Using Internet-Mediated Research in Studying Toleration on Social Network Sites

Noha A. Nagi, Dr. Amira S. N. Tawadros, Dr. Amal S. Soliman*

This paper presents an overview of Internet-Mediated research as a methodological approach to study toleration. The paper presents a description of different types of Internet data and data collection methods used in Internet studies; a description of the different methods that can be used to extract data from online resources; and a presentation of web content analysis. The paper also proposes a new way to capture and measure toleration in a specific society using web content analysis, and discusses the basic procedures researchers shall proceed in to conduct web content analysis on social media websites.

1. Introduction[1]

Toleration, whether as a virtue or as an attitude, is a normative concept that relates to the cultural norms in any society (Forst, 2003). There are numerous stimuli affecting the level of toleration in any society and in turn be affected by toleration. Religion, education, culture and political atmosphere are examples. Accordingly, there are political, racial, cultural, and general prospects to approach toleration (Sullivan et. al., 1981; Golebiowska, 1995; Abrahamson & Carter, 1986; Tuch, 1987; Boutros, 1998; Carter, 2005; Mccabe, 2010).

Although toleration and tolerance are nouns derived from the same verb "to tolerate", they have different meanings. Tolerance sometimes refers either to the meaning of indifference, where there is no disagreement component, or, endurance where there is no power to take or not to take the decision of toleration (Cohen, 2004). Inspired by Andrew Cohen's (2004) definition, toleration can be considered as a situation where a person refrains (intentionally)

* Assistant Professor, Faculty of economics and Political Sciences.

[1] From section 1 to section 3 written by Dr. Amira Tawadros.

from interfering with an opposed other while he/she has the power to interfere. In this study, we use the term "toleration" instead of tolerance.

Researchers most commonly use survey studies to create indicators of toleration within a particular context. For example in measuring and quantifying political toleration, survey questions may include whether the individual would accept allowing their most disliked minorities to hold public demonstrations. (European University Institute, 2013).

An alternative approach to quantifying toleration is the use of analysis of textual content (Boutrous, 1998; Mukherjee et al., 2013).

The Internet provides a large-scale data source for social science research as well as a medium of research. The Internet and social network sites (SNSs) can provide publicly available, low-cost and instantaneous substantial amounts of data (Hookway, 2008). In particular, the characteristics of SNSs are the stimulant for advocating their use as a source of data collection in social science. For online social networks, Internet studies have developed in two main directions: understanding social and behavioral patterns on the Internet, as well as, analyzing the online social networks (Dutton, 2013; Peng et al., 2013).

Additionally, social science research can use the Internet as a data source through conducting online surveys, interviews, experiments and content analysis (Chen et al., 2015; Ackland, 2013). When a research uses Internet as the primary source from which data is gathered, we can call it "***Internet-Mediated Research*" *(IMR)*** (Fielding et al., 2008).

Although the Internet provides a promising data source in social science research as well as a medium of research, it remains relatively unused as a primary resource for data collection in many research fields; even with the technological advancements in collection of primary data.

This study proposes a research methodology that pursues a quantitative approach in the analysis of toleration using Internet-Mediated Research (IMR). The proposed methodology adopts *Web Content Analysis* based on Internet data collected from Social Network Sites (SNSs).

The paper proceeds as follows: Section 2 introduces the main concept of toleration, and the methods used to measure toleration. Section 3 discusses Internet-Mediated Research (IMR) and its uses in the social sciences. Section 4 discusses the procedure of data collection from SNSSs. Sections 5 proposes web content analysis as a research methodology that can be used in the social sciences. Finally, section 6 applies our proposed research methodology (web content analysis) to the capturing and measurement of toleration.

2. The Concept and Measurement of Toleration

Although numerous fields study toleration, the definition of the term is still unclear. Oxford online dictionary defines Toleration as "the practice of tolerating something, in particular differences of opinion or behavior" (Oxford online dictionary, 2014).

Toleration occurs when "difference or diversity is present because it is only when confronting diversity that our acceptance of others is truly tested" (Witenberg, 2002). Thus toleration requires diversity in specific contexts and according to the source of diversity, toleration is viewed as religious, political, ethnic, racial, national, civic, social, cultural and sexual (European University Institute, 2012; Cranston, 2006; Tan, 1998; Al-Khalil et al., 1992).

Moreover, we need to consider two important aspects in order to understand toleration: First, toleration is related to the standards and cultural norms in a given society, i.e., it is a normatively dependent concept. It is also considered to be highly dependent on the level of justice in one's own perception (Forst 2003; Müller, 2005). Second, the term has different meanings in

different languages. In Arabic the word “toleration” originates from the verb “to permit”, “to ease”, “to step down” in a situation where there are differences or disputes with others to signify good manners, implying that toleration is a virtue that signifies respect, reverence and politeness. On the other hand, the English origin of “toleration” is derived from the Latin verb “tolerate” that is “to endure”. Endurance holds a negative meaning of toleration, since it holds a sense of suffering.

Toleration requires acceptance while disapproving. Thus, toleration is an attitude between acceptance and unrestrained opposition. This intermediate position between acceptance and opposition makes toleration a puzzling attitude (Scanlon, 2003). The analysis of toleration is mostly attitudinal, where toleration is considered as an attitude or virtue of individuals. Moreover, studies found are more conceptual and qualitative than empirical. Numerous studies examine toleration in political theory as a liberal concept in democratic regimes.

In 1998, Howaida Boutros proposed a procedural definition of political toleration, which is adopted in this study. She described political toleration as the willingness of accepting the different others (different groups or different views) with the confession or the endorsement of their full rights to practice their political and civil rights [(Boutros, 1998), p.8].

However, our study is only concerned with toleration between individuals (horizontal toleration); rather than vertical toleration, that is toleration from the state to its individuals.

Moreover, Toleration “is acceptance of and respect for people with different values, beliefs and cultural backgrounds than one's own accompanied by a willingness to allow others to maintain and express their values, beliefs and culture”. A person practicing toleration “will show empathy for others and a diminished response to their differences.” (Moore & Walker, 2011). Thus, in order to be

able to measure toleration, it is important to have a controversial issue that raises the grudge and disapproval among opponents.

Although most of studies on toleration focus on understanding the concept of toleration; defining its conditions and its relevance to political theories and setting limits to this desirable behavior, several studies attempt to measure the level of toleration in any society.

Toleration indicators were created from survey studies of political tolerance (e.g. Stouffer, 1955; Gibson and Bingham, 1982; Sullivan et. al, 1982) to measure and quantify how people accept minorities through asking questions such as whether they accept that the most disliked group to be allowed to hold public demonstrations or not (European University Institute, 2013).

An alternative approach for measuring the level of toleration in a society uses content analysis of observational data. Mukherjee et al. (2013), for instance, presented a model to classify, on real time, participants in online forums into tolerant vs. intolerant ones and to investigate how disagreement affects tolerance in a quantitative manner through text analysis.

3. Internet- Mediated Research (IMR) in Social Sciences

Social science articles referring to the Internet first appeared in the early 1990s (Dutton, 2013). Social scientists were mostly pre-occupied with the questions of how cyberspace (i.e. the environment under which communication over the computer networks occur) shapes and affects social life. However, it was not until 2006, that that the social science research field became respondent to the emergence of the Internet as a tool for data collection. Thus, the inclusion of the Internet as a research tool in the social sciences is novel (Hookway, 2008).

Internet studies have developed into a substantial field in terms of number of studies published in the past decade. They span

a wide-ranging agenda of established disciplines, including sociology, psychology, marketing, communication. However, a noticeable feature of Internet studies is that research is not divided along the recognizable disciplinary boundaries of the social sciences, such as sociology, political science, economics and public administration. Instead, the studies scatter around key issues or topics such as *interactions, communication, and regulation*.

Recently, the growth in research in Internet studies in the social science field lies in two main directions (Peng et al., 2013):

a) Understanding social and behavioral patterns on the Internet and how interactions take place through the Internet using the different features of SNSs such as (blogging, photo-sharing, or video-sharing), and

b) The direction of social network analysis in Internet studies which is motivated by the fact that the data collected from the Internet is a network data in nature.

Hence, social science research can make use of Internet data through conducting online surveys, interviews, experiments, or through gathering data, whether quantitative or qualitative, from online communities for verification or validation of social models.

Social Network Sites (SNSs) provide a valuable source of Internet data. They are characterized by *global reach* as the communication technologies provides wide reach and a global audience; *easy accessibility* since they are available to anyone with little or no cost and *usability* as there are no extra skills needed to use SNSs and to produce content. SNSs are also characterized by r*ecencey* of responses and a high rate of reciprocity since in SNSs responses are almost instantaneous.

In SNSs *permanence is eliminated* as the content can be easily updated or modified anytime unlike the traditional media communication technologies, the content is extremely volatile over time, because it can be altered almost instantaneously by comments,

editing, and so on. These key characteristics of online social communication have tempted researches to use them as a source for data collection and as a field for studying social interactions and social theories, but have also posed novel challenges to the study of social systems in general (De Choudhury et al., 2010).

We can summarize the basic advantages of IMR in the following points (MRA/IMRO, 2010; Snee, 2008; Benfield & Szlemko, 2006):

1- Cost and time reduction. IMR offers a cost and time efficient data collection that facilitates funding problems and research time constraints

2- Ready access to diverse populations. IMR provides readily access to a vast diverse participation pool from different geographical areas

3- Ease of access to user generated content and observational data. Many of attitudes and behaviors that were not measurable before, can now be measured through IMR and analysis of online behaviors through Web 2.0 applications, especially SNSs

4- Anonymity and privacy issues produce genuine data and attain high level of freedom of expression. SNSs and the Internet provide a medium where interactions can emerge with high anonymity and privacy attained giving higher levels of freedom of expression. This is very advantageous in sensitive topics where biosocial attributes bring about bias in results. This feature is hard to attain in offline contexts and is very important for quantitative studies where objectivity is a prime goal. Anonymity is advantageous for qualitative research, in specific, and to quantitative research as well since it allows for more frankness and truthfulness. This in turn provides high levels of credibility in the results. But the anonymity as well allows for equal power which may not be true in reality. That is, online

environments can cause the empowerment to marginalized groups

5- The interactivity and proximity. IMR, and social media research, allows for interactivity and instant feedback from participants. There is, as well, proximity between researcher and participants during the interaction. This is a privilege for studies involving online interviews or focus groups discussing sensitive topics.

However, two special online problems are worth highlighting here, one problem faced by qualitative researchers, which is *authenticity*. Although anonymity is difficult to achieve online and identities can be extracted, there are many forms of faking and fraud online and no one can really know a user's real identity. The second problem is common for online survey research: *a sampling frame* is absent. There is no online equivalent to random digit dialing. No complete random sampling, simply, because there is no complete list of all internet users, i.e. the population, from which we are drawing a sample as there is no general internet user registrar. Therefore it is not generally possible to select online respondents according to some randomized process. An exception is a survey of an organization where the organization has a complete list of its members and everyone has e-mail addresses but this is not always the case. This is a major concern in social and behavioral research because it affects the reliability and trustworthiness (i.e. validity) of IMR. The issues of sampling bias are the major concern, especially when probability sampling is the ideal alternative in quantitative research to provide generalizations for the population. However, qualitative research doesn't draw a lot on generalizations. It is not a key goal to generalize results for qualitative research, thus this problem is relatively less problematic. However for this later problem, a possible solution is to use mixed mode research. Online and offline data collection can be combined in various ways to

overcome the lack of a random sample in online research, while still retaining many of its advantages of low cost and easy control (Fielding et al., 2008; Hookway, 2008).

Two more research challenges need careful inspection: *anonymity* and *informed consent.* Both are difficult to achieve. It is easy for someone to break *anonymity* and discover the identity of individual respondents from an online dataset. Anything sent across the Internet is stored on multiple servers between its origin and its destination, and can be intercepted at any point. For example: emails are preserved on the servers and backup systems of both the sender and addressee, even if users delete them. The second point is *informed consent*. Unlike participants in surveys, subjects may never anticipate that their conversations are being recorded for research purposes. However some researchers argue that since it's publicly available then no consent is needed. Yet this concern is questioned in many academic journals (Hookway, 2008).

Another issue is the *reduced level of control* in online environments than the offline communities this is especially problematic in quantitative research. This arises owing to the technical variations of hardware, software, internet speed that leads to variations in displays and response time. This is a crucial point in online experiments that needs tight control over these variables. In addition to the problem of system, hardware or software failure that may lead to unexpected results in the study. There is also less control over knowledge, as well as technology. Participants vary in their knowledge & behaviors and the participation context, these variations arise due to the absence of the researcher in the online environment. Although issues of control are important for quantitative studies, it is sometimes important for qualitative approaches with a lesser extent. Qualitative research is affected by the absence the researchers' ability to gauge participants' intentions and honesty for example, in online interviews.

In general depending only on text, without "extra-linguistic" cues may cause some *ambiguity in the communication process*. The researcher needs to take this later problem in order to decide whether interaction is better to be synchronous or asynchronous, especially in online interviews or focus groups (Fielding et al., 2008).

An important concern posed by William Dutton (2013) is the rapid pace at which technical changes are implemented in SNSs and internet technologies. Researchers need to be mindful of the ways in which SNSs evolve over time and the effects this may have on the interpersonal, psychological, and sociological processes they are studying. The change in the technologies or features of SNSs, affects the communication mode such as: messaging or chatting; blogging or microblogging; commenting or replying in blogs or Facebook; tweet/retweet in twitter; or certain social actions like: vote, like and favorite. Also, the type of social media affects the communication whether conversation is public around a shared media, as in flicker or YouTube, or private. The change in communication mode affects the way people interact with each other (De Choudhury et al., 2010). Furthermore, features that one scholar examines one year may simply disappear the next. For instance, two studies of a particular website that produce different findings may not be contradictory since they may actually have been done under two different socio-technical contexts.

Thus, *careful documentation* of the technical/technological environment in addition to human behavior or sociological changes under study is highly needed. Not including information about what features were present at the time of data collection prevents the possibility of identifying patterns that emerge over time and through the accumulated scholarship across a range of sites and user samples. Even minute technical changes can have meaningful effects on human behavior and interactions (Dutton, 2013).

Appendix A presents the status and features of Facebook at the time this study was being undertaken.

One more challenge about using internet-based data is the type of the data available and the challenge of the analysis consequently. Both qualitative and quantitative data is available on the internet. Qualitative data includes words not numbers, such as: words from interviews, conversations and documents. The major challenge for qualitative data analysis is: content analysis. Categorization, data reduction and data interpretation needs to be done carefully. There have been numerous research papers providing solution strategies and tools for this type of analysis (Taylor-Powell & Renner, 2003). However, many qualitative researchers are uncertain about the results of computer-assisted qualitative data analysis software like CAQDAS (Séror, 2005), unlike quantitative researchers that trust the results of software for quantitative data analysis like SPSS.

The Internet, as a source for gathering data, saves cost and time of data collection and data entry. It enables collection of enormous amount of data and traces online behavior automatically in real-time or historically; enables easy access to user generated content and observational data with high anonymity thus increasing the results' credibility in sensitive research; and; enables reaching diverse, special or hard-to-reach populations (MRA/IMRO, 2010; Snee, 2008; Benfield & Szlemko, 2006).

Types and uses of internet data

In social research, data can be collected from various sources including: field (questionnaire) surveys, interview surveys (or simply referred to as: interviews), experiments, focus (discussion) groups, data extraction of different types of documents and field observation of behavior by watching and listening and taking field notes. However with the advancement of technology and the

availability of online content, data can be collected from the Internet and online research methods can be used. The online research methods are comparable to the traditional, *offline,* research methods, while online data collection is usually characterized by the ability of automation of the process through various software tools (Watts, 2013).

In addition to using the Internet as a source for collecting information using online surveys and interviews, online social networks have revolutionized the means and manner of social communication and interaction (De Choudhury et al., 2010**)**. Social activity and interactions are traced in real time through: *social media websites, forums, blogs, wikis and e-mails*. The major advantage for social and behavioral research is that quantitative data are recorded from situated social interaction rather than answered from historical or made up situations (Fielding et al., 2008). Internet data provides the researchers with the opportunity to study, with unprecedented scale and scope, the dynamics, structure and results of social interaction (Fielding et al., 2008).

Data derived from instant messaging services and social networking sites, for example, have been used to construct networks of hundreds of millions of nodes. Email data, blogs and online content have been used to study tie formation or the diffusion of online content. Massive field experiments have been used to estimate the causal effects of social influence on adoption, voter turnout, or likelihood to share content. Another strand of research uses the web to create controlled environments to conduct macro sociological experiments, called: "virtual labs". For virtual labs, recruitment of subjects is performed usually through crowdsourcing websites such as Amazon's Mechanical Turk (Mason et al., 2014; Watts, 2013).

Internet data is classified as primary or secondary data. *Primary internet data* involves gathering novel, original data for

analysis to answer a particular research question is often collected to conduct Internet-mediated research. On the other hand, data gathered through locating and accessing bibliographic materials available online, for instance newspapers, library databases or official documents online, are referred to as *secondary internet data*. Primary survey data is considered secondary if made available and retrievable to other users after collection (Fielding et al., 2008). In this study, the researcher is concerned with the methods of primary data collection. Hence, the focus in the description below concerns only primary Internet data and its collection methods in the following section.

In ***Internet-mediated research*** (IMR) data is gathered through: conducting *online (web-based) surveys, e-mail interviews or online focus groups, online experiments, online field research* or through gathering data from *online activities* or from behaviors in *online communities*. This type of data can be used for verification or validation of computational models in many different social science disciplines, including political science, sociology, and psychology, understanding social behaviors (Fielding et al., 2008).

There are four common methods of online data extraction in the social sciences, as follows:

1- **Online surveys –** These surveys represent a quantitative technique in Internet-Mediated Research (IMR). It involves sampling through probability-based or non-probability-based sampling. Three types of probability-based sampling are possible in online surveys, namely: "list-based sampling", "pre-recruited panel survey", and "pop-up survey".
   a. The "list-based sampling" is applicable if a complete list of the population is available. For example, we can get a sample of employees within a particular organization through email sampling.

b. In “pre-recruited panel survey”, however, the researcher recruits participants from the overall population to participate in a series of surveys over time.
c. The “pop-up survey” is a pop-up that appears to visitors at certain intervals, for example a survey pops-up to every 10th visitor of the website. This approach is generalizable to the visitors of the website but suffers from a high non-response rate and may be biased towards high or low satisfied customers.

   Non-probability sampling includes surveying “harvested” email lists, which are collected from website signing up databases for example, and “unrestricted self-selected” surveys that are open to anyone to participate in but is not representative to the general population. Google forms posted on the Internet for anyone to access represent an example for unrestricted self-selected surveys.

2- ***Online interviews and focus groups*** – These represent both quantitative and qualitative techniques in IMR. There are two types of online interviews: asynchronous (usually conducted by emails or forums) and synchronous. The former type is where the interviewer and the participant need not to be engaging in the interview process at the same time, while the later requires their interactions at the same time. On the other hand, online focus groups involve online discussions or chatting between respondents and moderators. The respondents’ insights and reactions are collected. The discussions are led by professional moderators to query a group of respondents that usually receive an incentive for participation. Skype and other chatting software can be used to conduct such interviews.

3- ***Web-based (online) experiments*** –These represent quantitative techniques in IMR. It commonly employs random assignment of alternative interfaces to social interactive websites while testing the various conditions at the level of the whole social system. Types of online experiments include: laboratory, field and natural experiments. Examples of web-based (online) experiments include:

d. Amazon Mechanical Turk (MTurk) is a crowdsourcing marketplace that makes it easier for individuals and businesses to outsource their processes and jobs to a distributed workforce who can perform these tasks virtually. This could include anything from conducting simple data validation and research to more subjective tasks like survey participation, content moderation, and more[2]. MTurk has been used to recruit participants in online laboratory experiments to study the effect of friends' recommendations on individual choice.

e. Online Platforms like oTree and z-Tree, which are both open source platforms, provide a basis for online field experiments. oTree[3] is an open-source platform for laboratory, online and field experiments (Chen et al., 2015). oTree is very similar to z-Tree[4] (Zurich Toolbox for Readymade Economic Experiments), which is a commonly used software in experimental economics with an open-source, online and object-oriented platform and a graphic user interface that is deployable on all devices. Studies that construct an artificial environment, for example a cultural market or artificial social network, to study decision-

[2] For more information, refer to https://www.mturk.com/.
[3] For more information about the software, refer to http://www.otree.org/.
[4] For more information about the software, refer to https://www.ztree.uzh.ch/en.html.

making or social influence are classified as online field experiments. In order to perform these studies we need platforms like oTree and z-Tree.

f. Social lab is a web-based tool that can be also used to help in construction of online experiments.
g. Online Natural experiments. These are studies that use virtual worlds, for instance "World of Warcraft" game, to map economic behavior of the real world and make use of a real events in that virtual environment. This helps in studying the effects of these real events on the economic behavior (Ackland, 2013; Fielding et al., 2008).

4- ***Web content analysis*** represents a qualitative technique in IMR, even though it involves quantitative analysis as well. Web content analysis includes: sampling online content; content categorization and content analysis (Ackland, 2013). The online content can be extracted automatically. A list of possible online social networks data extraction software are in Appendix B. After data acquisition, analysis of the content can be also automated, though this is a difficult task. Web content analysis will be illustrated in detail in a forthcoming section.

Sampling

IMR provides access to specialized and "hard to reach" populations. IMR provides the advantage of accessing specialist or selective populations for example through specialized forums. The small selective samples are particularly relevant in qualitative approaches. IMR provides the ability of snowball sampling as postulated by Baltar and Brunet (2012). Snowball sampling is "a technique for finding research subjects. One subject gives the researcher the name of another subject, who in turn provides the name of a third, and so on". Snowball sampling is used when there are limits on the

accessibility of information of the units of analysis such as the criminal or isolated populations

In their study "Social research 2.0: virtual snowball sampling method using Facebook", Baltar and Brunet used Facebook to conduct snowball sampling of "Argentinean immigrant entrepreneurs in Spain" (214 cases). This population is administratively invisible in national statistics because they have double nationality (non-EU and EU). They used virtual sampling along with an online questionnaire as a complementary tool for Web 2.0 research in behavioral sciences. The number of these hidden cases detected by Facebook and their response were higher than the traditional snowballing technique. Virtual snowball sampling not only facilitates the access to "hard to reach" population, but also can expand sample size and the scope of the study while reducing costs and time.

4. Data collection from Social Network Sites (SNSs)[5]

The Internet, as a tool of communication, has transformed many aspects of modern society and social interaction. One of the most significant developments in the Internet was the formation of social media websites, also referred to as ***Social Network Sites (SNSs)***[6]. SNSs provides a powerful reflection of societal structure and its dynamics, through interaction between both the technology and people.

SNSs, such as: as Facebook, LinkedIn, MySpace, Twitter[7], Flickr, Freindster and Google Plus, first emerged in 1997, however they rose to cultural significance as a phenomenon in 2003, when

[5] From Section 4 to section 6 written by Noha Nagi.

[6] The terms: online social networks, online communities, social networking websites/sites, social networks, online social media are used to refer to the same thing.

[7] Twitter is also referred to as a "microblog" website, while Facebook is referred to as a social networking website with a microblogging feature.

Friendster[8] first attracted mass media attention. Less than a decade later, millions of people of all ages across the globe have joined SNSs, especially after the launching of Facebook[9] in 2004.

When Friendster first gained widespread attention in 2003, SNSs, including Friendster and those that followed, were quickly labeled as a type of "social software"[10] in the "Web 2.0"[11] phenomenon (Dutton, 2013). Web2.0 trends have led to the development and evolution of virtual communities and services, such as SNSs, photo and video sharing services, blogs, wikis, etc. Nowadays in the Web2.0 era, users both produce and consume significant quantities of multimedia content through social networks.

Later after 2003, SNSs have undergone a dramatic growth. More than 200 SNSs worldwide are known today and this number is growing quickly. Recently, the use of SNSs has increased overtime in Africa with the improvement in technology and the use of mobile phones to surf the web. In Africa, SNSs are becoming widely used than it has ever been before, especially between youth. However people's perception of this technology is not the same for all the social classes, some are suspicious of whether to trust and share content on these websites or not to trust (Folorunso et al., 2009).

Online social networks (OSN) such as: Facebook, LinkedIn, or Myspace, and Internet data, in general, provide social researchers with the capabilities of observing research participants. OSNs offer the opportunities of online ethnography studies that focus on

[8]Friendster.com is a global social network that emphasizes friendship and the discovery of new people through gaming. It was seen as one of the profitable dating websites after the economic downturn in US 2001. Friendster is more popular in Asia.

[9] Facebook first launched in 2004 under the name "thefacebook".

[10] Social software is a term that is intertwining with the term "virtual communities"

[11] Web 2.0 refers to different meanings in different contexts. However in summary, it is the age of the Internet where websites became more interactive and collaborative; where users can create content and share information (Dutton, 2013).

questions like: how Internet-based interactions are socially rich and what kinds of social formations are emerging through Internet interactions (Fielding et al., 2008).

There are two ways to capture data from SNSs: a) manual data collection, and b) automated data collection.

Computer Scientists and developers used to conduct Automatic data extraction, since this process needs computer programming. They used to develop software that can deal with the Application Program Interface (API) of social media websites, for certain research aims. API is used to render the messy HTML code of a website, it is provided by the OSN provider and it is the most common way to collect network data from OSN (Abdesslem et al., 2012).

APIs commonly includes text analytics tools (such as Facebook API or Twitter API) and sometimes there was a sentiment analysis capability such as SentiStrength (described below), when data about opinions, attitudes or sentiments such as positive or negative sentiment needed to be collected (Xu et al., 2010).

AbdoulRahman AlShaar (2013) used the Python programming language to build a web-based application that is able to carry out the automation of Facebook data extraction from Facebook pages. The data was used to analyze citizens' interactions with certain governmental Facebook pages. The software is a web-based application that contacts *Facebook's Graph API* to retrieve raw data from the Facebook database of pages' data that later on will be cleaned and prepared for analysis. Facebook Graph API is the primary means through which data is posted or retrieved from Facebook. The data gathered includes: page information, e.g. page total likes and page category, and page account, e.g. post type, likes, shares and comments (Abdelsalam et al., 2013).

Recently, some automatic data extraction software and web-based applications to collect OSN data are becoming available for

use by researchers without the requirement of any programming abilities. Thanks to the community of researchers at the Association of Internet Researchers (AOIR), Deen Freelon established a curated software list. The Association of Internet Researchers is a member-based, academic association dedicated to the promotion of critical and scholarly Internet research independent from traditional disciplines and existing across academic borders.

5. Web content analysis

After data collection, there are several methods to analyze content. One of the methods used to analyze online data is web content analysis, which is content analysis applied to web content.

Whereas, content analysis is considered a qualitative method in social research (Devi, 2009; Berg et al. 2004; Patton, 2001), web content analysis in Internet Mediated Research (IMR), is considered as both a qualitative and a quantitative method of analysis. Content analysis is one of the most common research methods used in OSN studies. Web content analysis has been the most prominent method of multiple research methods that were used to analyze Facebook data since 1997 (Rains & Brunner, 2014).

Web content analysis involves analysis, parsing and coding documents to extract information from data (Ackland, 2013). The developments of computational analysis of text, audio, images and video content is continuous. Automated information extraction software, that use text mining techniques to mine real-time data, is developed to satisfy online research. Data from automated information extraction systems are used by social scientists for developing a broad variety of models. Data mining and automated information extraction is promising in computational social science since most social science research depend on data with a qualitative nature and are mostly textual than numeric (Cioffi‐Revilla, 2010).

Web content analysis involves sampling "selected" sets of texts from a population of texts for analysis (i.e. not randomly sampled). Sometimes in web content analysis, according to the topic, a census can be used instead of sampling (Ackland, 2013). The researcher then organizes the content into categories or segments to be treated as separate units of analysis. The categories are coded in a codebook and the coded data is analyzed both quantitatively and qualitatively to determine the most frequent themes of text in certain contexts (Bhattacherjee, 2012). Figure 1 shows a common procedure for content analysis process. This procedure maintains a theoretically valid protocol for coding (Herring, 2010; Rourke & Anderson, 2004).

Content analysis is a scientific tool that "entails a systematic reading of a body of texts, images, and symbolic matter" (Krippenkorff, 2013; Krippenkorff, 2004). Until recently, the prominent resource for content analysis was mass media such as in newspapers, magazines, televisions, radio, books, etc. (Krippenkorff, 1989). Now the primary source of content analysis is social media: Facebook, twitter, YouTube and other online social networks, are taking the lead.

Content analysis seeks to analyze data in some context to reveal the meanings attributed to it. The major type of data appropriate for context analysis is text (verbal or written). But other meaningful matter can be analyzed such as content represented by image, video, and audio: "Anything that occurs in sufficient numbers and has reasonably stable meanings for a group of people may be subjected to content analysis" (Krippenkorff, 2004). Krippenkorff (1989) suggested a formal definition: "content analysis is a research technique for making replicable and valid inferences from data to the contexts of their use".

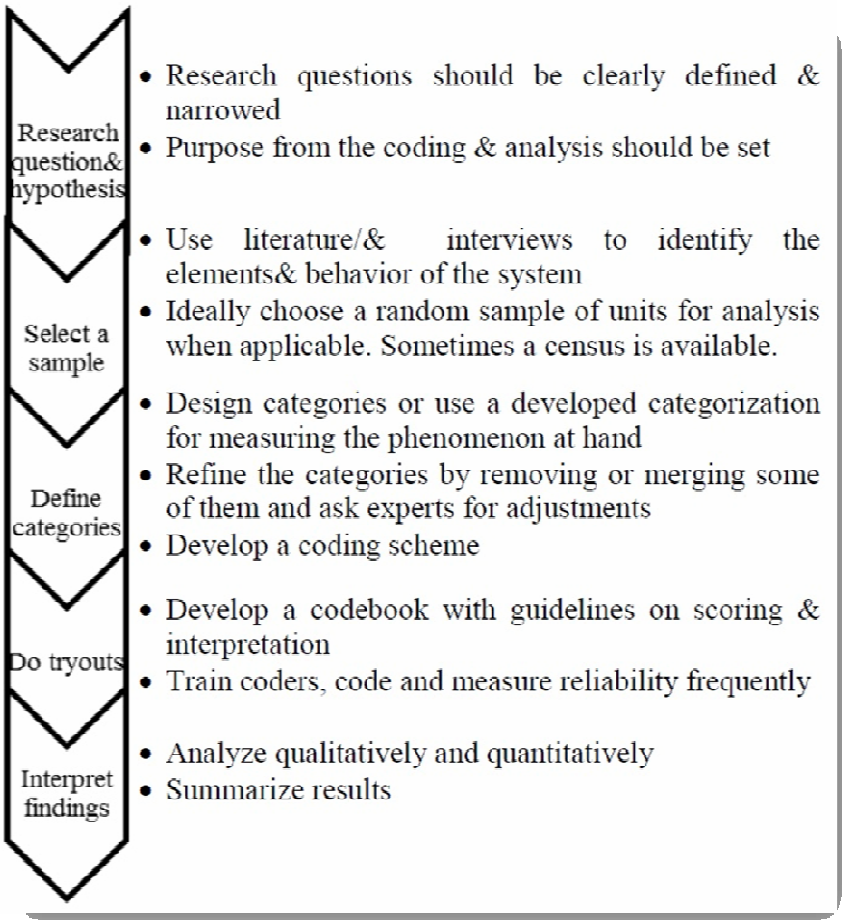

Figure 1: A common procedure of web content analysis

Common features in the process of content analysis:

- Subjectivity is inevitable – content analysis involves the subjective judgments of researchers to understand and interpret social reality that is usually implicit, using texts. (Ackland, 2013).

- *Multiple meanings* –a word can have multiple actual/implicit meanings.
- *Context is important* –the culture of the researcher is important since it affects his/her interpretation. The researcher aims to interpret as much as possible the probably intended meanings according to the given context (Krippenkorff, 1989).

Although these features makes it hard to automate content-analysis process, researchers exert continuous efforts to automate it, especially for online content. Methodologies are being re-considered to account for the variables of latent content and human judgment that is relevant in online research in specific. For example Sjøvaag & Stavelin (2012) present a method for quantitative content analysis of news online. They suggest that offline automatic content analysis methodologies are insufficient for online analysis since online content is more varied.

Qualitative and quantitative content analysis

There is a common distinction in between qualitative and quantitative content analysis. Qualitative or interpretive content analysis involves the subjective judgments of researchers to understand and interpret social reality that is usually implicit, using texts (Ackland, 2013). Interpretive content analysis requires a close reading of texts in a manner that gives the text interpretation and re-articulation (Krippendroff, 2013). It involves categorization and classification of content (Devi, 2009).

Interpretive content analysis focuses on:

- How the phenomenon is represented (for example how TV shows manifest a particular ideological vision).
- Human interactions and languages (for example how emotions are conceptualized)
- How messages are delivered and its intentional/actual effects, or focus on verbal interactions in natural settings (usually recording

is needed); meanings, situations and settings without avoiding quantification of characteristics in texts.

On the other hand, quantitative content analysis involves word frequencies, keyword frequencies and time counts (mostly in TV/radio content). Berelson (1952) defined quantitative content analysis as "a research technique for the systematic, objective, and quantitative description of the manifest content of communication". For example: counting the number of times an ethnic group or a political term is mentioned (Devi, 2009; Rourke & Anderson, 2004).

Krippendroff (2013) argues that all content analysis is qualitative since any reading of texts is qualitative by nature, even when certain characteristics of a text are latter converted into numbers. Although quantification of content is well known and important, content analysis by default implies "reading" content and interpreting in its context. Even computer algorithms that quantify content need to be based upon theories of human readings for text. Reading and interpretation is a "qualitative process" (Krippendroff, 2004).

Interpretation of implicit content is inevitable. Berelson (1952) excluded "reading between the lines" in order to make the reliability level better. The paradox of whether "reading between the lines" is allowed or not, is related to the manner the content analysis is defined (see Krippendroff, 2004).

It is also important to keep in mind that analysts read text differently than readers. Psychologists also read their patients stories differently. They try to interpret content in the context of the problem that they are analyzing. Text sometimes have multiple possible meanings. This means that reading between the lines is inevitable. Text sometimes refers to other events that no longer exist or to metaphoric words that relates to other problems that are outside context such that conceptions are crucial. This is a major

limitation in automated content analysis. Computers cannot analyze things outside what it processes. Without major developments in artificial intelligence, this will be an important shortage.

In this study, the researcher adopts Krippendroff's (2004) perspective and implicit meanings are taken into consideration.

6. Web content analysis of Toleration: A Proposed Approach

Making use of the advantages of IMR, we can study and measure toleration in a certain society through ***Facebook*** discussions.

Fortunately, Boutros (1998) presented a set of indicators to measure political toleration from textual Arabic content written in diverse journal articles. This study uses her definition and indicators with some adjustments.

Following the common process of content analysis in Figure (1) and our proposed adjustments of Boutros's indicators of toleration, this study proposes a web content analysis approach to measure toleration on SNSs. The research objective, then, is to propose a suitable tool for social scientists to know the pattern of toleration over SNSs.

The proposed approach consists of the following steps:

- **Step 1: Sampling.** Choose Facebook page or pages from which you will extract the needed web-content.
- **Step 2: Data Extraction.** Use one of the data extraction techniques, either manually or computerized as discussed in section (4).
- **Step 3: Define Categories.** The researchers classify web content into tolerant or intolerant based on a set of categories adjusted from Boutros's (1998) categories. Category adjustments including:
  - Category Re-naming
  - Addition of new sub-categories

- Explicitly arranging the sub-categories, such that each category include three sub categories.

Examining each web-content, we can categorize it into one or more of the indicators in Figure 2.

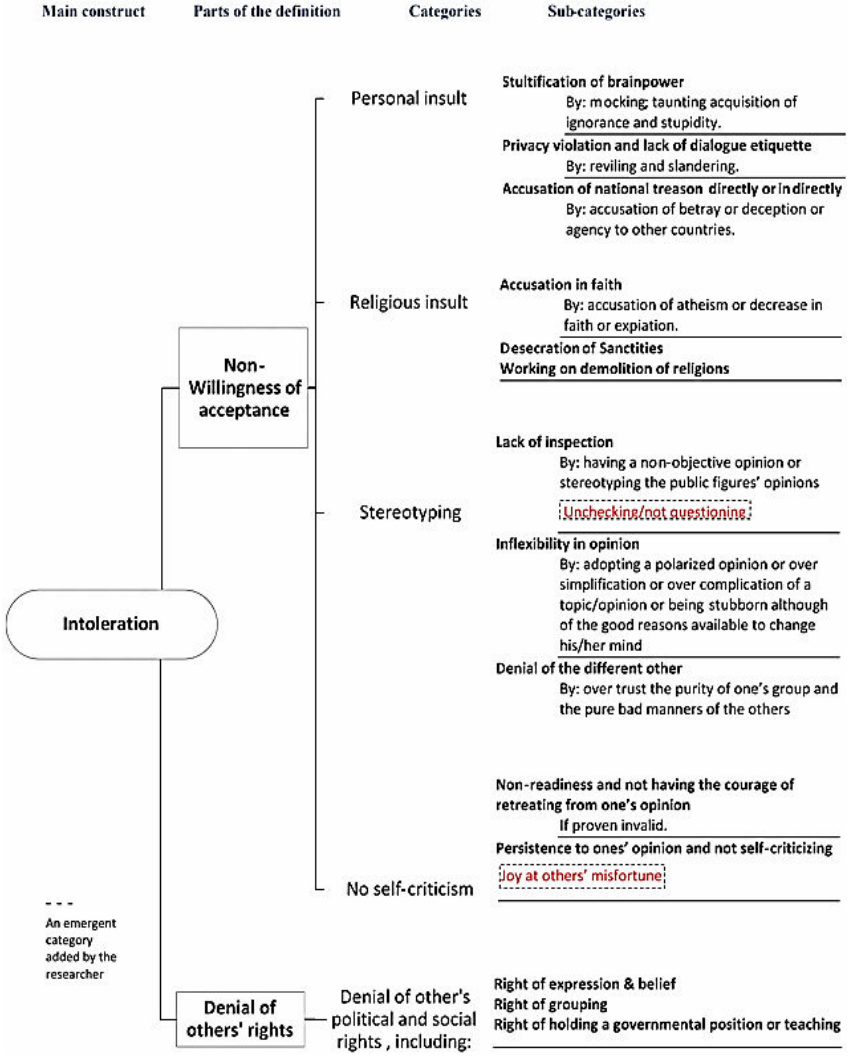

Figure 2: An illustration for the defined categories of intoleration based on Howaida Botrous's study (1998). The categories and sub-categories of toleration are the negations. A person that condemn any indicator above is considered a tolerant person as well.

- **Step 4: Develop a Codebook.** In this step, we shall do the following actions:
  - Explicitly illustrate the coding scheme for the coders.
  - Add real data examples to clarify each indicator.
  - Illustrate guidelines on interpretations.
  - Apply the codebook on a portion of content several times. Each time, measure the inter-coder reliability.
  - Make discussions about the conflict in the coding process between different coders.
  - Make refinements to the codebook accordingly.
- **Step 5: Create a Toleration Index.** Use Factor Analysis to create an in-toleration index from the five categories shown in Figure (2). The toleration index, being the compliment of the in-toleration index, should be set such that it lies between zero and one where zero is the minimum and one is the maximum toleration level that a person can get from all indicators.

7. Discussion and Future Research

Data from Social Network Sites is highly noisy and highly controversial for the use in academic context, but we cannot disregard or underestimate it. We have to study the virtual world and connect it to the reality because they are not separated, and the uprisings in Arab countries that started in 2011 has proven this connection.

Internet-based data collection, also referred to as web-based data, can offer increased sample size, greater sample diversity, easier access, convenience and time investment. In addition, we can

save Time and cost that are associated with data entry and the conversion of data into electronic form. Moreover, the features of Internet-based data allows eliminating errors without increasing the cost. Greater diversity and bigger sample size allow for producing a higher level of statistical power.

These features suggest that online research is important for certain qualitative and quantitative studies. The nature of online communities has provided a potential for unobtrusiveness in observational research, which was not possible by offline communications and pilot testing media messages or studying political campaigns (MRA/IMRO, 2010; Fielding et al., 2008; Benfield & Szlemko, 2006). This is especially tempting in Egypt, Algeria, Lebanon and Iraq since they are the Arab countries where there is no evidence of Internet filtering. Thus, increasing the ability to express freely on SNSs (Mourtada & Salem, 2011b).

SNSs although advantageous in communicating rapidly and share rich content, technical-wise it faces some challenges such as content management in large scale collections, multimedia search and retrieval and social graph modeling. Considerable amount of effort has already been devoted worldwide for those challenges.

However research-wise, for some projects the inclusion of electronic data collection is impractical or unnecessary. It can add unnecessary costs or time commitments and headaches when used for smaller samples that are otherwise easily available. The wealth of data is advantageous but can be overwhelming. Thus, conducting Internet-based research remains a decision that the researcher must weigh carefully (Snee, 2008; Benfield & Szlemko, 2006).

Researchers need to be careful as well to the challenges they may face while combining the Internet data with their work. Although the internet can provide large sample sizes, the data that are available present serious research ethics questions and

introduces new types of biases that must be examined (Dutton, 2013).

IMR research design, like any other study, needs careful planning, design and piloting. However given the widespread perception of Internet-based procedures as being able to quickly and cost-effectively generate large amounts of data, and its appealing cost and time reduction, researchers may be tempted to implement poorly designed studies. Pilot procedures and design guidelines need to be explored well before gathering data directly (Fielding et al., 2008).

Research studies considering the Internet as a repository of data or as a communication tool that changed human behaviors, are relatively new. The advancement of information and communication technologies encouraged the inclusion of Internet data in research studies. Until relatively recently, the use of the Internet for primary data collection required the researcher to have some programming capabilities (Peng et al., 2013; Benfield & Szlemko, 2006; Herring, 2004). Fortunately, within the past few years a number of new technological solutions and services have emerged that allow the researcher to do social studies online without needing the knowledge of computer programming.

Finally, this study proposed a detailed procedure for applying web content analysis to capture and measure toleration on social media or SNSs. This paves the road for future studies to apply this proposed methodology in studying toleration in given case studies.

References

- Abbasi, M. A., Chai, S. K., Liu, H., & Sagoo, K. (2012). Real-World behavior analysis through a social media lens. In *Social Computing, Behavioral-Cultural Modeling and Prediction* (pp. 18-26). Springer Berlin Heidelberg.
- Abdelsalam, H. M., Reddick, C. G., Gamal, S., & Al-shaar, A. (2013). Social media in Egyptian government websites: Presence, usage, and effectiveness. *Government Information Quarterly*, *30*(4), 406-416.
- Abdesslem, F. B., Parris, I., & Henderson, T. (2012). Reliable online social network data collection. In *Computational Social Networks* (pp. 183-210). Springer London.
- Abou Farab, A. A. (1999). *Social Tolerance in the Egyptian Society*. American University in Cairo.
- Abraham, A., (2012). *Computational Social Networks: Mining and visualization*. Springer.
- Abrahamson, M., & Carter, V. J. (1986). Tolerance, urbanism and region. *American Sociological Review*, 287-294.
- Ackland, R. (2013). *Web social science: Concepts, data and tools for social scientists in the digital age*. Sage.
- Al-Khalil, S., Baldwin, T., Nicholson , P., Bober, C. & Ayer, A. (1992). *Toleration between east and west.* (I. Al-Arees, , Trans.). Beirut, Lebanon: Dar Al Saqi. (Original work published 1991)
- Baltar, F., & Brunet, I. (2012). Social research 2.0: virtual snowball sampling method using Facebook. *internet Research*, *Vol. 22,No.1,* 57-74.
- Barbour, Rosaline. 'Checklists For Improving Rigour In Qualitative Research: A Case Of The Tail Wagging The Dog?'. *BMJ : British Medical Journal* 322.7294 (2001): 1115. Web. 25 June 2015.
- Batinic, B., Reips, U. D., Bosnjak, M., & Werner, A. (2000). Online Social Sciences.
- Benfield, J. A., & Szlemko, W. J. (2006). Internet-Based Data Collection: Promises and Realities. *Journal of Research Practice*, *Vol.2, No.2*, D1.
- Berg, B. L., Lune, H., & Lune, H. (2004). Qualitative research methods for the social sciences (Vol. 5). Boston, MA: Pearson.
- Bhattacherjee, A. (2012). Social Science Research: principles, methods, and practices.

- Boutros, A.H. (1998). *The cultural constituents for the civil society in Egypt: A study for the political toleration of the political elite (1982-1993)* (Doctoral dissertation). Cairo University, Cairo, Egypt.
- Boutros, A.H. (1998). *The cultural constituents for the civil society in Egypt: A study for the political toleration of the political elite (1982-1993)* (Doctoral dissertation). Cairo University, Cairo, Egypt. (Arabic)
- 173 CAPMAS: Central Agency for Public Mobilization and Statistics (2014). *CensusInfo Egypt.* Retrieved March 01, 2016, from http://www.capmas.gov.eg/Pages/ShowPDF.aspx?page_id=http://www.censusinfo.capmas.gov.eg/
- Carter, E. (2005). *The extreme right in Western Europe: Success or failure?*. Manchester University Press.
- Chen, D. L., Schonger, M., & Wickens, C. (2015). oTree-An Open-Source Platform for Laboratory, Online, and Field Experiments.
- Cioffi‐Revilla, C. (2010). Computational social science. *Wiley Interdisciplinary Reviews: Computational Statistics*, *Vol. 2 , No.3*, 259-271.
- Cohen, A. J. (2004). What Toleration Is?. *Ethics, Vol.115, No.1*, 68-95.
- Competitive Intelligence. (n.d.). Retrieved March 01, 2016, from http://www.alexa.com/siteinfo/facebook.com
- Cranston, M. (2006). Toleration. In D. M. Borchert (Ed.), Encyclopedia of Philosophy (2nd ed., Vol. 9, pp. 507-511). Detroit: Macmillan Reference USA. Retrieved from http://ic.galegroup.com.library.aucegypt.edu:2048/ic/ovic/ReferenceDetailsPage/ReferenceDetailsWindow?failOverType=&query=&prodId=OVIC&windowstate=normal&contentModules=&mode=view&displayGroupName=Reference&limiter=&currPage=&disableHighlighting=false&displayGroups=&sortBy=&search_within_results=&p=OVIC&action=e&catId=&activityType=&scanId=&documentId=GALE%7CCX3446802035&source=Bookmark&u=aucairo&jsid=ea4b2fd4ca24a90168343581e3a30959
- De Choudhury, M., Sundaram, H., John, A., & Seligmann, D. D. (2010).*Analyzing the dynamics of communication in online social networks* (pp. 59-94). Springer US.

- Devi, N. B. (2009, May). Understanding the Qualitative and Quantitative methods in the context of content analysis. In Qualitative and Quantitative Methods in Libraries, International Conference organized by International Federation of Library Associations (pp. 26-29)
- Dutton, W. H. (2013), *The oxford handbook of: internet studies (1st ed.).,* Oxford, United Kingdom: Oxford University press.
- EIP: Egyptian Information Portal (2016). Retrieved March 01, 2016, from http://www.eip.gov.eg/nds/nds_view.aspx?id=3727
- European University Institute (2012). Handbook on Tolerance & Cultural Diversity In Europe. Florence ,Italy: Triandafyllidou, A.
- European University Institute (2013). Tolerance, Pluralism and Social Cohesion. The accept pluralism tolerance indicators Toolkit .Florence ,Italy.
- Ferrara, E., De Meo, P., Fiumara, G., & Baumgartner, R. (2014). Web data extraction, applications and techniques: A survey. *Knowledge-Based Systems, 70, 301-323.*
- Fielding, N. G., Lee, R. M., & Blank, G. (Eds.). (2008). *The SAGE handbook of online research methods*. Sage.
- Forst, R. (2003). Tolerance in conflict: history, content and the presence of a disputed term. Suhrkamp Verlag GmbH.
- Freelon, D. (2013). ReCal OIR: Ordinal, interval, and ratio intercoder reliability as a web service. *International Journal of Internet Science*, *8*(1), 10-16.
- Freelon, D. G. (2010). ReCal: Intercoder reliability calculation as a web service. *International Journal of Internet Science*, *5*(1), 20-33.
- Golebiowska, E. A. (1995). Individual value priorities, education, and political tolerance. *Political Behavior*, Vol.17, No.1, 23-48.
- Gundecha, P., & Liu, H. (2012). Mining social media: A brief introduction. *Tutorials in Operations Research, Vol., No.4.*
- Hayes, A. F., & Krippendorff, K. (2007). Answering the call for a standard reliability measure for coding data. *Communication Methods and Measures, 1*, 77-89.
- Herring, S. C. (2010). Web content analysis: Expanding the paradigm. In International handbook of Internet research (pp. 233-249). Springer Netherlands.

- Hookway, N. (2008). Entering the blogosphere': some strategies for using blogs in social research. *Qualitative research, Vol. 8, No.1,* 91-113.
- Hruschka, D. J., Schwartz, D., John, D. C. S., Picone-Decaro, E., Jenkins, R. A., & Carey, J. W. (2004). Reliability in coding open-ended data: Lessons learned from HIV behavioral research. *Field Methods*, *16*(3), 307-331.
- Krippendorff, K. (1989). Content analysis. In E. Barnouw, G. Gerbner, W. Schramm, T. L. Worth, & L. Gross (Eds.), International encyclopedia of communication (Vol. 1, pp. 403-407). New York, NY: Oxford University Press. Retrieved from http://repository.upenn.edu/asc_papers/226.
- Krippendorff, K. (2004). *Content Analysis: An Introduction to Its Methodology, 2nd edition*. Sage.
- Krippendorff, K. (2013). *Content Analysis: An Introduction to its Methodology*, *3rd edition*. Sage Publications.
- Mason, W., Vaughan, J. W., & Wallach, H. (2014). Computational social science and social computing. *Machine Learning*, *Vol.95, No.3*, *257-260.* doi: 10.1007/s10994-013-5426-8.
- Mccabe, J. (2010). *Online News Media Use And Political Tolerance* (Doctoral dissertation). Wayne State University, Michigan, United States of America.
- Moore, H. K., & Walker, C. A. (2011). Tolerance: a concept analysis. *Journal of Theory Construction & Testing, 15(2)*, 48.
- Mourtada, R., & Salem, F. (2011b). Facebook usage: Factors and analysis. *Arab social media report*, *1*(1), 1-20.
- MRA/IMRO (2010). MRA/IMRO Guide to the top 16 social media research questions. Retrieved from http://www.mra-net.org/rq/documents/mra_imro_smr16.pdf
- Mukherjee, A., Venkataraman, V., Liu, B., & Meraz, S. (2013, August). Public Dialogue: Analysis of Tolerance in Online Discussions. In *Proceedings of the Annual Meeting of the Association for Computational Linguistics, Sofia, Bulgaria, August 4-9 2013.* Association for Computational Linguistics (ACL-2013), 1680–1690.
- Müller, J. W. (2005). Toleration in Contexts. European Journal of Political Theory, Vol 4, No.4, 467-470

- Murphy, A. R. (1997). Tolerance, toleration, and the liberal tradition. *Polity*, 593-623.
- Owen, D. (2011). Must the tolerant person have a sense of humour? On the structure of tolerance as a virtue. *Critical Review of International Social and Political Philosophy, 14*(3), 385-403.
- Papagelis, M., Murdock, V., & van Zwol, R. (2011). Individual Behavior and Social Influence in Online Social Systems. *work, Vol.17, No.24.*
- Pattie, C. J., & Johnston, R. J. (2009). Conversation, disagreement and political participation. *Political Behavior*, *31*(2), 261-285.
- Patton, M. (2001). *Qualitative research and evaluation methods 3rd edition, Analysis: An Introduction to Its Methodology, 2nd edition*. Sage.
- Peng, T. Q., Zhang, L., Zhong, Z. J., & Zhu, J. J. (2013). Mapping the landscape of Internet studies: Text mining of social science journal articles 2000–2009.*New Media & Society, Vol.15, No.5,* 644-664.
- Rains, S. A., & Brunner, S. R. (2014). What can we learn about social network sites by studying Facebook? A call and recommendations for research on social network sites. *New media & society*, 1461444814546481.
- Rourke, L., & Anderson, T. (2004). Validity in quantitative content analysis. Educational Technology Research and Development.
- Salah, S. (2008). Objectivity and bias: Salah Qonosa vs. AbdelWahab El-Messiri. *Philosophical papers, No.19, 371-382.* (Arabic)
- Scanlon, T. M. (2003*). The difficulty of tolerance: essays in political philosophy*. Cambridge University Press.
- Sjøvaag, H., & Stavelin, E. (2012). Web media and the quantitative content analysis: Methodological challenges in measuring online news content. *Convergence: The International Journal of Research into New Media Technologies*, *18*(2), 215-229.
- Snee, H. (2008). Web 2.0 as a social science research tool. *British Library, 4*.
- Stieglitz, S., & Dang-Xuan, L. (2013). Emotions and Information Diffusion in Social Media—Sentiment of Microblogs and Sharing Behavior. *Journal of Management Information Systems*, *29*(4), 217-248.
- Sullivan, J. L., Marcus, G. E., Feldman, S., & Piereson, J. E. (1981). The sources of political tolerance: A multivariate analysis. *The American Political Science Review*, 92-106.

- Tan, K. C. (1998). *Toleration, diversity and global justice* (Doctoral dissertation). University of Toronto, Toronto, Canada.
- Taylor-Powell, E., & Renner, M. (2003). *Analyzing qualitative data*. University of Wisconsin--Extension, Cooperative Extension.
- Teven, J. J., McCroskey, J. C., & Richmond, V. P. (1998). Measurement of tolerance for disagreement. *Communication Research Reports*, Vol.15, No.2, 209-217
- Tolerate. 2016. In *oxforddictionaries.com*. Retrieved March 5, 2016, from https://www.oxforddictionaries.com/definition/english/tolerate
- Toleration.2014. In *oxforddictionaries.com*. Retrieved May 5, 2014, from https://www.oxforddictionaries.com/definition/english/toleration
- Tuch, S. A. (1987). Urbanism, region, and tolerance revisited: The case of racial prejudice. *American Sociological Review*, 504-510.
- Watts, D. J., (2013). Computational Social Science: Exciting Progress and Future Directions. *The bridge*, *Vol 43, No.04*, 5-10.
- Weldon, S. A. (2006). The institutional context of tolerance for ethnic minorities: A comparative, multilevel analysis of Western Europe. *American Journal of Political Science*, Vol.50, No.2, 331-349.
- *What is spam? | Facebook Help Center | Facebook*. (2016). *Facebook.com*. Retrieved 22 March 2016, from https://www.facebook.com/help/1461986764019121
- Witenberg, R. T. (2002). Reflective Racial Tolerance and its Development in Children, Adolescents and Young Adults: Age Related Difference and Context Effects.
- Xu, J. J., Hicks, D. L., & Chen, H. (2010). *Data mining for social network data* (Vol. 12). New York/London: Springer.
- Zayan , S. M. (2005) . *Toleration and its relation with some personal variables for a sample of students in both higher education and secondary education* (Doctoral dissertation). Cairo University, Cairo, Egypt.

استخدام البحث عبر الإنترنت فى دراسة التسامح
على مواقع الشبكات الاجتماعية
نهى ناجى وآخرون

تقدم هذه الورقة نظرة عامة على البحث عبر الإنترنت كنهج علمى جديد لدراسة التسامح. تقدم الورقة وصفًا لأنواع مختلفة من بيانات الإنترنت وطرق جمع البيانات المستخدمة فى دراسات الإنترنت؛ كما تقدم وصفاً للطرق المختلفة التى يمكن استخدامها لاستخراج البيانات من مواقع الإنترنت؛ وكذلك تقدم عرضًا مفصلًا لكيفية تحليل محتوى الشبكة العنكبوتية (الويب). تقترح الورقة أيضًا طريقة جديدة لالتقاط وقياس التسامح فى مجتمع معين باستخدام تحليل محتوى الويب، وتناقش الإجراءات الأساسية التى يجب على الباحثين المضى قدمًا لإجراء تحليل محتوى الويب على مواقع التواصل الاجتماعى.