

# Validity and Reliability in the Assessment of the Vulnerability of Social Networks

## *Validez y confiabilidad en la evaluación de la vulnerabilidad de las redes sociales*

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Information on the article: received: March 2013, reevaluated: March and June 2013, accepted: August 2013

### Abstract

Nowadays, measuring the impact and effectiveness of Social Networks is important for people who use them in an individual manner, due to social or academic interests, as well as for companies that use them to evaluate or promote their products and businesses. Particularly, it is necessary to monitor and evaluate qualitatively and quantitatively, if possible, this tool that is used for the dissemination of information of any kind. We have tried to create an instrument that aims to validate the reliability of social networks, taking Facebook our case study because it is one of the most widely used currently. This instrument is a tool that measures the "information vulnerability"; information that people decide to upload to the Internet as part of a social network. Regarding validity, a suitable solution focused on four factors was found: legality (self-regulation), social factors, psychological factors, and finally technology. It was concluded that the proposed mechanism can be a useful instrument that detects the information vulnerability storage in each social network.

### Keywords:

- social networks
- reliability
- vulnerability
- validity
- self-regulation

### Resumen

En la actualidad, la medición del impacto y la eficacia de las redes sociales es importante para las todas las personas que los emplean de manera individual, ya sea por intereses sociales o académicos, de igual manera es fundamental para las empresas que los utilizan para evaluar o promocionar sus productos y negocios. En particular, es necesario monitorear y evaluar cualitativa y cuantitativamente, de ser posible, la herramienta que se utiliza para la difusión de información. Se ha tratado de crear un instrumento que tiene como objetivo validar la fiabilidad de las redes sociales, tomando Facebook como caso de estudio, por considerarse una de las más utilizadas hoy en día. Este instrumento es una herramienta a manera de modelo, que mide la "vulnerabilidad de la información" que las personas deciden subir a Internet como parte de una red social. En cuanto a la validez, se encontró una solución adecuada centrada en cuatro factores: legalidad (autorregulación), aspectos sociales, aspectos psicológicos, y aspectos tecnológicos. Se concluyó que el mecanismo propuesto puede ser un instrumento útil que detecta la vulnerabilidad de la información almacenada en una red social.

### Descriptores:

- redes sociales
- fiabilidad
- vulnerabilidad
- validez
- autorregulación

## Introduction

This study intends to validate the reliability of an instrument to measure the vulnerability of the information in social networks. This is due to the fact that during adolescence and youth, individuals require more approval from other people of the same age and communicate with them, and this is when they are most interested in belonging to a social network. Thus, in many cases, they show personal information that makes them easy targets for other people, who use these means of socializing for their own benefit, almost of any kind.

Owing to the importance that Information Technology has reached in recent years, and in particular social networks, people with other interests have also joined them, causing a rush of information and emotional situations that create social influences.

By 2011, in Mexico, the use of Information Technology at homes (INEGI, 2011) has shown considerable growth, facilitating access to Internet contents such as social networks. In addition, companies have been influenced and supported by Information Technology and have realized the importance of belonging to the most consulted and used social networks in Mexico.

However, behind this boom of dissemination and use of information in social networks, there is a problem with self-regulation that handles the media, and causes information to be vulnerable and to be misused by people or organizations without scruples.

Reliability can be defined as the ability of a product to perform its function as intended previously. In other words, the reliability can also be defined as the probability that a product will perform its intended function, without incidents during a specified period of time under indicated conditions. Running a reliability analysis on a product or on a system should include many types of tests, in order to determine the reliability of the intended product or system, to be analyzed.

For our case study, once the analyses are made, it is possible to predict the effects, changes and corrections in storage and handle the information that users provide within the social network. Several studies concerning social networks are related, linked and examined jointly, in order to determine their reliability under all possible perspectives, identifying potential problems, suggesting corrections, changes or improvements.

Nowadays, the importance of social networks in order to obtain emotional stability and social skills in the development of young people, is high. However, due to the misuse of information in these networks, there are socio-emotional problems, and later anxiety and de-

pression. These could determine unpleasant outcomes such as suicide.

Moreover, companies know that social networks are very important tools for their business. However, they also know that there is insecurity and misuse of information that can affect them negatively. Therefore, in this context, the opportune detection of vulnerable information found in social networks becomes a priority, and the problem can be faced successfully, with proper management strategies and skills.

In Mexico there is no reliable and validated tool, capable of detecting the levels of information vulnerability in social networks. Our suggestion is:

- 1) Determine the variance proportion of the original data that the instrument explains from a proposed model.
- 2) Evaluate the content validity of this instrument.
- 3) Evaluate the internal consistency of this instrument.

## Problem

There are a number of features that make social networks more or less vulnerable to information misuse, thereby affecting their users and in some cases hurting youngsters intellectually, emotionally and socially. In Mexico, there are no reliable and validated instruments to assess the information vulnerability in social networks. This research proposes a reliable and valid tool to measure the vulnerability of information contained in social networks. Assuming that this vulnerability is associated with the improper use of certain regulations, according to the information contained in these web sites with little or low security, this allows a third-party with proper technology to reach this information and use it improperly or incorrectly.

## Main objective

This research aims to validate the reliability of an instrument to measure information vulnerability stored in social networks.

## Conceptualization and Social Network analysis

The term social network refers to a structure and joint interconnected relationships (Mitchell, 1969). However, the term "social network" also refers to Internet platforms and with Social Network Analysis, and thanks to existing means it is possible to obtain several statements about this. In social networks, the social nature

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