INDICATORS FOR THE ANALYSIS OF LEARNING AND PRACTICE COMMUNITIES FROM THE PERSPECTIVE OF MICROBLOGGING AS A PROVOCATIVE SOCIOLECT IN VIRTUAL SPACE

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Abstract: In linguistics, sociolect refers to the language of a certain group which, using specific terms and interactions dynamics, is characterized by an intimate/personal/private culture. In a society where Web 2.0 has generated an unprecedented diversity in terms of online communication, by transferring this concept to the Social Web, we can start considering microblogging as a specific social dialect, in which individual users are clearly singled out and engaged in a conversation. In this context, the paper is meant to be a space for reflecting on several indicators of social interactions in the microsphere, indicators which may prove useful in research from the perspective of the discourse and the dynamics of establishing connections with others. The analysis will focus on the learning and practice communities developed on microblogging platforms Cirip.eu and Twitter, but it can be generalized and extended to other implementations as well.

Keywords: microblogging, sociolect, Web 2.0, communities, eLearning.

I. INTRODUCTION

In linguistics, sociolect refers to the language of a certain group which, using specific terms and interactions dynamics, is characterized by an intimate/personal/private culture. In a society where Web 2.0 has generated an unprecedented diversity in terms of online communication, by transferring this concept to the Social Web, we can start considering microblogging as a specific social dialect, in which individual users are clearly singled out and engaged in a conversation. In this context, the paper is meant to be a space for reflecting on several indicators of social interactions in the microsphere, indicators which may prove useful in research from the perspective of the discourse and the dynamics of establishing connections with others. We’ll try to define, and to discuss several indicators of social interactions in the microsphere, indicators which may prove useful in research from the perspective of:

- the discourse and the dynamics of establishing connections with others
- the dimension and relevance of the developed PLE/PLN, and
- the ePortfolio.

The analysis will focus on the learning communities and the communities of practice developed on the microblogging platforms Twitter and Cirip.eu, but it can be generalized and extended to other implementations as well.
II. MICROBLOGGING PLATFORMS

Microblogging is a Web2.0 technology and a new form of blogging, that allows users to publish online brief text updates, less than 140-200 characters, sometimes images too. The posts can be edited and accessed online, as SMS, by e-mail, via instant messaging clients, and by third party applications. Usually the microblogs authors export their posts as a widget on blogs or sites. Thus microblogging enables a real-time interaction between users, using different devices, technologies and applications.

The best known microblogging services are Twitter, Identi.ca, Tumblr, Pownce, Jaiku [6] and recently Edmodo. There are also local microblogging systems, very appreciated among Romanian Internet users, like Cirip.eu, Trigwee.com (ex. Zazazoo.ro) and Logoree.ro.

The community of the users on Twitter is called Twittosphere or Twitterverse, as specified by Twitter Fan Wiki Glossary1. We will call Ciriposphere the community of users on Cirip.eu. In March 2009, the Romanian Twittosphere counts 2500 users (RoTwitter Survey2, realized by Cristian Manafu), and there are 2000 users on Cirip.eu (see Users page on Cirip.eu).

People use microblogging platforms to communicate their actions and projects, to put questions, to ask for directions, support, advice, and to validate open-ended interpretations or ideas by discussing with the others. This new technology has mashed up personal publishing and communication, the result being a new type of real-time publishing.

Twitter is the most popular microblogging system, with more than 5 million users and a large variety of uses, in education too (@TweetingTrends states that education is a new trend of the discussions on Twitter). Many teachers and students use a platform designed for education, called Edmodo, to send “notes, links, files, alerts, assignments, and events to each other”. Other educational uses of microblogging can be found in [3], [10] and [11].

2.1 The facilities of Cirip.eu platform

Cirip.eu is a microblogging platform specially designed for education and business, launched in March, 2008, and implemented by Timsoft, under the second author's coordination; Timsoft is a Romanian company specialized in eLearning and mobile applications.

Besides the facilities Twitter offers, Cirip.eu comes with the following:

- Users have the possibility to specify the domain about which they will write the notes; this makes finding microblogs from a specific domain easier, particularly the educational ones;
- Creating user groups; pupils, students, teachers can create public or private groups (in the private ones the notes are visible only for members);
- The possibility to embed images, audio and (live) video clips, presentations, documents in notes;
- The possibility to subscribe to search feeds or to feeds offered by sites / blogs / social networks – the same as users and groups, the feeds can be monitored online, by IM, or by SMS.

The interface is in Romanian, English, and German, facilitating an international collaboration. More than 10% of users are not Romanians.

2.2 Using microblogging for communities of learning and of practice

In this section we will present how microblogging platforms can be used in education. More information can be found in the papers written by the authors [3] and [11], and also in the recent articles published by two prestigious educational organisations [12] and [13]:

1 Classroom community: Communication on microblogs enhances traditional courses, exploring the potential of microblogging in formal and informal settings: students discuss different kinds of asynchronous online discourse, considering voice, purpose, audience, to

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1 http://twitter.pbwiki.com/Twitter%20Glossary
organize ideas, reflect, send notes, manage meet-ups, serendipitous discovery etc. On Cirip.eu there are many private groups that host learning communities.

2 Exploring collaborative writing: Microblogging promotes writing as a fun activity, it fosters editing skills, develop literacy skills; it can give our students a chance to record their cognitive trails and then use them to reflect on their work. The Cirip.eu public groups *A haiku each day* or *Stories in 140 characters* are such examples.

3 Collaboration across schools, universities, countries: Pupils, students, teachers share their experience, learning socially.

4 Project Management: Groups are set up on Cirip.eu for projects working, notes can be picked up on cell phones, as SMS, and so is no need to be online in order to communicate with your colleagues.

5 A tool for assessing opinion, examining consensus, looking for outlying ideas, fostering interaction about a given topic.

6 A viable platform for metacognition (the practice of thinking about and reflecting on your learning) has been shown to benefit comprehension and retention.

7 Conference or as part of a conference or workshop: Dedicated groups provide a simple way for attendees at a conference to share thoughts, to publish and discuss presentations with others at the event and those unable to attend; they are also useful for further reflections.

8 Each user can build her/his Personal Learning Environment / Personal Learning Network (PLN), which contains – the last three only for Cirip.eu:
   - connections with the followed users,
   - groups in which the user participates, on topics she/he is interested
   - feeds provided by sites/blogs/social networks and search feeds on different topics,
   - social networks which provide the multimedia objects embedded by platform.

9 Reference services (in libraries): People could monitor and communicate with dedicated accounts to learn about library events, new books, or get responses to library user questions.

10 Online courses: Entire online courses for formal and informal education are run on the Cirip.eu platform, using the private groups facilities:
   - A group has a special section for announcements (Group News) - another original element of the platform, where the moderators can post notes and useful materials as SCORM/LOM objects for the group activities.
   - The discussions on the proposed themes are realized through messages sent by the participants in the group space. Messages can be sent/monitored online (web site or CiripFox – a Firefox extension) or as: SMS (it’s simple to track the group messages via mobile phone); instant messages; e-mail.
   - Other valuable options are the facilities to send live video/audio messages and to integrate multimedia objects in the notes; all of them become part of the information/communication flow: audio clips saved on a server or vccoroo; flickr or tinyipic images; YouTube, seesmic, vimeo or dotsub videos; slideshare, voicethread, capzles, notaland, photopeach or flowgram presentations; pdf, docs or spreadsheet files.
Also the students learn how to find/use/create educational resources on the corresponding social networks. Their digital skills are improved, and their PLEs/PLNs are enlarged with these networks too.

III. THE MICROSPHERE ANALYSIS INDICATORS

3.1 Popularity

This indicator can be obtained easily and is based on the relation between the number of followers of a user and the number of messages sent.

For Twitter, the determinations of this indicator can be obtained with mashups such as Twitterholic, Twitter-Friend, Friend-to-Follower-Ratio and so on. In the case of the Romanian Twittosphere, the Ze List application has a special section\(^3\), where classifications can be consulted according to the number of followers, of persons being followed and of the number of messages written during the last week.

On Cirip.eu popularity may be analyzed on the Users page, which allows listing according to the number of messages written, but also according to the ratio between the followers and the number of messages written.

3.2 Influence

Influence is probably the most visible indicator in the case of an analysis, both in an educational and a business context.

In the case of Twitter microblogging platform, a series of applications have been developed, whose use must be handled with certain precaution and/or a qualitative analysis. Examples:

- **Twitterholic** or **TwitterCounter**: lists the classifications of users according to the number of followers (although Barack Obama leads the classification, he has only a few messages posted in comparison with Chris Brogan or Guy Kawasaki, who don’t even enter top 10).
- **TwitterRank**: a sort of Google Rank for messages, updated every 20 minutes, based on an algorithm which takes into consideration the number of answers received by a user (i.e. those messages with @user_name which practically transform Twitter into a huge semi-public conversational sphere) and offers a more realistic classification than those of Twitterholic or Twittercounter.
- **TwitterGrader**: developed by the marketing company HubSpot, it takes into account the number of followers, the power of the network they create, the rhythm of the postings, the degree of personalization of the profile, but also other factors.
- **Twinfluence**: is based on several very interesting metrics such as the social capital, the first and second order network, the increase speed of the network, the concentration, the access and the influence sphere of the network.
- **TweetValue**: (with a funny feature) quantifies from a monetary point of view the value of one’s own profile. It is based on followers and answers.

The authority level on Cirip.eu can be followed on the Tops page, where hierarchies appear according to the number of messages, persons being followed, and followers, answers received and sent. The focus of a user in a classification will display the characteristics for that top, making its position visible in the other hierarchies.

\(^3\) [http://www.zelist.ro/zetweety.html](http://www.zelist.ro/zetweety.html)
3.3 Coagulation index

We define this indicator by subindexes: the covering / density of the network, the conversational coefficient\(^4\), the reciprocity and the relevance.

The network covering takes into account the messages sent and received, including also the messages addressed with @user.

For example, for Twitter, the analysis of usage habits can be realised with the help of the TwitterFriends application. This is based on the existence of three networks: the general one, made up of people you follow and of those who follow you, the network made up of the followers of your own followers ("your friends' friends") and the list made up of those persons with whom you chat most frequently ("the hidden part" of the conversational chain). For the received messages (or those referring to the user in the message) only the last 30 days are taken into account, and at least 2 messages addressed with @.

\(^4\) It remains to clarify in the future to what degree we may consider the coefficient of posted relations a subindex.
The conversational coefficient, introduced by the Twitter-Friends creator (@furukama), registers the number of messages received / sent and that of the Web resources posted in messages, displaying them both as percentages and visually, under the form of a cloud (tagcloud). In Figure 3 the double arrow indicates more or less regular discussions with conversational partners (who may not belong to one’s personal network). Global indices are also reported in the statistic data (both for the conversational and relational level and for reposted messages).

Figure 3. Visual representation with Twitter-Friend for the Twitter account @cami13

Reciprocity is found in the degree of „mutuality” of the relation with another user / other users.

„In my account there is a certain disequilibrium between the number of persons I follow and those who follow me. A large number of followed persons requires an effort of attention, energy and a time budget that I lack. We simply cannot be connected with everybody”

@gabriela, www.cirip.ro/u/gabriela

Relevance refers only to the network made up of the persons you follow and who follow you, this depending a lot on how microblogging is perceived: as an informational or a relational network. If you want to keep informed, then you would probably have a larger number of persons you follow (whose activity is closely connected mainly to your professional field). The analyst Valdis Krebs states that in the construction of a relevant network it is important to follow people who have an important social circle, practically a user employs the redundance of connections for obtaining a relevant network. He indicates a number under 100 followed persons (of which 50 persons are definitely enough if you really want to read each message posted and another 20-30 just for the sake of the conversational bustle). Others refer to Dunbar’s number and indicate a circle larger than 100. Valdis Krebs also states that visualizations of relational networks as maps are like metaphors and are not accurate, correct, current, perfect representations of one’s own social circle.

Question: is the number of followed persons directly proportional to the number of posted messages? To what degree does this matter when you decide to follow a certain person? Because applications like Tweedeck and Twirl allow the creation of groups by interest zones, and things seem to acquire a completely different connotation or, according to Beth Kanter’s words, in her comment to Krebs posting: „So, the dipping is like sharpening a pencil or way of finding some inspiration or a different way of thinking.”

„Time wise there isn't necessarily much difference between 100 to 1000. Weird as it sounds I'm considerably more time efficient following more than I was with less. What changes is the nature of the conversation, less than 200 feels considerably more

6 idem
As for the Cirip.eu platform, the Network section of a microblog offers information on the network developed around that user, displaying:

- the followed users: in blue if the relation is mutual, grey only if the current user follows someone;
- in red – the followed groups;
- with dotted line – users who follow the current user, without being followed.

For each user in the network, the last written message is displayed, along with the direct messages counter he/she exchanged with the central user.

By analyzing the network, some interesting remarks concerning the conversational coefficient can be made:

- we can look for the cause of an unbalanced communication with some of the network users, if the number of sent messages differs largely from the received ones. Figure 4 illustrates a balanced communication between Signum2001 and Deea: 19/20;
- if there’s a direct communication with a user who only follows, without being followed, it is probably useful that following becomes reciprocal;
- we can analyze the number of users outside the learning / practice community belonging to a participant’s network, the topics dealt by the latter (the field could be mentioned in the description of each microblog), direct communication and so on. A first conclusion refers to the expansion of the PLE/PLN, the existence of discussions, the validations beyond the learning community, these being only some of the advantages brought by microblogging;

Figure 4. The network of a Cirip.eu user

Figure 5. The Cirip.eu group development network for the microblogging course

ibidem
• similarly, we can evaluate the number, topic, participation to other groups, than the one for a
course or those for collaborating with colleagues; thus, there is the possibility of discussing,
learning, approaching other interest topics, for study or research.
The total number of a user’s messages addressing other persons can be found by searching @ in
his/her messages. The relation between the addressed messages and the total number of messages
represents the conversational coefficient, which should be as large as possible, around 50%.
By searching @user in all messages, the total number of messages received from others is
determined. It is advisable that the messages addressed to other users and those received should be
close, indicating a balanced interaction at the level of the entire network built by that user.
For a group, the Network lists the members and the number of messages written by each of
them. The causes of a different participation or motivation in a course group can be searched, for
example: a deficient moderation of the facilitator, the lack of certain attractive interactive activities,
unclear issues about the functioning of the platform, etc.

3.4 Exposure index

This indicator is built starting from the set of the discussed elements, taking into consideration
the topics approached by a person on her/his microblog.

The hashtags.org site indexes #hashtags (ketwords preceded by #), making them visible to
other users. Practically, these hashtags belong to the content generated by users, being initiated/
chosen by users (they are not imposed)\(^8\). On Cirip.eu, the exposure index can be analyzed starting
from the group and user tag clouds:

• the most frequent terms, the users who received most messages, the most discussed
resources (a click on any term will display the messages including it – see figure 6);
• in the case of a learning community, the fact that some curricula keywords do not appear
in the tag cloud may indicate the necessity of insisting on those chapters in the future;
• topics beyond the initial course curriculum may be discovered, which can be included in
future courses or which can be suggested as topics for group projects.

A concrete example is illustrated in figure 7, which includes, for the microblogging course
taking place in June 2008, a tag cloud of the words occurring most often in the first 600 messages,
generated with the help of the wordle.net application.

\(^8\) More information can be found on the wiki [http://twitter.pbwiki.com/Hashtags](http://twitter.pbwiki.com/Hashtags) (those interested can follow these at [http://twemes.com](http://twemes.com)).
Thus can be initiated subsequent analyses starting with the most active members, nouns, verbs (meaning the notions on which the discussions and group activities are focused), the degree of participation (group, everybody), the warm and open atmosphere (hello, thanks) etc.

3.5 Geographical distribution

The best way to understand complex data structures, the relations established within a network, the dynamics or the interactivity of a community is by their graphical visualization.

The geographical indicator suggested analyses and exposes in a graphical form the signs of our online presence, thus practically drawing up a social map under continuous expansion, showing in detail the ways in which we interact and expose ourselves in a public space.\(^9\)

This is allowed by Twitter applications such as TwittEarth, Twitter Spy, TwitterVision, TwitterPoster etc.\(^{10}\) From the two Romanian microspheres the messages appear in a Google Maps mash-up, under the Map section of Cirip.eu (see figure 8).

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\(^9\) Miron Ghiu, [http://twitter.com/nomaduzzu](http://twitter.com/nomaduzzu)

As a consequence to what we presented previously, we can define a **global conversational index** through the perspective of the subjects approached entirely on the two microspheres: the Romanian Twittosphere, and the Ciriposphere respectively (figure 8).

### 3.6 Temporal distribution

Although the conversational model focuses on the pragmatic and structural aspects of the conversation, the temporal distribution of participation can be followed in the **timeline** section of a user microblog on Cirip.eu (figure 9). Similarly, we can follow the distribution of messages sent within a group.

For Twitter one can use applications such as TwitterTimeLine (http://twittimeline.come.cc/) or TweetDumpr.
3.7 Online social presence

In 2005 Jyri Engestrom [14], the co-developer of the Jaiku microblogging platform, launched a theory stating that, in most of the cases, people base their relations on certain objects, which he named „social objects”. These can be both physical, such as „location”, and semi-physical (such as „attention”) or even conceptual, such as „on-line presence”[11]. Engestrom claims that people don’t interact with each other, but rather by way of certain objects imposing a commun value. According to this theory, which seems extremely flexible when approaching online social networks, objects become the centre of any social relation and the nucleus/fundamental notions of a (strong) social network.

Networks can thus be formed around these objects, connecting people with objects, objects with people, objects with objects and, perhaps, people with people. In microblogging, the social object is clear: the online presence, i.e. what you want to do online. The lifestream can be supplied online or in various ways, from using a desktop or mobile client, to more automatic entries by adding an RSS feed to the microblogging service used (TwitterFeed). The expansion of the presence status can be met, for now, only on Cirip.eu microblogging platform. Thus, the structural diversity of PLE/PLN with networks of educational resources which can be integrated in messages, represents a specific analysis element which includes:

- objects selected from networks and included in messages as useful resources;
- objects created by the user in question – which can be saved in the Multimedia section of the microblog, as a personal resources directory;
- other people’s reactions, comments, useful in assessing the relevance of the resources.

IV. CONCLUSIONS

The microsphere analysis indicators such as the level of influence and trust and the informational flux, the economy of interactions, the discipline of communication, the linguistic range, the context and texture aspects of conversation, etc require the attention of several factors (the structure of the relations, the analysis of feelings/emotions, the conversational structure, the classification of topics of temporal analyses) and the focus on messages, and users respectively. Although the latter have not been included in this material, they are subjects that, in our opinion, could open a new chapter dealing with the study of the relations within communities which are built on microspheres.

[11] Maybe the best example of an abstract social object is given by „education” and, particularly, by its actors, among whom PhD students and alumni present more interest.
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