

Socio-Contextual Analysis of Online Relations

Ilan Talmud

Head, Economic Sociology,

Department of Sociology and Anthropology

University of Haifa

talmud@soc.haifa.ac.il

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Interests

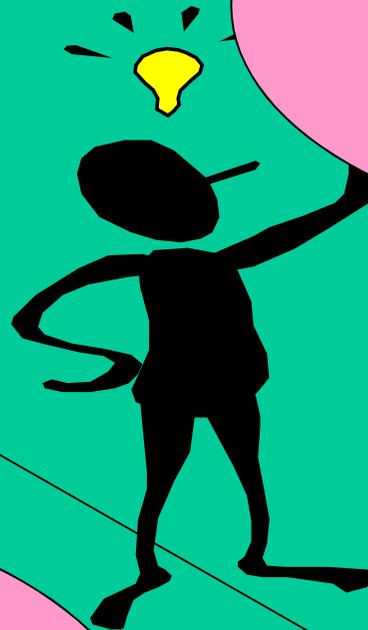
**Organizations and
Knowledge Transfer**

Online Networks
Sociability
Community
Inequality

**Network
Analysis**

Economic Sociology
(Venture capital funds, consumption,
Inequality,
Inter-industrial transactions)

Political Sociology
International
Relations



Sources

- Gustavo Mesch and Ilan Talmud (2010). *Wired Youth: The Social World of Adolescence in the Information Age*, Routledge.
- Gustavo Mesch and Ilan Talmud, (2007) Eds. Special Issue on “**Transcending Boundaries in the Network Society**”, *Information, Communication & Society* Publisher: Routledge.

Sources (cont.)

- Mesch, Gustavo and Ilan Talmud. (2006). "The Quality of Online and Offline Relationships, the role of multiplexity and duration". *The Information Society*, 22(3).
- Mesch Gustavo and Ilan Talmud. (2006). "Online Friendship Formation, Communication Channels, and Social Closeness". *International Journal of Internet Sciences*. 1, 1, 29-44.

Sources (cont.)

- Mesch, Gustavo and Ilan Talmud (2007) “The Impact of Online Relations on Homophily: A Social Network Analysis”. *Journal of Research on Adolescence* 17,2, 455-466. (joint equal and contribution)

Sources (cont.)

- Gustavo Mesch and Ilan Talmud (2007) [“Introduction”](#), in Gustavo Mesch and Ilan Talmud (Eds) Special Issue on “Transcending Boundaries in the Network Society”, *Information, Communication & Society*. Publisher: Routledge

Outline

- What is Social about the Internet ?
- Internet as a Socially Embedded Sphere
- Theories of CMC
- Friendship Formation and Relational Quality
- Tie Maintenance

- Digital Divide (Access, Use, Social Capital)
- Networks Diversification and Inequality in Resource Acquisition => Expansion of Social Capital via Friendship Ties (preferential attachment).
- Implications of Social Capital for Civic Engagement

Sources (Cont.)

- Mesch, Gustavo S. and Talmud Ilan. 2008. IM Use for Studying Purposes among College Students in Israel. . pp. 84-88 in the *Proceedings of the Chais conference on instructional technologies research 2008: Learning in the technological era* Y. Eshet-Alkalai, A. Caspi, N. Geri (Eds.), Raanana: The Open University of Israel

- Mesch, Gustavo, Ilan Talmud and Anabel Quase-Han (2013). “IM Social Networks: Individual, Relational and Cultural Characteristics”. *Journal of Personal and Social Relationships*

Barabási (2012) “Network Science”

On Universality

Universality:

the emergence of common features across different networks. Like the scale-free property.

Critical phenomena:

Universality means that the exponents are the same for different systems... they are independent of details.

Networks:

The exponents vary from system to system.
Most are between 2 and 3

Social Embeddedness of Internet Ties



Technological Embeddedness

Postulates

- The internet is socially embedded
- Mutual effect of offline and online
- A sociological analysis need to take into account dual embeddedness
- Media Integration
- Amplification and Normalization
- Content, communicating, information search and retrieval, finance, management and politics.

Theories Of ICT, according to Forms of Embeddeness

Dimension	Social Context		
Technological	Effect	Strong	Weak
	Strong	(1) Media richness Social affordance Net generation Online diversification	(2) Technological determinism (i.e. lack of social cues)
	Weak	(3) Social constructivism; Social capital	(4) Networked Individualism; Relationship reconfiguration

A Socio-Contextual Model for the Study of Online Communication

- **Moral Panic**
- **Early studies of the Internet focused on the effect of time spent online on socializing activities**
- **Online communication was conceptualized as a separate sphere that pulls people away from their everyday lives and social circles and online communication is conducted among strangers.**
- **The "lack of social clues"**
- **F2F communication is rich <-> online communication is lean.**

Assumption: quality of social relationships is dependent on communication quality

- **Thus, early perspectives emphasized the non social nature of the communication channel, argued that strong ties are being replaced by weak ties (Wellman and Hathornwaite, 2002)**

A Socio-Contextual Model for the Study of Online Communication

- Technological Determinism
- Ideologically Biased theories (utopian, dystopian)
- Technological determinism and dystopian perspectives argue that characteristics of the communicative context such as:
 - Anonymity
 - Weakly engaged
 - lack of social gates
 - Relationship duration (McKenna and Bargh; Walther)
 - Shape relationship's quality

By Contrast:

Social constructivism and Utopian Perspectives imply that

The Internet is a separate sphere of forming new identities, rational discourse, and free civic engagement

In sharp divergence from these dichotomous perspectives, we posit a socio-contextual, Syntopian view, connoting that

the notion of the Internet as a “distinct world” no longer holds (Katz and Rice, 2005)

A Socio-Contextual Model for the Study of Online Communication

The Internet has become an integrated social sphere, constituting one communication medium amongst many.

- Online communication is used to maintain and extent face to face family, friendship and online ties.
- Thus, we need to assess whether relational patterns shape communication strength.

“The Information Society” (Castells) and “Networked Individualism” (Wellman)

Connection based on individual rather than households, proximity, ethnicity, organized religion

Less bounded closely-knit group affiliation

Multiple partial group memberships

More mobility

Claim: “Networked Individualism” increases the variation, importance, and relevance of Social Capital

TECHNOLOGICAL vs. SOCIAL VIEWS

Agency and Constraints:

Factors:

**Social segregation, Foci of activity, Social inequality,
Status Homophily / Assortativity**

SOCIAL DIVERSIFICATION

**Linking Internet use with individual's social circles and
other resources.**

Ego's network is linked to social resources

Network diversification is linked to "social capital".

Diversification => horizontal / nominal

Inequality/ Gap / Divide => vertical / differential

Theories of Computer-Mediated Communication

<u>Technologically Deterministic</u>	<u>Postulate</u>	<u>Implication</u>
Lack of contextual clues, limited social presence	CMC provides a limited social presence as compared with face-to-face communication	A lack of social and contextual communicators' cues affects the perception and the quality of social connections between communicators
Media richness theory	Media differ in their capacity to convey rich information, embedded with socially tacit knowledge and complex meanings	Hierarchy of message complexity and sensitivity
Cues-filtered-out theory	Impersonality reduces interpersonal impressions	Inability to create communication with real personal content, but also in negative communication such as flaming and verbal aggression
<u>Conditional Models (in-deterministic)</u>		
Hyper-personal theory	CMC supports more intimate communication than face-to-face communication	Frequency, duration, multiplexity, and commitment create intimate relations online
Social identity and de-individuation (SIDE) model	Lack of nonverbal cues in online communication is not detrimental to personal communication	Anonymity, lack of gating features, and availability in cyberspace of individuals who have the same specialized and shared interests, can even stimulate personal communication

Social Embeddedness

Online communication fosters offline links.

Online communication is rarely an escape from real life. The internet appears to foster, rather than undermine, existing social contacts, for example with friends from school, connecting adolescents into local, rather than global, networks.

A wide range of **communication choices**.

Networked individual as a juggler

Small interest in political engagement and online content creation. Still, there is a substantial number, interested in civic contents and activities

- Social and Technical Literacy and Network Engagement
- Personal attributes and socio-economic status affect bridging social capital and expansive online ties.

Social Capital also seems to expand well being

- Isolated individuals: compensation: Benefits for social competence

Diversification of social ties

Communication Technologies impact:

Social connections became more

Diverse:

To give variety to

To extend into disparate fields

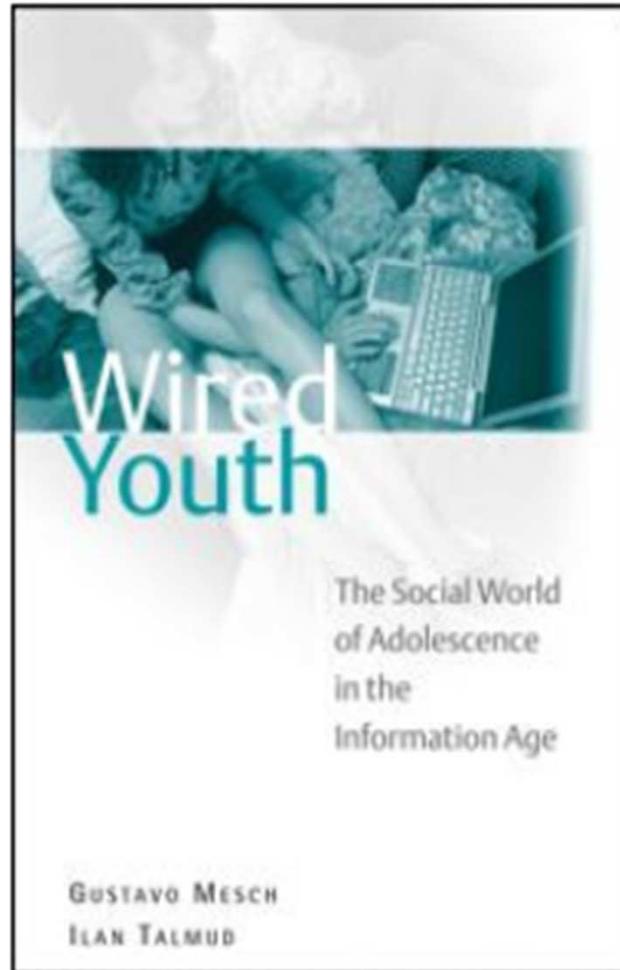
To spread out

More and Different

wired youth

The Social World of Adolescence in the Information Age

- By Gustavo Mesch, Ilan Talmud



Reviews

"This book stands apart from a flood of hyperbole about 'born digital children.' The authors provide an empirically anchored and analytically rigorous perspective on the role of the Internet in the social lives of adolescents. This is must reading for anyone with a serious concern over children and the Internet." - **Professor William Dutton, Director, Oxford Internet Institute, University of Oxford, UK**

"This book offers a thought-provoking view on the role of the web in young peoples' lives, and is a must for every behavioral and social scientist interested in how adolescents deal with the rapid technological and social change of our times. " – **Rainer K. Silbereisen, Department of Developmental Psychology, University of Jena, Germany**

"Are teens really different in the Age of the Internet? What's going on beneath the buds of their smartphones and under the fingers of their keyboards? This book uses sound, empirically-based methods to show how life on the internet and life in real life are intertwined." - **Barry Wellman, University of Toronto, Canada**

"Accessible, clear, and illuminating, this overview integrates research worldwide and across disciplines, whilst avoiding the traps of celebratory as well as moral panic approaches. It offers an intelligent and useful perspective of contemporary adolescents' off- and on-line lives." - **Dafna Lemish, Professor of Communication, Tel Aviv University, Israel**

- **“Extreme case analysis”**

The adolescent - as a sophisticated “networked individual” - has to negotiate a wider ranges of messages and identities, using a multiplex means of computer mediated, mobile, and face to face channels of communication.

The Use of ICT for Online Friendship Formation

Internet is a space of **social** activity and **social** interaction.

Networked publics provide a context for to develop social norms in **negotiation with their peers.**

On-line spaces are used, encountered, and interpreted within the context of off-line everyday lives. Both “real” worlds are incorporated into their “virtual” worlds.

“Virtual” worlds are incorporated into their “real” worlds. In other words, we demonstrate how the real and the virtual are mutually embedded.

“Net generation” Wired Youth

Adolescents gained a lot of **verbal and iconic literacy**, as well as digital fluency.

Sub-cultural experience in adolescence formations and articulation reveals how the theoretical split between the virtual and real in cyber-subcultural research does not accurately capture the “life-world” experiences or identity negotiations of adolescents.

Critique of the sharp opposition between off-line and on-line spaces the “real” and “virtual.”, especially regarding friendship formation, maintenance, learning

Virtual interactions further sites of interaction.

Youth explore their developmental identities and sense of themselves online literacy changes time -space engagement, agency, and identity.

Meeting Places: Physical Spaces and Online Nexus

Complex, important functions of online socialization and relational maintenance

Spillover and Convergence of Friendship Ties:

Online to Offline

Reconfiguration of “private” and “public” spaces,

Adolescents are usually quite honest about the personal information they reveal with their online friends (Mesch and Becker, 2011) and

Generally, have very positive attitudes regarding their online relationships (Mesch and Becker, 2011).

Domestication of Internet

Growing dependency on the internet for social activities, ranging from managing daily lives to building and maintaining virtual communities.

Motives for meeting new people, and social compensation increased adolescents' online communication.

Motivations for going online, focusing on new opportunities for communication and identity play. While the conversational content is often mundane, being readily in touch with their friends is important to them.

Transformation ?

Prediction of Internet Displacement

Functional Similarity	Internet use results in less newspaper reading, less listening to radio programs and less time watching television
Marginal Fringe Activities	Internet use reduce the time spent on organized activities such as participation in extra-curricular activities and sports.
Physical and Social Proximity	Internet use reduces the time spent in face to face and phone interpersonal communication. Replaces time used in family activities.
Transformation	Old media changes and adapts to Internet competition.

Examples of Displacement and Substitution Effects

Displacement	Substitution
Internet use reduces the frequency of reading newspapers and books	Newspapers and books are read online Users' content Network journalism
Internet use reduces the frequency of face to face meetings with friends	Communication with friends is carried through Instant Messenger and Social Networking Sites
Internet use reduces the frequency of meeting friends for playing games.	Video games are played regularly with friends online.
Internet use reduces the use of encyclopedias and books for doing homework.	Homework is done conducting online search for relevant materials for school.

Empirical tests of Sociability

Israeli adolescents,

multivariate analysis

Testing various models for the association of Internet use with activities.

After controlling, internet use is positively associated with participation in social activities.

Other vars:

Males

Socio-economic status

mother's education

Perspectives on Online Relationship Formation

Disciplinary Origin	Perspective	Implications
Psychology	Motivation Theory Social Needs	Correlation between personality traits and communication needs and gratification Either the expansion of social ties, or the compensation for face-to face relationship scarcity
	Sensation seeking; Intimacy theory	Compensation for anxiety, isolation, or stimuli
Social Structural	Dual Embeddeness Social affordance Social network analysis	Reconfiguration of communication strategies; coping in virtual space is similar to offline life. Information spreads rapidly in CMC, but neither universally nor homogeneously Homophily and transitivity drives relationships formation, but online relations are larger in size, weaker, and more sparse

Friendship Ordering

“Ties in **real** social networks exhibit strong interdependencies deriving from various ordering principles such as, for example, **social roles** (Merton 1957; Nadel 1957), **group affiliations** (Breiger 1974; Feld 1981), **homophily** (Lazarsfeld and Merton 1954; Merton, 1958; McPherson, Smith-Lovin, and Cook 2001), and **triadic closure** (Rapoport 1963; Snijder, 2006)... *that people have multiple—partly distinct and partly overlapping—groups of acquaintances*“ (Blau and Schwartz 1984; Simmel 1955; Watts, Dodds and Newman 2002, Watts and Dodds, 2007: 450).

- **Role and relationship identification is important for detecting various patterns and data mining techniques (Gruzd, 2008).**

Diversification of Social Networks of Adolescents – offline and online

*Naama(18, J, G) “Ahh...not really... you know using the Internet today is not like “WOW! I chatted today!!!!” It's a regular, normal daily experience, like **brushing your teeth** every morning.*

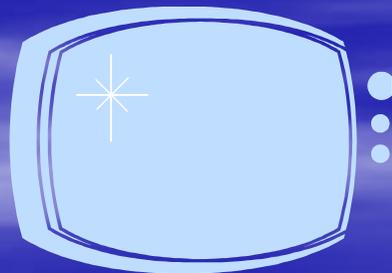
- Communication technologies are integrated in individuals' everyday life.
- Internet provides a new space for expansion and diversification of adolescents' social ties.
- Maintenance of intimate and non-intimate ties
- Formation of intimate and non-intimate social relationships.

Diversification of Social Networks of Adolescents – offline and online

- Internet access can bridge existing social inequalities by providing access to skills, information and resources that are needed in an information society.
- Internet can reduce gaps in social inequalities by providing access to social ties that previously were not open to adolescents.
- Diversification of social ties will be more pronounced for groups that are more segregated.

Off-Line and Computer-Mediated Social Networks among Israeli Youth

- Users and Non-Users
- Attributes and Relations
- Binding Social Capital and Network Density



Early Studies on Youth

From Moral Panic to Research

- Negative relationship between age and Internet use, as the frequency of use is higher among adolescents (Kraut et al., 1998; Mesch, 2001).
- Addiction (Brenner, 1997; Griffith, 1999)
- Social isolation (Kraut et al., 1998),
- Lack of involvement in pro-social behavior (Funk and Buchman, 1996),
- Poor school performance (Van Schie and Wiegman, 1997).

Sample

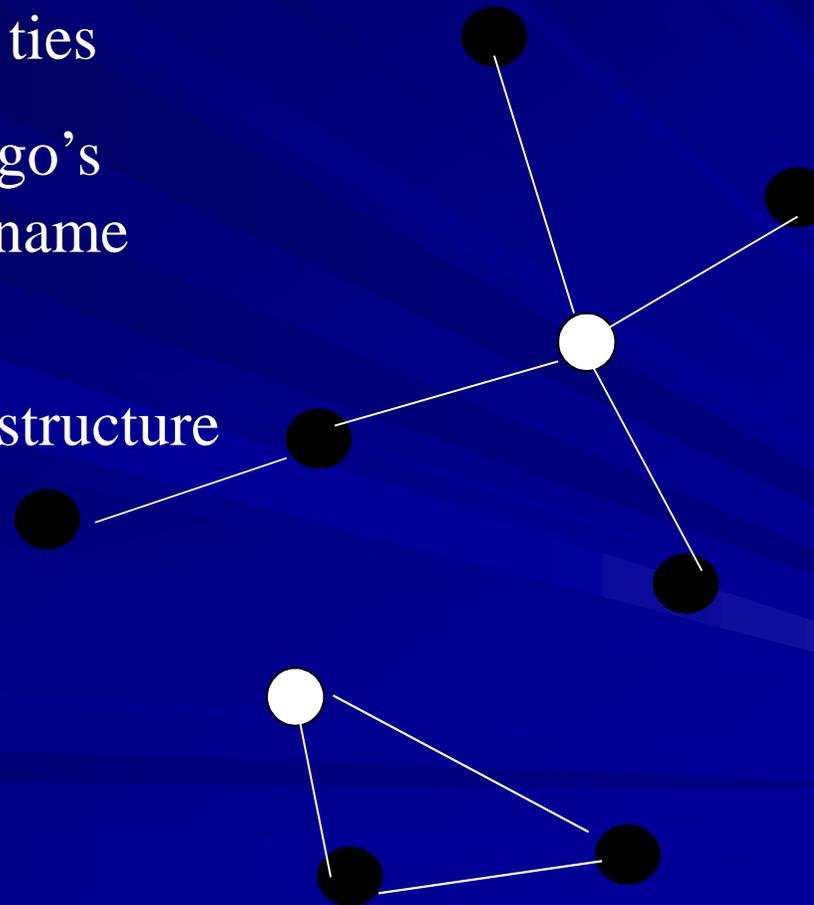
- A nationally representative, stratified random sample of the adolescent population of Israel.
- 1000 respondents, February - April 2001.

Analytical Strategy

Two levels data:

1. Ego attributes and social ties
2. Alters' attributes (from ego's report: up to 6 alters via name generator)

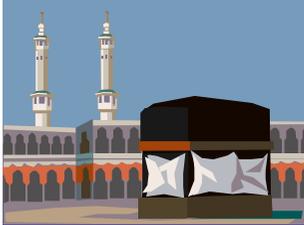
=> Resulting ego-networks structure



Does Internet Connection Reduce or Increase the size of social ties?

Average Number of Friends

	Mean	Standard Deviation
All the sample	5.91	2.90
Internet Connected	6.09	3.51
Not Connected to the Internet	5.78	2.40



Network Density by Religion



<i>Religion</i>	<i>N</i>	<i>Mean</i>
Jew	707	.23
Muslim	139	.24
Christian	51	.25
Druze	38	.30



- **Network Density significantly varies by religious denomination**
- **This pattern holds even after controlling Internet Linkage**

Internet and Social Issues

- Internet use, loneliness and lack of support (Kraut, et al., 1998; Nie, Hillygus and Erbring, 2002).
- Time Displacement (Nie et al.2002, Robinson, et al, 2002; Gershuny, 2003).
- Community Involvement (Putnam, 2000; Hampton and Wellman, 2003; Mesch and Levanon, 2003).
- Internet medium a barrier/facilitator of friendship formation (Kiessler and Sprout, 1986; McKenna and Bargh, 2000; Wollek, et al, 2002, 2003).

Theoretical Postulates

- Social Relationships are embedded in social contexts.
- Everyday activities (learning, work, leisure) bring people together, and attraction is based on social similarity.
- Foci of activities shape opportunities and constrains of sociability.
- Individual decisions of relationships formation is nested in structured foci of activities.

Research Questions

- Does online communication and friendship formation changes the structure of social networks among adolescents?
- Does online communication changes age, gender and place of residence similarity among friends?
- To what extent are online friends intimate?
- Are Online ties strong ties?

Homophily

- Homophily is the concept used to describe the fact that contact and friendship formation between similar individuals occurs at a higher rate than among dissimilar individuals.
- The importance of similarity in friendship and intimate social relationships attraction.

Social Homophily

- Shared status and life experience increases the likelihood of tie formation and tie stability.
- Homophily has been found to be associated with the development of stable and strong ties (Mardsen, 1988; Hallinan and Kubitschek, 1990).

Sources of Homophily:

- Opportunity for mutual exposure in Foci of Activity. Activities in which individual participate in their daily life, creating a structure of opportunities, tending to bring similar people into frequent contact with one another (School, workplace. Neighborhood hangouts)

Social Capital

- Social capital is all ego's ties, and the resources (virtual or offline) that flow through ego's network.
- Internet is an integral part of contemporary social networks and a channel of interpersonal communication.
- Evidence show that adolescents are creating and maintaining social contacts through the Internet

Adolescents and the Internet

Conditional Effects of Amplification vs. Compensation:

Adolescents who are involved in close friendships at school, use Internet to maintain ties, but for the ones that feel lonely or do not have friends, Internet communication was used to communicate with strangers (Gross et al. 2002)

The Importance of Social Proximity

“We find that distance and related variables (language, country, and the number of flights) all have an effect on Twitter ties despite the seeming ease with which long range ties can be formed.

As a lightweight system that takes little effort to join and can be used from either personal computers or mobile devices, Twitter offers a promise of transcending distance, connecting everyone with anyone. Our analysis shows, however, that distance considerably constrains ties” (Takhteyev, Grudz, Wellman, 2011).

Proximity and homophily

- Proximity is a pre-condition of similarity (Feld, 1981). Yet when proximity is limited to the school only, measurement problems might arise. The research site may well affect adolescents' reporting about their friends.

Relational Quality and Ties' Strength

Strength of ties

a combination of emotional intensity, mutual confidence, time spent on the relationship, and reciprocal services granted (Granovetter, 1973; Marsden & Campbell, 1984).

Because strong ties are typically transitive, they are common among small, cohesive groups, while weak ties are relatively more prominent in larger groups, often bridging two or more network clusters (Granovetter, 1973).

Strength of online and offline ties

- **‘Reduced Social Context Cues model’**
(Kiesler, Seigel & McGuire, 1984; Kiesler & Sproul, 1986) argues that CMC is an inferior medium of communication than face-to-face communication
- Comparing the quality of social relationships which were created online to those created face to face.

Relational Strength Online

- Others rejected this technological determinism and argue that there are some qualities of CMC that are conducive to greater intimacy, closeness, and strong ties (Spears and Lea, 1992; McKenna et al., 2002).
- Ego self-disclosure and alter disclosure increase the experience of intimacy.
- The unique features of the Internet allow individuals to easily find others who share specialized interests.

Confounding findings of proximity and homophily

- Studies use typically one site: school OR work. Yet, the social structuring of these activities tends to bring similar individuals into frequent contact, encouraging the development of social relationships among them, thus constraining individual choices (Feld, 1981).

Foci of activity, a measure of proximity, might differ in the extent that they bring similar individuals close to one other. Some social contexts are more homogeneous in terms of age, gender, and place of residence, such as the school.

Foci of Activities

- We need to compare different contexts of relationship formation (neighborhood, school, and online) for social similarity/dis-similarity
- Quality of social relationships that were created in the neighborhood, at school, and online.

Study and Research Questions

- H1 Internet activity decreases social homophily
- H2 Differences between foci of activities in homophily
- H3 Homophily intensifies strength of ties
- H4 Differences between kind of homophily (age, gender, residential similarity)
- H5 Interaction between activity and homophily effects on relational strength

The Study:

- Representative sample of Israeli adolescents (n=1000 V=997).
- Data on characteristics of ego-networks.
- Data on attributes of respondent.
- Data on Internet activity.

Strength of ties

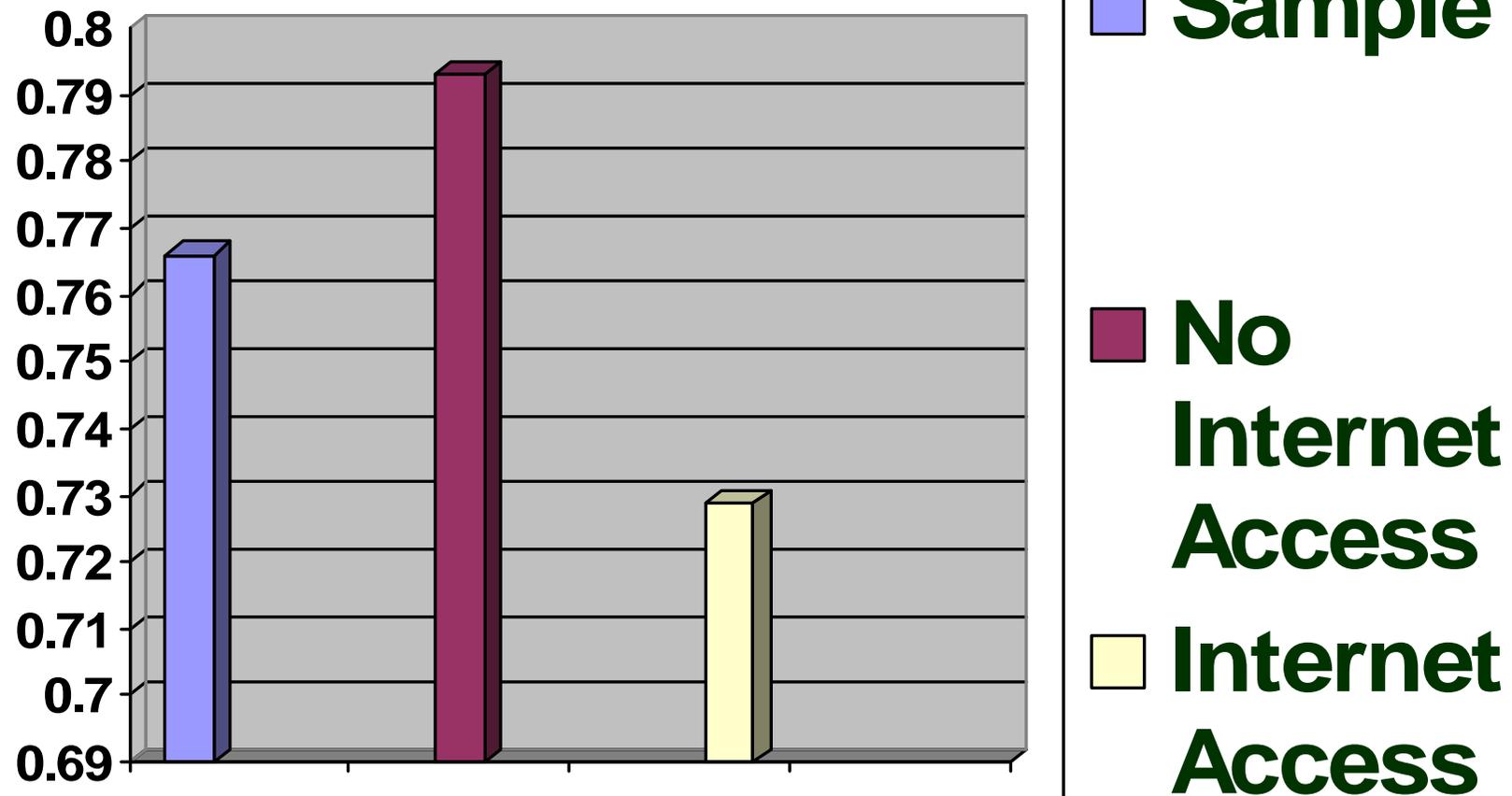
- Respondents were asked to indicate how close they felt to the friend, how important this friend was for them, how far they would ask this friend for help, and how far they trusted this friend.
reliability $\alpha = .811$.

Table 1. Extent of Friendship Similarity According to Internet access and Context of Acquaintanceship

	Whole Sample	No Internet access	Internet access	Met friend at school	Met friend in the neighborhood	Met Friend online
Proportion living same neighborhood or city	90.4%	93.8%	89.8%	94.2%	92.3%	73.5%
Proportion same sex	83.7%	83.1%	84.6%	94.2%	92.3%	73.5%
Proportion Same Age	83.2%	84.5% (432)	81.0% (264)	89.5%	80.4%	42.4%

Age Similarity of Adolescents' to their Friends

{Low Similarity for Adolescents with Access}



Age Similarity According to Place in which the Friend was Met

{ Low Similarity with Friends met Online }

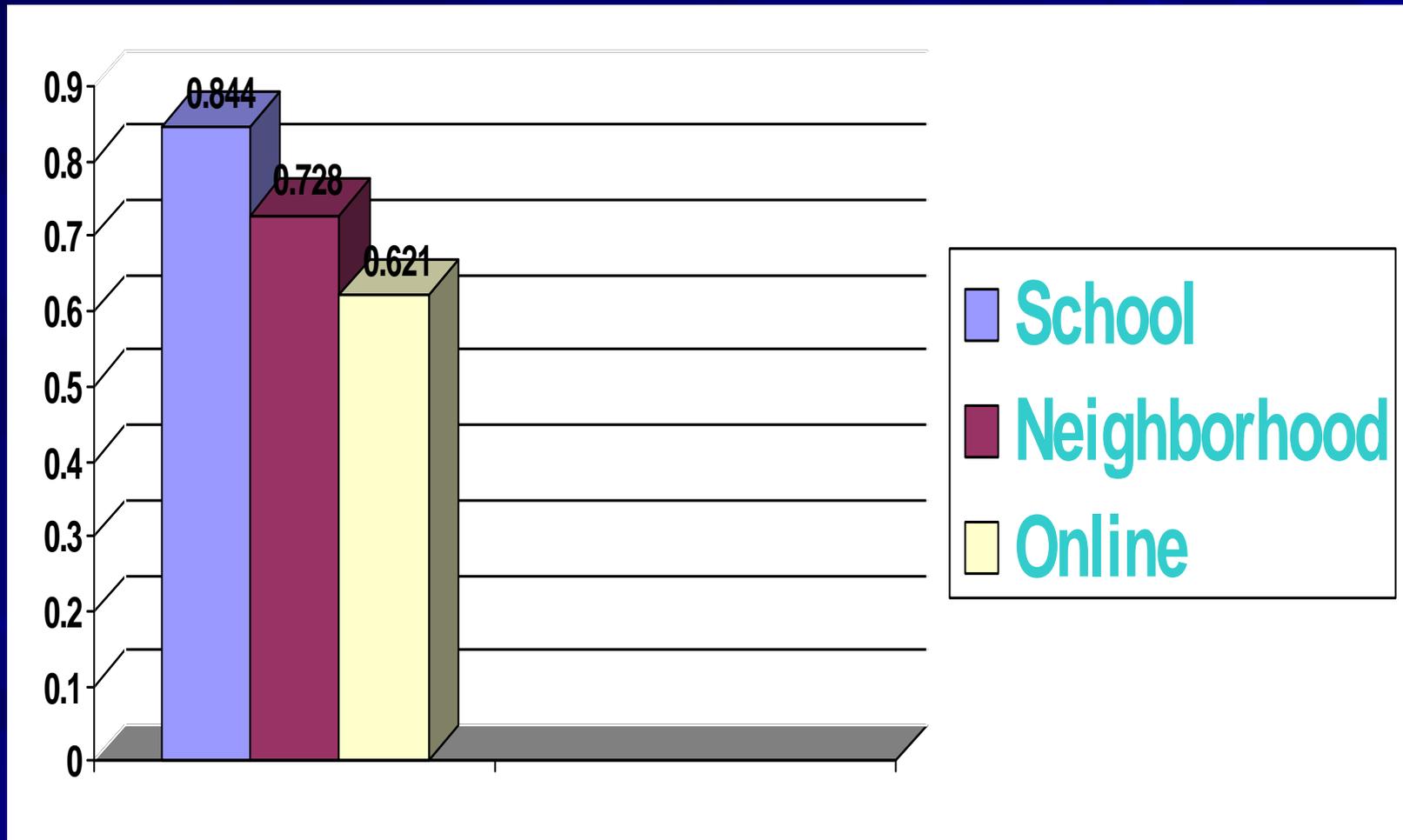


Table 2. Logistic regression predicting similarity in age, gender, and place of residence

	Place Similarity		Gender Similarity		Age Similarity	
Age	-.339 (.088)	.713*	-.175 (.058)	.839*	-.024 (.062)	.976
Gender (1=male)	.073 (.277)	1.076	.90 (.195)	1.209	.105 (.215)	1.110
Mother's education	-.125 (.045)	.883*	-.034 (.034)	.967	-.035 (.039)	.966
Marital status (1=Parents Married)	.564 (.345)	1.757	-.334 (.314)	.716	.404 (.312)	1.498
Number of siblings	-.045 (.079)	.956	.016 (.054)	1.016	-.012 (.055)	.988
Self-esteem	-.026 (.146)	.975	.216 (.110)	1.241**	-.301 (.107)	.740*
Neighborhood friend	-.396 (.295)	.673	-.607 (.203)	.545*	-.850 (.228)	.427*
Online friend	-2.136 (.496)	.118*	-1.105 (.426)	.331*	-2.317 (.495)	.099*
Length of acquaintance	.594 (.181)	1.810*	.443 (.142)	1.558*	.547 (.165)	1.728*
Daily Internet use	.038	1.038	.046	1.047	.126	1.134

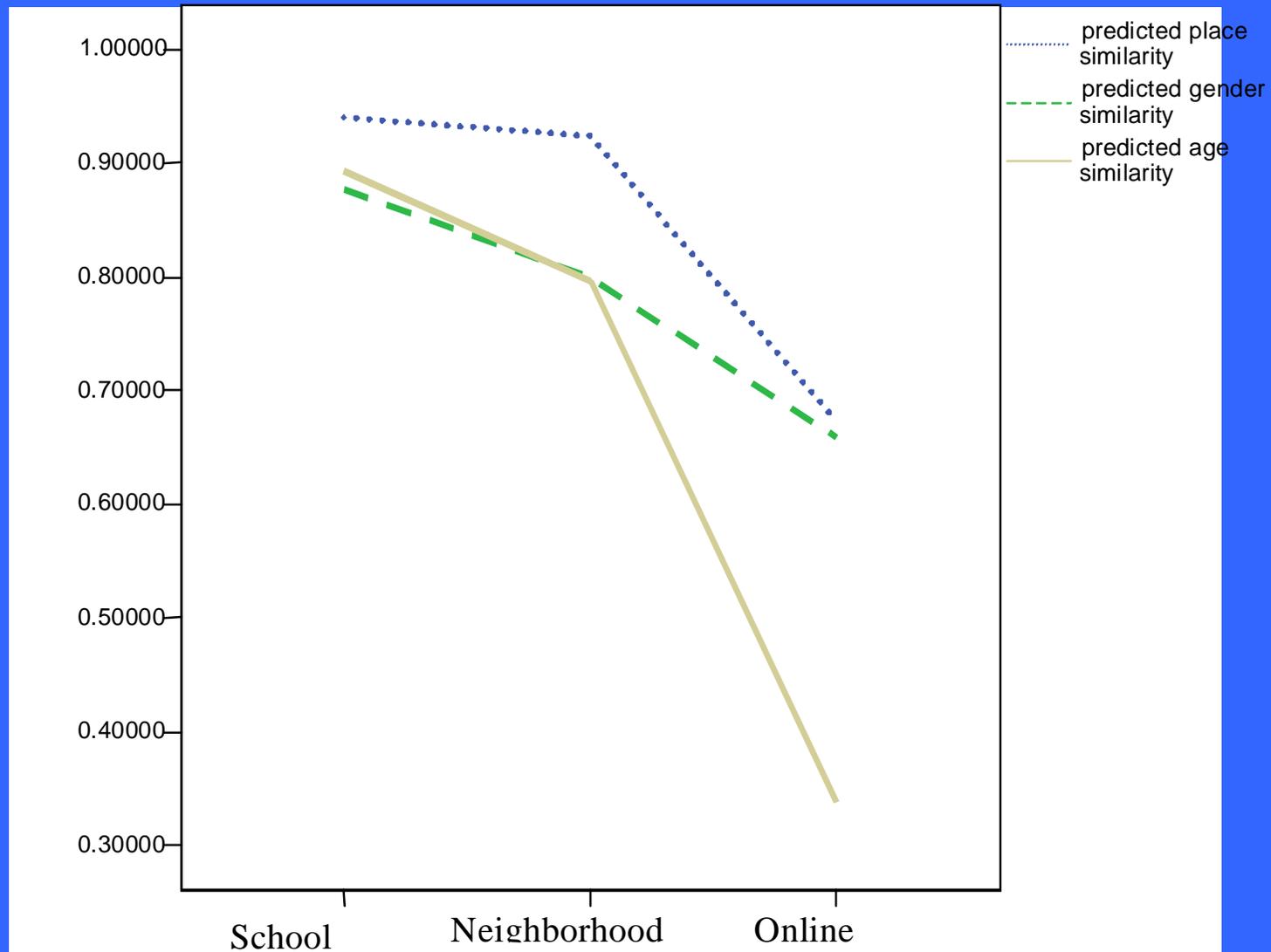
Finding of multivariate analysis

- Tie's duration, age, and internet friends are a source of heterogeneity in place of residence of friends, and gender heterophily.
- Relational duration and internet friends effect the probably of age homophily.
- Controlling for age, gender, parental education, nationality, number of siblings and self esteem, ***the likelihood of having friends similar in age decreases for adolescents who met their friends online.***
- Network gender heterogeneity is ***increased by adolescents' age, and when meeting friends online***

Findings of Multivariate Analysis: Homophily

- **Age Similarity:** Meeting a friend in the Internet and a friend that does not live in the neighborhood decrease age similarity of ego and alters.
- **Gender homophily:** The older the adolescent, the more likely are friends to be from the opposite gender category. Meeting friends online or neighborhood increase gender heterogeneity more than meeting at school. Friends who do not reside in the same neighborhood increase gender heterogeneity of social networks.
- **Proximity:** Online friends increase the likelihood of residential heterogeneity.

Figure 1.
Predicted probability of dyadic similarity according to place in which the friend was first met



IQV

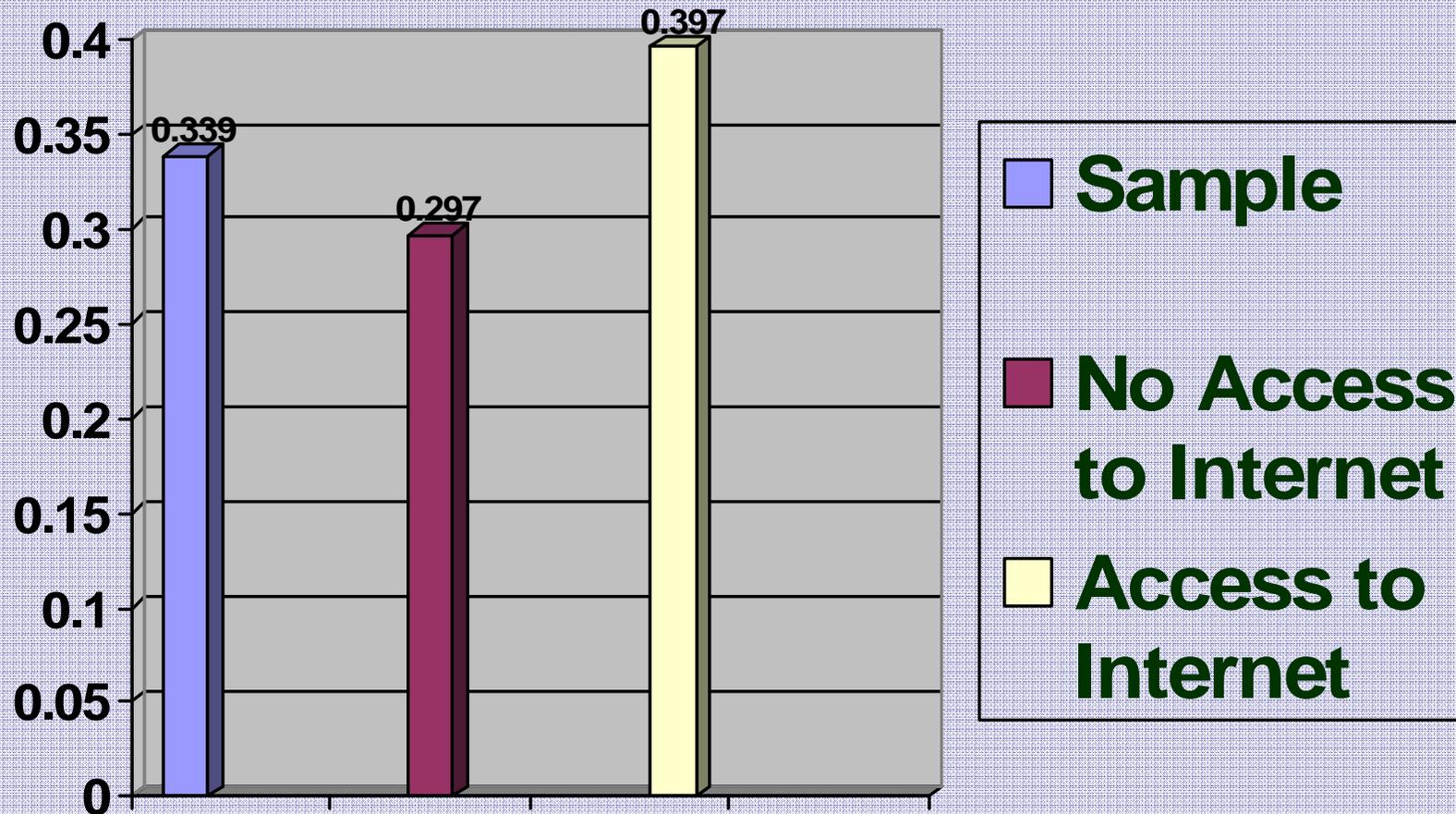
- INDEX OF QUALITATIVE VARIATION, (IQV) represents the chance expectation that two randomly chosen persons do not belong to the same group (Blau, 1977). It is measured by subtracting from one the sum of the squared proportions of persons (p) within each social network.
- Values for heterogeneity range from 0 to 1 with higher values representing high heterogeneity.

$$IQV = \frac{K(100^2 - \sum Pct^2)}{100^2(K-1)}$$

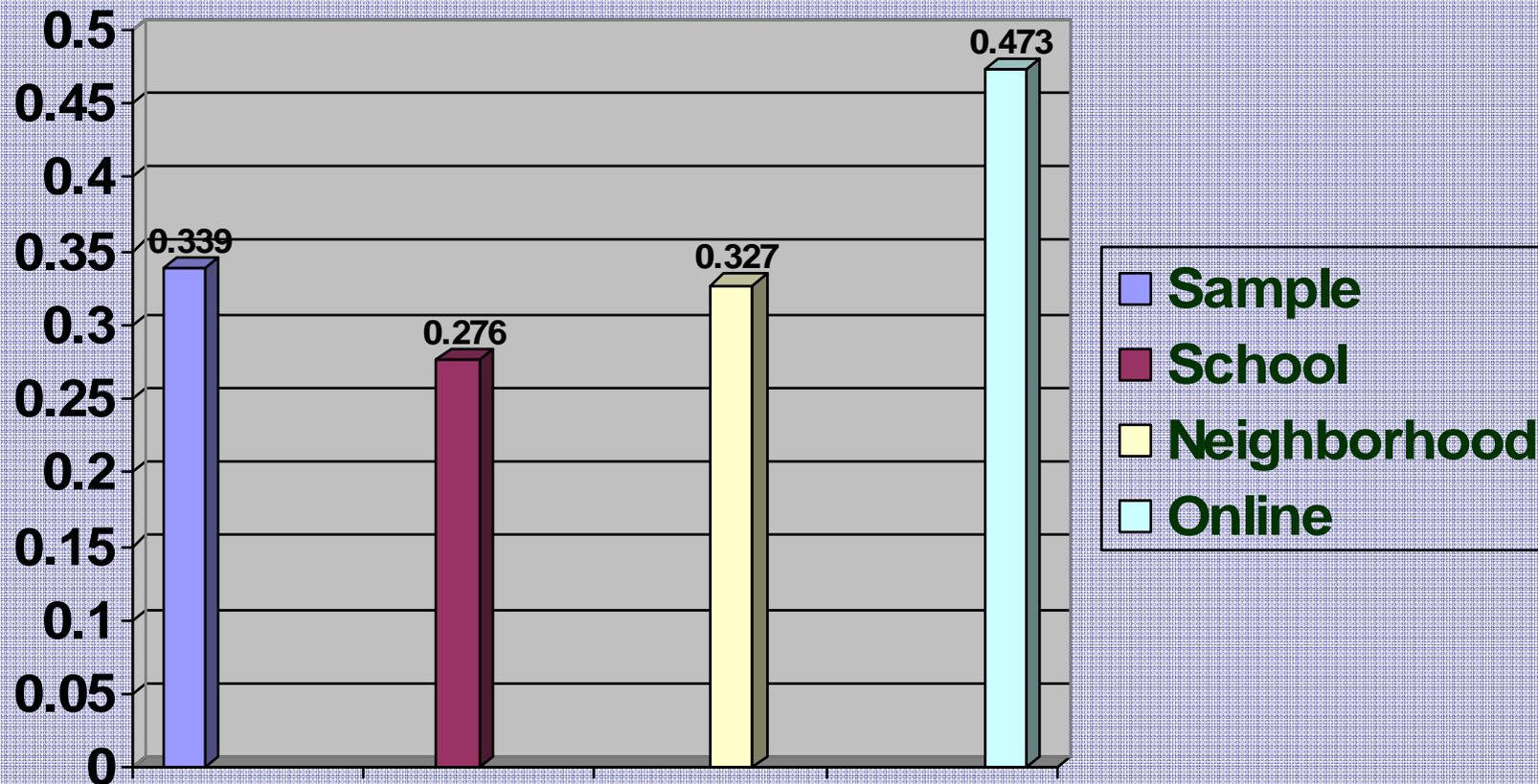
Gender heterogeneity

$$IQV = (1 - \sum p^2) / [(k-1)/k]$$

(1 indicates maximal) {Highest gender heterogeneity for adolescents with Internet access .30 to .40}



Gender heterogeneity according to place friend was met
Highest heterogeneity for friends met online (.28; .33;
.47)



Factors
that
reduce
similarity

Age, online friendships,
duration of relationship(+)

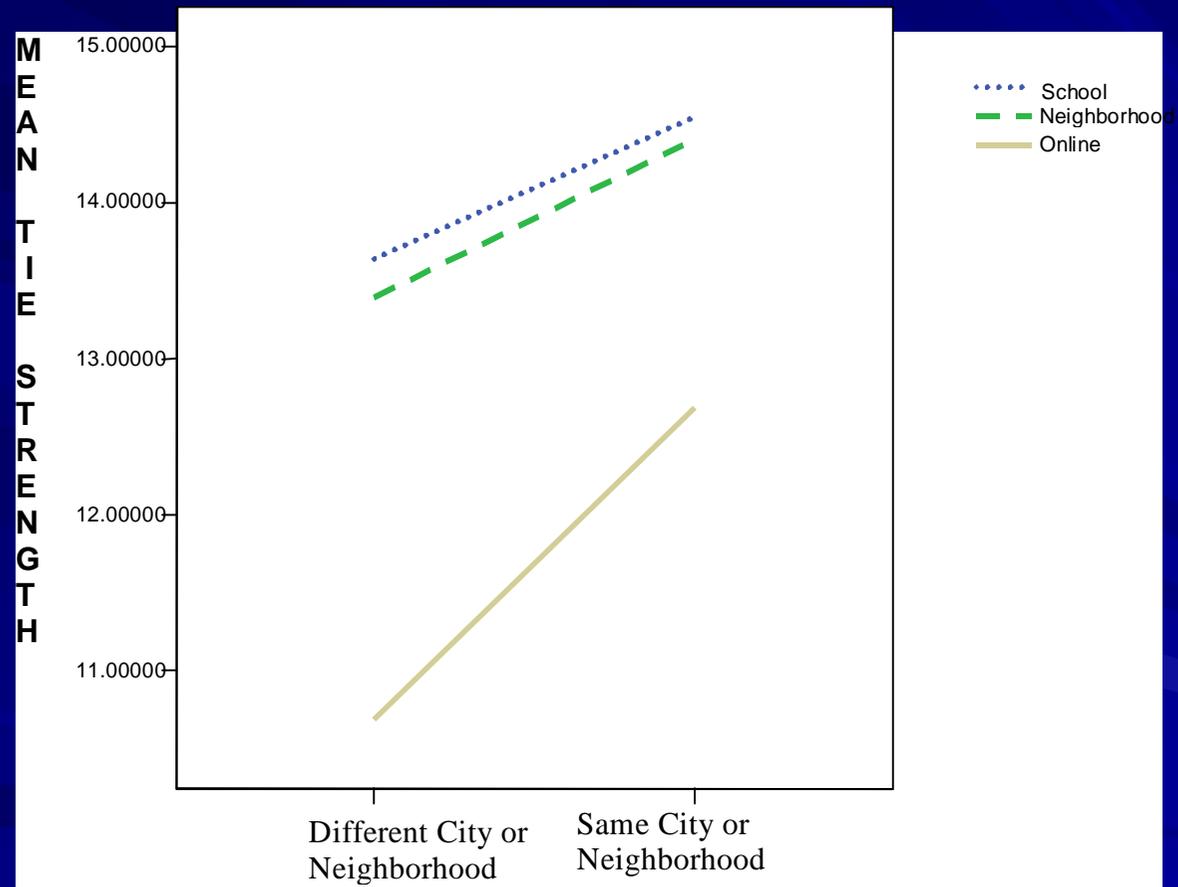
IV: Relational Strength

Model Variable:	1	2	3	4
Internet Use	-.084**	-.084**	.017	-.087**
Network Density	-.125**	-.125**	-.124***	-.156**
GENDER (1 = female)	.129**	.088	.128***	-.002
Nationality (1= Arab)	.310***	.283**	.331***	.310**
Gender*link		.055		
National*link			-.116	
Gender*Density				.142

Predicting strength of ties from place of residence

Variable name	Parameter estimate (S.E.)	Beta	Parameter estimate (S.E.)	Beta
Age	.114 (.043)	.089*	.113 (.042)	.088*
Gender (1=boy)	-.754 (.147)	-.172*	-.764 (.143)	-.174*
Nationality (1=Jewish)	-.678 (.202)	-.132*	-.818 (.197)	-.160*
Parents' marital status (1=married)	-.432 (.226)	-.064**	-.346 (.219)	-.051
Mother's education	-.035 (.027)	-.048	-.020 (.026)	-.028
Self-esteem	.014 (.079)	.006	-.032 (.077)	0.014
Number of siblings	-.099 (.043)	-.089**	-.107 (.041)	-.096*
Neighborhood friend	.431 (.152)	.098**	.401 (.148)	.091*
Online friend	-1.037 (.388)	-.101*	-5.101 (.674)	-.496*
Length of acquaintance	.376 (.132)	.103*	.260 (.129)	.071**
Frequency of daily Internet use	.054 (.026)	.083**	.050 (.025)	.076**
Use of Internet for social purposes	.225 (.147)	.098	.250 (.143)	.109
Use Internet for instrumental purposes	-.310 (.146)	-.140**	-.333 (.141)	-.150*
Place similarity	.694	.086*	-.106	-.013

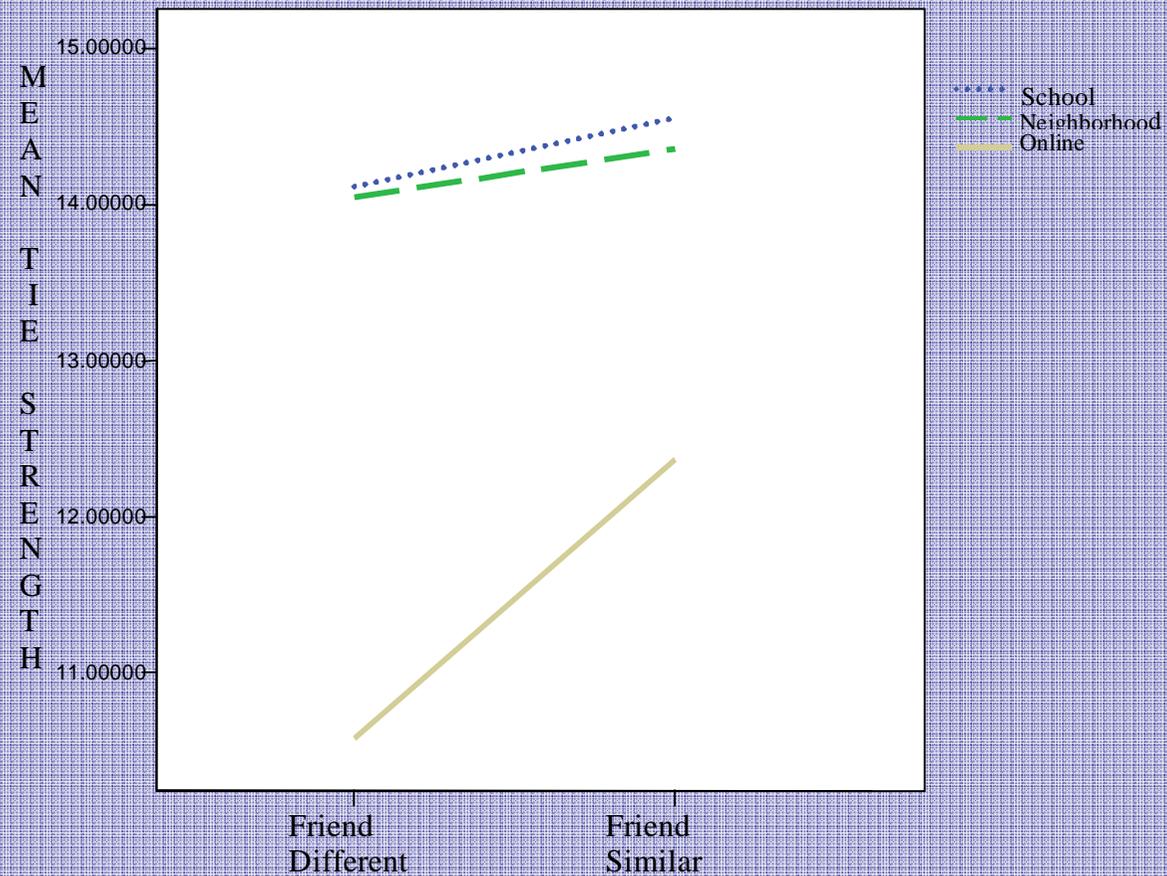
Figure 2: Predicted strength of ties according to place similarity for friends met at school, neighborhood and online



Predicting strength of ties on gender similarity

Variable name	Parameter estimate (S.E.)	Beta	Parameter estimate (S.e.)	Beta
Age	.106 (.043)	.082*	.101 (.043)	.079*
Gender (1=boy)	-.753 (.148)	-.172*	-.777 (.146)	-.177*
Nationality (1=Jewish)	-.702 (.203)	-.137*	-.715 (.201)	-.140*
School friend	-.442 (.153)	-.101*	-.423 (.152)	-.097*
Online friend	-1.534 (.387)	-.151*	-3.663 (.624)	-.360*
Length of acquaintance	.353 (.130)	.099*	.314 (.129)	.088*
Frequency of daily Internet use	.052 (.025)	.082**	.053 (.025)	.084**
Use Internet for instrumental purposes	-.315 (.146)	-.143**	-.364 (.145)	-.165*
Gender similarity	.363 (.199)	.062(+)	.122 (.205)	.021
Sex similarity/online friend			3.140 (.726)	.253*
Constant	13.537* (.960)		13.684* (.950)	
Rsquare	.108		.128	

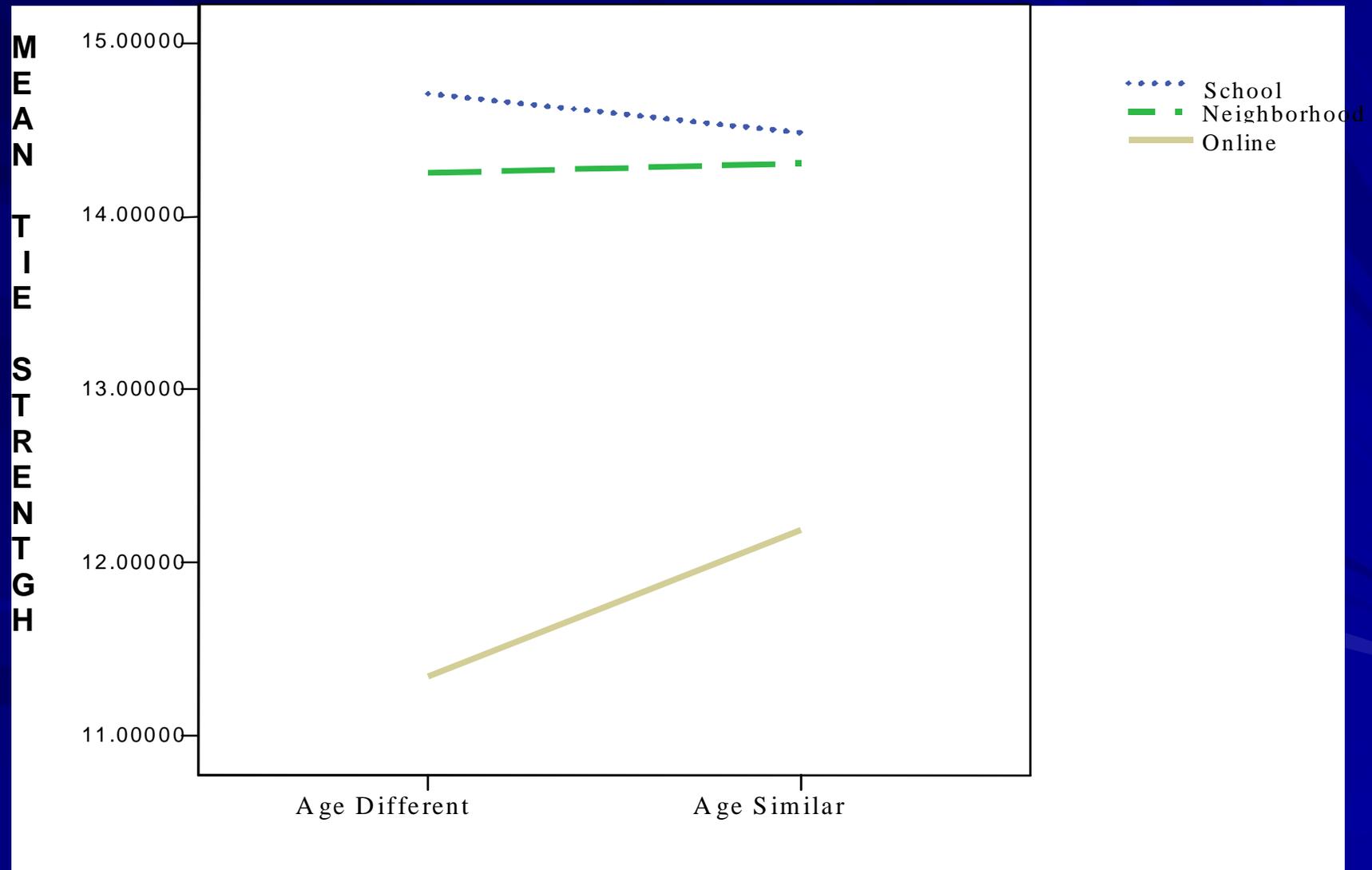
Figure 3 Predicted strength of ties according to gender similarity for friends met at school, neighborhood and online



Predicting strength of ties on age similarity.

Variable Name	Parameter estimate (S.E.)	Beta	Parameter estimate (S.E.)	Beta
Age	.110 (.046)	.084*	.113 (.046)	.086*
Gender (1=boy)	-.737 (.160)	-.164*	-.750 (.160)	-.167*
Nationality (1=Arab)	-.710 (.220)	-.137*	-.739 (.221)	-.143*
Online friend	-2.430 (.477)	-.197*	-3.079 (.613)	-.250*
Length of acquaintance	.553 (.153)	.134*	.514 (.155)	.125*
Frequency of daily Internet use	.054 (.028)	.080**	.056 (.028)	.082**
Use of Internet for social purposes	.141 (.163)	.057	.169 (.164)	.068
Use Internet for instrumental purposes	-.232 (.160)	-.100	-.260 (.160)	-.112
Age similarity	-.109 (.223)	-.018	-.196 (.229)	-.033
Age similarityxonline friend			1.575 (.936)	.078(+)
Constant	12.961 (1.062)*		13.110* (1.064)	
Rsquare	.129		.133	

Figure 4 Predicted strength of ties according to age similarity for friends met at school, neighborhood and online



Factors
affecting
strength of
ties

Age, Female,
frequency of use,
friendship duration,
propinquity, (online)
content and activity
multiplexity

Discussion 1

- Individual ties are nested in foci of activity.
- Demography, geography and technology affect individuals' choices of friends and network heterogeneity.
- Networks of adolescents who make friends online are broader in age, gender and place of residence.
- Networks of online children are more heterogeneous according to age and place of residence.

- Our study supports the *conditional effect*. The sphere in which a friend was met modified the association between social similarity and relationship quality.
- Our findings qualify the technological deterministic approaches.
- Online friends were strong friends, but only when similarity was present.
- When friends who met online resided in the same locality or were of the same gender, relational quality was high.
- **Though relational quality of friendship which was formed online is lower than friendship emerged offline, social similarity increases online relationship quality.**

Further Studies needed

- How network homophily is affected by age distribution of the population?
- How heterogeneous networks affect the stability of social ties?
- Does network heterogeneity creates diversity in terms of values, attitudes and tastes?
- Homophily and proximity => network segmentation

Structural Processes Affecting Online Relationship Maintenance

<u>Process</u>	<u>Feature</u>	<u>Outcome</u>
Network effects on diffusion	Transitivity and homophily drive the adoption of ICT by adolescents	Rapid adoption of ICT via peer “word-of-mouth” influence.
Media choice and content choice	Multiplexity: spillover between face-to-face interaction and ICT	Multiple channels intensify relational strength and tie maintenance
More choice between media channels (IM, chat rooms, social networking site, mobile phones)	User’s versatility	More communication autonomy for the adolescent user, Choice is associated with relational strength
Transitivity, homophily, and proximity govern relational patterns	Online communication is mainly for maintaining existing social ties among socially similar people	Social closure and structural diversification of online networks
Convergence of face-to-face and online worlds	The divide between offline and online spaces is becoming more blurred and fading away.	Reciprocal effects of online and offline spheres

The Use of ICT for Maintaining Existing Social Networks

Constant, frequent contact with close friends

Being readily in touch with one's friends is important to them.

IM Social Networks: Individual, Relational and Cultural Characteristics

Mesch, Talmud, and Quase-Hasse (2013). IM Social Networks: Individual, Relational and Cultural Characteristics *Journal of Personal and Social Relationships*

Prevalent research on ICT tends to focus on **individual or group** level => neglecting relational variables

“Where a new medium replaces a former, common means of communication, the dependence of weak ties on a common medium makes weak-tie networks highly susceptible to dissolution. In contrast, strong-tie networks, with their connections via multiple relations and multiple media, can be expected to be more robust under conditions of change” (Haythornthwaite, 2002).

A Socio-Contextual Model for the Study of Online Communication

- We study the use of I.M. among College Students:
- Relationship type (family, friends) and characteristics of the relationship.
- Intensity of online communication (frequency of communication and topic multiplexity)
- The perceived quality of social ties.

A Socio-Contextual Model for the Study of Online Communication

The conceptual model:

- Social ties are maintained online and offline.
- Quality of social ties are dependent on:
 - Relationship type
 - Relationship Intensity
 - Relationship Duration

A Socio-Contextual Model for the Study of Online Communication

- In a previous study (Mesch and Talmud, 2006), comparing online and offline ties, we found that
- Relationship intensity (frequency of communication, duration of relationship)
- Content Multiplexity
- Explain the difference in perceived closeness of online vs offline ties.

Studies have shown that because of its inherent positive network externalities, the rate of adoption among peers has grown exponentially by sheer in-group influence. Hence, IM is well suited for the study of social ties.

Two Cases Comparison: Students in Canada and Israel

- Immigration absorption
- Size
- Federated polity
- State involvement and cultural legacy
- Ethnic and immigrant segregation
- Civil Society
- State of War + conscription

Type of Relationship

- *RQ1*: Does the communicators' type of relationship have an effect on the frequency and content of IM communications?
- *H1*: A tie's perceived closeness will be positively associated with more frequent communication and with the inclusion of more topics of conversation.

Tie Homophily

- *H2: Same-sex relationships will display more frequent communication, and on a larger number of topics, than cross-sex relationships.*

Propinquity

- *RQ2*: Does propinquity affect the frequency and multiplicity of topics of IM communications?

Tie Duration

- *H3: As engagement duration between communicators increases, relational strength intensifies. Hence, the longer the relationship duration, the higher the frequency of IM communication and the greater the number of topics discussed.*

Method

- The data collection took place in Canada and Israel between October 2005 and August 2006 .
- Size: Canada N=293. Israel N= 492;
- Mean age: Ca = 21; ISR = 25.
- Female: Ca=68%, ISR = 51%
- Majority Social sciences.
- Across grade levels

Name Generator

Dependent Variables (dyadic):

- Communication frequency for each pair (i, j)
- Topic multiplexity
- Contact Frequency

GLM results for the final models predicting frequency of communication via instant messaging for Israel and Canada:

Predictors	Israel			Canada		
	β	RSE	z	β	RSE	z
Age	-.02	.01	-1.31	-.03	.02	-1.64
Gender (1=male)	-.02	.11	-.23	-.05	.09	-.58
Relationship status (1=single)	.10	.10	.96	0	.09	-.03
Gender similarity (1=same)	.08	.08	-.96	.06	.10	.57
Proximity (1=nearby)	.49***	.10	4.78	.70***	.08	8.13
Hours of daily IM use	.21***	.05	4.03	.34***	.05	6.40
Number of IM regular contacts	.31***	.05	6.27	.26***	.06	4.43
Online Relationship	-.07	.26	-.25	.29	.26	1.10
Family	-.20	.17	-1.18	.19	.12	1.55
Distant Friend	-.33*	.13	-2.54	-.37*	.14	-2.53
Partner	.34*	.16	2.14	.89***	.13	6.63
Close Friend	-----		-----			
Duration of Relationship	-.15**	.04	-3.28	-.04	.04	-1.07
Closeness	.43***	.09	4.70	.34***	.09	3.99
Constant	3.99***	.65	6.11	4.26***	.58	7.38
Adjusted R Square	.32***			.40***		

GLM results for the final models predicting topic multiplexity for Israel and Canada

	Israel			Canada		
	β	RSE	z	β	RSE	z
Predictors						
Age	-.08*	.04	-2.25	-.09	.10	-.89
Gender (1=male)	-.61*	.25	-2.44	-.74	.42	-1.8
Relationship status (1=single)	.02	.25	.09	.07	.37	.21
Gender similarity (1=same)	-.49*	.21	-2.22	.36	.34	1.08
Propinquity (1=nearby)	.18	.22	.82	-.24	.33	-.74
Hours of daily IM use	.41**	.15	2.72	.63**	.24	2.65
Number of IM regular contacts	.34*	.14	2.47	.34*	.17	2.09
Online Relationship	-1.17	.68	-1.74	-1.26	.71	-1.77
Family	-1.65***	.35	-4.64	-2.06***	.48	-4.31
Distant Friend	-.89**	.27	-3.26	-.91	.52	-1.75
Partner	.05	.39	0.14	2.17***	.57	3.80
Close Friend	-----	-----	-----			
Duration of Relationship	.10	.11	.92	.39*	.15	2.51
Closeness	.96***	.17	5.60	1.38***	.29	4.78
Constant	2.0	1.23	1.62	6.33*	2.48	2.55
Adjusted R Square	.23***			.23***		

Conclusion

- Individual level characteristics:
age, gender, and marital status proved not to be associated with communication frequency in either Canada or Israel.
- The extent of IM contacts was positively associated with communication frequency in Israel and Canada.
- The extent of daily IM interaction was also positively associated with communication frequency for both contacts in both countries.

- In Canada and Israel, if the residence of the contact was at the university dorms or in the same city, communication frequency was greater than in the cases of contacts residing in another city or in another country.

- Distance clearly exerts a significant effect on communication frequency, despite IM's negligible cost in comparison with land lines and cell phones.
- Relationship type influenced communication frequency: with a romantic partner it was greater than with a close friend. In contrast, IM communication with an online friend or family member was less frequent than with a close friend.
- IM communication with a distant friend was also less frequent than with a close friend. Results for relationship type showed a similar pattern for Israel and Canada.

In both countries, we found that university students living in geographical proximity communicated more frequently and on more topics than students living at geographical distance did.

Relationship type had an effect on patterns of IM communication: communication with close friends and romantic partners was more frequent than with distant friends and family ties.

Perceived closeness was positively associated with frequency and topic multiplexity.

IM communication patterns reflect the type and nature of existing relationships between contacts rather than individual attributes and cultural characteristics of the communicators.

Discussion 2

- IM communication does not seem to reduce individual's social involvement but, rather, expanding it, integrating online ties with face to face social ties, and maintaining existing face to face contacts.
- Type of existing relationship is related to relational strength.
- IM communication was more frequent with romantic partners and close friends. Furthermore, the content of communication differed according to type of relationship. Less topics were discussed with online friends, family, and distant friends than with close friends.

- The strength of the IM social ties was found to be related to relational variables. multiplexity, frequency of contact is associated with the strength of the social tie.
- Our results indicate that two factors deem important to the development of close IM ties:
 - (1) Communication Frequency is associated with perceived closeness and multiplexity.
 - (2) Face to face communication and propinquity, socially shaping communication frequency and the multiplex nature of the connection.

Future Research

- Same Relational patterns on two countries, but:
- Needs multi-cases, multi-level studies
- Needs real records rather than self reported evidence.
- Single source bias. From tie approach into whole network or partial network approach
- Needs comparison of various relational media
- Problem of media integration: multi-purpose