ANALYSIS OF PUBLICLY DISCLOSED INFORMATION IN FACEBOOK PROFILES

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Abstract

The paper analyses the extent of sharing information on social network site, specifically on the Facebook platform, where a large amount of personal and sensitive information is publicly available and accessible. In our paper, we focus on the public exposure of Facebook profile attributes to estimate, which attributes are considered by the user more sensitive regarding privacy (thus rarely published), and which attributes are often available in most Facebook profiles. In our research, we have obtained through our specialized application over 1 000 complete Facebook profile information of target group which is VŠE students and alumni. Examples of downloaded are demographic data like age, sex, hometown, education, etc. and personal characteristics as favorite music, film, sport, etc. From this science results and public accessible information on the Facebook follows that the target audience shares on their profiles so many useful information that are used for the hiring of new employees.

Key words: Online Social Networks, Facebook, Privacy, Information Disclosure, Cluster Analysis

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Introduction

In the 21st century, social media became a phenomenon that is an integral part of our everyday life across all generation and also companies. (ČSÚ, 2015), (Pavlíček, 2016) Social media are not used only as a communication channel, nevertheless they penetrate more and more areas, industries and denying a threshold amongst personal life and professional life. This potential has been already shown in HRM (Human Resources Management), particularly in the area of hiring.

Hiring on the social medias can have many faces. However, the biggest one would be direct contact, searching and verifying information regarding the potential candidate. (Ladkin, Buhalis, 2016)

As has been already mentioned in the begging of this article on the social medias people share so many information. For example, age, work-related information, education but also leisure activities as movies, music, who'd they follow and so on. These correlations create a picture about every human being on the social media networks. (Bohmova, Malinova, 2013)

Therefore, are social medias for human resource managers very significant addition in the hiring process. Nevertheless, they should still keep in mind law requirements and rules of the particular social media network.

1 Taking advantage of social media networks for hiring purposes

Traditional hiring methods are nowadays not enough regarding luring new employees. Work related portals are very expensive as an advertising platform and most of the time do not bring the right candidates. Also, advertising on the company's website does not bring applicants sufficiently fast. The solution could be sharing of the work position on the proper medium that would massively reach as many potential candidates as possible for the small amount of money. (Headworth, 2015)

Social medias are exactly the right fit for this. Especially Facebook that is a good fit for seasonal work, part-time job or permanent contract. The good example of this social media sharing could be the company named "Bebe," known fashion chain. They have shown that work position related post/topic is required by end-consumers.[1] American food grocery chain Walmart[2] shares usually on Facebook their job offers. According to them, the applicants are good enough to be hired. At the end of the day, they save a lot of resources at hiring process. (Facebook, 2015) Another case study of company Maersk has shown that using Facebook while hiring is very efficient. Their recruitment campaign brought them seven times more cvs than its usual. According to them the campaign was low-cost.[3] (Headworth, 2015)

As a result of things mentioned above, it means that hiring via Facebook is in the USA a standard and elaborated service. Also, forecasts tell that a significance of the social media networks as the hiring platform will also be growing in the Czech Republic in spite of that Czech market is much more passive regarding using social media networks in comparison with US or British. "This form of hiring must become an integral part of every competitive

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[1] In the first couple of hours the job offer received over two thousand likes.
[2] 34.5 million of Facebook Fans.
[3] Usual amount CV is 90 to 199.

organization. Social media networks are one of the most efficient tools of hiring that we use" described by Miroslav Vaško, HR Manager at Skype, Czech office. (Sedlák, 2013)

"8 out of 10 people is in the Czech Republic hired via social media networks. Not just directly but also passively. They find out the job offer on the social media networks and then they send their Job application." Said for E15.cz Josef Kadlec, who is LinkedIn Specialist and one of the best headhunter in the Czech Republic. (Sedlák, 2013)

The Social Recruiting Survey has been made by a company named "Jobvite" in August 2014. 1 855 organization across all industries have taken part in that. Results say that 93 % of organizations before they make the final decision about recruiting the candidate to check out his personal profile on the social media networks. Facebook is represented in 33 % cases. What are companies looking for about their candidates is written bellow on the Figure 1. (Jobvite, 2014)

Fig. 1: What kind of information about candidates are companies looking for?
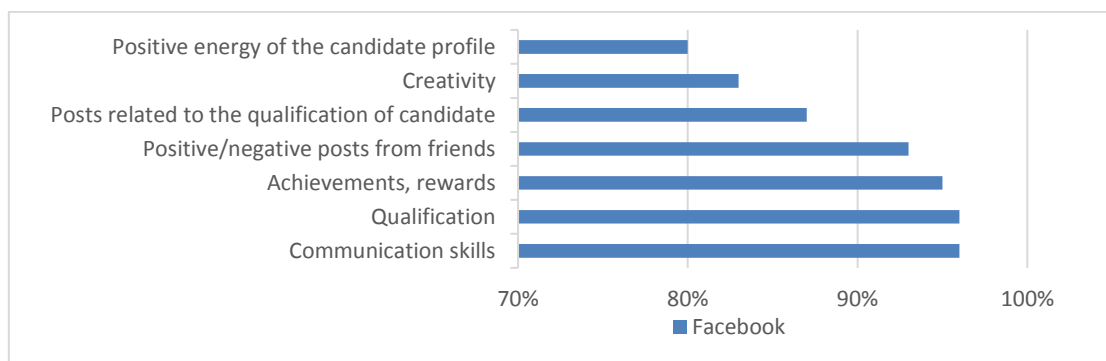
Source: Edited according to Jobvite (2014)

73% of questioned organizations has accepted a candidate based on the contact from the social media networks. The survey has also shown that hiring via social media networks is successful platform and companies plan to increase a budget on social media hiring. (Jobvite, 2014)

2   Facebook

The largest social media network in the world with the main goal of sharing information, communication and make the world more open and connected. Worldwide has Facebook more that 1.55 billion users. (Facebook Newsroom, 2016) In the Czech Republic according to Facebook itself 4.2 million users.

As has been seen above these statistics show us that Facebook keeps an enormous amount of information and private user data that are used for commercial purposes. Some of these metrics are shown to the third party as insights. Data are aggregated which is useful for marketing purposes. For hiring is very important to know particular information about users. (Pavlíček, Novák, 2015) A useful tool for gathering these data could be any Facebook application that is created by any company according to their needs and choose from data that Facebook provides by itself to the third parties to be downloaded. Terms of conditions must be confirmed by the user.

3   Research

The main goal of this application has been to gather information about users that are public and not public accessible (only information that user can see according to the security setting and can be seen by his/her friends, friends of friends) and analyze them afterward.

Authors have created an own Facebook application named "Práce na míru," loose translation "tailor-made work." The user that is registered in this application receives job offers from "Rozvojové a poradenské centrum VSE" (RPC loose translation "Development and consulting center of the University of Economics.")

This application allowed to download public accessible data from the user's Facebook network and store them into the database. Every user had to agree with terms of conditions and downloading his/her data from the Facebook's profile and further usage for scientific purposes and for purposes of hiring via RPC. The data extraction workflow is in Figure 2.

Fig. 2: The data extraction workflow

User	→	Web Page	→	Facebook Login	→	Verifying	→	Database storing	→	Data Extraction

Source: Authors

Information about application "Práce na míru" has been spread via the email newsletter to the target audience that is students and fresh alumi[4] of the University of Economics in Prague. Also, the application has been promoted on social medias in particular groups reaching target group and in case study during work related event named "Šance 2016" and on the web site of RPC.

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[4] Absolutory amongst years 2011 to 2016.

960 unique applicant has signed on to the application in period October 2016 to January 2017. With the help of the tool, Knime authors transferred the date into readable form and cleared them a little bit. The data analysis had been made on Excel and Knime.

3.1 Results of analysis of public accessible information from Facebook

The analysis of data gathered from application "Práce na Míru" brought accurate results. Tab 1 is showing percentage representation of public accessible information about users according to the particular category. Users share information such as gender, device (used for log-in), the list of friends, date of birth etc. Some of this information are suitable for recruiting. On the other hand, users do not share information about religion, politics opinion, inspiring people. Authors are mentioning only interesting or important conclusions related to the recruitment of employees.

Tab 1. A number of users in % that have public accessible information according to the categories on Facebook profile

Categories of publicly available data	Nr. of users in %	Categories of publicly available data	Nr. of users in %	Categories of publicly available data	Nr. of users in %
Gender	99 %	Tagged places	76 %	Favorite books	35 %
Login Devices	92 %	Favourite music	73 %	Languages	30 %
Friendlists	91 %	Actual location	73 %	Relationship details	30 %
User_birthday	89 %	Hometown	67 %	Games_activity	29 %
Profile Photo	87 %	Favorite TV series	66 %	Quote	16 %
Likes	84 %	Favorite films	56 %	Interest in a particular person	16 %
Education	83 %	Friend´s posts on Timeline	56 %	Favorite sports	14 %
Email	82 %	Galerie of Photos	53 %	Bio	12 %
Events	81 %	Favorite Athletes	50 %	Religion	10 %
Own Timeline Posts	81 %	Favorite Athlete´s Teams	45 %	Favorite inspirational person	8 %
Videos	77 %	Relationship	44 %	Politics	7 %
Photos	76 %	Work	36 %	Website	6 %

Source: Authors

From the analysis can be seen the basic demography information about users such as gender, age, and education. Representation of women and men is almost equal[5]. The biggest group of users according to the date of birth is amongst years 1986 to 1997 that is in right fit with the target group. In the section, University users have filled University of Economics

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[5] (women – 57 %, men 42 %, not reported 1 %)

(72%) following by Charles University (3%) and University of Technology (2%). Other universities are represented in the order of units.

Regarding analysis, the authors have also been focused on correlation concerning published data in particular categories. They have used Spearman's correlation coefficient[6], see Tab 2. According to the results of the Tab 2, there has been proven an existence of low bond tightness amongst the amount of public accessible data for categories: favorite book and series (0.32), favorite game and book (0.32), favorite game and movie (0.31), friends and event (0.31). Medium-bond tightness has been found out in categories: like and event (0.47), favorite movie and book (0.52), favorite movie and music (0.49). Significant-bond tightness has been found out in the categories: favorite music and series (0.57) and favorite music and movie (0.57).

It follows that users sharing information about favorite series also share information about favorite music and movies.

Tab 2: Correlation of public accessible information of users amongst categories

Categories of publicly available data	Friendlists	TV series	Athletes	Books	Events	Games	Music	Likes	Films
Friendlists	1	0.09	0.11	0.09	**0.31**	-0.06	0.16	0.29	0.04
TV series	0.09	1	0.17	**0.32**	0.11	0.23	**0.57**	0.09	**0.57**
Athletes	0.11	0.17	1	0.15	0.07	0.25	0.16	0.03	0.12
Books	0.09	**0.32**	0.15	1	-0.09	**0.32**	0.27	0.07	**0.52**
Events	**0.31**	0.11	0.07	-0.09	1	-0.01	0.14	**0.47**	0.03
Games	-0.06	0.23	0.25	**0.32**	-0.01	1	0.11	0.04	**0.31**
Music	0.16	**0.57**	0.16	0.27	0.14	0.11	1	0.22	**0.49**
Likes	0.29	0.09	0.03	0.07	**0.47**	0.04	0.22	1	0.12
Films	0.04	**0.57**	0.12	**0.52**	0.03	**0.31**	**0.49**	0.12	1

Source: Authors

Authors have also been interested in a number of friends of users. These numbers are rapidly represented at the scale of 87 to 259 friends. The range is 1 853 that tells us there are significant differences. Therefore, we are more interested in median instead of the average. The median is 288 friends.

Post on the timeline is public accessible information on 56 % of users. These posts contain in average 73 signs, which means short messages. Median is 39 signs. Word cloud has shown us words that are repeated in the posts of users on their Facebook wall. More in Figure

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[6] Is a nonparametric measure of rank correlation (statistical dependence between the ranking of two variables). It assesses how well the relationship between two variables can be described using a monotonic function.

3. English words are used very often as well as Czech text without diacritics. The largest category is WWW, that means that users are sharing links to the external websites.

Fig. 3: Word cloud

Source: Authors

Czech Republic is dominating in the count of visited places that users have visited (5 742) following by USA (648), Germany (341) and Italy (265). Only 36 % of users have published information about Employer as public. The most often we can see AIESEC (2 %), Deloitte (1 %) and Accenture (1 %). Other Employers are mentioned only in the order of units. One of the main reason can be that users are mostly students without work related experience. Mostly users like pages that are related to University of Economics, official UoE Facebook page, faculties Facebook pages and student organization Facebook pages (AIESEC, Student Union, Club of Investors). In average users on Facebook liked 24 pages. In the category, favorite series users prefer mostly comedies. In average users published six favorite series. The most favorite movies are Harry Potter, Forrest Gump, and Avatar. In average users published nine movies. Books that users like are Harry Potter, Konec prokrastinace, and Deníček moderního fotra. In average, they have on profiles four favorite books. Very interesting is differentiate music styles. Users listen preferably Linking Park, Tomas Klus, and The Beatles. Average of 16 items they have on their profiles.

4   Discussions

For organization are the data from a social media networks very important source of information and also an addition to information about their candidates. Every user can set on his profile visibility of data via using security settings.

The number of friends has a public accessible information 91 % of users. This information can HR managers use to see who friends are and if they have a match, they can gather references. Profile photography has a public accessible information 87 % of users. It

means that HR managers can use this information to verify who the applicant is and be more accurate on other social media networks. Users have 18 public photography on their profile in average. Email address is public accessible information in 82 % cases. HR managers can use this information to keep track on the user - Digital footprint[7].

Post on the Facebook wall can be seen at 81 % of users. This is very positive for HR managers due to the fact they can see a behavior of candidate on the social networks. If the user posts abusive posts or if the user is polite. They can even see the construction of user's posts and find out if the user is thorough or the opposite. Also, topics of the posts are also very important.

Visited places have on their Facebook profiles 76 % of users. This tells to HR managers how often the user travels. Pages and groups that people like are members or are fans give a picture of user's hobby and leisure activities. This is very important from the company culture and further adaptation into the work-collective. As a result of public accessible information on Facebook is that target audience of users publish very much useful information on their profiles that are used for Recruiting.

4.1   Research limitations

Limitations of this research are: analysis of public accessible information of target audience that has the interest to receive a job offers from organization RPC. For different target audience could result differently. At the same time, information of users on their profiles can be written on purpose to be interesting for employers to have higher chance to get the job.

A significant limitation for the organization while gathering and verifying information on Facebook about the candidate is that the organization must keep in mind the Act about Personal data protection (Act no. 101/2000 Sb.) and Labor Legislation. At the same time, Organization can not commit discrimination behavior (Act no. 435/2004 Sb.)

HR Managers should bear in their mind that Facebook is social media network that is preferably used for personal usage.

Conclusion

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[7] Inappropriate content is abusive, rough expressions, critics of previous employers, gossiping, photography that is showing disordered life.

Area of Human Resource Management is very important for every Organization. The goal of companies is to employ top quality people and at the same tame obtain them with minimal expenses. There exist few possible recruiting solutions that organization can use. Nowadays, into the mainstream belongs social media networks, primarily Facebook.

In case that the organization decides to use Facebook as a hiring tool, it can use two options to gather information about candidates. Either they can use a full-text search bar within Facebook and search according to the name, email address or other information. This is very fast and simple solution. The disadvantage can be many random results the organization can get, and there is not 100 % guarantee that it's a fit with searched candidate. Or they can use the more sophisticated solution as an application, that will download required information.

For this research, authors have used the second solution with the own-created application. Thanks to this application they downloaded information from more than 1 000 unique users from the target audience. From the results of analysis of public accessible information on Facebook follows that target audience share on their profiles so many information exploitable for recruiting. For example, Profile photography, email, favorite groups, post on the wall etc. The question is if is ethic to use the Facebook to additional gathering information. In case that organization finds out inappropriate content, the candidate is losing the chance to be recruited.

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