# What Derives People to use Reporting Functions on Social Networks?

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#### **ABSTRACT**

In recent years, online abuse has emerged as a huge problem across the Internet and especially on social media. To deal with this unacceptable behavior, many social media providers implement built-in reporting functions on their platforms. Using Technology Acceptance Model (TAM), Theory of Planned Behavior (TPB) and Technology Readiness (TR) a conceptual model is presented to investigate the factors affecting the use of reporting functions. The model was empirically tested through a questionnaire conducted in Saudi Arabia. Findings show that attitude, perceived behavioral control, and perceived emergency have significant impact on individuals' reporting intention, while subjective norm, perceived responsibility and evaluation apprehension have insignificant effect on reporting intention. Furthermore, results indicate that perceived usefulness, optimism, and discomfort has indirect effects on intention to use reporting tools.

#### **Keywords**

Reporting functions, Social networks, Online abuse, Technology Acceptance Model.

#### 1. INTRODUCTION

Ellison and Boyed (2013) defined social network sites (SNS) as "networked communication platform in which participators have uniquely identifiable profiles that consist of usersupplied content, content applied by other users, and/or system-provided data; can publicly illustrate connections that can be viewed and traversed by others; and can consume, create, and/or interact with streams of user- generated content provided by their connections on the site" [2]. According to a report by GlobalWebIndex, social media use accounts for about one third of the total time spent online [1] the rest is occupied by video, searching, education and email communication. Much of the online discussion is happing now on social media through posts and replies instead of threads or blogs. Thus, earlier problems faced with online discussion (spam, phishing, abuse, cyber-bulling, crime and spreading rumors) have transferred to social media and have even been intensified.

Abuse has become a serious problem over SNS. Children are most vulnerable to online abuse and it is reported by McAfee on a study conducted in the UK that one out of three children have been a victim of cyber bullying [4] and that one out of four children have experienced something upsetting on a social networking site [5]. Moreover, Pew Research Center reports that four out of ten Internet users are victims of online harassment [6]. To combat these problems, almost all SNS platforms provide a mechanism to report abusive content by 'flagging' the post. The success of such tools depends on the

"interactions between users, flags, content moderators and platforms" [7], which is "complex and highly strategic" [7].

The Internet officially entered Saudi Arabia in 1997 and the public was allowed to access the Internet in 1999 [source missing]. Saudi Arabia has 24 million Internet users [8]. The average number of hours per day spent by Saudi users on all social media platforms is 2.9 hours per day [9]. Saudi Arabia ranks seventh globally in terms of individual accounts on social media network, with seven accounts for each individual, and over 40% of Twitter users in MENA region are from Saudi Arabia [10]. The average Saudi user tweets five times a day and the number of "Twitter" users reached 9 million users, while Facebook users reached 11 million users [11]. It is clear from these numbers that the use of social media is huge in Saudi Arabia yet to our knowledge there is no study yet that looked at the use of reporting functions of social media in Saudi Arabia.

Although reporting functions are important to the comfort of SNS users, there is a lack of research on reporting functions in the information systems field as the majority of related work focused on practical problems as spam [12, 13] with the exception of Wong, Cheung and Xia (2016) work. Wong, Cheung and Xia (2016) suggested three major evaluation processes related to the users' intention to use online reporting functions which they named the first primary evaluation (perceived emergency and perceived responsibility), secondary evaluation (perceived usefulness and perceived ease of use) and social evaluation (evaluation apprehension). They found that perceived usefulness of the reporting functions and perceived responsibility of the incident are important factors enhancing the use of built-in online reporting functions, while evaluation apprehension is hindering users' intention to use reporting functions. Also they found that perceived emergency and perceived ease of use do not have any significant effect on individuals' reporting intention [3]. We follow the same line of thinking in this research and apply it in the context of Saudi Arabia. We also add additional factors we hypothesize will influence usage based on theories and frameworks from the IS field.

#### 2. RELATED WORK

Wong et al. (2016) relied on the coping theory, reporting crime literature, technology adoption, system usage and evaluation apprehension theory to propose five variables affecting the intention to use online reporting functions. Wong et al. (2016) when stating their research limitations called for research to include additional features such as perceived behavioral control and reporting outside Facebook context [3]. In a previous paper [14], we have presented a new framework to study individual intentions to use reporting functions by building on the work of [3] and utilizing the theory of planned behavior (to include attitude, subjective norm and perceived



behavioral control), technology readiness (to include discomfort and optimism) and the decomposed theory of planned behavior (to include peer influence). In that work [14], the conceptual framework and hypotheses were presented.

#### 3. INSTRUMENT

Identifying the constructs that a researcher intends to measure, and then selecting appropriate measures to those constructs is fundamental and has a significant impact on the accuracy of the findings. All the measures were adapted from previous research with slight modifications to fit the social network context. Appendix A presents the items developed for each construct and their sources in this study. A five point likert scale was used to evaluate each item ranging from strongly disagree to strongly agree. The instrument was pilot tested on a small scale (on friends on family relatives) and as a result some of the wording for the questions were changed in an attempt to make it as clear as possible.

#### 4. RESEARCH METHODOLOGY

We employed survey research to empirically test the proposed conceptual framework. The sample selected targets users of social media in Saudi Arabia. An electronic survey was developed (through SurveyMonkey) then the link was disseminated through posts in Tweeter, Facebook, Whatsapp groups and Instagram during a period of two months.

The questionnaire was divided into six main parts based on TAM factors, TPB factors, TR factors, perceived responsibility, perceived emergency, evaluation apprehension, and peer's influences. The questionnaire was a series of multiple-choice questions asking participants to indicate their general social media usage; it starts with a general part including five questions to investigate general information regarding the usage of social media and their reporting function. The first question is to indicate whether participants use social media or not. The second question indicates the gender while the third question indicates the age group. A fourth question investigates the number of hours spent on social media. The fifth question indicates when have participants started using social media. The second part of the survey will be used to measure and investigate the usage of reporting function based on TAM, TPB, TR, perceived responsibility and evaluation apprehension, and peer's influences. The second part of the survey consists of six sections each section includes several questions (as indicated in Appendix A).

#### 5. DATA ANALYSIS

Two hundred thirty-six responses were received from different social media users in Saudi Arabia to the questionnaire. We have discarded incomplete responses and also respondents whom indicted that they don't use social media (about 10%). 78% of the sample was female. 85% of respondents were between the age of 15-40, 14% were between 41-60 and about 1% were older than 60 years (about 4 individuals). In terms of respondent's history in using social media, 91% have been using it since at least 3 years ago, 7% were using it between 1-2 years ago and 2% have used it less than six months ago (5 respondents). When asked about their

frequency of usage, 40% of sample use social media for more than 5 hours daily, 19% use it for about 3-4 hours, 17% from 2-3 hours, 18% use it for about 1-2 hours and 6% use it for less than an hour (15 individuals). The last general question asked participants if they have ever used the reporting functions on any social media site and 59% indicated that they have used it before. The sample represents mainly the young generation whom are heavy users of social media which about half of them have used the reporting functions. The only concern is that the sample isn't balanced in terms of gender.

To test the internal consistency of the constructs, Cronbach's alpha was used as a measure of reliability. The combined Cronbach's alpha value of all constructs is 0.817 (95% CI: 0.782 - 0.849), which indicates good reliability. And the Cronbach's alpha values of nine factors are satisfactory while three factors showed poor reliability (subjective norm, perceived responsibility and evaluation apprehension). Table 1 shows internal consistency of items under all factors. For evaluation apprehension the mean of the first item was 4.02 (agree) while the mean of the second item was 2.39 (disagree) thus the correlation between them was negative.

Table 1: Reliability of items

| Factors                            | Num<br>ber of<br>items | Cronba<br>ch's<br>alpha | 95%<br>confidence<br>interval |
|------------------------------------|------------------------|-------------------------|-------------------------------|
| Reporting                          | 3                      | 0.790                   | (0.738, 0.832)                |
| Intention                          | 3                      | 0.540                   | (0.428, 0.633)                |
| Attitude                           | 2                      | 0.040                   | (-0.241,0.257)                |
| Subjective Norm                    | 3                      | 0.709                   | (0.638,0.768)                 |
| Perceived<br>behavioral<br>control | 4                      | 0.168                   | (-0.019,0.329)                |
| Perceived<br>Responsibility        | 2                      | 0.475                   | (0.322,0.594)                 |
| Perceived<br>Emergency             | 2                      | -0.651                  | (-0.719,0.571)                |
| Evaluation                         | 3                      | 0.738                   | (0.674,0.791)                 |
| Apprehension                       | 3                      | 0.653                   | (0.569,0.723)                 |
| Perceived<br>Usefulness            |                        |                         |                               |
| Perceived Ease of                  | 2                      | 0.785                   | (0.723,0.834)                 |
| Use                                | 2                      | 0.522                   | (0.382,0.630)                 |
| Optimism                           | 2                      | 0.506                   | (0.361,0.617)                 |
| Discomfort                         | 31                     | 0.817                   | (0.782,0.849)                 |
| Peer Influences                    |                        |                         |                               |
| All factors                        |                        |                         |                               |
|                                    |                        |                         |                               |

#### 6. RESULTS

Data was analyzed using IBM SPSS version 21.0 and AMOS extension version 19.0 statistical soft wares. To test the hypotheses, path analysis using structural equation modeling was carried out. Results of the path analysis are shown in Appendix B. The model explains about 33% of the variations in reporting intentions. In total there were 15 hypotheses tested and 11 of them were statistically significant.

**H1:** Attitude positively influences users' intention to use built-in reporting functions.

The model supports the above hypothesis. The estimate of 0.337 indicates a positive relationship between attitude and intention to use build-in reporting function. Hence we accept the above hypothesis. That is every 1 unit increase in attitude, the intention to use built-in reporting function increases by 33% which is statistically significant (p<0.001).

**H2.** Subjective norm (SN) positively influences users' intention to use built-in reporting functions.

The model did not support the above hypothesis. The estimate of 0.093 shows a non-statistically significant relationship between subjective norm and intention to use built-in reporting functions.

**H3.** Perceived behavioral control positively influences users' intention to use built-in reporting functions.

The model supports the above hypothesis. The estimate of 0.294 indicates a positive relationship between perceived behavioral control and intention to use built-in reporting functions. Hence we accept the above hypothesis. That is every 1 unit increase in perceived behavioral control, the intention to use built-in reporting function increases by 29% which is statistically significant (p<0.001).

**H4.** Perceived emergency positively influences users' intention to use built-in reporting function.

The model supports the above hypothesis with a moderate positive relationship as the estimate of 0.186 indicates a positive relationship between perceived emergency and intention to use built-in reporting functions. Thus we accept the above hypothesis. That is every 1 unit increase in perceived emergency the intention to use built-in reporting function increases by 19% which is statistically significant (p=0.003).

**H5.** Perceived responsibility positively influences users' intention to use built-in reporting function.

The model did not support the above hypothesis. The estimate of 0.091 shows a non statistically significant relationship between perceived responsibility and intention to use built-in reporting function (p=.29).

**H6.** Perceived emergency positively influences users' perceived responsibility.

The model supports the above hypothesis, as the estimate of 0.320 indicates a positive relationship between perceived emergency and perceived responsibility. Hence we accept the above hypothesis. That is every 1 unit increase in perceived emergency the perceived responsibility increases by 32%, which is statistically significant (p<0.001).

**H7.** Evaluation Apprehension negatively influences users' intention to use built-in reporting function.

The model did not support the above hypothesis. The estimate of -0.171 shows non-statistically significant relationship between evaluation apprehension and intention to use built-in reporting function. Although the p value was very close to the .05 cutoff and the relationship showed a negative correlation.

**H8.** Perceived usefulness positively influences users' attitude.

The model supports the above hypothesis, as the estimate of 0.402 indicates a positive relationship between perceived usefulness and attitude towards intention to use built-in reporting functions. Thus we accept the above hypothesis. That is every 1 unit increase in perceived usefulness, the attitude increases by 0.402 units which is statistically significant (p<0.0001).

**H9.** Perceived ease of use positively influences users' attitude.

The model did not support the above hypothesis as the estimate of 0.025 shows non-statistically significant relationship between perceived ease of use and attitude towards intention to use built-in reporting function.

**H10.** Perceived ease of use positively influences perceived usefulness.

The model support the above hypothesis as the estimate of 0.249 indicates a positive relationship between perceived ease of use and perceived usefulness. Hence we accept the above hypothesis. That is every 1 unit increase in perceived ease of use, the perceived usefulness increases by 0.249 units which is statistically significant (p<0.001).

**H11.** Peer influence positively influences subjective norms.

The estimate of 0.329 indicates a positive relationship between peer influences and subjective norm. Hence we accept the above hypothesis. That is every 1 unit increase in peer influences, the subjective norms increases by 0.329 units which is statistically significant (p<0.001).

**H12.** Optimism positively influences perceived usefulness.

The model supports the above hypothesis and the estimate of 0.446 indicates a positive relationship between optimism and perceived usefulness. Hence we accept the above hypothesis. That is every 1 unit increase in optimism, the perceived usefulness increases by 0.446 units which is statistically significant (p<0.001).

H13. Optimism positively influences perceived ease of use.

The model supports the above hypothesis as the estimate of 0.203 indicates a positive relationship between optimism and perceived ease of use. Thus we accept the above hypothesis. That is every 1 unit increase in optimism, the perceived ease of use increases by 0.203 units which is statistically significant (p<0.001).

H14. Discomfort negatively influences perceived usefulness.

The model supports the above hypothesis as the estimate of -0.158 indicates a negative relationship between discomfort and perceived usefulness; hence we accept the above hypothesis. That is every 1 unit increase in discomfort, the perceived usefulness decreases by 0.158 units which is statistically significant (p<0.001).

**H15.** Discomfort negatively influences perceived ease of use.

The model supports the above hypothesis as the estimate of -0.132 indicates a negative relationship between discomfort



and perceived ease of use, hence we accept the above hypothesis. That is every 1 unit increase in discomfort, the perceived usefulness decreases by 0.132 units which is statistically significant (p=0.006).

To test how well the model fit the data, Table 2 shows the scores of fit indices.

Table 2: Results of model's fit scores

| Model              | RMR  | GFI   | AGFI | PGFI |
|--------------------|------|-------|------|------|
| Default model      | .108 | .749  | .616 | .490 |
| Saturated model    | .000 | 1.000 | N/A  | N/A  |
| Independence model | .137 | .462  | .364 | .391 |

RMR (root mean square residual), which measures the difference between the sample covariance and the model's covariance, shows a value of 0.108. This value is slightly higher than threshold of <0.10. GFI (goodness of fit index), which tells us what proportion of the variance in the sample variance-covariance matrix, is accounted by the model. Our model's GFI shows 0.749, which is less than the threshold of (0.90) for a good fit. One method to improve the fit indices would be to remove the non reliable constructs (evaluation apprehension, subjective norm and perceived responsibility).

#### 7. CONCLUSION AND DISCUSSION

The main purpose of this study was to identify the factors driving Saudi people to use the reporting tools across social network sites and try to find a way to promote the awareness of Saudi users about reporting tool usage and practices by proposing guidelines to increase usage. A collection of users were tested by using an online survey based on eleven factors. Some of these factors were related to the technology while others related to individual factors, also some were related to the culture and some were related to the content. Our model adopts TAM, TPB, and TR as the main constructs. TAM was used to determine user's behaviors towards using flags by employing three factors: perceived usefulness (PU), perceived ease of use (PEOU) and attitude toward using. TPB used to explain an individual's behavior by using two predictors: subjective norm (SN), and perceived behavioral control (PBC), which can influence the general adoption of Two of the TR factors used to measure individual's proclivity to adopt and readiness to use flags (optimism and discomfort). Also, we proposed to add other dimensions to the model. The first dimension is perceived and perceived emergency. responsibility responsibility plays a significant role in the appraisal process for reporting behaviors, and it depends on a self-evaluation of conduct. The perceived emergency which is based on individual evaluation of online content to be hurtful or demeaning. The second dimension is Social Appraisal-Evaluation. Finally, we used external factors such as peer's influences to represent the decomposition of normative belief

The results showed that attitude, perceived behavioral control, and perceived emergency have significant impacts on individuals' reporting intention, while subjective norm, perceived responsibility, and evaluation apprehension does not have any significant effect on individuals' reporting intention. Attitude has the most significant impact on reporting intentions and it positively influences it. This

indicates that an individual who has positive feeling or evaluation towards using the reporting tool are more likely to adopt it. Results confirm findings of [22] and highlight the importance of perceived behavioral control (PBC) in adopting reporting tool. One possible explanation for the insignificant effect of subjective norm, perceived responsibility, and evaluation apprehension is that participants might have responded to the items without understanding the statements of the items. The research also found that perceived usefulness has a notable impact on the intention to use reporting tool; this impact came indirectly through its direct effect on attitude. While perceived ease of use has no significant effect on the reporting usage because it has an insignificant impact on attitude. This insignificant effect of perceived ease of use is rather not what we expected. This could be because perceived ease of use becomes less important, especially for the young generation. The research shows that the variables of Technology Readiness significantly influence the perceived usefulness and perceived ease of use. Specifically, optimism is identified as the most significant variable affecting the perceived usefulness or the perceived ease of use. Thus, the more optimistic users of the reporting usage, the more their attitude and intention to use the tool are influenced. While discomfort negatively affects the perceived usefulness or the perceived ease of use and indirectly affects the intention to use reporting tool. The study findings also show that peer influences have significant effects on the subjective norm.

To put this research in context of other research, previous studies on social media usage conducted in Saudi Arabia found no effect of perceived behavioral control [20][21] but our research has found an effect. According to [3] perceived emergency was found to be insignificant to reporting intentions however this research found a significant effect of perceived emergency. Also [3] found that perceived responsibility was among the main factors explaining intentions to use reporting functions but this research didn't find it significant. If we adopt the same threshold for the p value adopted in [3] then our research confirms there findings that evaluation apprehension has a negative affect on reporting intentions and this research adds subjective norms as an important factors. The results indicate that as the practice of reporting inappropriate content on social media becomes more known, then more people will start using these tools.

This study is one of the few attempts to investigate individuals' reporting intention in the context of social network sites. We expect that this research will contribute to the advancement of knowledge in social media abuse reporting. The results of this research provide insights to the social media users and the SNS providers. If online abuse continues to escalate, the platforms could lose their users because of the unhealthy online environment. Thus, understanding how all factors affect individuals' reporting decisions becomes vitally important to SNS providers. Our results show that attitude toward using the reporting tool is one of the major factors driving people to use it. SNS providers may illustrate some showcases of how they successfully combat online abuse through engaging users to use the online reporting functions. SNS providers should introduce and enhance educational campaigns that raise awareness among the general public of internet regulation, advanced ethical development, acceptable online behavior, internet safety and cyberspace offenses which may help prevent and eliminate online abuse on SNSs. In addition to



the importance of individuals' attitude, the results show that perceived behavioral control has an effect in driving people to use reporting tool. SNS providers may give privileged access to tools or distinction mark for the effective user who uses reporting tool in an affective way.

Finally, we recommend conducting more research to investigate other potential factors related to individuals' intention to using reporting functions such as computer self-efficacy, conscientiousness or openness and other system appraisals. Future studies must continue to add to the research model by exploring other potential factors that affect reporting intentions.

#### 8. REFERENCES

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### 9. APPENDIX A: LIST OF ITEMS BY CONSTRUCT

| Construct                                | Items  | Adapted from                                 |
|--|--|--|
| Perceived<br>Usefulness (PU)             | <b>PU1.</b> Using the reporting functions will enhance the effectiveness in reporting inappropriate content. <b>PU2.</b> The advantages of the reporting functions exceed the disadvantages. <b>PU3.</b> Overall, using the reporting functions will be advantageous.  | [15], [16],[17],<br>[18],[23], [20],<br>[3]  |
| Perceived Ease<br>of Use (PEOU)          | <b>PEOF1.</b> Current instructions for using the reporting functions are easy to follow. <b>PEOF2.</b> Learning to use reporting functions on social media is easy. The easiness of reporting function would encourage the use of this tool.   | [15], [16],[17],<br>[18], [23],<br>[20], [3] |
| Reporting<br>Intention (RI)              | RI1. I intend to use the reporting functions to inform against the inappropriate content. RI2. I might use the reporting functions to inform against the inappropriate content. RI3. I will never use the reporting functions to inform against the inappropriate content.   | [17], [18],<br>[20], [21],<br>[22], [3]      |
| Attitude (AT)                            | <b>AT1.</b> I support the use of reporting function as a useful tool in social media. <b>AT2.</b> I think the usage of reporting function can be useful sometimes. <b>AT3.</b> I do not think the use of reporting function is affective.  | [15], [17],<br>[20], [19],<br>[21], [22]     |
| Subjective<br>Norm (SN)                  | SN1. I might use the reporting function if I see people around me using this tool. SN2. I would never use reporting function regardless of how many family and relatives are using this tool.  | [15], [16],<br>[17], [20],<br>[21], [22]     |
| Perceived<br>behavioral<br>control (PBC) | PBC1. I would be able to use reporting function on social media. I think I should use reporting function to protect myself from being exposed to abuse on social media. PBC3. I have the resources and the knowledge and the ability to use reporting function on social media.  | [15], [20],<br>[21], [22]                    |
| Optimism<br>(OPT)                        | <b>OPT1.</b> Reporting function on social media makes you more effective in society. <b>OPT2.</b> Reporting function can minimize the abusive content in social media.   | [15], [23]                                   |
| Discomfort<br>(DIS)                      | <b>DIS1.</b> Reporting function on social media is not helpful to reduce the spread of spam on social media. <b>DIS2.</b> Reporting function on social media is not suitable for everyone to use as it could consume a lot of time, which may not be available to the user.  | [15], [23]                                   |
| Perceived<br>Responsibility<br>(PR)      | <b>PR1.</b> I feel personally responsible to contribute to the elimination of abusive content on social media by using the reporting function. <b>PR2.</b> I am not the one involved in the abusive content on social media, it is still my responsibility to try to stop it. I believe that my action (using reporting function) can help to eliminate abusive content on social media. <b>PR4.</b> I believe that everyone is responsible for his action and it is not my responsibility to fix other people's problems. | [3]  |
| Perceived<br>Emergency (PE)              | <b>PE1.</b> I will use the reporting function when I think the content posted is hurtful and damaging to some people. <b>PE2.</b> Any abuses content on social media is considered an emergency that requires intervention.  | [3]  |
| Evaluation<br>Apprehension<br>(EA)       | <b>EA1.</b> I do not use the reporting function on social media because I am concerned about other people's reaction toward this action. <b>EA2.</b> I would like to use the reporting function on social media, but I am afraid that this action would cause me problems.   | [3]  |
| Peer Influences<br>(PNF)                 | <b>PNF1.</b> I think I might start using the reporting function on social media if I see my friends use this tool <b>PNF2.</b> I believe that if I use the reporting function, I will influence my friends to use this tool too.   | [20]   |

## 10. APPENDIX B: RESULTS OF STRUCTURE EQUATION MODELING († NOT STATISTICALLY SIGNIFICANT, \*\*\* < .001)

| Paths   | Estimate | S.E. | Ratio         | P-value           |
|---|----------|------|---------------|-------------------|
|   |          |      | (Estimate/SE) |                   |
| Optimism> Perceived ease of use                   | .203     | .047 | 4.351         | ***               |
| Discomfort> Perceived ease of use                 | 132      | .048 | -2.774        | .006              |
| Perceived ease of use> Perceived usefulness       | .249     | .051 | 4.933         | ***               |
| Optimism> Perceived usefulness                    | .446     | .038 | 11.841        | ***               |
| Discomfort> Perceived usefulness                  | 158      | .037 | -4.215        | ***               |
| Perceived emergency> Perceived responsibility     | .320     | .043 | 7.443         | ***               |
| Perceived usefulness> Attitude                    | .402     | .062 | 6.449         | ***               |
| Perceived ease of use> Attitude                   | .025     | .065 | .390          | .696 <del>‡</del> |
| Peer influence> Subjective norms                  | .329     | .058 | 5.705         | ***               |
| Attitude> Reporting intention                     | .337     | .063 | 5.382         | ***               |
| Perceived emergency> Reporting intention          | .186     | .062 | 2.982         | .003              |
| Perceived responsibility> Reporting intention     | .091     | .085 | 1.064         | .287‡             |
| Perceived behavioral control> Reporting intention | .294     | .058 | 5.037         | ***               |
| Subjective norms> Reporting intention             | .093     | .050 | 1.857         | .063‡             |
| Evaluation apprehension> Reporting intention      | 171      | .093 | -1.833        | .067‡             |