User Interaction Profiling on Facebook, Twitter, and Google+ across Radio Stations

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Abstract

Given the proliferation of social media in mass media contexts, how do media and their users interact on them? Guided by parasocial interaction and multiplexity theory, the interaction between 223 Italian radio stations and their users was analyzed. Social network analysis was performed to identify the interconnectedness across radio stations and three social media platforms: Facebook, Twitter, and Google+. Findings revealed that radio stations did utilize multiple platforms, yet, the interactions were limited to content redistribution and repetition. As for the users, contrary to expected favoring of one specific radio, a large proportion of users interacted with multiple radio stations by fulfilling their individual instrumental goals. The results of this study were foregrounded in instrumental social capital framework. Implications of multiple interaction across platforms and radio stations signal the need to reconceptualize the instrumental needs users in light of this cross-platform behavior.

1. Introduction

Social media have proliferated worldwide, being especially relevant for interpersonal interaction [11], facilitating bonding and bridging [34], and increasing perceived social capital [11]. The importance of maintenance of the bonds were acknowledged not only in interpersonal context but also creating bonds with brands, including engagement with media personalities and companies [15].

Regardless of the fact that social media are ubiquitous, little is known how mass media companies utilize social media. Similarly, what are the user behavior patterns while interacting with media companies? Moreover, with multiple social media platforms such as Facebook, Twitter, and Google+ being all popular and available to interact, to what degree multiple platforms are used by radios and by the users? Social media for mass media such as radio and TV stations have offered new ways to interact with their audiences. Social media provides a continuum in a historical mass media eagerness to engage audiences as well as to surmount one-to-many broadcasting constraints, such as not facilitating two-way interaction. Technologically, broadcasting limitation started to be overcome through various backchannel technologies – the two-way communicative channels [7]. Examples of backchannels for radio and TV, and newspapers’ audience engagement included telephone call-ins [3], letters to editors, more recently mobile texting [12], [36], and social media [2]. Thus, we ask How do radios and their listeners engage and manage interaction across multiple social media platforms? Do radio stations post or reply the same content? Do users engage with one radio or multiple radios on social media platforms?

1.1. Interaction via Social Media Platforms

Media brands have always striven to increase user involvement. As a result, a number of interactive applications started to emerge in mass media settings. Interaction refers to “a variable of responsiveness in interpersonal and societal communication” [30]. Interaction facilitates two-way information exchange flow and mass audiences’ engagement [12]. To analyze two-way interactions, studies either focused on the practices exercised by the media companies e.g. twitter use by radio stations [14] or studies have focused on the ways users use social media in mass media context – e.g. user interaction via mobile text messages interaction on TV settings to facilitate viewer-TV interaction [2], [36].

In this study we aimed to combine both approaches – by identifying radio practices and user practices across social media platforms.

This study is based on predictions of parasocial interaction and multiplexity theory. Social network analysis (SNA) was employed on a census sample of Italian radio stations comprising 223 stations and their users by collocating interaction patterns across three platforms – Facebook, Twitter, and Google+. These platforms were chosen not only because they are the most popular social media platforms worldwide [33], but also because in our sample of Italian radio stations, these were the most prominent platforms among radios. Analysis of this study was twofold. First we analyzed how radios interact across platforms. Then we analyzed how users interacted across radios and platforms. Those interaction patterns are geared to shed light on the new requirements for the platforms to accommodate the emerging social practices. Ultimately, our goal is to provide practical recommendations to fill the gap in user needs and best practices for media companies in
relation to these emergent phenomena.

2. Background

2.1. Multiplexity and Parasocial Interaction

Audiences have been historically engaged with mass media outlets via backchannels. Such engagement in traditional mass media was attributed to psychological variables such as emotional attachment [13], referred to as parasocial interactions [28], [16] and psychological influence [28]. Parasocial interaction, a term that has been developed in traditional mass media settings, refers to a perceived one-sided interpersonal relationship that television viewers establish with media character [29]. Also, it was found that by establishing a parasocial interaction, the viewer will most likely watch the program again even when the program is over [6]. The parasocial interaction subsumes loyalty to the specific radio or its channel. User interaction with radio stations was also attributed to processes such as psychological influence [28]. Parasocial interaction would predict that a given user would interact with a given radio station on a specific social media platform – being it Facebook, Twitter, or Google+ (the preferred one) as ways to maintain a relationship with a given social media platform or mass media outlet. The relationship is actually formed with the actors or performers.

Numerous social media platforms provide more than one channel through which parasocial interactions can be cultivated. With multiple platforms available, users can have more ways to engage with their preferred radio station. The notion of parasocial interaction gets multiplied with multiple channels of communication available to audiences. Multiple communicative means e.g. multiple platforms, were theorized to facilitate to maintain interpersonal relationships [18], [20], [21]. The use of multiple platforms to facilitate interpersonal interactions was theorized through Multiplexity theory. Multiplexity is particularly relevant for social media since it was found to fulfill the functions of interpersonal relationship maintenance [22], thus it is expected that radio listeners use social media to maintain such relationships as well. Moreover, interactive properties of social media provide nuanced contexts for online self-disclosure via messages, pictures, shared experience and self-disclosure was linked to positive relational outcomes [24]. Thus, Multiplexity theory subsumes that multiple platforms strengthen emotional ties [22]. In accordance with Multiplexity theory and given the availability of multiple social media platforms used by radios, we expect users to utilize multiple social media platforms to engage with a given favorite radio station. Even if we do not argue about the effects of multiplexity on the users, we analyzed the ways radio stations engaged in interaction with the users and how users engage with radios.

2.2. Social Media Affordances

Social media platforms provide new ways to interact but also are limiting in their affordances and social practices [9]. Limitations include commenting structure for the users. Users do have access to radio content through individual radios. Within individual radio, users can only replying to content posted by the radio rather than initiate the interaction. This is especially relevant in the Facebook and Google+ context, while Twitter radio content is accessed not only through the radio’s platform but also through hashtags. In traditional media contexts, users needed to call multiple times to reach a given radio station. Technological affordances of social media allow for a quick content repetition to augment visibility of content by posting it multiple times. Also, it is easy to forward content created by the others, instead of creating new content. In traditional media, content redistribution requires recording devices for audio-visual media and a copier for print media, while in social media it is achieved by a single click.

2.3. Research Questions and Hypotheses

To account for radio engagement with listeners we ask the following questions:

RQ1: To what extent do radio stations utilize multiple platforms to interact with users across platforms?

In accordance with Multiplexity theory, we expect the majority of the radio stations to include social media platforms, based on the historical trend of mass media integrating backchannels in their audience interaction. Additionally, the use of multiple social media platforms also maximizes user loyalty with a specific radio station.

H1: Radios will utilize multiple platforms to engage with users.

Similarly, for the audiences, we ask the following:

RQ2: To what extent do users utilize multiple platforms to interact with radios and across platforms?

In accordance with Multiplexity theory, we expect some users to use multiple platforms to interact with a given radio station as ways to maximize relationship building with a given radio.

H2a: Users will engage with a given radio by sending messages to a given radio station on multiple platform.

Yet, based on the premises of parasocial interaction that subsumes loyalty to a specific radio station, we predict the following:

H2b: Users will not interact with multiple radio stations.

Given the premises of technological affordances, we were interested in the nature of interactions on multiple platforms.

RQ3: How do radio stations use multiple social media platforms?
**3. Data and Analytical Approaches**

### 3.1. Use Case: Multiplatform Setting

Our use case includes a comprehensive list of Italian radio stations n=223 and their user interaction on social media platforms, generated from the media analytics company Audiradio. Therefore, our analysis accounts for user interaction across and within national and regional radios.

Italian case was chosen because of its historical leadership of adoption of interpersonal media such as mobile texting integration into mass media. As for social media use, in the media category, currently five of the radio stations rank in a top 15 of the most highly ranked Facebook pages in terms of number of fans [32]. On Twitter, Radio Deejay, Radio 105, and RDS are in a top 10 of most active Twitter accounts [32]. Social and interpersonal media are actively present and prominent in mass media thus makes it a robust national case-study.

Table 1 summarizes user following practices on Twitter, Facebook, and Google+ followers for all radio stations. There were more than 15 million users who were somehow interacting with radio stations by sending messages, liking or sharing comments, a combination of the two, or by merely subscribing to a given radio station (see Table 1). Further analysis for this study was based solely on exchanged messages as they allow for comparison across platforms. Likes, shares or retweets were not included in our analysis – since they are not comparable across platforms and denote different characteristics and functions.

### 3.2. User Profiling

In this study we were interested in user profile matching which we refer to as ways to map users across platforms. Based on user profile information, we first identified users who sent messages across radios and platforms and then mapped their interactions (operationalized as messages sent to a given platform) on a social networking graph [17], [19]. We used R, “a language and environment for statistical computing and graphics”, to analyze the social network data and igraph, "an open source software package for creating and manipulating undirected and directed graphs", for a network visualization.

The procedure of mapping users across platforms consisted of three steps. First we used the extract, transform, and load (ETL) technique, described in Section 3.2.1, to extract information both about users and their transactional histories on the social network. Then we analyzed the collected data to identify those users that were in more than one platform. Lastly, we compared our results to statistical information provided by similar studies, to validate the reliability of collected data [10].

#### 3.2.1. Social Network Data Extraction

We extracted social network data from three social media platforms. For each of them we had to investigate the scalability and individual technological impact that influenced our data access. One notable technological restriction imposed by the social media platforms was the limited number of daily requests allowed to their Application Programming Interface (API) or somewhat limited information about their users or the usage of the network. To overcome the first limitation, we implemented user and content tracking mechanisms to minimize the number of necessary requests, see Figure 1. This allowed the system to extract more unique content in shorter time.

![Figure 1. Social network graph extraction process](image)

Table 1 Social Media Use by Radios

<table>
<thead>
<tr>
<th></th>
<th>Twitter Followers</th>
<th>Facebook Likes</th>
<th>Google Followers</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sum</td>
<td>4,196,462</td>
<td>10,501,343</td>
<td>324,409</td>
<td>15,022,214</td>
</tr>
<tr>
<td>Mean</td>
<td>34,681</td>
<td>65,882</td>
<td>5,837</td>
<td>67,364</td>
</tr>
<tr>
<td>Std Deviation</td>
<td>161,470</td>
<td>242,092</td>
<td>28,493</td>
<td>309,973</td>
</tr>
</tbody>
</table>

The first step of our process of data collection consisted of the identification of algorithm parameters,
such as the list of radios we were interested in. The second step determined the parameters of data collection. The third step, data extraction, combined a breadth-first-search algorithm with a Round-robin algorithm [31] to extract radio content alternately. The post-processing step purged information that was duplicated or not compiled by the initial data extract parameters e.g. messages using erroneous tags. The last step was responsible for saving the collected data and for freeing the resources allocated to the task.

3.2.2. User Profile Matching. To match user profiles across social media platforms we extracted the profile of each user from their social media platform. Since data on social media can be very diverse, unstructured, and even unsuitable, we designed an algorithm to estimate the probability of two user profiles on different social networks to represent the same individual.

We used three criteria to match different user profiles across social media platforms. First applied the Soundex algorithm [4]. The Soundex algorithm evaluates how similar the names sound when spoken. Then we computed the Levenshtein or edit distance [35], which is defined as the smallest number of edit operations, inserts, deletes, and substitutions required to change one name into another. We used these two metrics to calculate the similarity between the two users and then to generate the first pairs of candidates. Finally, we attempted to match additional information on those users (i.e., the cosine similarity between two user profiles, photo similarity, and email address), and social network topological based features (i.e., mutual friends, and username) as described in [26], [27].

In cases where the user location was known, we used the geodetic distance between users as a parameter. First we took advantage of the Google Geocoding API to obtain the geographical coordinates of an address when such coordinated are not explicitly specified. Then we computed the distance measured along the surface of the earth between the two points as suggested in previous research [8].

To improve accuracy of our algorithm, we further analyzed users using fake names. We identified Twitter as the most critical platform, as their policy to enforce the use of real names is weaker than Facebook and Google+. 44.3% of the users extracted on Twitter do not use their real names. Although we managed to fix approximately 50% of the user names, we ended up discarding 27.2% of the whole dataset of users. Finally we balanced the weights of all these criteria to assign a probability value to every pair of users. The pair of users that passed all the tests were assigned to the group of potential social brokers.

3.2.3. Data Reliability. The validation served as a necessary step to check the reliability of collected data [1]. In this section, not only we compared our measures (calculated by applying SNA techniques) with statistical information provided by similar studies, but also we assessed manually the information concerning user profile matching.

In a recent report, Duggan and Smith [10] have identified through a survey that 22% of the Internet users did not use any type of SNS, while 36%, 23% and 12% used respectively one, two and three. We identified that 16.5% of the radio stations did not use social media, while 16.4%, 39.4% and 16.1% used one, two and three, respectively. We believe that there are two main reasons that explain the discrepancies in the use of only one social media platform. First, the study presented in [10] reflects the use of social media within the United States of America. Our radios stations are all located in Italy. Second, in our sample, radios are public figures that aim at large audiences, instead of small circles of friends. Additionally, Duggan and Smith have identified that 90% of Twitter users uses also Facebook, and 22% of Facebook users uses Twitter. In our sample, 68% of radios companies on Twitter are on also Facebook, while 46% are also on Twitter.

We also manually cross-checked the reliability of our user profile matching algorithm. From a sample of 20 users, we found that 2 were likely false positives (we could argue against), 5 were probably the same user (we could not find enough information to argue against), and 13 were definitely correct (e.g. profile pictures).

4. Results

Descriptive statistics of overall sample of users who were actively engaged by sending or replying to the messages is summarized below.

<table>
<thead>
<tr>
<th></th>
<th>Facebook</th>
<th>Twitter</th>
<th>Google+</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Active</td>
<td>240,615</td>
<td>14,401</td>
<td>4,197</td>
<td>259,213</td>
</tr>
<tr>
<td>Who Sent Messages</td>
<td>14,580</td>
<td>9,752</td>
<td>927</td>
<td>25,259</td>
</tr>
</tbody>
</table>

Out 259,213 active users, 25,259 users sent at least one message to a radio. The remaining users, that interacted with radios through liking or sharing, were excluded from further analysis because of the comparability issues described in Use Case section.

<table>
<thead>
<tr>
<th></th>
<th>Facebook</th>
<th>Twitter</th>
<th>Google+</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Messages by Radios</td>
<td>143,216</td>
<td>17,716</td>
<td>2,495</td>
<td>163,427</td>
</tr>
<tr>
<td>Messages by Users</td>
<td>46,175</td>
<td>19,156</td>
<td>1,565</td>
<td>66,896</td>
</tr>
<tr>
<td>Total Messages</td>
<td>189,391</td>
<td>36,872</td>
<td>4,060</td>
<td>230,323</td>
</tr>
</tbody>
</table>

Given that we were interested in active message sending practices, for the following analyses we utilized the sample of message exchange on each platform.

4.1. Radios on Multiple Social Media Platforms

To answer research questions 1-4, engagement with platforms was analyzed in terms of radio interaction.
with users (operationalized as frequency of message posting on radio station’s Facebook wall, Twitter page, or Google+ page respectively); and user engagement with the radio or other users in terms of messages sent to the radios. To answer the first research question, To what extent do radio stations utilize multiple platforms to interact with their users?, we analyzed radio engagement within and across platforms.

4.3. Interaction within One Radio Station

To test H2a, regarding to user interaction with one radio on multiple platforms, ANOVA performed on user interaction with radios on Facebook comprised more messages sent to the radios (mean=9.1590) compared to Twitter (mean=4.2151) and those results were statistically significant (ss=6924.063; df=2; mq=3462.032, F=4.754; p=.009). Post-hoc Tukey test revealed no statistically significant differences between Facebook and Google+ nor Twitter and Google+. The results show that users indeed interacted with one given radio station across platform thus supporting theoretical propositions of Multiplexity theory. H2a was supported.

4.4. Interaction across Multiple Radio Stations

To test H2b, if users interact with more than one radio station, we counted the number of radio stations with which an individual user interacted. If we look at the range (the minimum and maximum number of radios to which users sent messages) Facebook had the widest range – 1-26; followed by Twitter 1-9; and Google+ 1-3. Analysis of variance (ANOVA) confirmed statistically significant difference between the platforms in terms of number of radios (ss=81.412; df=2; mq; F=40.706; p=.000). Post-hoc Tukey test revealed significant differences with Facebook interaction including more radios (mean=1.9171) and Twitter (mean=1.3894); with no differences in other combinations (involving Google+). H2b was not supported and users sent messages to more radios on a given platform.

4.4.1. Users across Multiple Radio Stations via Facebook

To further investigate H2b, we analyzed how users interacted with multiple radios on Facebook. We constructed a social network graph of user messages sent to any of the radios within Facebook (degree=0.17241, closeness=0.35604, eigenvector centrality=0.90096, and betweenness=0.14030).

Figure 3. User network connecting to multiple radios on Facebook

In Figure 3, blue nodes indicate users, yellow nodes indicate radio stations, and the links represent messages sent to a given radio station or the user on a given social media platform. The larger the node, the more messages were received by that node. The number of users that sent at least one message to more than one radio on Facebook is 434, which indicates that when users are actively sending messages to one radio, they do so with more radios.

For example, 29 radios was the maximum number of contacted radios by a given user. Through 2013 to 2014 she sent more than 100 messages. Her messages included appreciation for an Italian singer Loredana Errore.
(1) Buongiorno RADIO SABBIA vorrei tanto ascoltare uno dei bellissimi brani di Loredana Errore nella vostra radio... spero di essere accontentata ... :) 
[Hello RADIO SABBIA I would like to listen to one of the beautiful songs by Loredana Errore on your radio...I hope my request will be satisfied ...]

Similar content was sent to more than one radios. Also, this user targeted each radio individually by identifying them with their name.

The other user who sent messages to 22 radios, repeated the same message from November 30th to December 8th ten times to ten different radios with the following text:

(2) La mia "Avrei bisogno di parlarti", dedicata a mio padre, nella compilation MEET"n"RADIO di Novembre [My song "I would need to talk to you", dedicated to my father from a compilation MEET"n"RADIO from November]

Facebook was used as content distribution platform to access multiple radios with just several clicks.

4.4.2. Users across Multiple Radio Stations via Twitter. To further investigate H2b, we analyzed how users interacted with multiple radios on Twitter. Similar patterns to Facebook were observed on Twitter. On Twitter, the number of users who sent at least one message to more than one radio station was twice as high as for Facebook equal to 809 users.

![Figure 4. User network connecting to multiple radios on Twitter](image)

In Figure 4 green nodes indicate users, and yellow nodes indicate radio stations (degree=0.22691, closeness=0.22910, eigenvector centrality=0.95109, and betweenness=0.23772). Figure 4 shows a very large network of users who sent messages to multiple radios. The technological side of Twitter allows for a quick ways to refer to the content by utilizing the @ sign.

Mentioning of a given radio technologically was much faster and convenient compared to the need to comment on radio’s content by posting messages on their Facebook wall or on their Google+ page.

A maximum of radios to whom messages were sent by a given user was 12 radios.

(3) Facciamo gli auguri a @Radio105 che oggi compie 38 anni??? Era il 16 febbraio 1976... ["Let us make the birthday greetings to @Radio105 that celebrates 38th birthday??? It was February 16 1976..."]

(4) RT @micheletgod: @Radio Speaker @m2o_radio in enorme crescita! [RT @micheletgod: @Radio Speaker @m2o_radio is in a great growth]

This user posted messages sent by multiple radios with radio-related facts.

4.4.3. Users across Multiple Radio Stations via Google+. To further investigate H2b, we analyzed how users interacted with multiple radios on Google+. The number of users that sent at least one message to more than one radio on Google+ was the smallest, equal to 30. Regardless of the small number of user who sent messages to multiple radios, practices on Google+ resembled the ones on Facebook and Twitter.

In Figure 5 red nodes indicate users, and yellow nodes indicate radio stations (degree=0.40823, closeness=0.24173, eigenvector centrality=0.74437, and betweenness=0.33990). To conclude, overall results of social graph analysis show that users do maintain relations with more radios at a given time, contrary to what we predicted.

Maximum radios with which interacted any given user was four. These are the following examples of the messages.

(5) Radio Deejay ma dopo si spoglia!!!!!!!!!!!!! [but afterwards the clothes are taken off!!!!!!!!!!!!!!]
These messages show appreciation for the content that is posted on the Google+ page, in reaction to pictures.

**4.4.4. User Interaction across Platforms and across Radios.** To further investigate H2b, we analyzed how users interacted with multiple radios across platforms, we identified the users who were acting as brokers across radio and social media platform networks.

![Figure 6. Users who sent messages to at least one radio on more than one platform](image1)

Figure 6 represents users (depicted as black dots) who sent messages to radios on multiple platforms (the color of the node identifies radio’s platform). To construct this graph we analyzed the profile of 18,397 users who sent messages to multiple radios (out of 25,259), to detect those with accounts on more than one platform. 6,862 users were ignored due to unreliable information, since Twitter and in some cases Facebook does not enforce the use of real names. Our analysis revealed a large proportion of users who acted as brokers between the platforms connected radio stations on Twitter and Facebook. 72 users who sent messages to both Twitter and Facebook; 19 had Facebook and Google; and 7 had both Twitter and Google+ to a given radio. The graph level centralization measure from the centrality scores of the vertices are degree=0.61266, closeness=0.03278, eigenvector centrality=0.99131, and betweenness=0.52229.

We further narrowed down our analysis by dividing users into two groups. Black dots depict users who sent messages to multiple radios across platforms. The rest of the users who sent messages to multiple radios within one platform (even if they were using multiple platforms) are represented by green color dots for Twitter users, blue for Facebook, and red for Google+, with yellow representing radios. The graph level centralization measure from the centrality scores of the vertices are degree=0.13290, closeness=0.00298, eigenvector centrality=0.96184, and betweenness=0.45156.

In Figure 7 we identified 11 multiplatform users who interacted with more than one radio (depicted as black dots). This number was extracted from the sample of 1,273 users who sent messages to multiple radios within a given social media platform (Facebook was equal to 434; Twitter – 809 and Google+ 30 from Figure 3, 4, 5) who sent messages to multiple radios. Ten users out of 11 (who were on more than one platform), sent messages to multiple radios by using one out of two or three platforms (depending on how many platforms they were on). One user who sent messages on two platforms (Facebook and Twitter), sent messages to multiple radios on each of them independently.

This analysis shows that users not only sent messages to a single radio on one platform, they did sent messages to multiple radios on multiple platforms, with a few number of users who served as brokers.

**4.5. How Did Radios Use Multiple Platforms?**

To address research question three, *How did radio stations use multiple platforms?*, we examined proportions of repeated and original content. Repeated content constituted 77,835 messages. It was extracted by matching the content by the user sent to the radio or messages by radios posted on any of the three platforms. The total number of repeated messages that include radios and users via multiple platforms are represented in Figure 8.

This analysis shows that there is a large number of repeated content on each of the platforms. Some of those contents overall between Facebook and Google+ and between Facebook and Twitter. These results were interpreted by the fact that many message sending practices included message re-posting (e.g. Twitter to Facebook) and the ease of technical side of the redistribution of the content between platforms.

Repeated messages by all platforms and by all radios constituted n=6,691 messages. Radios engaged
in repeated content by sending messages that resemble templates. For example, to engage with their audiences, a given radio station announces a puzzle-based question and redistributes it across all social media platforms.

(7) Indovinello: ci che rosso era, nero resta [Puzzle: what was red gets black]

(8) LINEA DIRETTA Cosa vi entusiasma e appassiona, nel vostro lavoro? Viceversa, cosa vi fa proprio passare la voglia di lavorare? [DIRECT LINE What are you excited or passioned about your job? On the contrary, what is it that makes you disengaged with your work?]

Another message repeated six times across Facebook and Twitter was:

(9) On air, su Centro Suono Sport, 101.5, Adriano Valentini e Gabriele Ziantoni. State con noi!!! [On air, on Centro Suono Sport, 101.5, Adriano Valentini and Gabriele Ziantoni. Remain with us!!!]

The message was used to announce their current programming to listeners and encouraging them to keep listening to them.

Finally, generic messages such as ciao [hello] was repeated seven times by multiple radios on Google+ and Facebook. H3 was partially supported, since large proportions of content were repeated. This particularly is relevant for shared content between Facebook and Twitter.

4.6. How Did Users Use Multiple Platforms?

To address the RQ4, repeated messages by users were analyzed. They constituted 79 messages, most of which were shared on Facebook and Google+ and none with Twitter. As for the nature of the content, most of the repeated content comprised short and generic utterances such as Buongiorno translated as [hello] repeated 154 times on Facebook. Unhappy face emoticon was the second in the most frequently repeated messages summing up to 81 times and was posted on Facebook and Google+ by the users. Followed by No, grazie, auguri, :D, si, ciao a tutti, buon giorno, mi piace, bellissima, ok translated as [no, thank you, greetings, :D, yes, hello everyone, have a good day, I like it, beautiful, ok] constituting the list of the messages that were repeated more than 20 times across the platforms by various users. H4 was partially supported even if compared to radio repeated messages, user repeated messages overall were fewer.

5. Discussion

This study revealed that most of the Italian radio stations are present on social media platforms. Radio stations’ presence on multiple platforms facilitates content redistribution and brings listeners closer to their brand. Thus, media companies emphasized their presence online and reached out to additional and dispersed listenership across multiple social media platforms, rather than maintained genuine relationships, predicted by parasocial interaction or Multiplexity theories. Given that users might favor a specific platform – being it Facebook, Twitter, or Google+, by including all of them, radios capture all audience members and strengthen radio brand presence and online visibility.

We considered radios’ need for visibility as revenue-driven strategy. Multiple social media platforms potentially generate larger audiences, which enables to increase advertisement revenue, which is based on amounts of listeners. Such relationship building between users and companies was conceptualized as brand communities “a specialized, non-geographically bound community, based on a structured set of social relations among admirers of a brand” [25] (p. 412).

Users did act as brand admirers, but not always and not all of them. While parasocial interaction predicted that users will use a given social media outlets to maintain relations with their favorite radio, this study found that unexpectedly some users extended their interactions to multiple social media platforms – in a similar fashion as radio stations did use multiple social media platforms. Users were using multiple social media platforms to engage with multiple radio stations, not favoring one of them. This segment of users utilized multiple social media social to communicate with multiple radios, which is contrary to what parasocial interaction or Multiplexity theory predicts. In such ways, such users exhibited no loyalty to a given radio. Rather, users could quickly redistribute their content in a one-to-many way. Such instrumental needs were achieved more efficiently by contacting multiple radios at the same time. As examples show, some of those users were not just radio fans. Since social media platforms have almost no barriers for entry, users could post self-promotional videos, such as some musicians did to advertise their own music. We interpreted user strategic ways of interacting with multiple radios across platforms based on the premises of the theory of instrumental action. Instrumental action theory postulates that instrumental action is based on actors’ strategies to gain social capital as people’s inclination to actively pursue opportunities and resources for their personal benefit.
6. Conclusion

Given that user interaction involves multiple platforms, we analyzed the level to which radio stations and their listeners interconnected via multiple social media platforms. The focus of this research was to test Multiplexity theory on two different levels. The first level of interaction included messages sent to the radios stations and its responses. The second level of analysis tested Multiplexity theory that occurs between audience members on radio stations. By showing the overlapping use of social networks we exemplified how Multiplexity is actually present across radio stations social media platforms.

The study found that social interactions facilitated diverse instrumental goals for the users and radios. For radios, social media in such contexts provides an additional dimension to the concept of listenership. For users, given higher social status of radio personalities, users’ closer interaction with radios lead to increased likelihood of access to radios’ public arena. Moreover, by contacting multiple radios, users can engage with multiple of them at a given time (regardless of the social media platform, even if Facebook was found to be the dominant one). Yet, our analysis revealed user practices that resemble premises of Instrumental social capital better explains the complex nature of user interaction across social media platforms and with multiple radios. The presence of interaction via multiple platforms could be also attributed to the individual or radio platform-preference or limitations of platform-adoption. Also, there are multiple interpretations of user interaction with other users and radio stations. Users, who interact with radios, could be more interested in engaging in fan-based behaviors or content creation, also, each platform could drive different user content interest.

We also acknowledge the divergent evolution of radios’ social media outlets of our sample in terms of the technology adoption of each of the platform, e.g. 37 of radio stations did not use social media outlets at all. Based on the birthdays of the radios, we have established that radios started to emerge on social media platforms around 2007 and continued to populate themselves till recent days. The implications of this evolution is our sample comprises radios that have been present on social media for several weeks as well as for several years. As for the content, even if we included content-based granularity to the interactions, future studies could include a more in-depth content analysis of these interactions. For example, the analysis of messages redistributed across platforms could reveal the relevance of those to the radio station and those to the user.

The analysis of the radio interaction revealed that the resonance of user-radio interactions was not the same across the platforms. Facebook was predominant social media platform in terms of number of users and number of radio stations present on it. Also, the overlap between Facebook and Twitter in terms of number of users, serving as brokers, was the highest. One way to explain this phenomenon is that Twitter activities are shared on Facebook as well. Users can existent platform mechanism to share the content across two platforms. This did not happen on Google+

Practical implications of this study are that a range of behaviors, including instrumental ones that emerged in user interaction analysis with radios highlights the importance of diverse needs of the users [37], [38]. For radios, this analysis shows that brand loyalty is not reflected in all their user behavior that provides a complex social construction of the intersection between fan behavior and community. User interaction across platforms can be interpreted as ways to overcome current limitations of hierarchical relationship between users and radios are inherent in social media, inherited from traditional radio setting where radios broadcast content (one-to-many model) and users only respond or react to it via backchannels. Instead, such or networked resources could be shared without restriction and provide users with additional perceived benefits such as access to multiple ‘prestigious’ networks, considering that users already engage in such cross-radio interaction.

As of now, users used multiple platforms as diverse sources of social capital and multiple access points to public arena. This reasoning is in line with the research conducted by Lin and Dumin [23] who analyzed factors affecting access to social resources. While access to multiple platforms provide more potential power to the users, the more powerful brand communities were warned to be threatening to the brands because of their power to spread information or sabotage brands by spreading internal communications. At the same time, brand communities can signal brand quality perception [25]. Therefore, it will be up to the media companies as well as their listeners to decide the future functions of the social media platforms.

7. References


