

Beyond Salience Transmission: Linking Agenda Networks Between Media and Voters

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Abstract

This study investigated the network agenda setting (NAS) model with data gathered from Taiwan's 2012 presidential election. Networks of important objects and candidate attributes in the news were compared with the counterparts generated from public opinion. The overall correlation between the media and public network agendas was positive and significant, thus supporting the NAS model in a non-Western context. In addition, this study found that the NAS model offered more predictive power at the attribute than the object level. The effects of selective exposure in a partisan media system were also incorporated into the investigation. Results showed that partisan selective exposure did not lead to consistent findings about the accentuated association between like-minded media consumption and candidate evaluation.

Keywords

network analysis, network agenda setting, selective exposure, partisan media, Taiwan, election, QAP

The impact of news media during elections has attracted the attention of communication researchers for decades. One of the key theories used in accounting for the media influence is agenda setting, which asserts the transfer of salient cues from the media to the general public (McCombs & Shaw, 1972). The mediated transmission of important issues (first-level agenda setting) and attributes of political candidates (second-level agenda setting) has been well documented in the political communication literature (e.g., McCombs, Lopez-Escobar, & Llamas, 2000). The media essentially influence voters not

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only with the public issues to consider but also with the criteria to evaluate candidates. Both levels of influence are equally critical to the formation and shift of public opinion and of electoral decisions. In addition, scholars found that media's impact can be moderated by factors such as the "need for orientation" (McCombs & Weaver, 1973), and that the salience of issues or attributes can also be transferred from the public to the media in interactive media environments (Meraz, 2011).

Although most of the agenda-setting studies have focused on the transfer of salience of *individual* topics or attributes, the emerging network agenda setting (NAS) model investigates the *association* and *relationship* among different agenda items and measures how the overall object or attribute structure presented in the news influences the public's cognitive picture (Guo, 2013). Specifically, the model asserts that the ways in which the news media associate different agendas will affect how the public associates these agendas as well. This new concentration on agenda networks is grounded in the associative network model of memory (e.g., Anderson, 1983), which maintains that humans' mental representation resembles a network-like structure. Noting the model's theoretical and methodological difference from previous studies, McCombs (2014) termed it the third level of agenda setting.

The new development of agenda-setting theory has received empirical support in recent studies (e.g., Vargo, Guo, McCombs, & Shaw, 2014; Vu, Guo, & McCombs, 2014). However, the majority of the existing NAS studies have been conducted within the United States. The present study aims at examining the NAS model in a non-Western democracy—Taiwan—because of its great comparability to the United States.

Taiwan enjoys a free media environment, unfettered opinion culture, and vibrant democratic participation. Like the red/blue division of the United States, the island's political landscape also is distinguished by the blue and green camps, which, in addition to their noticeable right/left leanings, pivot differently toward China (Fell, 2012). The pan-blue camp, particularly the Kuomintang (KMT or Chinese Nationalist Party), despite its past struggle with the Chinese Communist Party before moving to Taiwan in 1949, recently has catered to China's demands in exchange for a friendly relationship across the Taiwan strait. The pan-green camp, led by the Democratic Progressive Party (DPP), has generated significant political impact on Taiwan since the martial law was lifted in 1987. DPP intends to keep Taiwan independent and free of China's interference on Taiwan. The two major political parties have dominated the Legislature Yuan (equivalent of U.S. Congress) for roughly two decades. Also similar to the United States, Taiwan's presidential election is held every 4 years; however, Taiwan's presidential election is decided through census rather than an electoral college. In its 2012 presidential election, political campaigns ran for an entire year prior to the Election Day, January 14, 2012. In the end, the KMT, incumbent candidate, Mr. Ma Ying-Jeou, defeated DPP's Ms. Tsai Ing-Wen by a margin of 6% of the 13.4 million total votes (Loa & Wang, 2012).

The non-Western election backdrop against which the study was conducted is instrumental and meaningful because cross-national verification is imperative for new theory building—in this case, NAS. Furthermore, original, well-planned content analysis and polling data collected during the Taiwanese election period allow us

to examine the NAS model in a more comprehensive fashion. Secondary data most certainly would not have included multiple levels of agenda measurement in their design, which are essential for the present study to be implemented.

Literature Review

The NAS Model

Traditional agenda-setting research focuses on the transfer of salience of *individual* objects or attributes that describe a given object, the NAS model turns the attention to the *interrelationships* between different elements constructed in the media and those in the public's minds (Guo, 2013). The NAS model shows that the way news media *link* different messages can lead the public to perceive these messages in a similar fashion; in other words, news provides underlying connections and makes them salient to the audience. For example, if the media consistently associate unemployment with trade deficit, the audience may also consider the two issues to be highly related even though such a connection is not necessarily logical or factual. The connection may be embodied by concurrent mentions and inclusion of two objects, two attributes, or different types of agenda elements in the news. The focus of investigation can range from pairs of elements to multiplex relationships that involve a number of nodes in the network (Carroll, 2015).

To date, many studies have provided empirical support for the NAS model by examining networks of objects as well as those consisting of attributes describing a given object. Guo and McCombs (2011), for example, tested the model in two Texas gubernatorial elections (2002 and 2010) by analyzing how the news associated different personal qualifications and characteristics (e.g., leadership, experience, communication skills) of the candidates and then comparing the news coverage with the public's perception of the candidates. Both studies found a significant degree of correspondence between the media's and the public's attribute networks. Vu et al. (2014) expanded the model's scope by testing 5 years of aggregate data from national news media and public polls, confirming news media's transferal of salient object networks to the public's minds. Vargo et al. (2014) also applied the NAS model to the Twittersphere during the 2012 presidential election and discovered that the ways different issues were bundled together in the news media affected the conversation about the election on Twitter. Other studies (e.g., Kioussis et al., 2015) have extended the NAS model to the evaluation of public relations effects.

Although the NAS model has received considerable empirical support, it merits further analysis in at least three respects. First, the majority of studies on the NAS model so far were conducted in the United States, with only a few exceptions (e.g., Cheng, 2016; Cheng & Chan, 2015). Our study seeks to verify the NAS model in a non-Western political communication context to further enhance the model's validity and universality (Pepitone & Triandis, 1987). Second, most NAS research analyzed either object- or attribute-based networks. Some network agenda-building studies examined both kinds of network, but they have generated inconsistent findings.

Kiousis et al. (2015), for example, found that the strongest linkage between information subsidies and media coverage exists for stakeholder network associations (i.e., object-based networks). However, set under a different context, Kiousis and his colleagues' (2016) study found that information subsidies were more powerful in shaping news media's attribute networks than object networks. Given the contradictory results and the lack of comparison of different networks in a single agenda-setting inquiry, this study examines both object- and attribute-based networks from the media and the public. To test the NAS effects in terms of object-based networks, this study operationalizes objects as public issues covered in the media or considered by voters.

Hypothesis 1 (H1): The media's issue network is positively correlated with the public's issue network.

With respect to attribute-based networks, we examine both *substantive* and *affective* attributes of candidates—the former category includes qualifications and characteristics of the two Taiwanese presidential candidates, Ma and Tsai, whereas the latter refers to positive or negative coverage of their personality traits. For the purpose of this article, the term *personality* network refers to how the media and the public associate different personality traits in describing the two candidates, and the term *affect* network refers to how positive and negative personality traits are linked to one another for either candidate. Accordingly, two sets of hypotheses were formed:

Hypothesis 2 (H2): The media's *personality* networks about (a) Ma and (b) Tsai are positively correlated with the public's perceived *personality* networks about Ma and Tsai, respectively.

Hypothesis 3 (H3): The media's *affect* networks about (a) Ma and (b) Tsai are positively correlated with the public's perceived *affect* networks about Ma and Tsai, respectively.

In addition to agenda-setting theory, Taiwan's polarized political landscape and highly diversified media environment prompt us to consider the potential interference of selective exposure with the new NAS model. What follows is our elaboration of the selective exposure concept and its relationship with the agenda-setting phenomenon.

Selective Exposure and Agenda Setting

The traditional context under which agenda-setting studies were conducted often assumes that audiences can and will access all media outlets in the political system. This assumption has been severely challenged thanks to the overwhelming number of available media, highly niched perspectives, and greatly personalized media consumption (Prior, 2007). In such an environment, audiences may actively choose whichever channel and content that align with their tastes and political perspectives and disregard other incongruent messages altogether (Arceneaux & Johnson, 2013). Given the changes, it is crucial that researchers incorporate the possibility of highly selective

content consumption when examining agenda-setting effects. Therefore, we sought to include relevant concepts such as partisan media and selective exposure into our present study.

Partisan media have gained popularity in the Western media system ([Iyengar & Hahn, 2009](#)) and their leaning in the political spectrum can be easily detected. For example, U.S. broadcasters are highly partisan; likewise, United Kingdom and French newspapers are overtly indicative of their distinct political ideologies. Taiwan provides another severe case of partisan press. It is clear in Taiwan to which political camp a given medium belongs, whether from newspapers, broadcasters, or online sources, all political content is apparently slanted and follows the color of their camp. Also, there appears to be an entrenched division of news reporting perspectives and media consumption habits in Taiwan ([Rampal, 2011](#)). Taiwanese audiences often opt for the media in line with their own political orientations, and their media choices rarely shift ([Chen & Lo, 2010](#)).

The free, competitive media market and unbridled opinion-expression climate provide a natural pathway for a partisan media system in Taiwan. As scholars (e.g., [Prior, 2007](#)) argued, as media channels increase, people have the tendency to select the media that offer perspectives similar to their own ([Festinger, 1957](#); [Stroud, 2008](#)) and subsequently become more politically polarized ([Stroud, 2010](#)). In Taiwan, audiences enjoy a wide selection of media outlets and can choose either pro-blue or pro-green media to feel more politically consonant. The current trend of Taiwanese partisan media, therefore, must be understood with the concept of selective exposure.

Selective exposure is the bedrock concept of limited media effect documented in [Lazarsfeld, Berelson, and Gaudet's \(1944\)](#) landmark study. They found that respondents were predominantly exposed to messages that support their own interests and political predispositions. In the following decades, empirical studies found that media bias and users' attitudinal preference tend to match, which creates a more pleasant media consumption experience. According to cognitive dissonance theory ([Festinger, 1957](#)), people tend to enjoy exposing themselves to congruent messages to support their existing beliefs and also avoid conflicting messages and incompatible sentiments. Therefore, partisan viewers are more likely to expose themselves to the media that correspond with their perspectives. However, many underlying and spurious factors can enable selective exposure ([Sears & Freedman, 1967](#)). Recent studies (e.g., [Knobloch-Westerwick, 2012](#); [Knobloch-Westerwick & Meng, 2009](#)) used experimental methods to manipulate situational and message characteristics and thus observed media users' choices directly, addressing many of the issues raised by [Sears and Freedman \(1967\)](#). With the additional evidence, selective exposure is solidly confirmed in the partisan media environment.

In Taiwan, the enduring political stagnation between the blue and green camps and the politically aligned media provides a naturally occurring partisan context. This allows us to investigate the dimension of selective exposure that focuses on audiences' chosen media channels instead of their exposure to certain campaign message ([Iyengar, Hahn, Krosnick, & Walker, 2008](#)), and has made our empirical investigation more feasible. Additionally, Taiwan's laissez-faire media policy, the highly competitive and

vibrant news environment, and abundant choices of traditional and online media outlets offer an optimal environment to examine selective exposure's influence on agenda-setting effect, particularly the NAS model.

Based on the concept of selective exposure, we would expect to see that pro-blue media and blue-camp supporters would show a higher correspondence of their extracted networks of important issues. The same pattern would be anticipated for the pro-green media and pro-green voters.

Hypothesis 4 (H4): The issue network of pro-blue media is associated more than the network of pro-green media with the counterpart of pro-blue voters.

Hypothesis 5 (H5): The issue network of pro-green media is associated more than the issue network of pro-blue media with the counterpart of pro-green voters.

We also incorporate selective exposure into testing the hypotheses derived from NAS model regarding each candidate's *personality* and *affect* networks.

Hypothesis 6 (H6): Pro-blue media's *personality* networks about (a) Ma and (b) Tsai are associated more than those of pro-green media with pro-blue voters.

Hypothesis 7 (H7): Pro-green media's *personality* networks about (a) Ma and (b) Tsai are associated more than those of pro-blue news media with pro-green voters.

Hypothesis 8 (H8): Pro-blue media's *affect* networks about (a) Ma and (b) Tsai are associated more than those of pro-green media with pro-blue voters.

Hypothesis 9 (H9): Pro-green media's *affect* networks about (a) Ma and (b) Tsai are associated more than those of pro-blue news media with pro-green voters.

What remains uncertain is the role partisan media played for undecided voters. Therefore, we develop the following research questions to examine the NAS's association with respect to issues and the two types of candidate attributes.

Research Question 1 (RQ1): Which group of news media—pro-blue or pro-green—is more strongly related to undecided voters in terms of issue networks?

Research Question 2 (RQ2): Which group of news media—pro-blue or pro-green—is more strongly related to undecided voters in terms of *personality* networks of (a) Ma and (b) Tsai?

Research Question 3 (RQ3): Which group of news media—pro-blue or pro-green media—is more strongly related to undecided voters in terms of *affect* networks of (a) Ma and (b) Tsai?

Method

As in any agenda-setting research, this study gathered two original datasets to investigate the NAS effect. The first part of our data is a content analysis of media coverage about Taiwan's 2012 presidential election. The second dataset is a public opinion survey of eligible Taiwanese voters prior to the Election Day—January 14, 2012. For the

media coverage, the study examined the news media from both pro-blue and pro-green political camps and those with large circulation/audience shares in the Taiwan market. The daily newspapers included are the *China Times*, the *Liberty Times*, and the *United Daily News*, which dominate Taiwan's current newspaper market. Although the *China Times* and the *United Daily News* support the pro-blue coalitions, the *Liberty Times* is considered to take a pro-green pro-independence political stance. For the broadcasting and cable news channels, the primetime newscasts from the nationwide pro-blue TV networks—CTiTV, Era TV, ETTV, CTV, and TVBS—and pro-green TV networks—Formosa TV and SET TV—were included. Four composite weeks of news samples were randomly selected between June 1, 2011 and January 14, 2012. The three newspapers were purchased during the sample period, and the newscasts were digitally recorded. If, for any reason (e.g., special sports show), any of the scheduled TV news programming was canceled, the next-day newscast was used as a replacement.

A news story was included in the sample provided either candidate's name was mentioned in the headline or the first two paragraphs of the story. The coding items for each news story include the medium, date, issue topic(s), main candidate mentioned in the story, the candidate's personal characteristics and qualifications (i.e., substantive attribute), and the tone toward the candidate (i.e., affective attribute) (see Appendix A). The coders identified a total of 38 issues and 14 distinct substantive attributes of presidential candidates. Some of these substantive attributes are fairly common—such as candidate's appearance, capability, and honesty, others, however, are unique in Taiwan's political and cultural context such as “勤儉持家” (manage the household industriously and thriftily) and “清廉正直” (free from corruption and righteous). The intercoder reliability test with 10% of the stories produced satisfactory results (with Krippendorff's α): medium ($\alpha = 1.00$), date ($\alpha = 1.00$), identification of main candidate ($\alpha = .916$), issue ($\alpha = .81$), Tsai's substantive attribute ($\alpha = .77$), Tsai's affective attribute ($\alpha = .89$), Ma's substantive attribute ($\alpha = .70$), and Ma's affective attribute ($\alpha = .70$).

The phone survey conducted by a Taipei-based commercial polling agency, which used randomly generated phone numbers to reach eligible voters across all counties in Taiwan (i.e., a sample selected by both stratified and random methods). The survey took about 3 weeks to complete prior to the Election Day. Based on the definitions of the American Association for Public Opinion Research, the Response Rate 4 is 0.258, and the Cooperation Rate 4 is 0.599. A total of 1,073 phone interviews were completed. The survey took about 15 to 20 minutes to complete and covered a great variety of issues on Taiwanese politics, presidential candidate preference, and respondents' assessments about the two candidates, as well as a slew of demographics questions (see Appendix B).

Network Analysis

A network analysis approach (Guo, 2012; Wasserman & Faust, 1994) was used to examine and compare the media and the public network agendas. UCINET 6, a program developed by Borgatti, Everett, and Freeman (2002), was used for data analysis. The media or public network agenda represents how the news media or the surveyed

respondents associated different issues or political candidate attributes during the election period. In this study, the association between any two elements (i.e., issue object or attribute describing a given candidate) is operationalized as the co-occurrence of any two elements in the same news item (i.e., a newspaper article or a newscast) or in the same individual's response.¹ For example, a *Liberty Times* article published on October 31, 2011, reported that Ma announced the formation of his campaign team during a speech to supporters. Ma spoke about his achievements in cross-strait relation and his plan to improve Taiwan's economy. In this article, the two issues, "cross-strait relation" and "economy," were considered connected in the media agenda. In the survey, each respondent was asked to identify up to three most important issues Taiwan facing and up to three attributes describing Ma or Tsai. If a respondent mentioned both "cross-strait relation" and "economy," then the two issues were considered connected. Likewise, if a respondent mentioned "experience" and "credibility" when describing Ma, the two attributes were treated having a connection. Because the focus of the NAS model is the *interrelationship* between elements, news stories and survey responses that mentioned only one single issue or attribute were excluded from the analysis.

To measure the strength of connection between two elements, we tallied their co-occurrences across news items or public responses. In other words, the more frequently two issues or attributes appear together in the same news items or survey responses, the stronger relationship the two elements have. Matrices of n rows and n columns (n = total number of elements) were then created to represent the degree of association between different pairs of issues or attributes on the media and public agenda, respectively. Each row or column represents an issue or attribute. In each cell, the value indicates the degree of association between the two corresponding issues or attributes.

Matrices of 38 rows by 38 columns were created to represent how (1) news media in general, (2) pro-blue media, and (3) pro-green media associated the aforementioned 38 issues. With regard to the public agenda, matrices also were created to quantify how (1) the general public, (2) pro-blue voters, (3) pro-green voters, and (4) undecided voters associated the 38 issues in their minds. As for the personality network, 14×14 matrices were created to operationalize how different media groups and party-leaning voters associated the 14 substantive attributes to portray Ma and Tsai, respectively. Finally, we created affect networks by considering the tone (i.e., positive or negative) of the personality attributes. Therefore, each of these matrices is composed of 28 rows and 28 columns. Each row or column represents an attribute with a tone, for example, a positive evaluation of Ma's political experience or a negative evaluation of Ma's trustworthiness.

The Quadratic Assignment Procedure (QAP)

To statistically test the correspondence between the *overall* media and public agenda networks (H1-H3), the QAP approach was used ([Krackhardt, 1987](#)). The QAP correlation test computes the association between two matrices by comparing the strength and specification of ties from one network to another. Unlike linear correlation tests,

the QAP approach addresses the problem of dyadic autocorrelation—that is, the observations in the same row or column of a matrix are potentially correlated with each other—by adopting a permutation technique. For continuous network data, the approach first computes Pearson's r between corresponding cells of the two matrices. It then randomly permutes rows and columns synchronously of one matrix and recomputes the correlation. This second step is carried out repeatedly (e.g., 2,000 times) to compute the proportion of times that a random r is larger than or equal to the observed r in the first step. A low proportion ($< .05$) suggests that the two matrices are significantly correlated ([Borgatti et al., 2002](#)).

In order to examine the other hypotheses and research questions that asked about the relative influence of the pro-blue and pro-green media on voters of different political preferences, we used the extension of the QAP correlation test—multiple regression quadratic assignment procedure (MRQAP) with the double semipartialling permutation method ([Dekker, Krackhardt, & Snijders, 2007](#)). Similar to QAP, MRQAP tests are “permutation” tests for multiple linear regression model coefficients for data organized in square matrices. In addition, the double semipartialling method partials out the effect of any collinearity among the independent variables. In our study, the pro-blue or pro-green media were first entered as the sole independent variable in their respective MRQAP equations. The two media groups were then entered into a separate model to assess the unique influence of each predictor. For example, in order to test H4, we examined the effect of the pro-blue media on the pro-blue voters while controlling for the effect of the pro-green media.

Network Visualization

The network visualization program NetDraw ([Borgatti, 2002](#)) was used to generate graphs that represented the network agenda of each type. Iterative metric multidimensional scaling method was used to determine the layout of each network. The more connected an element (i.e., an issue or attribute) is with other elements, the more centrally located it is in the network. Elements with stronger ties are closer to one another. The following section will explain the network graphs in detail and provide examples to illustrate the relationship of the networks.

Results

Before examining the NAS hypotheses, we used the traditional method of rank-order correlation between the media agenda and the public opinion. The association between the media and the public's salient agendas was confirmed on the first level and partially supported on the second level.² Subsequently, our study found that the news media did significantly correlate with the public at the network level during Taiwan's 2012 presidential election. Notably, the NAS model showed greater explanatory power at the attribute level than at the object level. The results also showed that selective exposure best explained the NAS effects when the affective tone was taken into consideration. Table 1 summarizes the NAS effects of the media at large on the general

Table 1. Results of QAP Correlation Tests.

	Ma			Tsai	
	Issue agenda	Personality traits agenda	Affect agenda	Personality traits agenda	Affect agenda
	(<i>n</i> ^a = 1,406)	(<i>n</i> = 182)	(<i>n</i> = 756)	(<i>n</i> = 182)	(<i>n</i> = 756)
General public	.15*	.38*	.27**	.45*	.26**

Note. QAP = quadratic assignment procedure.

^aIn network analysis, the unit of analysis is a dyad: two nodes and their relationship. Therefore, *n* refers to the number of all the possible dyads. For example, the *n* for issue-based network agenda refers to a total of 1,406 (38 × 37) issue combinations.

p* < .05. *p* < .01.

public in Taiwan, and Tables 2 to 4 present different media's NAS effects on pro-blue, pro-green, and undecided voters, respectively.

Overall, the media and the public network agendas significantly corresponded to each other in various degrees (see Table 1). In examining H1, the QAP analysis showed that the news media's issue network was correlated significantly with the general public's issue network. Therefore, H1 was supported. However, the QAP correlation coefficient is .15, indicating a positive, yet weak, relationship between the two issue networks. In answering H2a-b and H3a-b, which asked about the evaluation of Ma's attributes, the results showed that the news media and the public did react to the candidate in a similar pattern at both substantive ($r = .38, p < .05$) and affective levels ($r = .27, p < .01$). With respect to Tsai, a strong, positive relationship was also found between the personality networks from the media and the public ($r = .45, p < .05$) and between the two affect networks ($r = .26, p < .01$). Therefore, H2a-b and H3a-b were all supported.

Table 2 presents the results of MRQAP analysis on the pro-blue voters. Overall, the pro-blue media's agenda networks better predicted pro-blue voters' networks in most of the models, supporting the selective exposure hypothesis. Specifically, in verifying H4, the results showed that the issue network constructed by the pro-blue media did predict the issue network of pro-blue voters ($\beta = .149, p < .05$). In contrast, the pro-green media's issue network was found to have no relationship with that of pro-blue voters. Therefore, H4 was strongly supported.

H6a examined the attribute-level NAS effects on pro-blue voters. The MRQAP results showed that neither the pro-blue nor pro-green media affected how pro-blue voters assessed Ma's attributes. H6a was not supported. In terms of the affect network (H8a), the pro-blue media were positively related to how blue-camp supporters associated positive or negative attributes about Ma ($\beta = .199, p < .05$), whereas the pro-green media were not related to them. Hence, H8a was supported. When both the pro-blue and pro-green media were entered as predictors into the regression model, the results showed that the pro-green media negatively predicted the pro-blue voters' affect

Table 2. Results of MRQAP Analysis on Pro-Blue Voters.

Terms		B	β	Adjusted R ²
Issue agenda (n = 1,406)				
Model 1a	Pro-blue media	0.513*	.149*	.021*
Model 2a	Pro-green media	0.242	.090	.007
Model 3a	Pro-blue media	0.549*	.159*	.021*
	Pro-green media	-0.042	-.016	
Ma				
Personality agenda (n = 182)				
Model 4a	Pro-blue media	0.158	.189	.030
Model 5a	Pro-green media	0.041	.222	.044
Model 6a	Pro-blue media	0.149	.049	.040
	Pro-green media	0.124	.186	
Affect agenda (n = 756)				
Model 7a	Pro-blue media	0.209*	.199*	.038*
Model 8a	Pro-green media	-0.029	-.041	0
Model 9a	Pro-blue media	0.276*	.264*	.056*
	Pro-green media	-0.106*	-.152*	
Tsai				
Personality agenda (n = 182)				
Model 10a	Pro-blue media	0.099*	.393*	.150*
Model 11a	Pro-green media	0.093	.194	.032
Model 12a	Pro-blue media	0.106*	.423*	.147*
	Pro-green media	-0.025	-.052	
Affect agenda (n = 756)				
Model 13a	Pro-blue media	0.114**	.394**	.154**
Model 14a	Pro-green media	0.057*	.141*	.020*
Model 15a	Pro-blue media	0.120**	.417**	.155**
	Pro-green media	-0.020	-.050	

Note. MRQAP = multiple regression quadratic assignment procedure.

* $p < .05$. ** $p < .01$.

networks ($\beta = -.152, p < .05$). In other words, while controlling for the influence of the pro-blue media, the more frequently the pro-green media associated certain affective attributes to discuss Ma, the less likely the pro-blue voters were to associate in the same way.

When it came to the pro-blue voters' evaluations of Tsai (H6b), the MRQAP results unsurprisingly showed that the pro-blue media influenced how the pro-blue voters perceived Tsai ($\beta = .393, p < .05$). In contrast, the pro-green media's coverage of Tsai generated no effects on pro-blue voters. Therefore, H6b was supported. A similar pattern was found in terms of the affect networks about Tsai (H8b). Although both the pro-blue and pro-green media were found to predict the pro-blue voters' affect networks toward Tsai when they were treated as separate predictors (see Table 2, Models

Table 3. Results of MRQAP Analysis on Pro-Green Voters.

Terms		B	β	Adjusted R ²
Issue agenda (n = 1,406)				
Model 1b	Pro-blue media	0.44**	.183*	.033*
Model 2b	Pro-green media	0.25*	.134*	.017*
Model 3b	Pro-blue media	0.406*	.168*	.033**
	Pro-green media	0.042	.022	
Ma				
Personality agenda (n = 182)				
Model 4b	Pro-blue media	0.062*	.341*	.112*
Model 5b	Pro-green media	0.067**	.467**	.214**
Model 6b	Pro-blue media	-0.004	-.025	.210**
	Pro-green media	0.070*	.486*	
Affect agenda (n = 756)				
Model 7b	Pro-blue media	0.040*	.183*	.032**
Model 8b	Pro-green media	0.061**	.426**	.180**
Model 9b	Pro-blue media	0	.005	
	Pro-green media	0.060**	.424**	.179**
Tsai				
Personality agenda (n = 182)				
Model 10b	Pro-blue media	0.145**	.455*	.203*
Model 11b	Pro-green media	0.169	.277	.072
Model 12b	Pro-blue media	0.141*	.444*	.199*
	Pro-green media	0.012	.019	
Affect agenda (n = 756)				
Model 13b	Pro-blue media	0.056	.118	.013
Model 14b	Pro-green media	0.232**	.346**	.118**
Model 15b	Pro-blue media	-0.025	-.052	
	Pro-green media	0.248**	.379**	.119**

Note. MRQAP = multiple regression quadratic assignment procedure.

* $p < .05$. ** $p < .01$.

13a and 14a), the effect of the pro-green media on pro-blue voters disappeared when controlling for the pro-blue media (see Model 15a of Table 2). In other words, the pro-blue media were almost exclusive in influencing pro-blue voters' affective evaluation of Tsai. Based on the above results, H8b was supported.

Table 3 illustrates the NAS effects on the pro-green voters. The MRQAP analysis demonstrated that the pro-green voters followed either the pro-blue or the pro-green media depending on the subject matter. H5 examined the relative influence of the pro-blue and the pro-green media on pro-green voters in terms of their issue coverage. The results showed that the pro-blue media actually better predicted pro-green voters' issue networks ($\beta = .406, p < .05$; Model 3b). Therefore, based on this finding, we rejected H5.

Table 4. Results of MRQAP Analysis on Undecided Voters.

Terms		<i>B</i>	β	Adjusted <i>R</i> ²
Issue agenda (<i>n</i> = 1,406)				
Model 1c	Pro-blue media	0.131*	.119*	.013*
Model 2c	Pro-green media	0.095*	.110*	.011*
Model 3c	Pro-blue media	0.090	.081	.014*
	Pro-green media	0.048	.056	
Ma				
Personality agenda (<i>n</i> = 182)				
Model 4c	Pro-blue media	0.016	.141	.014
Model 5c	Pro-green media	0.02	.218	.042
Model 6c	Pro-blue media	-0.006	-.054	.038
	Pro-green media	0.024	.259	
Affect agenda (<i>n</i> = 756)				
Model 7c	Pro-blue media	0.025*	.179*	.031*
Model 8c	Pro-green media	-0.003	-.033	0
Model 9c	Pro-blue media	0.032*	.234*	.044*
	Pro-green media	-0.012*	-.132*	
Tsai				
Personality agenda (<i>n</i> = 182)				
Model 10c	Pro-blue media	0.030*	.357*	.122*
Model 11c	Pro-green media	0.025	.154	.018
Model 12c	Pro-blue media	0.034*	.403*	.122*
	Pro-green media	-0.013	-.08	
Affect agenda (<i>n</i> = 756)				
Model 13c	Pro-blue media	0.010	.094	.008
Model 14c	Pro-green media	0.025*	.168*	.027*
Model 15c	Pro-blue media	0.002	.021	.026*
	Pro-green media	0.024*	.158*	

Note. MRQAP = multiple regression quadratic assignment procedure.

* $p < .05$. ** $p < .01$.

As for the media portrayal of Ma's attributes, the results showed that the pro-green media better predicted the pro-green voters in terms of both substantive ($\beta = .486, p < .05$; Model 6b) and affective attributes ($\beta = .424, p < .01$; Model 9b), thus supporting both H7a and H9a. Contrary to our expectation, the pro-green media did not predict how pro-green voters associated different personality attributes in portraying Tsai, but pro-blue media did ($\beta = .455, p < .05$). Thus, H7b was not supported. As for the pro-green voters' affective assessment about Tsai, however, MRQAP did show supportive results for the selective exposure hypothesis—the pro-green media's affect agendas about Tsai did resonate well with those of pro-green voters ($\beta = .346, p < .01$), whereas no effect was found for the pro-blue media. H9b was supported with solid evidence.

The results of MRQAP analysis on undecided voters can be found in Table 4. RQ1 focused on the coverage of issues. It appeared that both the pro-blue ($\beta = .119, p < .05$) and the pro-green media ($\beta = .110, p < .05$) demonstrated the NAS effect to a similar degree on undecided voters when they were entered separately into the MRQAP equation. However, when both media issue networks were examined simultaneously, while the model (see Model 3c) still significantly predicted the agenda network of undecided voters (adjusted $R^2 = .014, p < .05$), the unique influence of either the pro-blue or the pro-green media disappeared. In other words, the undecided voters seemingly followed what the pro-blue and the pro-green media shared in common in their issue coverage.

In answering RQ2a about the coverage of Ma, the results showed that the undecided voters did not rely on the news media to learn about Ma's characteristics and qualifications as a running candidate. However, when the tone of coverage was considered (RQ3a), the MRQAP result did suggest that the pro-blue media positively predicted the undecided voters' evaluation of Ma ($\beta = .234, p < .05$). On the other hand, the pro-green media demonstrated a reverse influence ($\beta = -.032, p < .05$; Model 9c). Earlier results showed that the same pattern was found on the pro-blue voters.

The MRQAP also showed mixed results in terms of the media coverage of Tsai's substantive and affective attributes (RQ2b and RQ3b). Although the pro-blue media were found to significantly predict the undecided voters' attribute evaluation about Tsai ($\beta = .357, p < .05$), the pro-green media predicted the group's affect agenda ($\beta = .168, p < .05$). Given the evidence of both issue-based and attribute-based NAS effects, it appeared that undecided voters were correlated with the pro-blue media slightly more than the pro-green media, which could be explained by the larger influence of pro-blue media existing in Taiwan.

As examples of network visualization, Figures 1 to 4 illustrate how the news media and voters of pro-blue and pro-green camps associated different affective attributes to characterize Ma. In the graphs, each node represents a personality attribute with a specific tone. A light gray box and a positive sign next to an attribute indicate a positive tone, whereas a black box and a minus sign indicate a negative tone. The line connecting any two attributes represents the degree of association between the attributes. The shorter the line, the more connected the two nodes are. With respect to the influence of individual attribute, the more central an attribute is located in the network, the more connections the attribute has with other attributes.

In Figures 1 and 2, a set of positive attributes such as "caring," "trustworthy," and "leadership" occupied the center of the pro-blue media's affect network about Ma. In other words, the pro-blue media frequently associated these personality attributes with others when portraying Ma. It should also be noted that although the negative attributes are relatively marginalized in the network, they are present and well connected with each other as well as positive attributes. In other words, the pro-blue media kept a critical attitude when discussing their "own" candidate, the incumbent. A similar pattern was found in the affect network based on the pro-blue voters' assessment. The positive attributes "free from corruption," "qualified," and "trustworthy" are the most central in the pro-blue voters' network agenda about Ma.

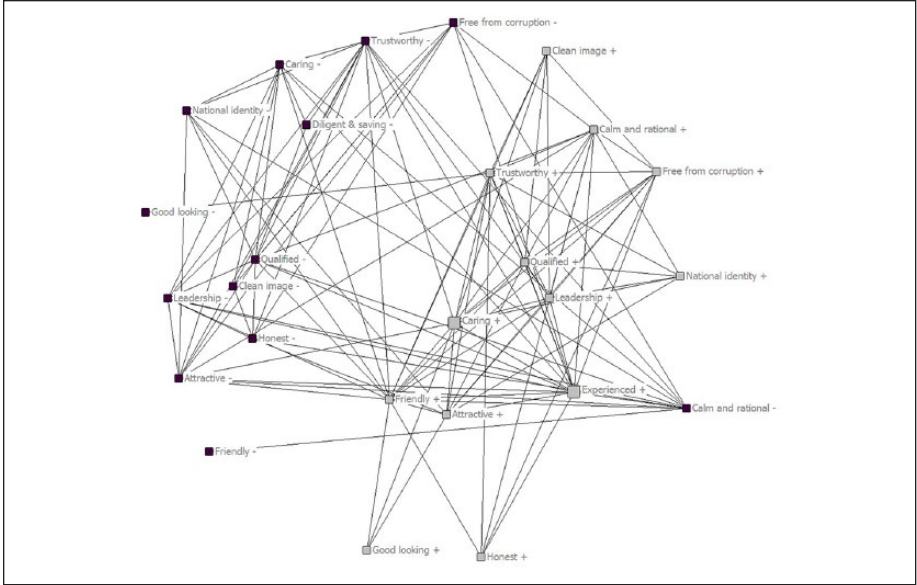


Figure 1. Pro-blue media's affective attribute agenda of Ma.

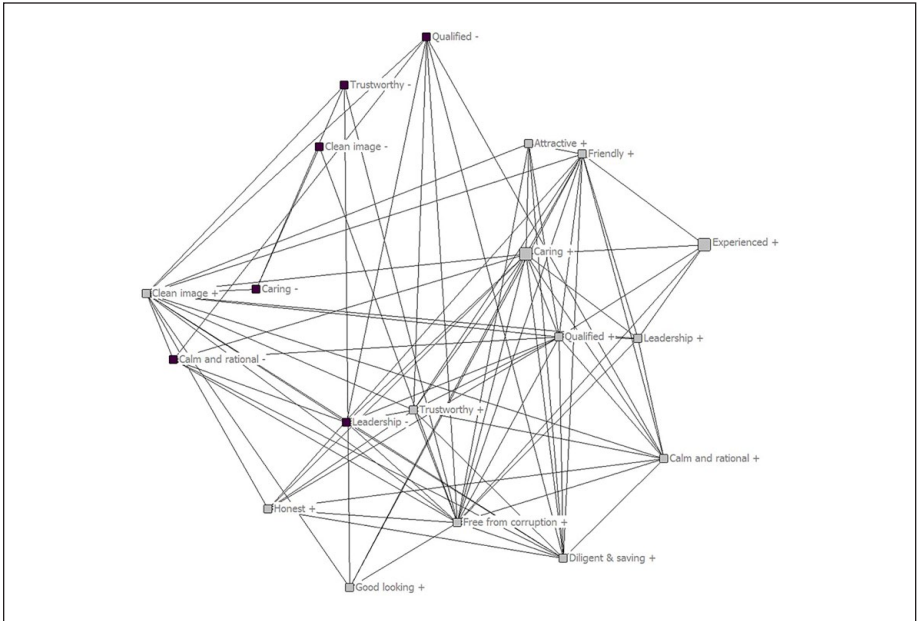


Figure 2. Pro-blue voters' affective attribute agenda of Ma.

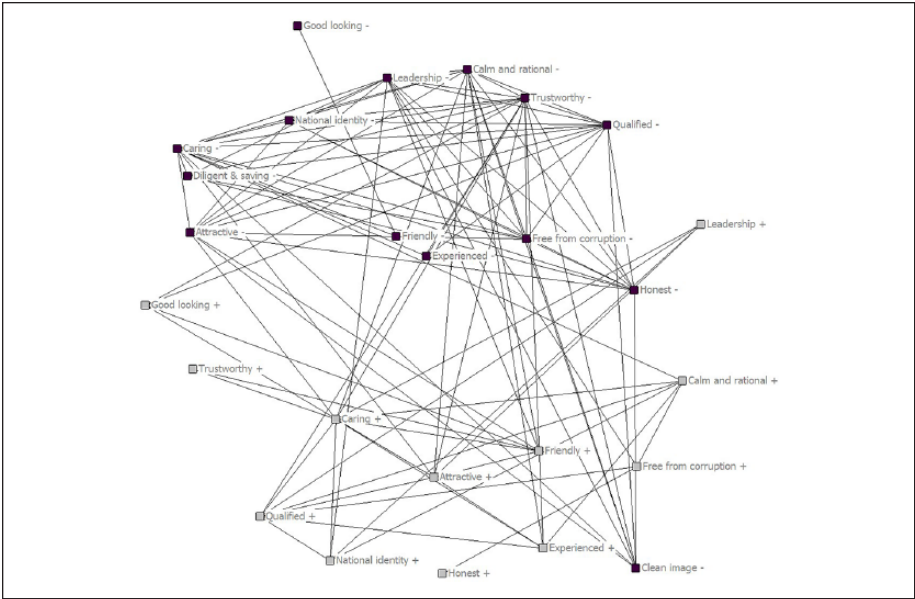


Figure 3. Pro-green media’s affective attribute agenda of Ma.

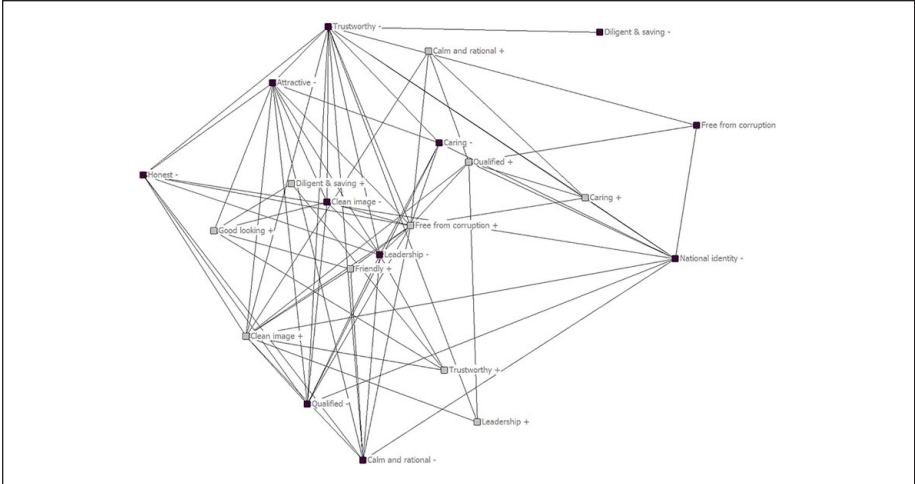


Figure 4. Pro-green voters’ affective attribute agenda of Ma.

On the other hand, the pro-green media and pro-green voters considered Ma in the opposite way by centralizing a number of negative attributes (see Figures 3 and 4). The most central attributes on the pro-green media’s depiction of Ma are all negative,

including “qualified,” “trustworthy,” and “caring.” This network visualization provides descriptive evidence to Model 9a, which suggested that the pro-green media negatively predicted pro-blue voters’ affective evaluation of Ma. As for pro-green voters, they echoed the pro-green media and considered Ma to be untrustworthy and unqualified. On the other hand, they did believe Ma had a “clean image,” a positive attribute that is frequently connected with other attributes in the pro-green voters’ network; yet, the attribute is not present in the pro-green media’s network. This speaks to the result that although the pro-green media were found to predict pro-green voters’ affect network about Ma, they only accounted for 18% of the variance of the dependent matrix (Model 8b). Overall, these figures visually support the NAS model and selective exposure phenomenon during Taiwan’s election season.

Discussion and Conclusion

Based on the original data gathered during Taiwan’s 2012 presidential election, the present study confirms the findings generated from the NAS studies conducted in the United States. It indicates that the new, network approach of presenting the agenda-setting effect is applicable in a non-Western political setting. The overall supportive results generated from our analyses also elevate the validity and reliability of the emerging NAS model, the third level of agenda-setting effect.

Notably, this study examined the NAS model at both levels of agenda setting—political issues and candidate attributes—in the same research context. Overall, the study found that the NAS effects offered more explanatory power at the attribute than at the object level. The finding was confirmed by conducting Fisher’s r to z transformation, which showed that both personality and affect network agendas were significantly more correlated with the public counterparts than issue-based network agendas. In other words, the news media in Taiwan appeared to be more successful in telling voters how to associate different attributes to perceive the two political candidates than how to associate different issues. This finding supports the conclusion made by [Wu and Coleman \(2009\)](#). Future research should consider further exploring the magnitude of the NAS effects with respect to different types of networks.

This study adds an important layer to NAS by incorporating the concept of selective exposure into examination. The fact that Taiwanese voters choose media to correspond with their existing political inclinations prompts us to reevaluate the impact the media traditionally would have on the electorate. Partisan media’s influence on voters may vary from country to country, but the agenda-setting effect is still solid based on our gathered evidence within a partisan environment. However, it should be noted that the QAP correlation coefficients found in the study are slightly smaller than what one would find in results yielded from Spearman ranking correlation tests. This is a methodological issue worthy of future examination.

Another interesting finding is that among the partisan selective exposure tests, only the *affect* NAS effects were supported across the board. One can see in Tables 2 and 3 that like-minded media did not exclusively influence Taiwanese voters’ issue

or personality networks. In particular, the pro-green media did not necessarily show a higher level of correspondence with the pro-green voters' agenda in important issues and candidates' personality attributes than pro-blue media. But in terms of valenced candidate depictions (positive or negative affect agenda), partisan media did appear to be more effective in transmitting their affective cues about candidates to voters in the same camp. This finding indicates that partisan media are more likely to generate an electoral impact on candidates' liking and affective assessments than on other areas.

Limitations and Future Research Directions

The study has a few limitations. Like many agenda-setting studies, what we examined here were aggregate-level media effects. The QAP and MRQAP analyses were used to compare networks that represent different media *groups'* agendas and those that represent the agendas of voters in different *subgroups*. In other words, individual differences such as political interest and knowledge were not accounted for in this study. Future research might consider combining network analysis and individual-level agenda setting (e.g., [Roessler, 1999](#); [Shehata & Strömbäck, 2013](#)) to further investigate individual variance within the NAS model.

It also should be noted that though the agenda networks from the media and the people were found to relate well, the current research design did not necessarily prove causality. Following previous agenda-setting research, the study focused on the relationship between the media and the public without ruling out potential extraneous variables such as reality cues and political campaign messages. In addition, the current study examined the salience transfer of association between objects and attributes, separately. One potential future direction for NAS research would be to investigate the interrelationships among various types of agenda items by integrating issue objects, personality attributes, and affective assessments of candidates into a comprehensive network. This would allow researchers to examine the transmission of mediated agenda about candidates to voters in a holistic fashion and to advance relevant theoretical concepts. For example, issue ownership concept suggests that voters tend to associate given issues with certain political parties or candidates ([Budge & Farlie, 1983](#); [Petrocik, 1996](#)). Incorporating issues and candidate attributes in a single network will enable us to answer more sophisticated research questions: Will a political candidate with certain attributes be portrayed to "own" certain issues? How will such a nuanced network agenda influence voters' perceptions of the candidate and ultimately their decisions?

Finally, this study calls for more applications of network analysis in testing media effects. This new analytical tool is pivotal to better understanding and gauging news media's affiliation with users' cognitive and affective maps. As cognitive psychologists indicated, humans' perceptions and memories are more likely to be organized in network-like structures (e.g., [Cummins, 1996](#); [Kaplan, 1973](#)), indicating that network analysis is more suitable in analyzing the association of agenda items perceived, processed, and retained by people. More network analysis projects would enrich our

understanding of media's impact on political decision making in the constantly evolving media landscape.

Appendix A

Coding Sheet (Only Questions Used in the Study)

Medium from which the story comes

1. The *China Times*
2. The *Liberty Times*
3. The *United Daily News*
4. CTiTV 20:00-21:00
5. CTV 07:00-08:00
6. TVBS 18:00-19:00
7. Formosa TV News 19:00-20:00
8. ETTV 18:00-19:00
9. Era TV News 19:00-20:00
10. SET TV 20:00-21:00

Main candidate in the story

1. Tsai/Su
2. Ma/Wu
3. Evenly about both candidates

Main topic of the story. (Note: Coding decision should be based on the headline and lead paragraph)

1. creating a clean and efficient government
2. judicial system
3. education
4. relation with China/Taiwanese identity
5. social welfare
6. economics imbalance
7. international relations
8. overall economy/business
9. jobs/(un)employment/outsourcing
10. race and ethnicity
11. federal budget/deficit
12. partisan politics
13. crimes
14. culture divide/division of the nation
15. culture development and industry
16. government corruption

17. structure and transformation of industries
18. agriculture issues/income of farmers
19. moral issues
20. health care cost/health insurance
21. environmental issues/pollution
22. government listening to the public
23. competitiveness in new technologies
24. civil service
25. inequality between urban and rural areas
26. national security/military operation
27. democratic and constitutional reform
28. immigration/migration
29. media issues
30. low birthrates
31. sports
32. banking problems
33. tax
34. abortion
35. religion
36. energy issues
37. human rights
38. other topic, enter _____

Personality attributes. How is Ma described in the story? How is Tsai described in the story?

1. qualified as president
2. experienced
3. honest
4. trustworthy
5. attractive
6. calm and rational
7. friendly
8. leadership
9. caring about people
10. free from corruption
11. good looking
12. with Taiwan national identity
13. diligent and saving
14. clean image

(Coders should go through the list of above personality attributes and enter positive, negative, or mixed/neutral, if the personality attribute was mentioned. Code up to three attributes.)

Appendix B

Survey Questionnaire (Only Questions Used in the Study)

1. In Taiwan, we often differentiate voters' political preferences by "The Green" and "The Blue," which group do you lean to?
 - The Blue The Green None

2. What do you think is the most important issue in Taiwan today? (Up to three issues) _____
- 3.1. What do you think is the most important attribute of Ma Ying-Jeou? (Up to three attributes)
- 3.2. What do you think is the most important attribute of Tsai Ing-wen? (Up to three attribute)
- 3.3. Regarding the attributes of Taiwan's 2012 president candidates, how would you evaluate Ma Ying-Jeou and Tsai Ing-Wen on each of the following attributes (positive, neutral, or negative)?
 1. qualified as president
 2. experienced
 3. honest
 4. trustworthy
 5. attractive
 6. calm and rational
 7. friendly
 8. leadership
 9. caring about people
 10. free from corruption
 11. good looking
 12. with Taiwan national identity
 13. diligent and saving
 14. clean image

(For analyzing candidate attributes, each respondent was asked to describe Ma and Tsai's attributes using their own words. Then, the coders coded their responses into each of the 14 categories provided in Question 3.3.)

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Notes

1. Guo (2013) noted two types of association: explicit and implicit. "Explicit association" refers to a controlled connecting process in which news reporters or audience members directly and explicitly associate two objects or attributes. "Implicit association" refers to an automatic connecting process where news reporters or audience members randomly list two elements without elaborating on the meaning of their connection. Previous network agenda setting (NAS) research provided empirical support for the NAS model at the level of both explicit and implicit association (Cheng, 2016; Saldaña & Ardèvol-Abreu, 2015). This study did not distinguish between the two types of association due its scope but we note that this would be a fruitful direction for future work.
2. To gauge the first-level agenda-setting effect, the results of news topics from the media and the issues deemed most important by the surveyed participants were analyzed with Spearman's rho correlations for ranked data. The correlation coefficient is .491, significant at .002 ($n = 38$). Regarding the evidence of second-level agenda setting, the correlation between the incumbent candidate's (Mr. Ma) personality attributes portrayed in the news and his perceived image by voters is not strong or significant ($r = -.048, p = .869, n = 14$), whereas the correlation between Tsai's media image and voters' perception of her is positive and significant ($r = .559, p = .038, n = 14$). It is fairly common to see the insignificant result of the incumbent candidate's image association with the public's perception; thus, we decided to go forward with our network agenda investigation.

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