUF) comprises a list of 21 Facebook activities, covering both active usage (e.g. “commenting on friends’ posts”) and passive usage (e.g. “viewing posts”). Respondents were asked to rate the frequency of use for each Facebook activity on a 7-point scale (from 1 = “never” to 7 = “several times a day”). After performing the explorative factor analysis (EFA) on the first sample, a 17-item version of the APUF was obtained and then administered to the second sample.

To measure Social Networking addiction, the Italian version<sup>23</sup> of the Generalized Problematic Internet Use Scale 2 (GPIUS2)<sup>20</sup> and the Bergen Facebook Addiction Scale (BFAS)<sup>24</sup> were administered. The GPIUS2 contains 15 Likert-type items on social networks problematic use rated on an 8-point scale (from “definitely disagree” to “definitely agree”). The Italian version of the GPIUS2 showed good internal consistency (Cronbach’s  $\alpha = .78-.89$ ). The BFAS comprised 18 items, three for each of the six core features of addiction: salience, mood modification, tolerance, withdrawal, conflict, and relapse. Each item is scored on a 5-point scale (from “very rarely” to “very often”). Higher scores indicate greater Facebook addiction. A preliminary Italian version<sup>25</sup> showed good psychometric properties.

### Statistical analyses

In order to explore the psychometric properties of the Active and Passive Use of Facebook Scale, the EFA was conducted first to identify the underlying factor structure in the original data set ( $n = 533$ ). The CFA was then performed in a new sample ( $n = 222$ ) in order to validate the results of the EFA.

The EFA was conducted using SPSS 25 with principal axis factor analysis employed as an extraction method with promax rotation. The suitability of the data for factor analysis was tested with the Kayser-Meyer-Olkin (KMO) measure of sampling adequacy and Bartlett’s test of sphericity. The number of factors to be extracted was determined by the examination of the scree plot in combination with the conventional cutoff of eigenvalues  $> 1$ . The promax rotation, an oblique rotation, was used because it is reasonable to assume that any extracted factors might be intercorrelated. The internal consistency of each factor was examined by calculating Cronbach’s alpha coefficient.

The CFA was performed to test the fit of the factor structure identified through EFA. LISREL program was used. The criteria for assessing overall model fit were based

on practical fit measures: the ratio of chi square to its degree of freedom ( $\chi^2/df$ ), the comparative fit index (CFI), and the root mean square error of approximation (RMSEA). For the  $\chi^2/df$ , values  $< 3$  were considered to reflect fair fit. We considered CFI and TLI values  $\geq .90$  to reflect fair fit. For the RMSEA, values  $\leq .08$  were considered to reflect adequate fit.

Finally, in order to test the APUF convergent validity, correlations between the APUF subscales scores and sex (point biserial), online-time in a typical week, the GPIUS2, and the BFAS (Pearson’s product moment coefficient) were computed.

## Results

### EFA

According to the KMO criterion, sampling adequacy was excellent (KMO = .90). Bartlett’s test of sphericity showed that the correlation matrix was suitable for factor analysis ( $\chi^2 = 5242.449$ ,  $df = 210$ ,  $p < .001$ ). Using the conventional criterion for retaining factors with eigenvalues  $> 1$  and the scree plot, a four-factor solution was identified, with the extracted factors explaining 60.38% of the total variance. Since four items had loadings and/or communalities  $< .30$  or had high loadings on more than one factor, they were removed from the questionnaire. Accordingly, dimensionality was then explored for the resulting 17-item version of the questionnaire. The results from the KMO’s (coefficient = .89) and the Bartlett’s tests ( $\chi^2 = 4452.793$ ,  $df = 136$ ,  $p < .001$ ) indicated that the data were suitable for factor analysis. Four factors were extracted, accounting for 67.10% of the total variance. All items loaded at .30 or above.

As shown in Table I, the first factor, named “Active use-social connection”, contains five items and relates to commenting on friends’ posts, status updates and photos, and posting or sharing links on friends’ walls. The second factor consists of five items and refers to posting status updates, updating one’s own personal information and photo, and sharing links on one’s own wall/page; we named this factor “Active use-online self-presentation”. Four items related to scrolling through news feed/viewing contents on one’s own wall, reading postings and friends’ links, and clicking “like” compose the third factor; this factor was called “Passive use-social connection”. The fourth factor, named “Passive use-social comparison”, contains three items and refers to looking at one’s own friends’ pages and pictures, and viewing not-friends’ pages.

Internal consistency of the four factors is reported in Table I. All item-corrected total correlations were above .30. There were moderate linear correlations between the four factors, as shown in Table II.

**TABLE I.** Item descriptive statistics, factor loadings, and internal consistency.

Item	M(SD)	Corrected item-total correlation	F1	F2	F3	F4
Viewing contents on your wall	6.38(1.19)	.46	.01	.23	<b>.68</b>	.06
Viewing friends' profile	4.63(1.55)	.63	.18	.19	.36	<b>.66</b>
Viewing not-friends' profile	3.38(1.63)	.63	.15	-.01	.09	<b>.78</b>
Viewing friends' pictures	3.52(1.48)	.65	.12	.19	.14	<b>.82</b>
Reading friends' links	5.06(1.60)	.61	.26	-.05	<b>.69</b>	.24
Reading posts	5.53(1.57)	.71	.19	.14	<b>.80</b>	.13
Updating your status	2.50(1.49)	.63	.26	<b>.67</b>	.25	.01
Updating your profile picture	2.06(.82)	.63	.18	<b>.79</b>	.01	.10
Updating your profile information	1.58(.78)	.44	.05	<b>.65</b>	-.09	.21
Posting photos	2.81(1.39)	.71	.40	<b>.70</b>	.17	.06
Sharing links and contents on your wall	3.13(1.55)	.69	.47	<b>.61</b>	.28	-.01
Commenting friends' status updates	3.28(1.56)	.75	<b>.78</b>	.20	.23	.14
Sharing links and contents on friends' profile	2.83(1.46)	.69	<b>.76</b>	.23	.09	.11
Clicking "Like"	5.33(1.64)	.56	.39	.15	<b>.63</b>	.10
Posting on friends' profile	2.88(1.48)	.70	<b>.72</b>	.32	.08	.20
Commenting friends' posts	3.74(1.53)	.80	<b>.79</b>	.14	.29	.21
Commenting friends' photos	3.54(1.55)	.77	<b>.76</b>	.20	.22	.21
Explained variance (%)			22.86	16.10	15.53	12.60
Cronbach's Alpha			.89	.81	.78	.79

Note. F1: Active use - social connection; F2: Active use - online self-presentation; F3: Passive use - social connection; F4: Passive use - social comparison

**TABLE II.** Pearson's correlation coefficients between the four factors.

	(1)	(2)	(3)	(4)
(1) Active use - social connection	—			
(2) Active use - online self-presentation	.63*	—		
(3) Passive use - social connection	.54*	.43*	—	
(4) Passive use - social comparison	.44*	.35*	.44*	—

\* $p < .001$

### CFA

An acceptable fit for the four-factor solution was obtained ( $\chi^2/df = 2.34$ ;  $RMSEA [90\%CI] = .08 [.06 - .09]$ ;  $CFI = .96$ ). The path diagram and the standardized path coefficients are shown in Figure 1. Standardized factor loadings ranged from .35 to .89, all of which were significant at the .001 level, as well as the estimated correlations among errors.

### Convergent validity

Sex was not significantly correlated with APUF subscales' scores. Time spent online in a week, the GPI-

US2 total score and the BFAS score were positively and significantly correlated with APUF scales. The highest correlation was found between Passive use-social comparison score and BFAS total score (Tab. III).

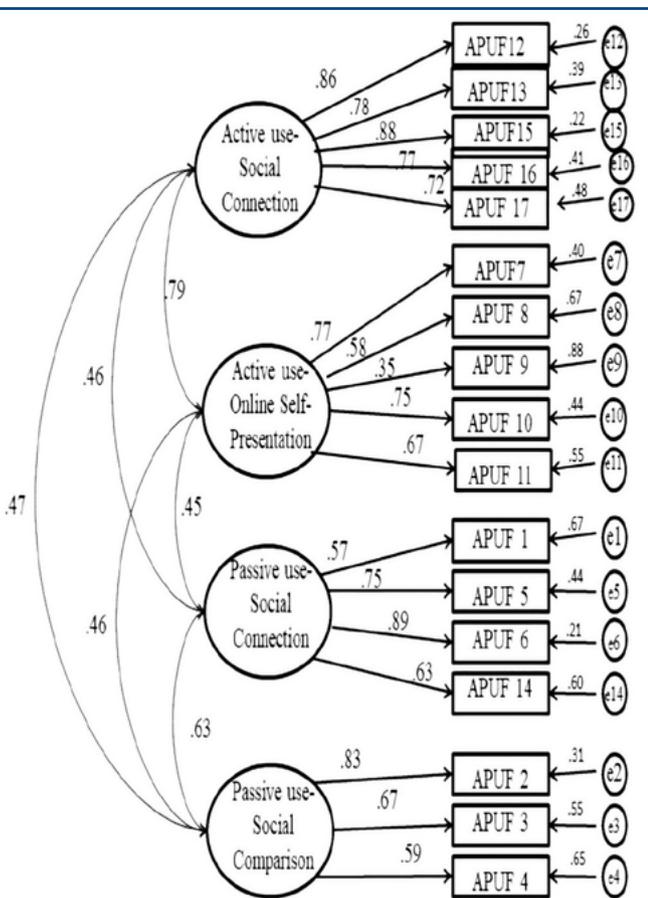
### Discussion and conclusions

The primary aim of the present study was to develop a multi-dimensional questionnaire measuring active and passive use of Facebook. The Active and Passive Use of Facebook Scale (APUF) was created and tested for dimensionality and psychometric properties.

**TABLE III.** Pearson's correlation coefficients between APUF subscales and sex, online time in a typical week, the GPIUS2, and the BFAS.

	Sex	Online time/week	GPIUS2	BFAS
Active use - social connection	-.03	.16*	.22*	.28*
Active use - online self-presentation	-.05	.15*	.24*	.30*
Passive use - social connection	-.08	.14*	.26*	.29*
Passive use - social comparison	-.04	.22*	.26*	.35*

\* $p < .001$ . Note. GPIUS2: Generalized Problematic Internet Use Scale 2; BFAS: Bergen Facebook Addiction Scale



**FIGURE 1.** Confirmatory factor analysis of the active and passive use of Facebook Scale.

About dimensionality, the results of explorative and confirmative factor analyses revealed that APUF comprises 17 items loading on four factors.

Two factors pertain to active use:

- social connection contains items referring to commenting friends' posts and posting contents on friends' walls;
- online self-presentation contains item focused on updating one's own personal information and posting contents on one's own wall.

Both factors imply online active engagement and exposure although with slightly different purposes. In the first factor, active use is aimed to maintain social bonds by connecting and communicating directly with friends through comments and posts; in the second factor, active use is directed to manage one's own public profile and online self-presentation, which is related to the process of impression management.

The other two extracted factors concern passive usage:

- social connection comprises items related to browsing one's own news feed, reading contents and clicking the "like" button;
- social comparison contains item referring to viewing friends' and not-friends' profiles.

Both factors entail passive content consumption on Facebook. However, whereas the first factor implies a pointless use of Facebook, the items contained in the social comparison factor implies a goal-oriented research of information that is monitoring other people lives. In both cases, the anonymity is maintained. A partial discrepancy could be noted for the "Clicking Like" item, since it describes an activity one would expect to load onto the active use factors. This result could be partially explained by the fact that the "like" activity does not involve a content creation and requires a low level of engagement.

Still concerning APUF dimensionality evaluation, the APUF dimensions are in line with the dual-factor model of Facebook use<sup>26</sup>. It proposes the existence of two basic needs underlying the use of Facebook: 1) the need to belong, which refers to the intrinsic drive to feel close and accepted by others and gain social acceptance; 2) the need for self-presentation, which is associated with the process of impression management and the desire to create a positive impression of one's self in others. The need for belongingness could be represented by the first active use factor and the two factors of passive use, since they all contain Facebook activities aimed to maintain or create social bonds. The need for self-presentation could be described by the online self-presentation factor, which covers Facebook activities oriented to manage one's own public image (both

in term of opinions, interests and outward appearance). Future studies should assess the relationship between Facebook needs and active/passive usage.

As regards APUF psychometric properties, the factors demonstrated good internal reliability and acceptable convergent validity. Active and passive use of Facebook seems to be not-gender related; however, this association was not previously documented. Time spent online in a typical week was found to be weakly associated with both active and passive use; the highest correlation emerged for passive use social comparison factor; more an individual uses Facebook to view friends' and not-friends' profiles more he/she spends time online.

The second aim of the present study was to assess the relationship between passive use and Facebook addiction. The correlational analyses revealed several relationships. In particular, mild associations were found between both active and passive use and social networking addiction. Facebook addiction displayed moderate relationships with all four APUF factors. However, the highest association was found for passive use social comparison factor. Passive users who monitor other people lives (i.e. social comparison factor) were more likely to report higher levels of Facebook addiction. This finding may be partially explained by the social skill model of problematic Internet use<sup>18,19</sup>, which identified the self-perception of social incompetence as a risk factor for social networking addiction. Indeed, it is possible to suppose that passive use oriented to social comparison provokes negative self-evaluation, which in turn could lead to prefer online context since it allows great control over self-presentation. According to Caplan<sup>19,20</sup>, preference for online social interactions is a cognitive

precursor of the tendency to use the web for regulating negative mood states, the compulsive use of the web and the presence of negative outcome in the real life due to Internet use. However, it is also possible that a social self-presentational skill deficit could be responsible of passive Facebook use, which, by promoting social comparison, could in turn exacerbate perceived social incompetence and lead to Facebook addiction. The cross-sectional nature of the present data does not allow us to test the directionality of the emerged relationships. Longitudinal and mediation studies are needed in order to clarify the association between passive use and social networking addiction.

One more limitation of the present study is that the sample is only partially representative of the population and focuses solely on young people. Studies featuring different age samples should be conducted to support the current findings.

Finally, further studies should be performed to strengthen the validity of the scale. For example, the relationship between active and passive Facebook use and well-being indicators needs to be evaluated.

In summary, the present findings indicate that the active and passive use of Facebook scale is a useful measure with good psychometric properties for assessing whether people use Facebook actively or passively. This scale permits researchers to evaluate how users spend time on Facebook and the level of engagement on this site. Having good measures of these aspects could really provide an important empirical contribution since emerging evidence indicates that the way people use social networks has an important role in determining how these sites impact subjective well-being<sup>3,27</sup>.

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