Internet Anxiety: Myth or Reality?

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Abstract. The purpose of this paper is to determine if Internet anxiety is a myth or reality using literature, questionnaires, and analysis of the collected data. Results showed that the Internet anxiety phenomenon is mostly reality. By placing strong emphasis on the existent Internet anxiety phenomenon, the HCI community could constructively build effective tools and techniques to mitigate users' anxiety.

Keywords: Internet, anxiety, concept, qualitative, myth, reality.

1 Introduction and Background

The rush to remain up-to-date with popular social networking services (e.g. Twitter, Facebook, Google+) is not only crafting unrealistic expectations of these tools but also driving social changes in our daily lives [2]. Ten years ago, applications and services on the Internet were starting to emerge as an integral part of modern life and today internet services are evolving rapidly and extending to ever more areas. Such profound change can clearly be expected to have psychological impact. The research question that we seek to answer in this paper: Is the Internet anxiety phenomenon: myth or reality? To conceptualize and measure Internet anxiety phenomenon it is advantageous to delve deeper into the Internet anxiety literature [1, 14-15, 21]. The existence of many different types of Internet anxiety has been claimed [4, 5]; for example, a user might suffer from an inability to understand certain terms on the Internet, Internet terminology anxiety (ITA), or a user might suffer from general Internet failure anxiety (GIFA). These anxieties taken together can lead to generalized Internet anxiety, unease regarding all aspects of Internet usage. This paper presents a thorough review of the area of Internet anxiety and the current literature in this field. Although many informal surveys [6, 9] in social and behavioral sciences have reported that Internet anxiety (IA) has a significant adverse impact on users' willingness to use the Internet, the problem seems severe as some claims might suggests [2, 9-10]. In reality, the Internet anxiety phenomenon is difficult to understand and quantify. People often report various symptoms of experiencing IA phenomena, e.g., impatience, frustration, irritability, anger and concentration difficulties.

The major contribution in this paper is analysis of the Internet anxiety phenomenon. The method described is based on ongoing research in this area and utilization of qualitative research methodologies. The paper is organized as follows: Section 2 describes the materials and methodologies used. Section 3 describes the literature

study and Section 4 the experiment and observations; i.e., qualitative user feedback and responses from participants. Section 5 discusses and presents the findings. Section 6 concludes the paper and discusses future work.

2   Methodology

To develop a comprehensive description of Internet anxiety, a qualitative research method was used, supported by semi-structured interviews, participants' feedback and criticism. Use of qualitative research methodologies entails in-depth analysis of the phenomenon under study [16].

2.1   Participants

The participants in this study were technical university students. The study, started with only thirty-seven participants. The research concluded with an extensive survey with five hundred participants with "open-ended" questions. However, the aim of this paper limits on large survey results since the objective is to understand only the Internet anxiety phenomenon (myth or reality) and report on qualitative user responses from the observed participants.

2.2   Data Gathered

Several methods of data collection were used e.g., semi-structured interviews, and survey. These methods were used to identify and acquire a general perspective on the Internet anxiety phenomenon. Various nonverbal and verbal cues of behavioral symptoms were also identified (e.g. user frustration, lack of concentration, impatience).

3   Literature Study

The Internet anxiety literature study presents various claims, anxiety types, and possible symptoms (see Table 1). For example, "If a teenager is trying to have a conversation on an e-mail chat line while doing algebra, she'll suffer a decrease in efficiency, compared to if she just thought about algebra until she was done [1, p. 1238]."   This claim could be classified into one or many IA types e.g., Internet terminology anxiety (ITA) (ITDA) (EA), and (EEA) etc. [4, 5]. Possible symptoms could be e.g., lack of focus, lack of concentration, and attention deficiency. This might be assumed as a myth because the task in question is very complex, and the brain would have limited capability to process such tasks [1].

Table 1. Internet anxiety "myth or reality" observed

CLAIMS	INTERNET ANXIETY (TYPES)	POSSIBLE SYMPTOMS	IINITIAL ASSUMPTIONS
"If a teenager is trying to have a conversation on an e-mail chat line while doing algebra, she'll suffer a decrease in efficiency, compared to if she just thought about algebra until she was done [1, p. 1238]."	Could be classified into one or many types; e.g., Internet terminology anxiety (ITA), Internet time–delay anxiety (ITDA), Experience anxiety (EA), and Environment and attraction	E.g. lack of focus, lack of concentration, attention deficiency	This is a myth. The task in question is very complex, and the brain would have limited capability to process such tasks [1].
There is no gender difference in "overall usage of the Internet" [8, p.374].	Could be classified into one or many types; e.g., General Internet failure (GIFA), Usage anxiety (UA) etc. [4, 5]	E.g., " impatience", "frustration", " anger"	This is a reality. Based on present study, and the current data, we postulate that there is gender difference of overall usage of the Internet, in-line with recent findings of Joiner, R., et al. [3].
People on the Internet could be addicted [11, 12], and anxious. For example, Internet user will not suffer from general Internet failure anxiety.	We have found various types of Internet anxiety, e.g., General Internet failure anxiety, Net search anxiety etc. [5]	E.g., Irritation, edgy, Narcissism [7]	This is a reality. Internet user might suffer from general Internet failure anxiety and many other types of Internet anxieties [4, 5, 10].
Internet user very often finds what they are looking for on the Internet. Similarly, people often understand every single word/terms used on the site(s) [5, 13].	Net Search anxiety (NSA), Internet terminology anxiety (ITA) [4, 5]	E.g., Tension, worriness, frustration Inability to understand terms, defeating oneself, upset	This is both myth and reality. It is reality because users report on difficulty for not finding what they are looking for, especially while searching e.g. varies and depends on many factors (e.g. search term/time)[5]. It is a myth because the user does not necessarily understand every single word/terms on the site(s)
Is social networking really causing anxiety? For example, "Is the Web Driving Us Mad?" [2, 9, 10]	Could be linked to any of IA types, e.g. Internet terminology anxiety, Usage anxiety etc. [4–5, 10]	E.g., Over usage, annoyance, sleep deprivation, distracted, defeating oneself, uneasy feeling	This is a reality. A recent study conducted by anxiety UK states that, "about half of the survey's 298 participants, all of whom identified themselves as social media users, say that their use of social networks like Facebook and Twitter makes their lives worse. In particular, participants noted that their self-esteem suffers when they compare their own accomplishments to those of their online friends [6]."

4   User Feedback and Observations

The following user feedback or responses were received from the respondents when asked questions about the "Internet anxiety" phenomenon. The limited quoted data (i.e. words) from the participants are shown in bold and highlighted to aid interpretation, and to determine commonalities in the observations.

Some of the questions were rephrased and re-worded in the light of initial responses and after careful consideration. For example, a user response was:

> 1st. *"Some of the **questions were quite unclear** and would have benefited from **better wording**."*

As the response from the participants was "*Questions were unclear*" and "*better wording*" reframing and rewording of the questions were considered. The question, "*what is the Internet anxiety?*" was replaced by asking *how do you feel about using the Internet and does this have impact on your real life?* The participant (2nd) went beyond the "anxiety" phenomenon and started to relate with "Internet addicts." Furthermore, the same participant also wished for and reported on possible Internet anxiety symptom to manage time (e.g. "*I'd like to spend less time")* on the Internet. Another participant described an Internet anxiety symptom; e.g. "*Heart rate goes high*" (3rd) while experiencing a sports program on the Internet. Example responses from these participants are:

> 2nd. *"Although I don't consider myself as an Internet addict (especially compared to others) **I'd like to spend less time** on the Internet (or on computer)."*
>
> 3rd. *"Many of the effects are not really Internet related but more on content. For example, I watch football from Internet that causes my **heart rate goes high**. That would also happen if I were to watch the game live on stadium or from TV…Internet is a tool for me, not a life."*

Unstructured and semi-structured interview pools of the participants felt the questions asked were not actually related with the Internet but focused more on Internet contents. Furthermore, participants expressed concern about possible effects of social networking sites (SNS). The participant (4th) reported that she is "*not addicted to social networking*" but somehow feels "*concerned*," and is "*often not happy*" about her close friends and families spending "*enormous amount*" of time on the SNS. The same participant revealed possible Internet anxiety symptom; e.g. unpleasant/ unhappiness (i.e. "*not happy*") feeling. For example, the participant responded:

> 4th. *"I personally am **not addicted to social networking** however **I have found myself raising concerns about close associates and relatives who spend enormous amount** of precious **facebooking**. I think it affects their time to work and make money and I am **often not happy** about it. Also sometimes such **individuals post contents** which concern me e.g. my photos, what I am up to, etc on facebook and I am **not happy** about this."*

Related to "information overload" and SNS anxiety, a participant (5th) responded that he has "*skipped Social networks*" and believed that these SNS "*mainly annoy*" him. Interestingly, the same participant narrated that he is "*not interested in paying any-thing*" on the Internet. Moreover, he blocks "*ads from browser*" and any eye-catching application or services (e.g. "*blink applications*"). Another participant (6th) considers that SNS are "*bullshit*" and declared that SNS are "*commercial selling tool.*" Similar-ly, another participant (7th) expressed concern over "*commercials*" on the Internet. The example responses from these participants were:

> 5th.   "*I'm mostly concerned about information glut.* **I've skipped Social networks (FB, G+ etc),** *and those mainly* **annoy** *me if they pose* **hindrance**, *like required access to FB to get to content, but I can live without such content or find respective in-formation from somewhere else. Also, I'm* **not interested in paying** *about anything in Internet. I'v blocked mots on* **ads from browser** *and generally* **blocks anything distracting colorful "blink blink" applications**."
>
> 6th.   "*Social media are* **bullshit**; *they are just another* **commercial selling tool**."
>
> 7th.   "*Most annoying part of the internet is* **commercials** *which make sound and/or cover the main page content.*"

The participant described possible Internet anxiety symptoms; e.g. "*Losing internet connection*" (8th), encountering "*delays in accessing internet content*" (9th), "*fru-strated because of time delays*" (10th), and major concerns over "*low internet band-width*" (11th).   The example responses from these participants were:

> 8th.   "*I need Internet for my work and, consequently,* **losing Internet connection** *is of-ten* **problematic**."
>
> 9th.   "*It is unclear if I should answer* **how often I face** *e.g.* **delay in accessing Internet content** *(and feel anxiety about it) or if I am anxious if a delay occurs.*"
>
> 10th.   "*Nowadays, I actually get* **frustrated** *because of* **time delays** *when using* **mobile devices**."
>
> 11th.   "*I don't like* **low Internet bandwidth**."

But, one participant (12th) reported that "*using the Internet doesn't bother*" but, while performing time critical task(s), if there is no Internet connection than they might get anxious ("*sometime there's no connection...I do get anxious*"). Another participant (13th) self-corrects on general Internet usage-to-usage frustration and reports symp-toms such as, "*frustration*". The example responses from these participants were:

> 12th.   "*Using the Internet doesn't bother me. It doesn't make me anxious. It's just so* **normal** *to use it everywhere that it has become a norm for me. Then when* **sometimes there's no connection and I need to check something** *(e.g. timetables)* **I do get anxious**, *but it's not the Internet's fault.*"
>
> 13th.   "**If 'usage anxiety' were 'usage frustration', my answer would be often.** *I usually become* **frustrated** *but not anxious. (I hope I understood the term 'anxiety' correctly.)*"

Feelings associated with Internet use resulted in some comments from the partici-pants. A participant (14th) acknowledges possibilities of using the Internet

(e.g. "*serves me well...work and during free time*") and expresses that he is "*not emotionally attached*" with the Internet. The example response from the participant is:

> 14th.   *"The Internet **serves me well both at work and during free time** but I'm **not emotionally involved** with it!"*

Furthermore, some participants were concerned about Internet search and keeping-in-touch with friends and families (15th) whereas other participants (16th) reported that they "*do not necessarily get anxious*" but believed in improving and "*optimizing search engines.*" The example responses from these participants are:

> 15th.   *"I try to use the Internet **only for searching** modern information in the area of my research work. Also it **helps me to be in touch with my relatives and friends**..."*
>
> 16th.   *"**I do not necessarily get anxious** but **I feel that there is still a lot more to be done to optimize search engines**, etc, especially when searched content cannot be found."*

The example response from a participant is: "***Good survey** for the **young people**, around ages 18 to 25.*" Table below (see Table 2) shows the collected data (in the first column) and initial results.

Table 2. Commonly highlighted participant responses (in the second column) and possible Internet anxiety types (in the third column)

Participants no.	Common highlighted participant responses	Possible Internet anxiety types	Ref.
16	*"I feel that there is still a lot more to be done to optimize search engines"*	Net search anxiety (NSA)	[4, 5]
6, 15	*"Helps me to be in touch with my relatives and friends," "Bullshit,"*	Experience anxiety (EA)	[5, 17]
13	*''If 'usage anxiety' were 'usage frustration', my answer would be often''*	Internet terminology anxiety (ITA), Usage anxiety (UA)	[4,5, 17]
12	*"Sometimes there's no connection and I need to check something."*	General Internet failure anxiety (GIFA)	[5]
11, 10	*"Low internet bandwidth, time delays..."*	Internet time-delay anxiety (ITDA)	[4,5]
5	*"Distracting colorful "blink blink" applications, not interested in paying"*	Environment and attraction anxiety (EEA)	[5, 17]

5   Results and Discussion

The results based on the data gathered from various qualitative coding, experiment and observations are summarized in Table 3.

Table 3. Initial participant assumptions, possible responses, final outcome, and justifications

Partic-ipant no.	Initial assump-tion	User Feedback or Responses	Final Outcome	Justifications
2	Myth	".. I'd like to spend less time ..."	Reality	Spending more time on the Internet can affect social, personal, and academic performance [1, 2].
3	Reality	"...heart rate goes high..."	Myth	It's normal to feel that heart rate goes high, a user has a sense of psycho-physiological change in her body in a particular context or situation
4	Myth	"…raising concerns about close associates and relatives...", "not addicted to Facebooking"	Reality	People have lower attention span and those who spend more time on SNSs, usually spend less time on social activities [7, 20-21].
5-7	Reality	"..annoyance", "distraction", "ads from browser", "commercials"	Reality	Popular social networking tools might distract users, and might affect on academic performance [1], various other social implications [5-7].
8-11	Myth	"losing internet connection, "delay in accessing Internet contents"	Reality	Users show possible symptoms when the Internet is not working [5, 17].
12-13	Myth	"it's not the Internet fault", "frustrated but not anxious"	Reality	Self-blame is sign of Internet anxiety symptoms.

Table 3. (*continued*)

14	Myth	"not emotionally involved"	Myth and/or Reality	It depends. Some user might report of being "emotionally involved" and other "not emotionally involved".
15-16	Reality	"only for searching", "lot more to be done to optimize search engine"	Reality	Search engines are far from being perfect and 'search anxiety' is reality not because something is easy to find but because it is hard to analyze and trust.

Suggested by the data collection and analysis, the results of the Internet anxiety phenomenon seems to modulate more to reality than myth. Although researchers have looked deeper into various demographic variables; e.g. gender, personality, beliefs etc. [3, 15], this study paints a distinct picture in postulating a general claim of the Internet anxiety phenomenon as a real phenomenon. Although the issue of Internet anxiety is not something new in the scholarly community [17, 18], the new knowledge in this paper is a possible mapping of various Internet anxiety types with reported symptoms through data collection and the results. The implication of this study shows that one has to consider possible hazardous implications of using the Internet (or not using the Internet) [20] and the applications therein, as there is an ongoing debate in the HCI community on possible impacts of the Internet on the lives of children and younger people [19], e.g., "Facebook and academic performance" [1, 7], "problematic Internet use" [4, 6], and the "obsession with Technology" [2]. As our modern life is spent more online, we seem to have less time for personal facial interaction and there is more virtual interaction on the Internet [2]. This type of behavior seems to negatively influence our personality, relationships, and well-being [15]. The pervasiveness of Internet use can generate high levels of Internet anxiety [17, 18], and we need to take a short break to reset our mental and physical faculties [2, 10]. Let us now conclude and present few recommendations based on what we have learned from this study.

6   Conclusions and Recommendations

In this paper, we considered the issue of the present day Internet anxiety phenomenon: myth or reality. The comparison data suggest that the Internet anxiety phenomenon is mostly reality. Based on an experiment and observations, we found that the Internet anxiety phenomenon experienced by the participants can be an existent phenomenon. The reason we came to this decision is twofold: firstly, the sampling of our participants and the coded data revealed possible deleterious symptoms of using the Internet. Secondly, similar possible symptoms were also discovered in present Internet

anxiety literature. The finding from the collected data, experiment and literature sources validate the findings. Therefore, one could easily argue that the Internet anxiety phenomenon is a real thing. However, there are few limitations in this work. First, the data collected might not represent the entire Internet population generally and second, the results are the subjective evaluation of the participant's responses and do not necessarily give an objective measure for the phenomenon under study. In our future work, we plan to create a module with the collection of algorithms (i.e. Feel-calc) to mitigate real Internet anxiety phenomenon. Possible strategies for mitigating the Internet anxiety phenomenon include:

- As recommended by researchers [2, 20, 21], take short breaks and avoid using the Internet in the middle of night or at the dinner table. This is to avoid distraction by technology and mental disturbance or an adverse effect on sleeping patterns.
- Be responsible, careful, and smart when using social media applications or sites (e.g. Facebook and Twitter). Researchers have reported the possible adverse impact of using these sites with narcissistic [7], loneliness, sexting, and pornographic, antisocial, cyber-bullying, and addictive behavioral symptoms.
- The results of Internet anxiety research can be useful, if we can build and design effective sites and contents on the Internet considering reported user's anxiety symptoms; e.g. impatience, frustration, depression, tension, and anxiety.
- Multi-tasking is a myth [1]. Users are not actually multitasking on the Internet but constantly switching between various tasks. Instead of doing many things concurrently, one has to consider doing one thing at the right time.
- The Internet anxiety phenomenon is real and how we can cope up with this new reality is all in our hands.

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