

Bridging the Virtual and the Real

Examining the Co-Evolution of Online and Offline Social Interactions in Adolescent Development

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Project Description

Adolescents increasingly move between online and face-to-face social settings, yet these settings are often studied separately. Guided by neo-ecological theory, this project examines how virtual and physical microsystems develop together and how their interaction shapes peer relationships and psychosocial adjustment. It brings three competing mechanisms into one framework: online relationships may compensate for limited offline social resources, strengthen existing offline relationships, or displace investment in positive face-to-face ties. The project will study these processes over time and identify the individual and social conditions under which each mechanism is most likely to occur.

Research Questions and Aims

- Determine how adolescents' online behavior, offline peer experiences, and psychosocial outcomes influence one another over time.
- Test whether online relationships compensate for limited offline social resources, particularly among adolescents experiencing psychological distress.
- Examine whether online relationships enhance the quality and development of offline friendships, and whether this process varies by characteristics such as social skills and gender.
- Assess whether problematic or negative online engagement displaces positive offline ties and increases involvement in negative peer networks.

Methodology

The project will use multi-wave longitudinal data on social media behavior, online and offline networks, peer experiences such as bullying and rejection, and psychosocial outcomes including loneliness and emotion regulation. Random Intercept Cross-Lagged Panel Models (RI-CLPM) will separate stable between-person differences from within-person change and estimate reciprocal longitudinal associations among online behavior, offline experiences, and mental health. Longitudinal social network analysis, primarily using stochastic actor-oriented models, will examine the co-evolution of peer networks and individual behavior. Dual-network models will be used where appropriate to test how ties develop across online and offline settings and to distinguish network selection from peer influence. Multi-group and interaction analyses will assess potential differences by gender, socioeconomic status, psychological distress, and social skills.

Research Significance

By combining within-person longitudinal modelling with network-based analysis, the project connects psychological change to the evolution of adolescents' peer environments. Comparing compensation, enhancement, and displacement within a unified framework will clarify when online engagement functions as a resource and when it poses risks to offline relationships and mental health. The findings can inform evidence-based guidance and targeted interventions for families, schools, and policymakers.

Keywords online and offline relationships; peer networks; psychosocial development; RI-CLPM; longitudinal social network analysis

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