"What does it mean? What can I do?" Social networks and identity experimentation in adolescence

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Abstract

This article investigates the relationship between experimentation on identity and use of Internet Forums in a sample of 126 Italian adolescents, who took part in 10 discussions. Data analysis combines quantitative methodology from Social Network Analysis and qualitative methodology from Thematic Analysis. Main objective of the research was to investigate whether participation in online social networks can be a resource for experimentation on adolescent identity and for the discussion of topics regarding the fulfilling of central developmental tasks in adolescence.

Qualitative analyses showed that the most recurrent themes addressed in the topics were: breakdown of significant relationships, definition of friendship, definition of love, positive and negative emotions, and coping strategies. Quantitative analyses showed that mean age of the participants is associated with a greater presence of contents relating to the breakdown: in the threads in which the mean age is lower, the mean of the contents of the breakdown is 14.33 vs. 2.40 for the discussions in which the mean age is higher (t = 4.14; p < 0.01). The number of cliques present in the discussions proves to be related with a greater

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These results show that online interactive styles do mirror those offline, and that communication covers identity-related and social recognition topics; moreover there it seems to be a correspondence between the more centralized interactive configurations and the contents discussed in the topics. The research confirms that the social network can be seen as a space for experimentation on identity among adolescents.

Keywords: experimentation on identity, Internet, adolescence, computer mediated communication

Introduction

According to Wallace (1999), Internet constitutes a place facilitating experimentation in identity. The absence of physical proximity and the mediation of the computer allow the expression of aspects of the self usually excluded from face-to-face interaction (Derks, Bos, & von Grumbkow, 2007; Derks, Fischer, & Bos 2008; Forgas, East, & Chan, 2007; Greenfield & Subrahmanyam, 2003; Johnsen, 2007; Lee, 2009; Subrahmanyam, 2007; Vasalou & Joinson, 2009; Walther, 1996; Zhao, Grasmuck, & Martin, 2008).

The Internet also constitutes a space for reflection about one's identity and emotional states. The aspects of self one chooses to reveal cannot be inferred from non-verbal communication, but are rather the product of a personal reflection and a conscious choice about what to share with one's interlocutors (Carruthers, 2002; Crystal, 2001; Derks *et al.*, 2007; Derks *et al.*, 2008; Johnsen, 2007; Morin, 2005; Pennebaker, 1993; Walther, 1992; Walther & D'Addario, 2001).

Regarding the relational outcomes of online communications, different points of view emerge from the literature. The Displacement Hypothesis maintains that there is a negative effect of the media on the relational level: the time spent in Internet activities is time not spent with friends and family members in "real life". The strong, close bonds of offline life risk being replaced by the weaker links formed online (Cummings, Butler, & Kraut, 2002; Kraut, Patterson, Lundmark, Kiesler, Mukopadhyay, & Scherlis, 1998; Mesch, 2003; Nie, Hillygus, & Erbring, 2002). The Stimulation Hypothesis, on the contrary, suggests that the use of Internet increases social interactions, the dimensions of social networks and closeness to others. The network is in fact seen as a connection instrument which is able to overcome spatial and temporal limits (Lee, 2009; Lee & Kuo, 2002; Valkenburg & Peter, 2005; 2007; Wellman, Haase, Witte, & Hampton, 2001).

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The themes of identity and relationships become particularly salient in adolescence (Adams & Berzonsky, 2007; Brown & Prinstein, 2011; Lerner & Steinberg, 2004), particularly in terms of developmental tasks (friendship and romantic relationships, management of emotional and cognitive states, maturation of the adult body image) and the need to talk with peers about these issues. Usually, adolescents use peers as a mean of identity experimentation and to practice their new acquisitions (Brown, 2004; Brown & Klute, 2007; Dijkstra & Veenstra, 2011; Piehler, 2011). Recently, besides more traditional "places" such as school and community venues, social networks have emerged as a safe place for experimentation in identity. This place is – for instance – perceived as being concealed from the gaze of the adults, from whom the adolescents wish to become autonomous. Internet is also a bodiless communication environment: this is a crucial point in adolescence, given the significant bodily transformations of this age group, and the related difficulties in terms of mentalizing this change in body image change.

Thus, the narrative mode, typical of the Internet style of communication, could facilitate the construction of identity (Bruner, 1993; 1998; McAdams, Josselson, & Lieblinch, 2006).

According to Bruner (1993; 1998), the narrative constitutes the favored instrument for the construction of the self and of the identity, as it

allows the adolescent to find a mental and interpretative "safe space" for his/her experiences. From this point of view, Internet can also make adolescents broaden and reinforce their ongoing relationships with peers. In particular, in social networks – as Bagozzi, Dholakia and Mookerjee (2006) point out – the result of continued interaction via the Internet can bring participants to assume a "we-intention" (or a group-intention). Bagozzi, Dholakia and Pearo (2007) expanded these conclusions, also observing that the research in the field would greatly benefit from adopting a group-centred perspective above an individual-centred perspective.

Beginning from these general considerations, and coherently with the above mentioned theoretical positions, the study here presented had the aim of exploring how experimentation and the dynamics of relationships in development are characterized in a naturalistic online setting. The main innovations of the work are, first of all, the focus on the age of development and, secondly, the methodology chosen to conduct the investigation. This research tries to integrate quantitative data and methods (by means of Social Network Analysis) and qualitative elements (by means of thematic analysis).

Objectives

Research main aim was to investigate the dynamics of experimentation and negotiation of the adolescents' identity within online forums.

In particular, we intended to investigate:

- which identity themes are most recurrent in online interactions;
- how the narrative features of computer mediated communication can influence experimentation and the construction of identity;
- which interactive structures are favoured during online exchanges.

The general aim is to understand whether and how participation in social networks can constitute a resource for the definition of adolescent identity and whether it has links with the offline life lives of Internet users.

In the literature, these variables have been seldom studied with a mixed quali-quantitative methodology. This research is one of the first studying both from a structural and from a qualitative point of view the identity experimentations of adolescents in online forums.

Materials and Methods

Participants

The sample was composed of 126 users participating in 10 discussions, collected in an Italian online forum (www.skuola.net) specifically aimed at adolescent users. This particular forum was chosen because of its features: it was salient for adolescents (more than 418.000 total posts at the time of the collection of data), it had a "off-topic" section organized in subsections dedicated to love and relationships, and finally it had a lively community (more than 40.000 users). Demographic information was assessed via personal profile of each participant. Mean age of the sample was 18.05 years. The sample was composed of 80.95% female adolescents and 13.49% male, while 5.56% did not declare this information in their profile. The mean number of posts for each participant was around 2,910.

The discussions that were the subject of analysis had a mean of 12.60 participants and of 40.60 posts published. Data were collected in May 2010.

Procedure

The investigation was structured in two parts, in order to investigate the qualitative and the quantitative features of the sample's online exchanges.

The quantitative analysis made use of the Social Network Analysis (SNA) by means of the Visualyzer 2.0 software (Knoke & Yang, 2008; Rourke & Anderson, 2002; Scott, 1991; Wasserman & Faust, 1994). We chose to use SNA as a mean of quantitative analysis due to its suitability in exploring synchronous and asynchronous online communities. SNA is appropriate for highlighting the interactive specificity of communicative exchanges and for underlining the configurations that promote the most semantically-and relationally-relevant interactions (see Gaggioli *et al.*, 2013 for a review). The identification of these relationally-relevant interactions could be considered as an evidence of the use of a social network as a mean of identity exploration by an adolescent. The indices derived were the following: quantity of nodes, quantity of links,

mean of ties, density, cliques, degree centralization index. SNA dataset was prepared following the indications of Manca, Delfino and Mazzoni (2009).

The qualitative analysis was made possible by a thematic analysis of the discussions (cfr. Braun & Clarke, 2006); identifying, analyzing and reporting themes within data. In particular, the thematic analysis was performed using the first five of the six phases identified by in Braun & Clarke (2006). The five phases were: 1) familiarize with the data; 2) generate initial codes; 3) search for the themes; 4) review of the themes; 5) generate names for the themes.

We identified the most recurrent and significant themes in the sample with reference to normative and age-appropriate relational aspects and experimentation in identity. In adolescence, in fact, narratives are one of the channels used to build and disclose identity, mostly to the group of peers. Thus, the investigation of the narratives by means of thematic analysis is particularly appropriate. The themes that were identifies in the discussions analyzed are coherent with some of the themes previously cited as relevant in the process of identity experimentation in adolescence. These themes were specified by further sub-categorizations.

They were:

- breakdown of significant relationships: causes (*subcategories: end of affectionate feelings, search for new stimuli, unfaithfulness, apparent absence of reasons for the breakdown*) and the consequences (*subcategories: pain, solitude, indifference, lessening in self-respect*);
- definition of friendship (subcategories: sharing, loyalty, willingness to sacrifice for the friend, understanding);
- definition of love (subcategories: intimacy, gestures of contact and closeness, glances, attentions, recognition by others);
- positive and negative emotions (positive: happiness, affection; negative: sadness, confusion, malaise and annoyance, fear, irritation and anger, envy and jealousy, discouragement);
- coping strategies (active coping: action, words, social support; internal coping; withdrawal) (cfr. Seiffge-Krenke, 1993).

These recurring themes were identified in the discussions of the sample and then calculated via relative prevalence rate. Three blinded

independent examiners rated every theme and the accordance between judges, measured by Cohen's K coefficient, was.83.

Results Descriptive Analysis

The discussions analyzed have the characteristics listed in Table 1.

Table 1. Demographic and Structural Characteristics of the Discussions.

Variable	Minimum	Maximum	Mean
Number of participants	8.00	25.00	12.60
Mean age	16.13	20.80	18.01
Age of the starter	15.00	22.00	17.10
Number of posts	27.00	<i>5</i> 7.00	40.60
Number of nodes	8,00	25,00	12,60
Number of links	8.00	87.00	25.10
Mean number of relationships	1.80	6.96	3.59
Density	0.13	0.75	0.33
Degree centralization	0.32	1.00	0.80
Closeness centralization	0.69	1.00	0.91
Betweenness centralization	0.50	1.00	0.86
Number of cliques	0.00	14.00	4.36

All the graphs of the discussions belonging to the sample analyzed proved to be connected and high degrees of centralization were found (mean = 80.50%; range = 32.14%-100.00%). The central reference of the conversations is constituted by the posts which begin the exchanges and introduce the theme which is the object of interest. The data from the Social Network Analysis applied to the sample are given in Table 2.

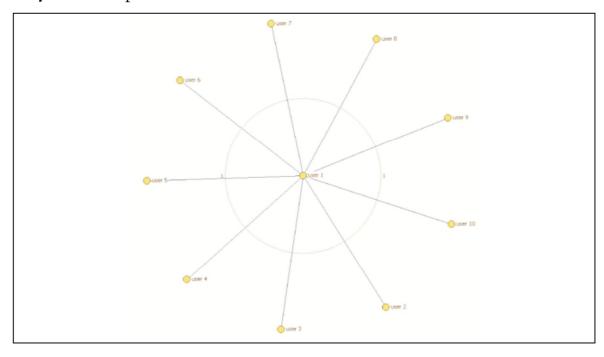
It is possible to identify two different types of exchanges in relation to the different degree of centralization. An early SNA allowed us to verify that the discussions were particularly centralized (cfr. Table 2), and that the median of degree centralization was equal to about 95%. For this reason, we considered as more centralized the discussions having a degree centralization index above 95%. The different types of exchanges are al-

Table	2.	Descriptive	Analysis	of	the	Structural	Characteristics	of	the
Discus	sio	ns.							

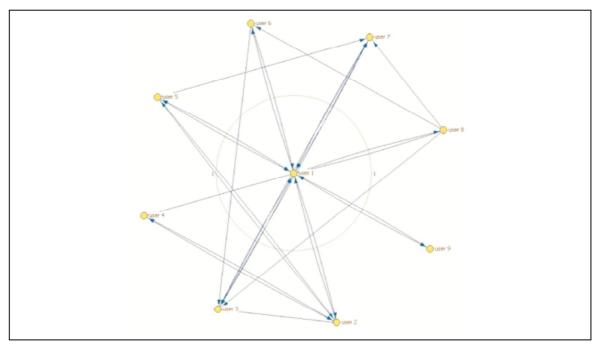
Discussion	Nodes	Links	Mean relationships	Density	Degree centralization	Cliques
Discussion 1	10	9	1.80	0.20	100.00%	0
D 2	16	16	2.00	0.13	99.05%	1
D 3	13	14	2.15	0.18	96.97%	2
D 4	8	8	2.00	0.29	95.24%	1
D 5	8	8	2.00	0.29	95.24%	1
D 6	18	42	4. 67	0.27	81.62%	8
D 7	25	87	6 . 96	0.29	77.17%	14
D 8	9	18	4.00	0.50	64.29%	2
D 9	10	22	4.4 0	0.49	63.89%	3
D 10	9	27	6. 00	0.75	32.14%	6

so mirrored in their graphical representations. We give the examples taken from discussions D1 and D10, which represent the two "extremes" in terms of centralization (cfr. Graph 1 and Graph 2). In particular, Graph 1 (D1) shows that all users relate just with "user 1" and hold no reciprocal interaction between them. Graph 2 (D10) shows a great deal of interrelatedness, along with many cliques and interactive exchanges.

Graph 1. SNA plot of Discussion 1.



Graph 2. SNA plot of Discussion 10.



Qualitative Analysis

From the thematic analysis it emerges how relational breakdown is dealt with both in its causal aspects (32.91%) and, above all, in its consequences (67.09%). The main characteristics particular to friendship identified by the users in the sample were: willingness to make sacrifices for one's friends (30.77%; e.g.: "... I believe that if you care for your friend, you should be at ease by quitting smoking while he is around..."), sharing (28.85%; e.g.: "... the most important thing is that we tell each other everything we have in mind..."), sincerity (23.08%; e.g.: "... I would never lie to her or keep her from knowing what I think about her...") and understanding (17.31%; e.g.: "... I would be very comfortable telling him about that..."); while the characteristics indicating lovetype relationships were: contact gestures and seeking closeness (48.57%; e.g.: "...yesterday for my birthday he brought me a HUGE bouquet of roses, with a letter..."), consideration for the other person (28.57%; e.g.: "... I would never ever hurt her..."), intimacy (8.57%; e.g.: "... we keep some things just for ourselves, nobody will ever know..."), the recognition of this feeling by others (8.57%; e.g.: "... all the class-

Table 3. Analysis of the Themes of the Discussions.

Theme Macro category	Theme C Micro category	Cumulative %	Specific theme	Specific %
Breakdown in significant relationships	Causes	32.91%	Absence of reasons	11.39%
TCIationships			End of feeling of affection Search for	7.59%
			new stimuli Unfaithfulness Prolonged malaise	5.06% 5.06% 3.80%
	Consequences	67.09%	Solitude Grief Lessening in	24.05% 17.72%
			self-respect Indifference	12.66% 12.66%
Definition of friendship	Willingness to sacrifice for			20.770/
	a friend Sharing Sincerity			30.77% 28.85% 23.08%
	Understanding			17.31%
Definition of love	Contact and closeness gestures Attention for			48.57%
	the other Intimacy Recognition of this feeling			28.57% 8.7%
	by others Glances			8.57% 5.71%

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Theme Macro category	Theme Micro category	Cumulative %	Specific theme	Specific %
Emotions	Positive	18.59%	Affection	10.90%
			Happiness	7.69%
	Negative	81.41%	Sadness	25.00%
			Confusion	15.38%
			Uneasiness	
			and annoyance	10.26%
			Envy and jealousy	9.62%
			Irritation and rage	8.33%
			Discouragement	7.05%
			Fear	5.77%
Coping	Action			38.09%
strategies	Words			22.54%
	Social suppor	t		7.30%
	Withdrawal			24.13%
	Interior			7.94%

room knows about me and him... we tried to keep it secret but eventually it came out..."), exchanges of glances (5.71%). Regarding the posts relating to emotions, 18.59% of them referred to positive emotions (e.g.: "... we were the perfect couple, I was in delight..."), while 81.41% concerned negative emotions (e.g.: "... since we had that argument I haven't seen her around and I am in anguish"). Of the posts containing references to coping strategies, 67.94% referred to active coping strategies, subdivided into strategies based on action (38.09%; e.g.: "... please don't talk about destiny. It is you that build your destiny, not the chance..."), on words (22.54%; e.g.: "... I think you should talk each other and solve it out...") and on social support (7.30%; e.g.: "... I asked advices to some friends... two hands are better than one. Isn't it?"), while 24.13% referred to withdrawal (e.g.: "... since then, we have lost contact, and I don't hang out with friends like I did before...") and 7.94% referred to internal coping strategies (e.g.: "... you have to make sure to find the solution

inside you..."). Micro- and macro-categories used for the thematic analysis and their specific contents with percentages are shown in Table 3.

Quantitative Analysis

With the aim of verifying whether the structural characteristics of the discussions (inferred from the SNA and the demographic data, cfr. Table 1) were associated with the distributions of the contents found in the qualitative analysis, statistical analyses were carried out comparing the percentages of the distributions of the main categories emerging from the qualitative analysis on the basis of the above structural parameters. In particular, the analyses were carried out by means of splits of the sample of discussions into above and below the mean for each of the structural parameters presented in Table 2.

The analyses show that mean age of the participants is associated with a greater presence of contents relating to the breakdown: in the threads in which the mean age is lower, the mean of the contents of the breakdown is 14.33 vs. 2.40 for the discussions in which the mean age is higher (t = 4.14; p < 0.01). The number of cliques present in the discussions proves to be related with a greater presence of contents related to coping strategies used in difficulties: in the threads in which the number of cliques is higher, the mean of coping contents 65.54 vs. 45.39 for the discussions in which the number of cliques is lowest (t = 3.39; p < 0.01). Lastly, the level of betweenness centralization proves to be associated with a greater presence of contents relating to friendship: in the most centralized threads, the mean of friendship contents is 10.52 vs. 0.83 referring to the less centralized discussions (t = 2.26; p < 0.05).

To summarize, these analyses suggest that the younger adolescents of the sample seem to be more concerned with discussing with peers the consequences of a breakdown in significant relations than are older adolescents. It also seems that the ability to create bonds with peers in computer mediated communication is connected with a tendency to discuss with peers the most effective ways to manage difficulties through coping abilities – as evidenced by the number of cliques found in the discussions. Finally, the degree of centralization seems to be linked with on contents pertinent to friendship.

Discussion

Results seem to indicate that, among the adolescents, centralization in terms of interaction is paralleled by centralization upon the contents. This tendency is opposed to what happens in the adult forums, where usually the diffusion of the exchanges is indicative of a cognitive richness due to passage of information and plurality of ideas (Manca *et al.*, 2009).

It seems that adolescents adopt a style of discussion particularly focused upon the user who has launched the discussion. The attention on the thematic focus remains stable and reaches a high level of consideration. This structure probably facilitates a direct involvement of the different participants to the topic with the needs expressed by the topic starter. On the other hand, the topic starter could be characterized by marked salience in terms of leadership and social influence (cfr. Huffaker, 2010), or likability (Wang, Walther, & Hanckock, 2009). On the contrary, in those discussions characterized by high levels of diffusion, in 80% of the cases we find the phenomenon of distraction in form of off-topic posts (topics not inherent in the central theme or parallel or only indirectly related to it). This phenomenon, which could be – and sometimes is – deemed as dysfunctional, in reality becomes an instrument of community construction.

The distraction, however, is not always functional to the construction of identity: in fact, in the discussions analyzed some users were likely marginalized, and some of them could be even the topic starters. If this should happen, in the discussion analyzed the topic starters begin to cover peripheric or marginal roles in the interactions. This "virtual" marginalization could be the same experience that adolescents experiment within their face-to-face peer group, where they may marginal positions and perceive themselves as isolated by the group.

From a structural point of view, the most frequent interactive mode is one-on-one interaction, reflecting the tendency to reply individually to users who publish posts in answer to one's own.

The prevalence of this interactive mode parallels ones found in faceto-face interactions: adolescents usually prefer to contact a restricted peer circle, constituted by an individual or by a pair of friends to share personal aspects or to ask for advice for the resolution of their daily problems. Concerning these friends, they have particular confidence regarding the "pact of friendship" and the mutual trust that keeps them united. Paralleling this tendency, online one-to-one interaction allows a greater involvement in the discussion and a lesser dispersion of the contents. Highly individualized replies are also likely to promote, in the adolescents of our sample, the feeling that they are listened to and to perceive themselves as worthy of others' interest and attention. They see that their point of view is valued and thus acquire a greater confidence in themselves. In spite of the prevalence of one-to-one contact, in the discussions there are also interactive subgroups (*cliques*). The discussions characterized by a lesser degree of centralization are distinguished by a greater presence of cliques. These cliques are formed around a common interest, often the central topic of the discussion. The presence of cliques and of a considerable number participants involved presage greater references and facilitates the construction of a social identity. The presence of a group with which to interact supplements and opposes the one-to-one interactive modes. Thus, the community is perceived as a cohesive reference group, with the function of confirming social aspects of identity.

It is possible to find significant relationships between contents and centralization of the discussions: centralization is greater in those discussions which subjects have a strong value dimension (e.g. friendship). On the contrary, centralization diminishes as regards the themes perceived as most problematic, like the strategies to cope with difficulties. These themes seem to stimulate an exchange of opinion among the users, in that the differentiation of their experiences to which each can refer enriches the exchange of ideas. In particular, as regards friendship the following features emerged as the most debated: willingness to sacrifice, sharing, sincerity and understanding. These are also amongst the most relevant themes in adolescence in relation to friendship, and highlight some of its key features in adolescence: support, developing social skills, opportunities for comparing with others and for experimenting identity in a "safe" environment, made of peers who are going through the same difficulties (Brown, 2004; Brown & Klute, 2007; Dijkstra & Veenstra, 2011; Piehler, 2011). As regards romantic relationships, among the most relevant themes there were intimacy and consideration for the partner. These seem to be fairly consistent with the usual terms of romantic exploration in adolescence, which - especially in the first years of adolescence - the other is "used" as a mean to confirm the Self of the adolescent, and to validate his/her changing body image (see Bouchey & Furman, 2007; Shulman, Connolly, & McIsaac, 2011; Villani et al., 2012). If we look at the way the adolescents talked about emotions, it seems that discussions polarized in terms of negative and positive range, as mostly typical of adolescents (see Kim, Riser, & Deater-Deckard, 2011; Rosenblum & Lewis, 2007). The theme of emotion management is typical of the adolescence, and is often identified as a period of storm and stress due to the intense emotional turmoil: emotions become more complex and ambivalent, and are experienced as drastic. Finally, as regards coping strategies, the adolescents we analyzed seem to polarize upon active coping (with the risk of sliding in the acting out), social support and withdrawal (with the risk of depressive mood). Also these are quite usual in adolescence (Marcelli & Braconnier, 2006).

In general terms, the results of this first exploratory study show how the Internet constitutes a space for narration and reflection, favoring and facilitating adolescents' experimentation on identity. In this space, adolescents try out their metareflective capacities and engage into a quest for the acquisition of personal meanings in identity construction and relationships building (cfr. Bruner, 1998; McAdams et al., 2006). This search for confirmation, negotiation and experimentation in identity mainly take place in favour of the topic starter. His/her problems are the subject of analysis by other users, but he/she is not the sole beneficiary of the use of the forum and the discussion: these processes also take place for the other adolescents taking part in the given topic. They, in fact, find parallels between what is narrated and discussed online and their real life experience. They come to feel similar to their peers, and develop autobiographical narratives and creative personal re-elaborations of their personal experience. For the participants of this study, the forum does not seem to constitute a complete substitute for real life and its social support. It is, rather, a further resource for the comparison of different points of view, in addition to the ones already owned offline (see also Hsu, Wang, & Tai, 2011) in a process of emerging trust and increase of social capital (cfr. Grabner-Kräuter, 2009).

On the whole, our results seem to support the proficiency of adolescents in terms of being able to make use in a functional and creative way of the potentialities of the instruments that their cultural context offers. They show a pragmatic specialization, which makes them capable of moving in a context rich in potentialities, but also in risks, in a not dissimilar way to what happens in life offline. Adolescents seem to be able to use the web opportunities in a seamless continuity with their offline everyday experience: "Thus it appears that physical and virtual worlds are psychologically connected and not separate as many scholars have claimed" (Subrahmanyam, 2007).

In conclusion, our data seem to be quite consistent with the Stimulation Hypothesis: adolescents are very capable of using the potential of mediated communication to enhance their social resources in a competent way, and/or to broaden the number of their relationships (cfr. also Kujath, 2011). Paralleling the results of Jiang, Bazarova and Hanckock (2011), our participants were quite able to modulate the self-disclosure when participating to the online discussions, in order to fulfill their need for intimacy, affiliation and experimentation. Our results are also in line with the only other Italian study in the area (to our knowledge), the one by Baiocco *et al.* (2011), which showed that adolescents who are able to mix online and offline contacts tend to be more socially competent and to feel less lonely.

However, some caveats prevent from an overgeneralization of these results, as Pollet, Roberts and Dunbar (2011) point out: some individuals that spend more time using social networks could have had more online "friends", but this may not translate into a larger offline network.

Limits of the Research and Future Directions

The limits of this research lie mainly in the sampling criteria and in the exploratory nature of the study. In the first place, the sample is constituted of discussion groups selected on convenience. On one hand this choice allowed us to analyze in depth part of the real interactive world of Italian adolescents, with an ecologically correct point of view. On the other hand, the selection might not have been sufficiently representative of the real range of interactive opportunities used by adolescents. The

sample was also made up of quite a low number of subjects, distributed in a non-homogeneous was by gender and age, mainly belonging to the late adolescent female age range.

A second limit is intrinsic in the exploratory nature of the study: in this sense it was not possible to acquire precise data about the participants in the forums selected for analysis, in terms of demographic variables but above all in terms of psychosocial adaptation. These limits will be overcome by future research, comparing the patterns of identity experimentation shown in the social networks with autobiographical data and psychosocial adaptation measured offline.

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