

CULTURAL CORRELATES OF EGO-NETWORK CLOSURE

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ABSTRACT: *In this paper, the author extends and further develops research and theory on the relationship between cultural taste and social networks by examining the effects of strength of preference in different cultural domains on the relative closure of personal networks. The results show that as the number of strong preferences held by an individual increases, so do the chances that any two of his or her personal discussion network are connected to one another. In contrast, holding a larger number of weaker preferences results in personal discussion networks characterized by the presence of "structural holes." The author closes by pointing to the theoretical implications of these results.*

Keywords: culture, networks, taste, preferences

The proposition that specifiable benefits are associated with the relative degree to which individuals are embedded in either closed-in or loosely bounded social networks forms the core of social capital theory (Burt 1992; 2005; Lin 1999). Nevertheless, in spite of the importance of specific patterns of connectivity for various outcomes associated with an individual's life chances, most social capital research remains focused on establishing the association between the structural configuration of network ties and specific outcomes, but has failed to theorize the *origins* of these patterns of local structure. Lizardo (2006) has recently argued that the origins of the patterns of connectivity of interest to social capital researchers lie in informal sociability as mediated by cultural taste and other forms of cultural knowledge (Carley 1991; DiMaggio 1987; Erickson 1996). The basic argument is that more sociodemographically restricted forms of taste—such as a preference for more difficult or esoteric cultural works—are more useful for the formation of stronger, closed-in networks, while a preference for forms of taste that are weakly correlated with social position—so-called “popular culture”—is more likely to be associated with weaker, loosely knit personal networks. The evidence appears to support this assertion: persons who display a taste for popular culture report on

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average a larger number of contacts who are not classified as “close friends,” while persons who gravitate towards more exclusive forms of “highbrow” culture report on average a larger number of contacts who are thought of as “close friends,” even after adjusting for other sociodemographic correlates of personal network structure, such as age, education, and socioeconomic status (Lizardo 2006).

While suggestive, the evidence presented by Lizardo (2006)—taken from the 2002 General Social Survey (GSS)—for the operation of a culture-conversion process suffers from several limitations. Two of them are of most relevance for present purposes: First, there was no direct measure of network closure or constraint. Instead, he relied on a binary classification of the *number* of reported contacts into strong ties and weak ties (e.g., ego-network “degree”). The culture-conversion argument, however, points to a more specific association between different forms of cultural taste and the *relative closure* (Burt 2005) of social networks, for which tie strength is an acceptable but far from perfect proxy (Burt 1992). In this respect, the proposition that different forms of taste are associated with different forms of *local network structure* (e.g., clustered versus not clustered) was never directly tested.

Second, Lizardo (2006) used the “brow” status of the cultural items included in the culture module of the 2002 GSS as a proxy for a more specific quality of cultural tastes: whether they are broadly shared or are “niche” tastes. This was itself thought to be correlated to the extent to which persons have a *casual* (“shallow”) acquaintance with the cultural form in question or whether they have a *deeper*, more extensive familiarity with those forms. The assumption is that popular culture is the type of culture with which most persons are able to display at least passing familiarity, while high-status culture is the type of culture that demands less superficial forms of engagement. However, the original empirical application involved collapsing these three dimensions of cultural taste—exogenous “status,” niche-width, and the likelihood of inducing superficial versus more “committed” forms of engagement—for measurement purposes.

This is undesirable, since it is obvious that these three characteristics of cultural goods are analytically and empirically distinct: popular forms (which by definition have large niche-width) can be engaged in either a superficial or a committed manner by a given consumer (Frith 1998), and the same goes for high-status culture (Ostrower 1998). What appears to be crucial at the interactional level is neither the status value nor the niche-width of the cultural form in question but the extent to which persons can be considered to possess either “shallow” or “deep” knowledge of those forms.

In this article, I extend research on the cultural correlates of personal-network structure by directly examining the impact of different forms of taste on the relative closure of personal networks (Burt 1992; 2005). This article improves on previous research on the topic because I use direct measures of the number of *structural holes* in the personal discussion network. This allows me to directly subject the contention that individuals who combine different forms of taste are more likely to be connected to alters who are themselves not connected to one another. The second way in which this article improves on previous research is by removing the conflation between the brow status and niche-width of cultural forms and their association with local structural properties. To do this, I rely on Mark’s (1998) distinction between “strong” and “weak” preferences and reformulate Lizardo’s culture conversion model as follows:

Hypothesis 1: Individuals who display a wider range of weak cultural preferences are less likely to be connected to contacts who are themselves connected to one another.

Hypothesis 2: Individuals who display a wider range of strong cultural preferences are more likely to be connected to contacts who are themselves connected to one another.

The first hypothesis partially reformulates the culture conversion model to predict that it is not necessarily “popular” culture that results in the formation of social networks that span across different segments of the social structure, but the possession of “passing knowledge” (in the form of weak preferences) (Peterson 1992) of a *wide array* of cultural forms. Here, persons who do not specialize but who instead display moderate levels of engagement with a more varied palette of cultural pursuits are more likely to serve as bridges between disconnected others. The second hypothesis reformulates the original culture conversion thesis by suggesting that the extent to which a person invests time and energy on a given cultural pursuit is a better proxy of his or her ability to display “deep” rather than shallow familiarity with those cultural forms. This type of “asset-specific” cultural knowledge then (following the original culture-conversion argument) is more useful for the formation of strong ties and should be correlated with the observed levels of clustering of the personal network.¹ Thus, my primary contribution here is to use the strength of a person’s commitment to a given cultural pursuit as an indicator of the extent to which that person “specializes” in a given set of cultural tastes. In contrast to Mark (1998), who used “subjective” measures of preference strength (e.g., reported strength of likes and dislikes), I use a *behavioral* measure of cultural commitment.

Data and Variables

I provide evidence in favor of the two hypotheses stated above using data from the 2004 GSS. The 2004 GSS is appropriate for my purposes because it contains direct measures of the structure of the personal discussion network—using the “Important Matters” name generator (Burt 1984; Marsden 1987; McPherson, Smith-Lovin, and Brashears 2006). This allows me to construct a direct measure of the extent to which an individual’s contacts tend to be connected with one another (indicating high levels of closure) versus the extent to which they are relative strangers (indicating the presence of a “structural hole”).

Personal Network Clustering Measures

I measure the number of structural holes in the respondent’s ego network using a series of items from the 2004 “Social Network” module (McPherson et al. 2006). Respondents who reported having a personal discussion network with at least two members ($N = 789$) were also asked to report about their perception of the relationship between each pair of alters named.² Respondents were asked to say whether the relationship between these persons was best characterized as (1) “especially close,” (2) just “knew one another,” or (3) “total strangers.”

To produce a measure of the number of structural holes that the respondent bridges, I count the number of dyads in the personal network that are characterized as "Total Strangers."³ The variable ranges from 0 to 10, with an average of 6.44 and a standard deviation of 2.98.

Cultural Taste Measures

While the 2004 GSS did not contain a "Culture" module, the "Information Society" (e.g., Internet use) module includes items that allow us to get at a person's cultural repertoire. I rely on a series of items that queried the respondents about their frequency of (during the last 30 days) visiting 21 types of websites.

As indicators of involvement in different cultural pursuits, I select those items that asked about website use associated with leisure, lifestyle, and arts activities. There are a total of nine such indicators available: (1) visiting a sports website, (2) visiting a music website, (3) visiting an art museum or gallery website, (4) visiting a movie website, (5) visiting a health website, (6) visiting a game website, (7) visiting a humor website, (8) visiting a science website, and (9) visiting a hobby website.⁴

For each type of website, respondents were asked to indicate whether they had (1) never used it, (2) used it 1–2 times, (3) used it 3–5 times, or (4) used it more than 5 times. I use the frequency with which a respondent reports visiting a particular type of website as a behavioral measure of the *strength* of that cultural preference. For each type of website I record the respondent's visiting frequency in the last month: if the respondent visited that website more than three times, I count that respondent as having a *strong preference*; if he or she visited one to two times, I count that respondent as having a (relatively) *weak preference*. I then use these binary indicators to generate my two main predictor variables, one equals the *total number of strong preferences* ($\mu = 1.76$; $\sigma = 1.94$) and the other is the *total number of weak preferences* ($\mu = 1.87$; $\sigma = 1.62$).

There are, of course, some important limitations measuring preference strength using indicators of website usage. It is possible, of course, that a person can have a strong preference within any of the cultural domains noted above, but simply not express that preference through Internet use; in other words, it is a fair question to ask whether cultural taste predictors constructed using online behavioral measures have any *criterion validity* as measures of cultural preference in the relevant domain. In the Appendix, I report results that suggest that the measures of cultural taste based on frequency of website visits are indeed valid measures of taste for three of the cultural domains in question.

It is also possible that what I am counting as "strong preferences" reflect not necessarily attraction for the cultural domain in question, but simply the fact that a person is a heavy Internet user (the same goes for the weak preference measure). This means that frequency of Internet use may act as a confounder in this context. To remove the confounding influence produced by the fact that some members of the population are heavy Internet users while others are not, I adjust for the (logged) number of hours that the person reports spending online in the models presented below.⁵ I also restrict my analysis to persons who spend at least 1 hour per week online and persons who display at least one of the nine cultural preferences listed above, whether strong or weak ($N = 327$).

Analytic Strategy

Because the main dependent variable—the number of non-connected dyads (“structural holes”) in the personal discussion network—is a non-negative count, I use a Poisson regression model with the cultural taste indicators as the main predictors. In addition, due to the fact that persons who report having larger personal discussion networks are more likely to have a larger number of structural holes solely by chance, the Poisson model includes the number of *possible* dyads (given the reported size of the personal discussion network) as an “exposure” covariate.⁶ This means that we are predicting the normalized *rate* (observed number of events over maximum possible number of events) at which I find a structural hole given network size. This is essentially the inverse of the so-called clustering coefficient (Burt 1992; Watts and Strogatz 1998).

In the model we are interested in disentangling the relative effects of the *intensity* with which the respondent engages in a given cultural pursuit from those related to whether the respondent displays a “passing” preference for that pursuit. To do this, I specify a model that includes the total number of weak preferences and the total number of strong preferences as predictors:

$$\log(E[Y_k]) = \ln(\text{exposure}) + \alpha + \beta_1(\text{Wk.Pref.}) + \beta_2(\text{Str.Pref.}), \quad (1)$$

where Y_k is the number of unconnected dyads in the respondent’s ego network and with the expectation (see Hypotheses 1 and 2 above) that $\beta_1 > 0$ and $\beta_2 < 0$.

RESULTS

The results of the analysis are shown in Table 1. In the table I present the coefficient estimates from the Poisson regression analysis, and to the right of the estimate, I present the t statistic (the ratio of the coefficient to its standard error) in parentheses. Generally the coefficient estimates agree with the expectations. Model 1 shows that in accordance with Hypothesis 1, persons who display a larger number of weak cultural preferences are more likely to be tied to contacts who are themselves not acquainted with one another ($t = 7.85$). Model 2 shows that, consistent with Hypothesis 2, persons who display a large number of strong cultural preferences are, on the other hand, more likely to be embedded in ego networks with a high degree of closure ($t = -6.94$).⁷ Model 3 shows that these effects are largely independent from another, as both retain their statistical significance in a model that adjusts for both influences. In all, we can conclude that our reformulation of the culture-conversion model (Hypotheses 1 and 2) receives fairly strong support in these data.

DISCUSSION AND CONCLUDING REMARKS

Contributions

This article contributes to the extension and development of research and theory on the cultural correlates of network structure (DiMaggio 1987; Erickson 1996;

TABLE 1
 Poisson Regression Coefficients of the Effect of Number of Strong and Weak Preferences on
 the Proportion of Dyads in the Personal Networks Who Do Not Know One Another,
 2004 General Social Survey

	<i>Model 1</i>		<i>Model 2</i>		<i>Model 3</i>	
Online hours (logged)	-0.140*	(-4.77)	-0.069*	(-2.32)	-0.091*	(-3.00)
Number of weak preferences	0.113*	(7.85)			0.095*	(6.40)
Number of strong preferences			-0.080*	(-6.94)	-0.065*	(-5.49)
Constant	0.389*	(6.23)	0.665*	(11.91)	0.480*	(7.48)
Model χ^2		78.69*		70.12*		110.05*
N		327		327		327

* $p < .05$.

Lizardo 2006), by examining the association between different modes of cultural engagement (deep versus shallow) on ego-network clustering. The results of the preceding analysis show that, indeed, persons who display strong preferences tend to be more likely to also inhabit more clustered networks, while persons who display weak preferences are more likely to serve as brokers between disconnected others (Burt 1992). This suggests that the connection between culture and structure appears to display a *depth/closure congruence* such that strong commitments to specific cultural pursuits have an elective affinity with more clustered social worlds, while more superficial cultural commitments are correlated with less constraining local structural configurations (Lizardo 2006). Note that this connection is not logical or fore-ordained.

Instead the culture conversion argument proposes that it emerges from functional constraints in the ways in which culture can be used to maintain social relationships. When the goal is the maintenance of "arms-length" ties, then relatively superficial cultural contents will do; when the goal is to sustain more intimate types of network relations, more specialized forms of cultural knowledge are required. This furthers our understanding of the cultural correlates of the origins of individual differences in local network configurations, which is a key issue in social capital theory.

The research reported here goes beyond previous efforts, which had only looked at the main effect of different forms of taste, classified by "exogenous" criteria of status, on the likelihood of forming weak versus strong ties. Here I disambiguate the theoretical formulation of the "culture conversion model" proposed by Lizardo (2006) by focusing on the type of "commitment" (deep versus shallow) evinced by the consumers of that culture directly. To do this, I used Mark's (1998) conceptual distinction between strong and weak preferences to suggest that within any given cultural domain (music, movies, etc.) persons with strong preferences will be more likely to have accumulated "deep" rather than shallow knowledge of that domain, which is more useful for the formation of strong, densely knit networks. Persons who devote less time and energy to the same cultural pursuits, on the other hand, are more likely to display the type of casual acquaintance with certain forms of

culture that lead to the formation of loosely knit networks of weak ties (DiMaggio 1987; Lizardo 2006). These findings further our understanding of the linkage between culture consumption, social network, and stratification outcomes, and provide an important substantive reformulation of the culture-conversion thesis.

APPENDIX

It is possible to use data from the immediately previous wave of the GSS (2002) to provide a partial answer to concerns regarding the possible lack of criterion validity of measures of cultural taste taken from frequency of website use. The 2002 GSS is appropriate for this task because it included both items related to manifest cultural preferences (in the form of a series of questions that were part of an "Arts Participation Module") as well as the same Internet use items that I use in this study. Respondents were asked whether they attended a "live performance of popular music," whether they "visited an art museum or a gallery," and whether they went to "see a movie in the theater" in the past year.

We can then ask whether frequency of website use within a given cultural domain helps us predict actual engagement in that domain. To that end, I specify a regression model in which I predict the log-odds of *having attended a popular music concert* in the past year using the two binary indicators of the *frequency of music website use*, a model in which I predict the log-odds of *having attended a gallery or museum* in the past year using the two binary indicators *frequency of art museum or gallery website use*, and finally, a model in which I predict the log-odds of having gone to a movie theater in the past year using the frequency indicators for having visited a movie website. Formally,

$$\log\left(\frac{p}{1-p}\right) = \alpha + \beta_1(\text{str.Pref.}) + \beta_2(\text{Wk.Pref.}) + \sum_{k=3}^K \beta_k X_k + \varepsilon, \quad (2)$$

where p is the probability of having engaged in the activity in question in the past year. If our measures are indeed valid predictors of cultural taste, we should find that: (1) $\beta_1 > 0$, (2) $\beta_2 > 0$, and (3) $\beta_1 > \beta_2$.

Table 2 shows three logit regression models predicting these three binary outcomes, respectively, using two dummy variables corresponding to our Internet-based measures of cultural preference strength for each domain. In each model, I adjust for respondent's age, education, gender, and total number of hours spent online. The results of this validity check show that indeed respondents who use the Internet more heavily to access music, arts, and movies have a higher probability of actually engaging in these activities than respondents who use the Internet more sporadically, in comparison to the reference group of respondents who do not use the Internet to access culture. The results also show that measuring preference strength using differences in frequency of website use is valid. This is shown by the fact that the coefficient estimates corresponding to strong cultural preferences are larger in all three cases than the coefficient estimates corresponding to weak cultural preferences. For all three equations, a likelihood ratio test comparing a model in which the two coefficients are constrained to be the same

TABLE 2
 Logit Regression Coefficients of the Effect of Having Strong and Weak Preferences
 (Measured Using Website Use Indicators) on the Log-Odds of Actually Engaging in the
 Corresponding Activity, 2002 General Social Survey

	<i>Model 1^a</i>	<i>Model 2^a</i>	<i>Model 3^a</i>
	<i>Popular Music</i>	<i>Museums/ Galleries</i>	<i>Movie Theaters</i>
Strong preference	2.340* (2.32)	4.591* (2.70)	2.544* (2.00)
Weak preference	1.047* (2.24)	2.592* (3.77)	1.023+ (1.66)
Model χ^2	40.14*	224.83*	29.10*
LR χ^2 test (strong = weak)	4.85	5.68	2.92
<i>p</i> value	0.03	0.02	0.09
<i>N</i>	312 ^b	984 ^c	312 ^b

a. Models adjust for age, age-squared, education, gender, and number of hours spent online.

b. Outcome item available for only half the sample.

c. Outcome item available for the full sample.

+*p* < .10. **p* < .05.

rejects the constrained model in favor of the unconstrained model ($p < 0.05$ with a one-tailed test).

We can thus conclude that at least when it comes to music, the arts, and movies, preference strength measured using frequency of website use appears to correlate in the expected direction with the odds of actually engaging in the corresponding culture consumption activities, making them (behaviorally) valid measures.

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NOTES

1. This follows directly from the proposition that niche culture leads to strong ties, since two persons connected to a third party via a strong tie are disproportionately more likely than expected by chance to also be connected to one another (Granovetter 1973).
2. This information was collected for up to five alters, giving a maximum possible number of connected dyads of $\frac{5(5-1)}{2} = 10$.
3. Using a weaker definition of structural hole, in which alters are counted as being tied to one another only if the respondent reports that they are especially close, does not change the substantive interpretation of the findings.
4. Because only a subset of respondents answered questions in both the Information Society and the Social Network modules, we are left with a total sample size of 406.
5. Excluding this variable leads to substantively equivalent results.
6. The exposure variable is logged and included in the model with a coefficient constrained to 1.

7. Note that as indicated by the negative coefficient estimate in Models 1–3, heavy Internet users are more likely to have friends who are also acquainted with one another. Although, as shown in Models 2 and 3, part of this effect is due to the fact that heavy Internet users also tend to have strong cultural preferences ($r = 0.27$).

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