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# Weekdays or weekends: Exploring the impacts of microblog posting patterns on gratification and addiction<sup>☆</sup>

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#### ABSTRACT

Previous research has found that social networking applications such as microblogs can develop gratification and addiction among users. Although it is generally believed that gratification reflects the gains through use and that addiction is caused by excessive use of the technology, limited research has been done to empirically verify the relationship between usage patterns and gratification versus addiction. This paper attempts to explore the impacts of posting patterns on gratification and addiction dimensions for microblog platforms. On the basis of existing literature on use and gratifications of media users, we focus on examining the different posting patterns between weekdays and weekends. By using multiple data collection methods, a data set was obtained consisting of 308 microblog users. Our analysis shows that the overall posting frequency is not significantly related to gratification and addiction levels. Moreover, the posting of microblogs is usually more intensive on weekdays than on weekends. Heavy weekend users tend to feel more socially gratified and are most likely to be addicted. In contrast, heavy weekday users are usually not addicted, and reported the lowest levels of gratification among all users. Balanced users that do not display distinguishable difference between weekdays and weekends manifest gratification levels around the average levels, and are less addicted than weekend users, even if their overall usage amounts are heavy.

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#### 1. Introduction

Research in the area of information systems (IS) has extensively investigated the positive outcomes resulting from Information Technology (IT) use [1]. Among various theoretical postulations, the use and gratification (U&G) theory provides a user-centered perspective to explain that the user's selection and use of certain technologies depends on the gratifications gained [2–5]. The U&G theory is a well-received theoretical framework that explains the relationships between use and the psychological perceptions of users. It has been developed based on the fundamental assumption that users are goal directed and pursue the psychological needs gratified through the use [4,6].

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In contrast to the positive outcomes of IT use, the negative impacts have not yet been sufficiently addressed [1]. Technology addiction, defined as a user's psychological state of maladaptive dependency on IT use, is known to be one of the major negative outcomes of overintensive IT use. Addiction is manifested as compulsive IT use at the expense of other important activities [7]. Technology addiction leads to harmful consequences such as reduced work performance, compromised social life, and even severe mental problems [8–10], and has been examined in some IT contexts, such as online games [7,11] and mobile email [12].

It is generally believed that use pattern, gratification, and addiction are closely related to each other because gratification reflects the gains through usage and addiction is caused by excess use of the technology [5,11]. However, limited research empirically verifies the relationships between usage patterns and gratification versus addiction. It is unclear how usage patterns may relate to the dimensions of gratification. On the other hand, although the extant literature indicates that addiction is the consequence of excessive use [11,10], little research has empirically verified the positive relationship between them. In other words, the claim that "use is related to the level of addiction" is challengeable even though it is

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generally accepted. Therefore, this paper attempts to empirically examine the impacts of posting patterns on gratification and addiction dimensions.

As one of the most popular and fast growing Internet social media services, microblogs are dramatically changing our methods of communicating and accessing information [13]. Microblog services enable users to exchange messages in 140 characters through various applications. As a result, post volume on microblogs tends to be huge, and excessive use is very common. According to *compete.com*, more than 40 million unique users in America visited twitter.com in October 2013. As reported in the financial statements, *Sina Weibo*, a popular microblog platform in China, has about 54 million daily active users in the first half of 2013 [14]. The emergence of this phenomenon raises the questions of why microblogs are so attractive to users [2,15], and furthermore, how is the use of this technology-enabled social media associated with user gratification and technology addiction.

As the research angel in this paper, we choose to study the differences between weekdays and weekends to explore the relationships between use patterns, gratifications, and addiction of microblogging. The choice of research angel is rooted in the usepattern studies examined in traditional media research. Research in traditional media has investigated the use-pattern differences between weekdays and weekends in newspapers, radio, and TV [16,17]. For example, newspapers are read more carefully, and for much longer periods of time, on weekends compared with weekdays [52]. Weekend editions of newspapers show differences in design, content, and reader demographics compared with the weekday editions [18]. There were structural and programmatic differences between weekday and weekend TV viewing patterns [17]. So far, most research attention has focused on media readership or viewing, instead of active posting behaviors, rendering many previous studies inadequate for exploring the use of microblogs as a social media application.

Furthermore, *posting frequency*, represented by daily posting amount, is chosen as a metric of usage in this paper. Compared with records of readership behaviors, which are mechanically limited and unavailable, posting data are available for every individual user, allowing for greater data reliability and validity. Many previous studies have suggested that microblogs play a more effective role as an information production, exchange, and consumption site compared with a traditional social network [19], indicating that the microblog usage could be reasonably reflected by the posting behavior. Meanwhile, much attention has been focused on exploring the gratification concerning the effects of media readership or viewing in traditional media research [16,20], indicating the necessity of treating posting behavior as the further study focus.

Thus far, little research has explored the usage time patterns of online social media. The few studies that address usage patterns of microblogs show that in general, users are primarily active on weekdays [21], but further details are not investigated. On the other hand, it has been largely noticed that social media users may differ in their preferences in use time. For example, Facebook engagement is about 32% higher on weekend than weekday [22]. More attention has been paid to Facebook posts on weekend because they feel more relaxed and happiness sentiments on weekend than on weekdays [23]. Extant literature has revealed that media users tend to show behavioral, cognitive, and psychological differences between weekdays and weekends [17,18,24]. Therefore, if usage behaviors also differ between weekdays and weekends, it is reasonable to deduce that different posting preferences on weekdays and weekends of microblog users reflect their various gratification and addiction levels.

Through multiple data sources, we compiled a data set consisting of user-level microblogging posting data for 308

microblog users. The data on posting patterns are obtained from the three most used microblogging platforms, whereas data on gratification and addiction dimensions are collected from self-report questionnaires. Our analyses show that the frequency of microblog posting is not a key factor to user gratification or addition, whereas users with different posting time patterns show different levels of gratification or addictions. For instance, heavy-balanced users, who post frequently on both weekdays and weekends, did not manifest the highest observed gratification and addiction levels. However, heavy weekend users who have higher engagement on weekends gain all categories of gratifications at higher levels and are more addicted in most of the addiction dimensions. The findings of our exploratory research may offer promising directions for future studies.

The remainder of this paper is organized as follows. In the next section, we review related literature and discuss our theoretical foundations. The third section presents our research framework and hypotheses. The fourth section discusses the research methods. The fifth section presents the testing results and, as extended discussions, describes the comparisons of gratification and addiction dimensions across four groups, which are divided according to users' posting frequency on weekdays and weekends. The last section concludes the paper by discussing theoretical and practically implications.

#### 2. Related literature

Our research is grounded in two theoretical realms related to media and technology use: U&G theory and technology addiction. In this section, we review related literature in these two realms, respectively.

#### 2.1. Use and gratification theory

Rooted in mass communication research, the U&G theory provides a user-centered perspective to explain why a specific medium or technology that enters the stage of mass communication is chosen over other alternatives [3,25]. A major assumption of U&G is that users are goal oriented and actively select media to gratify their own psychological needs [26]. Considering the personally motivated use, this prospective implies that users' differences in behavior and cognition are related to a certain technology [6].

Since first developed in the 1940s, the U&G theory is regarded as a cohesive way to explore users' engagement in a certain medium or technology, ranging from traditional media such as radio, newspaper, and television to diverse online applications, such as Internet, blogging, online games, mobile E-book, virtual communities, and social networks. According to Chen [2], this theory is well suited for the study of microblogging, because it is a tool of mass interpersonal communication.

The U&G theory is concerned with purposeful media use. In other words, people want to gratify a range of needs through usage, implying that a main focus in related research is to identify the users' gratifications in using a particular technology. Diverse gratifications have been elicited in reference to different contexts, such as passing time, entertainment, information sharing, meeting friends in SNS [27], self-discovery, entertainment value, social enhancement, and maintaining interconnectivity in virtual community [28].

Current research in U&G has largely focused on the typologies of use and gratifications, indicating that users use media for the content gratification (e.g., Information, entertainment), the process gratification through the experience (e.g., escape, surfing), and the social gratification with regard to the media's social environment (e.g., interaction) [5,29,30,31]. In this study, we adopt the

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