Civic Development within the Peer Context: Associations between Early Adolescent Social Connectedness and Civic Engagement

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Abstract

Social connectedness is theorized to contribute to civic development and in turn, civic engagement is thought to cultivate social connectedness. The current study utilized a social network research design to examine associations between early adolescent social connectedness via their position within their school peer network and their civic engagement. Middle-school students (N = 213) aged 11-15 years (M=12.5; 57% female) provided nominations for peer connections and reported on multiple aspects of civic engagement. Early adolescents who had identified more peer nominations had higher civic efficacy. Youth who had fewer connections with different peer groups and fewer connections with popular peers were more engaged in political behavior. Greater popularity was associated with higher political engagement for boys, but not girls. Greater connections with different peer groups was associated with greater environmentalism for younger but not older teens. Findings highlight the need to consider adolescent civic development within the peer context.

Keywords: peers; civic engagement; volunteering; politics; social network analysis

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Early adolescence is a developmental period characterized by substantial intrapersonal and interpersonal change. Early adolescence is recognized as time of rapid civic development when youth are gaining exposure to social and civic institutions, forming ideas about social issues, and developing beliefs about their role within society (Sherrod & Lauckheart, 2009). Civic experiences early in life are thought to lay the foundation for positive civic habits, beliefs, and personal identities that cascade into late adolescence and adulthood (Metzger et al., 2018). Early adolescence is also characterized by expanding personal autonomy, which results in more time spent with similarly aged peers, more concern with peer evaluations, and increased motivation to establish positive peer relationships (Steinberg & Monahan, 2007). Consistent with social capital theory and research on organized activity involvement, the breadth and quality of peer relationships may motivate civic engagement, and participation in civic activities may serve as a context to cultivate high quality peer relationships (Hyman, 2002; Wray-Lake et al., 2013). However, little empirical research has examined the intersection between peer connections and civic engagement in early adolescence, despite the increased relevance of peers and rapid civic development during this period.

The goal of this research was to examine associations between peer social connectedness and civic engagement among early adolescents using a social network approach. Social network methodologies are capable of identifying youths' objective position within their peer network and thus are strategically designed to assess multiple aspects of peer social connectedness (Neal, 2020). Associations between peer social connectedness and civic engagement may further vary based on adolescent gender and grade, as peer socialization may enhance gender differences in specific civic activities (Metzger & Ferris, 2013) and susceptibility to peer influence may increase across early adolescence (Steinberg & Monahan, 2007). Thus, we further test whether links between adolescents' civic engagement and social connectedness vary across gender and grade.

Social Capital Theory and Civic Engagement

Civic engagement encompasses a broad range of attitudes, values, and behaviors that concern the common good (Wray-Lake et al., 2017). Civic behaviors commonly include contributions to society through community service and environmentalism (Wray-Lake et al., 2017) as well as different forms of political participation (Oosterhoff & Metzger, 2016). While age restrictions limit some forms of political engagement for youth (e.g., voting), early adolescents frequently watch political news shows, engage in political discussions with friends and family, and post political content to social media (Syvertsen et al., 2015). Civic engagement also has cognitive dimensions, which include social responsibility values (i.e., beliefs that helping others is important; Wray-Lake et al., 2017) and civic efficacy (i.e., the perception that they can make meaningful change in their community; Metzger et al., 2020). Civic engagement is therefore multi-dimensional and different facets of civic engagement have distinct correlates (Wray-Lake et al., 2017).

Social capital theories have been used to explain the causes and consequences of adolescent and adult civic engagement. Social capital originates from interpersonal relationships (Coleman, 1988) and is defined as "features of social organizations such as networks, norms, and social trust that facilitate coordination and cooperation for mutual benefit" (Putnam, 1995, p. 67). According to social capital theory, positive bonds with others prompt civic engagement via norms of reciprocity and cooperation (Coleman, 1988; Kawachi et al., 2008; Wray-Lake et al., 2013). Civic engagement further provides opportunities to connect with others with a shared goal of social contribution thereby enhancing social capital (Putnam, 1995). Civic engagement should be higher among youth with greater social capital, in part because social capital prompts greater engagement and because engagement should build social capital. Empirical evidence supports connections between civic engagement and social capital in adults and older adolescents—those who are more civically active or feel civically efficacious report higher social trust (Uslaner, 2002) and are more socially integrated in their peer networks (Settle et al., 2011). However, less is known about how social connections and civic engagement are linked among early adolescents, when peer relationships, civic behaviors, and civic attitudes are undergoing rapid developmental change.

Peer Social Networks and Civic Engagement

Social network methodologies (Luke, 2009) may be particularly useful for operationalizing specific forms of adolescents' social capital by characterizing youths' position within their peer social network. Social network methodology is capable of quantifying a broad range of indicators that represent different degrees and types of social connectedness (Neal, 2020), which may inform or be informed by civic engagement including popularity, activity, reciprocity, betweenness, and eigenvector. Whereas *popularity* is represented by the total number of peer nominations (or 'incoming ties') received by others, *activity* represents the total number of given nominations (or 'outgoing ties'). *Reciprocity* represents the number of shared nominations between two peers. Popularity, activity, and reciprocity all characterize the quantity of youths' connections with their peers and directly measure social capital through perceived, received, or shared positive bonds with others. Other commonly tested indicators of adolescents' position within their social network concern their *betweenness*, or the extent to which an adolescent is connected with different social groups. Adolescents' also vary in their *eigenvector* which is the extent to which they are connected to well-connected (i.e., popular) peers. Betweenness and eigenvector represent other aspects of social capital in that they serve as more diffuse markers of social resource via access to different groups of youth (betweenness) or others with a high degree of social influence (eigenvector). Popularity, activity, reciprocity, betweenness, and eigenvector therefore represent different facets of youths' social connectedness and capital.

Adolescents' popularity, activity, reciprocity, betweenness, and eigenvector may be independently associated with civic engagement. Youth who have more connections with their peers—whether perceived, received, or shared—may have more social resources that provide opportunities to participate in civic action, feel a greater social responsibility to others, and feel more efficacious in their ability to produce meaningful social change. Civic engagement may also promote greater social connections. Youth consistently rate civic action as worthy of social praise (Metzger et al., 2014), so adolescents who are more involved in civic activities may be more popular and have connections with popular peers. Extracurricular activities are also thought to expose youth to diverse peer groups

(Oosterhoff et al., 2017), so involvement in civic activities (e.g., volunteering) may result in greater betweenness. The prosocial context offered by civic activities may further cultivate positive social ties and result in greater connections and reciprocity between teens. Civic engagement may therefore inform and be informed by early adolescents' position within their social network.

Variation by Gender and Grade

Associations between civic engagement and adolescents' network position may differ for boys and girls and for youth in different grades. Considerable research has demonstrated gender differences in civic engagement, with adolescent girls reporting greater volunteering (Metzger et al., 2018), social responsibility values (Metzger et al., 2018), and social praise for those who participate in community service (Metzger & Ferris, 2013). In contrast, adolescent boys are often more engaged in political activities (Oosterhoff & Wray-Lake, 2020) and endorse greater praiseworthiness for political activities such as voting, writing government officials, and joining political campaigns (Metzger & Ferris, 2013). Gender differences in civic behaviors and attitudes may alter links between social connectedness and civic engagement. Early adolescents who are more engaged in civic actions that follow gendered norms may be more likely to accumulate the social rewards that accompany these behaviors. For example, engagement in political behaviors may be more socially rewarding for boys, whereas community service activities may be more rewarding for girls. Although less well studied, there may also be grade differences in connections between civic action and social connectedness. With age, adolescents may have more autonomy with regards to time spent with peers and within civic activities (Smetana et al., 2006). The increased autonomy within both contexts may strengthen associations between social connectedness and civic engagement as youth have a greater ability to make decisions about who they spend time with and draw on their civic experiences when making such decisions. We therefore examined whether associations between social connectedness and civic engagement varied by gender and grade.

Methodological Considerations

Examining links between youths' social network position and civic engagement requires certain methodological considerations. Quantifying youths' position within their social network is often achieved

by using either an ego-centric network or whole-network approach. Ego-centric network techniques have participants report on their own personal qualities and the qualities of their peers. A limitation of ego-centric approaches is that youth reports of their peers' attitudes and behaviors are likely biased. In contrast, whole-network approaches assess all youth within a given network (e.g., school, community, county) as well as potential ties between peers (e.g., contact, friendships). Whole-network approaches are logistically challenging given the need to provide the same assessment to the majority of a peer network, which often has an unknown size and a dispersed location. Examining peer networks among adolescents within schools in more remote geographical regions provides an important methodological advantage for social network analysis. Similar-aged youth within remote rural communities often attend the same school, increasing researchers' ability to confidently assess the majority of youths' peer network. The current study examined adolescents' social network within the only available public middle school centrally located in a >5,000 square mile county. Partnering with this community increased confidence that the majority of youths' social network would be accessed within the local school.

Current Study

This study had two primary aims. Our first aim was to examine links between adolescents' peer connectedness and civic engagement using social network methodology. We hypothesized that youth who were more popular, active, had more reciprocated friendships, were connected with multiple peer groups (i.e., higher betweenness), and had more popular friends (i.e., higher eigenvector) would have higher levels of civic engagement. The second aim was to explore gender and grade differences in links between social connectedness and civic engagement. We expected that indicators of social connectedness would be more strongly associated with volunteering and social responsibility values for girls, whereas social connectedness would be more strongly associated with political engagement for boys. We also expected that links between social connectedness and civic engagement would be stronger for older youth relative to younger youth. Given that civic engagement varies by socioeconomic status, race, and ethnicity (Oosterhoff & Wray-Lake, 2020) and that adolescents often participate in civic, extracurricular, and other

community activities (e.g., church) simultaneously (Oosterhoff et al., 2020), our models accounted for demographic characteristics and other forms of organized activity involvement.

Method

Participants and Procedure

Participants included 213 middle school students in 6th through 8th grade recruited from a small, rural town in the Northwestern United States. Participants were between the ages of 11-15 years (M = 12.5, SD = 0.93; 57% female) and were primarily White (85.3%, 2.6% Asian or Pacific Islander, and 7.1% Native American; 9.8% Hispanic/Latino). The participating middle school served 250 students at the time of data collection, so the sample size of 213 represents 85% of all eligible middle school students. Additionally, the participating school was centrally located in the >5,000 square mile county, and was the only available public middle school, increasing confidence that we captured a majority of the same-aged local peer network. Participants self-selected into the study and were asked to complete a 45-minute survey.

Consistent with past research collecting social network data with middle school students in the United States (Andrews et al., 2016; Kornienko et al., 2016), an opt-out consent procedure with active student assent was used for this study. This strategy was chosen because large amounts of missing data on peer nominations renders social network data unusable (Burt, 1987). Consent letters were sent to parents who were given the option of opting out of participation in the study. Students provided active assent. During data collection, students were reminded that they could skip any questions they did not want to answer and refuse to participate at any time without penalty. The study protocol, procedure, and questionnaire was reviewed and approved by a Community Advisory Board (CAB) composed of students, community members, parents, and school administrators from the local area including teachers, the superintendent, and the principal of the middle school. This study protocol received approval and by the Institutional Review Board at (removed for masked review).

Measures

Peer Network Ratings and Social Connectedness. Participants were provided with the option to identify up to 7 people within the school that they spend the most time with by selecting names from an electronic pre-populated list. Participants were allowed to nominate any student within the school regardless of classroom or age to capture school-level networks. If students did not spend time with up to 7 other students, they were instructed to leave remaining spaces blank. Any nominations made of non-participating students were converted to a missing code and these data were not used. Social capital theory proposes that *positive* bonds with others prompt community contributions (Wray-Lake et al., 2013). Thus, after selecting each person, participants were asked to rate how much they like spending time with that person on a 5-point scale from (1 = not at all, 2 = a little, 3 = somewhat, 4 = a good amount, 5 = a lot). For the purpose of this study, a 'positive bond' was defined as liking the time spent with a nominated peer at least 'somewhat'. Five indicators of social connectedness were calculated based on the peer network. *Popularity* was measured by a participants in-degree which represents the total number of other people who nominated a particular child. *Activity* was measured by a participants out-degree which represents the total number of people nominated by the teen. *Reciprocity* is represented by the number of peer nominations that are reciprocated by a child. *Betweenness* indicates the extent to which a child's social position falls between two or more distinct groups of other children. *Eigenvector* was also calculated representing youths' connection with highly connected peers. These metrics represent commonly used indicators of social connectedness by developmental scientists who study social networks (Neal, 2020).

Volunteering. Volunteering was measured with a single item which asked "In a typical month, how many hours have you spent volunteering (not part of a class project, graduation requirement, or court-ordered requirement) to help other people or to help make your community a better place?" taken from past research (Syvertsen et al., 2015). Responses were given on a 6-point scale from 1 (*0 hours*) to 6 (*5 or more hours*) with higher values indicating greater volunteering.

Political Engagement. Political engagement was measured with seven items ($\omega = .82$) which assessed the extent to which youth had engaged in political news consumptions, political discussions, and

interacted with political content on social media over the past year. These domains of political action were specifically chosen as these forms of engagement are more common among middle-school students (Syvertsen et al., 2015). Responses were given on a 5-point scale from 1 (*never*) to 5 (*very often*). Mean scores were calculated with higher values indicating greater political engagement.

Environmentalism. Environmentalism was assessed with three items (ω = .62) taken from past research (Syvertsen et al., 2015) that assessed the frequency that youth turned off electronics when they were not using them, limited their paper use, and conserved water by taking shorter showers in the past year. Responses were given on a 5-point scale from 1 (*never*) to 5 (*very often*). Mean scores were calculated with higher values indicating greater environmentalism.

Civic Efficacy. Civic efficacy was assessed with three items (ω = .83) that assessed youths' agreement with items stating: "I can make a positive difference in my community", "Even though I am younger, there are ways for me to get involved in my community", and "I can use what I know to solve ''real-life" problems in my community." Responses were given on a 5-point scale from 1 (*strongly disagree*) to 5 (*strongly agree*). Mean scores were calculated with higher values indicating greater civic efficacy.

Social Responsibility Values. Social responsibly values were assessed with three items (ω = .83) that assessed youths' agreement with items stating: "It is important to me to consider the needs of other people.", "It is important to me to help those who are less fortunate", and "It is important to me to make sure that all people are treated fairly." Responses were given on a 5-point scale from 1 (*not at all important*) to 5 (*extremely important*). Mean scores were calculated with higher values indicating greater social responsibility values.

Organized Activity Involvement. Organized activity involvement was measured with four items (ω = .54) that assessed the frequency at which youth participated in school newspaper and yearbook, music or arts, sports, and other school clubs in the past year. Responses were given on a 5-point scale from 1 (*not at all*) to 5 (*great*). Mean scores were calculated with higher values indicating greater organized activity involvement.

Church Attendance. Church attendance was measured with one item that assessed the frequency at which youth attended church in the past year. Responses were given on a 4-point scale from 1 (*never*) to 5 (*about once a week or more*).

Sociodemographics. Participants reported on their grade, gender, parental education, and race/ethnicity. Parents' education was recoded on a 3-point scale with 1 (*neither parent completed high school*), 2 (*at least one parent complete high school*), and 3 (*at least one parent completed college*). Youth also reported on whether their families had difficulty buying things they wanted or needed as a proxy for family financial strain (Galinsky, 1999), with higher values indicating lower financial strain.

Analytic Technique

All analyses were conducted in the R using the statnet package suite. The statnet package suite was first used to quantify a directed adjacency matrix that represented whether a given node (adolescent) was connected with a peer. Five social connectedness indicators were quantified: idegree, odegree, reciprocity, betweenness, and eigenvector. The *idegree* function was then used to extract the popularity metric for each node and the *odegree* function was used to extract the activity metric for each node. *Reciprocity* was calculated by converting the directed adjacency matrix to an undirected matrix using the "strong" rule and extracting the degrees (Luke, 2015). The *betweenness* function was used to extract the extent to which a node served as a broker between disparate groups and the *evcent* function was used to quantify the eigenvector characterized by the extent to which a node was connected with popular others. Multiple regression models were estimated with each indicator of social connectedness extracted from the peer network specified as independent variables and civic engagement (community service, political engagement, environmentalism, social responsibility values, and civic efficacy) specified as dependent variables. Adolescent grade, gender, parent education, financial strain, race/ethnicity, organized activity involvement, and church attendance were entered as covariates for all models.

Missing Data. Low levels of missing data on demographic characteristics or covariates (<5%; parents' education: 14%) were estimated using multiple imputation and the MICE package. No network data was imputed. Sensitivity analyses demonstrated that findings were similar in terms of effect size and pattern of significance when using multiple imputation and listwise deletion.

Open Research Statement. All data, analysis scripts, and materials needed to computationally reproduce or conduct a direct replication of this study are available on the Open Science Framework (https://osf.io/9u2bs/?view_only=86c1495682e14bbbbda95c193b8c3a16).

Results

Adolescents' peer network was characterized by 213 nodes and 1,093 edges or ties between nodes (Figure 1). The average density of the network was .03 indicating that roughly 3% of all possible ties were selected. Figure 1 displays the distributions the social connectedness network indicators by gender and Table 1 displays the descriptive statistics and bivariate correlations among the social connectedness network indicators, covariates, and civic engagement. On average, youth nominated about 5 (out of a possible 7) friends and were nominated by an average of 5 others. Youth had an average of about 3 reciprocated ties. These metrics suggest that the modeled network was not saturated and that there was variability within both activity and popularity, even with the seven nomination maximum. Bivariate correlations indicate that the social connectedness constructs were generally positively correlated with one another. Civic engagement was moderately correlated with organized activity involvement and church attendance. Civic engagement was also generally positively correlated with popularity, activity, and reciprocity.

Our first aim was to examine associations between social connectedness and civic engagement. Multiple regressions tested associations between social network position (popularity, activity, reciprocity, betweenness, eigenvector) and civic engagement (volunteering, political behavior, environmentalism, social responsibility values, civic efficacy) after accounting for adolescent grade, gender, parent education, financial strain, organized activity involvement, and church attendance. Table 2 displays estimates from these models and Figure 2 displays significant main effects. Youth with more educated

parents had higher social responsibility values. Those who were more involved in organized activities engaged in greater volunteering and greater political behavior and had higher social responsibility values and civic efficacy. Youth who more frequently attended church engaged in greater volunteering and had higher civic efficacy. Youth with greater activity measured through peer nominations had higher civic efficacy. Additionally, youth with lower betweenness and eigenvector were more engaged in political behavior.

Our second aim was to explore whether the associations between social connectedness and civic engagement were moderated by gender and grade. The association between political engagement and popularity was moderated by gender (B = .11, SE = .04, p = .02). Figure 2d displays the simple slopes for effects separated by gender. Greater popularity was associated with higher political engagement for boys (B = .10, SE = .03, p <.001) but not girls (B = -.00, SE = .03, p = .91). Additionally, the association between environmentalism and betweenness was moderated by grade (Figure 2e; B = .001, SE = .001, p = .01). Greater betweenness was associated with higher environmentalism for 6th grade students (B = .001, SE = .001, p = .02), but not 7th grade students (B = .000, SE = .001, p = .44) or 8th grade students (B = -.001, SE = .001, p = .22). There were no other significant moderation effects by gender or grade (see Supplemental File).

Discussion

Early adolescence is a developmental period characterized by rapid civic development and heightened salience of peer relationships (Sherrod & Lauckheart, 2009; Steinberg & Monahan, 2007). The goal of this study was to examine links between adolescents' social connectedness with a number of dimensions of civic engagement, including volunteering, political behavior, environmentalism, social responsibility values, and civic efficacy. Using a social capital framework and a social network approach, we find that early adolescents' position within their social network is connected with their civic engagement. Further, some links between social network position and civic engagement were moderated by gender and grade, indicating that social connectedness may be differentially associated with civic engagement for girls and boys and youth of different ages. These findings were significant even after

accounting for demographic characteristics and theoretically-relevant covariates, including organized activity involvement and church attendance.

Consistent with hypotheses, greater civic efficacy was associated with providing more peer nominations (activity). Youths' perceptions of their abilities to make meaningful changes in their communities likely rely on their perceived social resources. Youth may draw on the extensiveness of their social network when evaluating their ability to make meaningful changes within their community. The size of this effect seems notable—youth who did not nominate any peers felt neutral about their ability to make positive changes in their community whereas youth who nominated seven peers felt strongly about their ability to make positive changes in their community. Importantly, we did not find significant associations between civic efficacy and popularity or reciprocity, which suggests that associations between social connections and civic efficacy may be more contingent on youths' perceptions of social resources rather than their actual resources. It is also possible that youth who feel like they cannot make a difference in their community have lower perceived social support. Youth who feel lonely are less likely to trust others and believe others trust them, regardless of actual reports of nominations from their peers (Rotenberg et al., 2004) and low social trust is often associated with lower civic efficacy (Anderson, 2010).

Greater engagement in political activities, including watching political news shows, discussing politics with friends and family, and posting political information to social media was associated with having fewer well-connected peers and having fewer connections with different friend groups. Consistent with national trends with older adolescents (Syvertsen et al., 2015), youth in this study appeared to participate in political behaviors less than other forms of civic engagement. Politics may represent a more niche interest among early adolescents. It is possible that political activities facilitate interactions within specific groups of peers and those who are less connected to others due to the more specialized interest and fewer opportunities for political participation during this age period. It is also possible that youth who have fewer connections with different peer groups and popular peers are more engaged in politics as a way of cultivating a more iconoclastic personal identity (Oosterhoff et al., 2017).

Findings indicate gender differences in associations between adolescents' popularity and political engagement. Popularity was associated with greater political engagement for boys, but not girls. This is consistent with prior research suggesting that boys view political engagement as more praiseworthy relative to girls (Metzger & Ferris, 2013). Adolescent boys may engage in political behaviors to appear more adult-like and to increase their social status (Franken et al., 2016; Hawke & Rieger, 2013). These findings are also consistent with research indicating that adolescent boys experience fewer political social costs (e.g., disrupted friendships) relative to girls (Oosterhoff et al., 2020), which may be due to gender norms supporting the marginalization of women in politics (for a review, see Schneider & Bos, 2019). It is possible that early adolescent boys receive more social rewards for engaging in political discussion, posting political content to social media, and watching political news shows relative to girls, as these behaviors are more socially praised by adolescent boys and are viewed as congruent with societal norms about gender roles.

We also found evidence that associations among betweenness and environmentalism varied by adolescent grade. Sixth grade—but not seventh grade or eighth grade—youth who were connected to a wider variety of different peer groups were more likely to engage in environmentalism. Environmental behaviors may be more readily available for younger youth compared to other civic activities (Wray-Lake et al., 2017) and having access to different friend groups may provide additional opportunities for younger teens to participate in civic activities that are within their control. Additionally, the environmentalism activities assessed in this study were relatively independent (e.g., showering for a shorter period of time, using less paper) and may not involve others (e.g., cleaning up litter). It is possible that different peer groups expose youth to a wider range of ideas about how to reduce their environmental impact, which may then translate into the individualized environmental behaviors measured in this study.

Implications for Theory and Practice

Findings from this study have implications for theory and practice. Civic engagement entails forming beliefs about personal abilities, cultivating values, and engaging in behavior that all concern collective effort. The collective nature of civic engagement emphasizes the need to consider civic

development within the social context. While considerable research has been conducted on the role families, schools, and communities on youth civic engagement (Zaff et al., 2010), far less research has examined civic development within the peer context. Results from this study provide evidence that early adolescents' civic engagement is connected with their social position among their peers, indicating that peers may play a meaningful—yet understudied—role in adolescent' civic development. Programs seeking to increase youths' civic efficacy may benefit from emphasizing to youth the wide range of peers that they have within their social network and accompanying social resources. Youth programs should also be aware of the social implications that can be affiliated with certain forms of civic action and utilize these connections to both improve adolescents' social resources and civic engagement.

Limitations and Constraints on Generalizability

A particular strength of this study was the ability to capture self-report data from a very large portion of adolescents' social network, which is often a limitation of social network research (Neal, 2020). However, findings should be interpreted in the context of certain limitations. The research design was cross-sectional and causal claims or temporal sequencing cannot be established. It is unclear whether civic engagement precedes or promotes social network position or whether network position precedes or promotes civic engagement. Similarly, it is unclear whether youth nominate peers based on their civic engagement or if civic engagement facilitates peer connections. Past research and theory suggests that links between network position and civic engagement are likely bidirectional (Putnam, 1995) and future research needs to examine these questions longitudinally. Additionally, the organized activities measure had low reliability. Future research should consider capturing a broader range of organized activities to increase the reliability of the scale.

Findings from this study also have at least two notable constraints on generalizability. Although representative of the region from which it was drawn, the sample was mostly White and from a mid-sized rural town. Using this sample had the methodological advantage of accessing a relatively confined peer network, increasing the ecological and internal validity of the study design by ensuring that the majority of youths' peer network was assessed. However, past research suggests that the interpersonal

consequences of civic engagement likely differs for youth from minority racial and sexual identities (Ballard et al., 2020; Oosterhoff et al., 2020). Thus, this study should be repeated using a sample of youth from more diverse geographical and socio-demographic backgrounds. Additionally, findings should be interpreted in the context of the specific sociopolitical climate from which the study occurred. Data was collected in the Fall 2019, a time when political division was relatively high compared to earlier points in US history. Future research is needed to understand how period and cohort effects impact these results.

Conclusion

Civic engagement involves personal and social resources that are intertwined with social development. Peers represent a highly salient dimension of early adolescents' social context that is relevant for youths' civic development. Little is currently known about the role of peers in early adolescent civic development. Results from this study provide robust evidence that the type and quantity of early adolescents peer connections are relevant for their civic engagement. Advancing research on civic engagement within a peer context would provide a more complete understanding of adolescent civic development, which could aid in the creation of interventions and social policy seeking to promote civic action across the lifespan.

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Table 1

Means, standard deviations, and correlations

Variable	*M*	*SD*	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1. Gender	1.54	0.50																	
2. Grade	2.04	0.81	.08																
3. Race: White	1.86	0.35	.22**	.02															
4. Ethnicity	1.09	0.29	.02	.00	-.20**														
5. Financial Strain	2.77	0.74	.09	-.16*	.08	.03													
6. Parent Education	2.62	0.68	-.08	-.09	.13	-.07	-.32**												
7. Organized Activities	2.78	0.89	.18*	-.07	.12	.04	-.23**	.31**											
8. Church Attendance	2.62	1.23	.08	-.14*	.09	-.08	-.19**	.08	.29**										
9. Volunteering	3.17	1.90	.08	-.02	.06	-.04	-.11	.29**	.41**	.30**									
10. Political Eng.	1.70	0.59	-.02	.04	.10	.09	-.02	.13	.19**	.03	.25**								
11. Environmentalism	2.94	0.91	.06	-.11	.04	-.05	-.10	.05	.18**	.16*	.14*	.16*							
12. Social Resp.	4.12	0.79	.25**	-.11	.07	.06	-.20**	.21**	.30**	.22**	.26**	.09	.22**						
13. Civic Efficacy	3.97	0.72	.27**	.02	.16*	-.05	-.21**	.20**	.49**	.26**	.39**	.10	.24**	.54**					
14. Popularity	5.11	2.78	.14*	.10	.12	-.03	-.20**	.21**	.24**	-.02	.11	.11	.06	.15*	.20**				
15. Activity	5.11	1.91	.27**	.10	.07	-.03	-.26**	.27**	.36**	-.01	.24**	.02	.01	.19**	.36**	.31**			
16. Betweenness	814.99	863.93	.12	-.02	.07	-.11	-.14*	.23**	.16*	.09	.16*	-.06	.08	.13	.15*	.26**	.39**		
17. Eigenvector	0.03	0.06	.27**	.04	.12	-.06	-.21**	.10	.22**	.16*	.14*	-.12	.01	.14*	.22**	.28**	.40**	.04	
18. Reciprocity	2.88	1.68	.31**	.03	.13	-.02	-.17*	.20**	.27**	.02	.14*	.03	.07	.21**	.32**	.73**	.58**	.19**	.39**

Note. M and *SD* are used to represent mean and standard deviation, respectively. * indicates $p < .05$. ** indicates $p < .01$.

Table 2

Unstandardized Estimates for Associations between Civic Engagement and Network Position.

	Volunteering			**Political Behavior**			**Environmentalism**			**Social Responsibility Values**			**Civic Efficacy**		
	B	*SE*	*95% CI*	*B*	*SE*	*95% CI*	*B*	*SE*	*95% CI*	*B*	*SE*	*95% CI*	*B*	*SE*	*95% CI*
Covariates															
Gender	-0.02	0.27	-0.55 – 0.51	-0.02	0.09	-0.20 – 0.16	-0.03	0.14	-0.31 – 0.25	0.32	0.12	0.09 – 0.55	0.15	0.10	-0.04 – 0.34
Grade	-0.00	0.15	-0.30 – 0.30	0.02	0.05	-0.08 – 0.12	-0.10	0.08	-0.26 – 0.06	-0.10	0.07	-0.23 – 0.03	0.03	0.05	-0.08 – 0.14
Race: White	-0.16	0.36	-0.86 – 0.55	0.19	0.12	-0.05 – 0.42	0.04	0.19	-0.33 – 0.41	-0.07	0.15	-0.38 – 0.23	0.10	0.13	-0.15 – 0.35
Ethnicity	-0.15	0.43	-0.99 – 0.69	0.17	0.14	-0.11 – 0.45	-0.16	0.22	-0.60 – 0.28	0.09	0.18	-0.27 – 0.45	-0.10	0.15	-0.40 – 0.20
Financial St.	0.21	0.18	-0.15 – 0.57	0.02	0.06	-0.10 – 0.13	-0.03	0.10	-0.21 – 0.16	0.00	0.08	-0.16 – 0.15	-0.03	0.06	-0.16 – 0.10
Parents' Edu.	0.35	0.20	-0.04 – 0.74	0.02	0.07	-0.11 – 0.15	-0.06	0.10	-0.26 – 0.15	**0.17**	**0.08**	**0.01 – 0.34**	0.01	0.07	-0.13 – 0.15
Organized Act.	**0.57**	**0.16**	**0.26 – 0.88**	**0.14**	**0.05**	**0.04 – 0.24**	0.14	0.08	-0.02 – 0.30	**0.14**	**0.07**	**0.01 – 0.28**	**0.30**	**0.06**	**0.19 – 0.41**
Church Att.	**0.37**	**0.11**	**0.16 – 0.58**	0.03	0.04	-0.04 – 0.10	0.06	0.06	-0.05 – 0.17	0.07	0.05	-0.02 – 0.16	**0.08**	**0.04**	**0.00 – 0.15**
Social Connectedness															
Popularity	0.01	0.07	-0.13 – 0.14	0.04	0.02	-0.00 – 0.09	-0.01	0.04	-0.08 – 0.06	-0.00	0.03	-0.06 – 0.06	-0.01	0.02	-0.06 – 0.03
Activity	0.08	0.09	-0.10 – 0.27	0.01	0.03	-0.05 – 0.07	-0.00	0.05	-0.10 – 0.09	0.01	0.04	-0.07 – 0.09	**0.08**	**0.03**	**0.01 – 0.14**
Reciprocity	-0.05	0.13	-0.31 – 0.21	-0.04	0.04	-0.13 – 0.04	0.03	0.07	-0.11 – 0.17	0.03	0.06	-0.09 – 0.14	0.03	0.05	-0.06 – 0.13
Betweenness	0.00	0.00	-0.00 – 0.00	**-0.001**	**0.001**	**-0.001 – -0.001**	0.00	0.00	-0.00 – 0.00	0.00	0.00	-0.00 – 0.00	-0.00	0.00	-0.00 – 0.00
Eigenvector	0.61	2.33	-3.98 – 5.21	**-1.96**	**0.78**	**-3.49 – -0.43**	-0.58	1.22	-2.99 – 1.83	-0.04	1.00	-2.01 – 1.93	-0.31	0.83	-1.95 – 1.32
R^2 / R^2 adjusted	**0.234 / 0.184**			**0.120 / 0.062**			**0.061 / -0.001**			**0.192 / 0.139**			**0.360 / 0.318**		

Notes: Bolded values significant at $p < .05$. Financial St. = Financial Strain (higher values indicate lower strain). Edu = Education. Act. = Activity. Att. = Attendance.

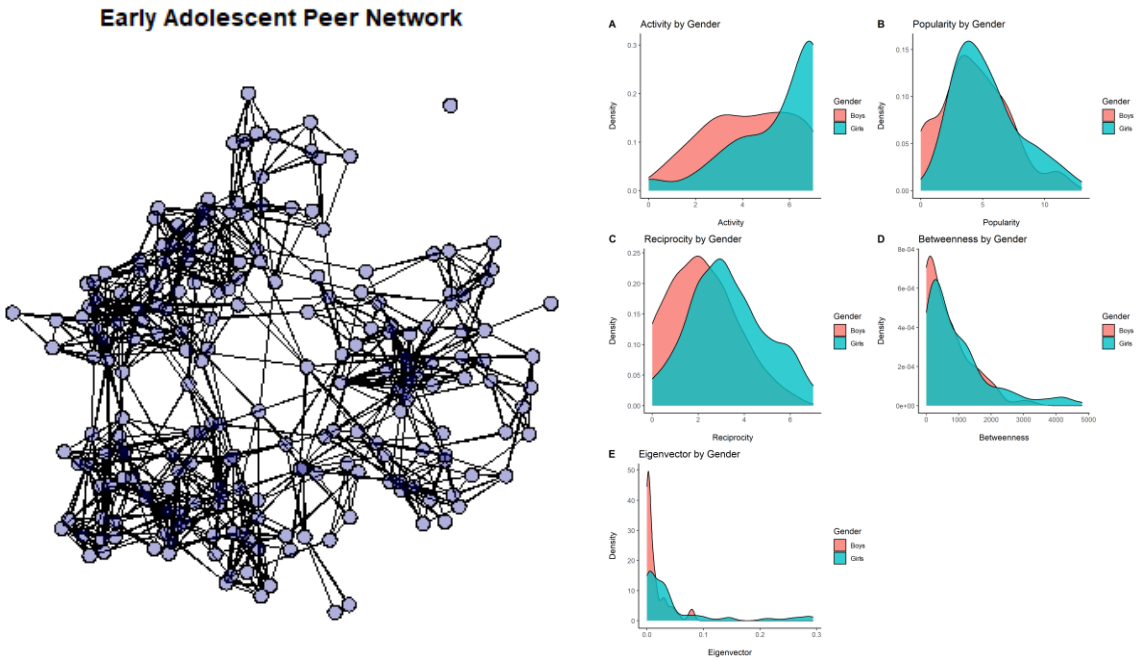

Figure 1. Early adolescent peer newtork (left). Network properties by gender (right). Figure 1a: Activity by gender. Figure 1b: Popularity by gender. Figure 1c: Reciprocity by gender. Figure 1d: Betweenness by gender. Figure 1d: Eigvenvector by gender.

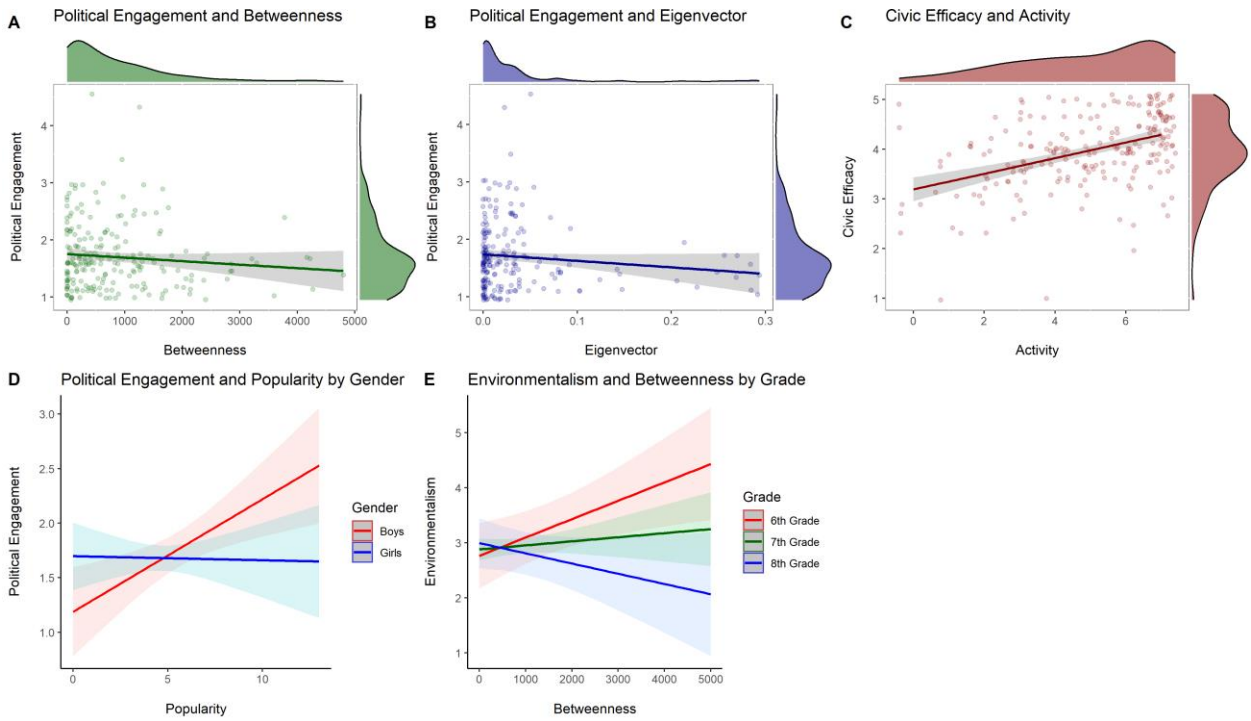

Figure 2. Main effects and moderated effects of associations between civic engagement and social connectedness. Figure 2a: Main effect of political engagement and betweenness. Figure 2b: Main effect of poltiical engagement and eigenvector. Figure 2c: Main effect of civic efficacy and activity. Figure 1d: Moderated effect of political engagement and popularity by gender. Figure 1d: Moderated effect of environemtnalism and betweenness by grade.

Supplemental Material

1. Table 1: Regression Models Testing Moderation by Gender.
2. Table 2: Regression Models Testing Moderation by Grade.

Table 1
Regression Models Testing Moderation by Gender

	Volunteering			**Political Engagement**			**Environmentalism**			**Social Resp. Values**			**Civic Efficacy**		
Predictors	*B*	*SE*	*95%CI*	*B*	*SE*	*95%CI*	*B*	*SE*	*95%CI*	*B*	*SE*	*95%CI*	*B*	*SE*	*95%CI*
(Intercept)	1.13	1.58	-1.97 – 4.24	0.56	0.53	-0.48 – 1.60	2.53	0.84	0.87 – 4.19	3.43	0.68	2.10 – 4.76	2.35	0.56	1.23 – 3.46
Grade	0.02	0.15	-0.29 – 0.32	0.03	0.05	-0.07 – 0.13	-0.11	0.08	-0.27 – 0.05	-0.10	0.07	-0.23 – 0.03	0.03	0.06	-0.08 – 0.14
Race: White	-0.06	0.36	-0.77 – 0.65	0.21	0.12	-0.03 – 0.45	0.03	0.19	-0.35 – 0.41	-0.07	0.16	-0.38 – 0.24	0.07	0.13	-0.19 – 0.33
Ethnicity	-0.15	0.43	-1.00 – 0.69	0.21	0.14	-0.07 – 0.49	-0.18	0.23	-0.63 – 0.27	0.05	0.18	-0.31 – 0.41	-0.11	0.15	-0.42 – 0.19
Fin. Strain	-0.21	0.18	-0.57 – 0.15	-0.02	0.06	-0.14 – 0.10	0.03	0.10	-0.16 – 0.22	0.02	0.08	-0.13 – 0.18	0.04	0.07	-0.09 – 0.17
Parents' Edu	0.31	0.20	-0.08 – 0.70	0.02	0.07	-0.11 – 0.15	-0.05	0.11	-0.26 – 0.16	0.16	0.08	-0.00 – 0.33	-0.01	0.07	-0.15 – 0.13
Organ. Act.	0.56	0.16	0.25 – 0.87	0.14	0.05	0.04 – 0.24	0.14	0.08	-0.02 – 0.31	0.14	0.07	0.01 – 0.28	0.30	0.06	0.19 – 0.41
Church At.	0.39	0.11	0.18 – 0.59	0.02	0.04	-0.05 – 0.09	0.06	0.06	-0.06 – 0.17	0.07	0.05	-0.02 – 0.16	0.08	0.04	0.00 – 0.15
Gender	-0.77	0.75	-2.25 – 0.71	0.03	0.25	-0.46 – 0.53	0.16	0.40	-0.63 – 0.95	-0.16	0.32	-0.79 – 0.48	0.04	0.27	-0.49 – 0.57
Popularity	0.10	0.22	-0.34 – 0.55	0.21	0.08	0.06 – 0.36	-0.08	0.12	-0.32 – 0.15	-0.16	0.10	-0.35 – 0.03	-0.11	0.08	-0.27 – 0.05
Activity	0.35	0.32	-0.27 – 0.97	-0.04	0.11	-0.24 – 0.17	0.09	0.17	-0.25 – 0.42	-0.02	0.14	-0.28 – 0.25	-0.03	0.11	-0.25 – 0.20
Reciprocity	-0.65	0.44	-1.52 – 0.22	-0.25	0.15	-0.54 – 0.04	0.12	0.24	-0.35 – 0.58	-0.03	0.19	-0.40 – 0.35	0.17	0.16	-0.14 – 0.48
Betweenness	-0.00	0.00	-0.00 – 0.00	-0.00	0.00	-0.00 – 0.00	0.00	0.00	-0.00 – 0.00	0.00	0.00	-0.00 – 0.00	0.00	0.00	0.00 – 0.00
Eigenvector	-21.28	21.63	-63.93 – 21.38	-1.38	7.23	-15.63 – 12.87	0.09	11.55	-22.69 – 22.86	6.41	9.27	-11.88 – 24.69	-0.57	7.74	-15.84 – 14.70
Gender * Popularity	-0.04	0.14	-0.31 – 0.23	-0.11	0.05	-0.20 – -0.02	0.05	0.07	-0.10 – 0.19	0.10	0.06	-0.01 – 0.22	0.06	0.05	-0.04 – 0.15
Gender * Activity	-0.13	0.19	-0.50 – 0.25	0.03	0.06	-0.10 – 0.15	-0.06	0.10	-0.26 – 0.14	0.02	0.08	-0.15 – 0.18	0.06	0.07	-0.07 – 0.20
Gender * Reciprocity	0.36	0.27	-0.17 – 0.89	0.13	0.09	-0.04 – 0.31	-0.05	0.14	-0.33 – 0.23	0.03	0.11	-0.20 – 0.26	-0.08	0.10	-0.27 – 0.10
Gender * Betweenness	0.00	0.00	-0.00 – 0.00	-0.00	0.00	-0.00 – 0.00	0.00	0.00	-0.00 – 0.00	-0.00	0.00	-0.00 – 0.00	-0.00	0.00	-0.00 – -0.00
Gender * Eigenvector	10.67	11.00	-11.03 – 32.36	-0.26	3.67	-7.51 – 6.98	-0.28	5.87	-11.87 – 11.30	-3.55	4.71	-12.85 – 5.74	0.10	3.94	-7.66 – 7.87
R^2 / R^2 adjusted	0.264 / 0.196			0.150 / 0.071			0.067 / -0.020			0.225 / 0.153			0.377 / 0.319		

Table 2
Regression Models Testing Moderation by Grade

	Volunteering			**Political Engagement**			**Environmentalism**			**Social Resp. Values**			**Civic Efficacy**		
Predictors	*B*	*SE*	*95%CI*	*B*	*SE*	*95%CI*	*B*	*SE*	*95%CI*	*B*	*SE*	*95%CI*	*B*	*SE*	*95%CI*
(Intercept)	2.08	1.44	-0.76 – 4.92	1.07	0.49	0.11 – 2.03	3.43	0.75	1.94 – 4.92	2.56	0.62	1.33 – 3.79	2.45	0.51	1.43 – 3.46
Gender	-0.01	0.27	-0.55 – 0.53	-0.02	0.09	-0.20 – 0.16	-0.02	0.14	-0.30 – 0.26	0.31	0.12	0.08 – 0.55	0.12	0.10	-0.08 – 0.31
Race: White	-0.12	0.36	-0.83 – 0.58	0.19	0.12	-0.05 – 0.43	0.02	0.19	-0.35 – 0.39	-0.06	0.15	-0.37 – 0.24	0.10	0.13	-0.15 – 0.35
Ethnicity	-0.07	0.43	-0.91 – 0.78	0.18	0.14	-0.11 – 0.46	-0.15	0.22	-0.59 – 0.29	0.08	0.19	-0.29 – 0.45	-0.09	0.15	-0.39 – 0.21
Fin. Strain	-0.25	0.18	-0.61 – 0.11	-0.02	0.06	-0.14 – 0.10	0.00	0.10	-0.19 – 0.19	0.02	0.08	-0.14 – 0.18	0.03	0.07	-0.10 – 0.16
Parents' Edu	0.34	0.20	-0.05 – 0.73	0.02	0.07	-0.11 – 0.15	-0.08	0.10	-0.28 – 0.13	0.18	0.09	0.02 – 0.35	-0.01	0.07	-0.15 – 0.13
Organ. Act.	0.56	0.16	0.24 – 0.88	0.13	0.05	0.02 – 0.24	0.11	0.08	-0.06 – 0.27	0.15	0.07	0.02 – 0.29	0.28	0.06	0.16 – 0.39
Church Att.	0.34	0.11	0.12 – 0.55	0.02	0.04	-0.05 – 0.10	0.08	0.06	-0.03 – 0.19	0.06	0.05	-0.04 – 0.15	0.08	0.04	0.01 – 0.16
Grade	-0.76	0.45	-1.65 – 0.13	-0.14	0.15	-0.44 – 0.16	-0.35	0.24	-0.82 – 0.12	-0.06	0.20	-0.45 – 0.32	-0.07	0.16	-0.39 – 0.24
Popularity	-0.28	0.21	-0.69 – 0.14	-0.03	0.07	-0.17 – 0.11	-0.02	0.11	-0.24 – 0.19	-0.08	0.09	-0.26 – 0.10	-0.12	0.07	-0.27 – 0.03
Activity	-0.04	0.25	-0.53 – 0.45	-0.03	0.08	-0.19 – 0.13	-0.22	0.13	-0.47 – 0.04	0.07	0.11	-0.14 – 0.28	0.05	0.09	-0.13 – 0.22
Reciprocity	0.19	0.37	-0.54 – 0.91	0.03	0.12	-0.22 – 0.27	0.09	0.19	-0.30 – 0.47	0.12	0.16	-0.19 – 0.44	0.22	0.13	-0.04 – 0.48
Betweenness	-0.00	0.00	-0.00 – 0.00	-0.00	0.00	-0.00 – 0.00	0.00	0.00	0.00 – 0.00	-0.00	0.00	-0.00 – 0.00	0.00	0.00	-0.00 – 0.00
Eigenvector	-3.78	32.93	-68.73 – 61.16	-0.07	11.13	-22.03 – 21.88	0.25	17.25	-33.78 – 34.28	7.17	14.28	-20.99 – 35.33	-17.04	11.77	-40.25 – 6.17
Grade * Popularity	0.12	0.09	-0.05 – 0.30	0.03	0.03	-0.02 – 0.09	0.01	0.05	-0.08 – 0.10	0.04	0.04	-0.04 – 0.11	0.04	0.03	-0.02 – 0.11
Grade * Activity	0.06	0.11	-0.17 – 0.28	0.02	0.04	-0.05 – 0.10	0.10	0.06	-0.01 – 0.22	-0.03	0.05	-0.12 – 0.07	0.01	0.04	-0.07 – 0.09
Grade * Reciprocity	-0.12	0.16	-0.44 – 0.21	-0.03	0.06	-0.14 – 0.08	-0.02	0.09	-0.19 – 0.15	-0.05	0.07	-0.19 – 0.09	-0.08	0.06	-0.20 – 0.03
Grade * Betweenness	0.00	0.00	-0.00 – 0.00	-0.00	0.00	-0.00 – 0.00	-0.00	0.00	-0.00 – -0.00	0.00	0.00	-0.00 – 0.00	-0.00	0.00	-0.00 – 0.00
Grade * Eigenvector	2.63	16.74	-30.39 – 35.66	-0.89	5.66	-12.05 – 10.27	-0.40	8.77	-17.70 – 16.90	-3.65	7.26	-17.97 – 10.67	8.63	5.98	-3.18 – 20.43
R^2 / R^2 adjusted	0.262 / 0.194			0.128 / 0.047			0.099 / 0.016			0.205 / 0.131			0.378 / 0.320		