The Dash for Gas

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Examining third-level agenda-building and fracking in the United Kingdom

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Hydraulic fracturing, or fracking, is the process of extracting reserves of natural gas and oil from shale formations deep underground. This process, initially met with public support in the United Kingdom, has since become a highly contentious issue primarily debated between government, industry, and anti-fracking advocacy groups. Through the employment of three levels of agenda-building as a theoretical lens of examination (object, attribute, and network connections), this study investigated the political discourse between these stakeholder groups and national news media in the United Kingdom between 2012 and 2014. In total, 1354 unique messages were coded, with 840 information subsidies and 514 news media content analyzed. To determine the short-, mid-, and long-term effects of agenda-building, a time-lag analysis was conducted. The results suggest solid support for all three levels of agenda-building. Our findings indicate that anti-fracking advocacy groups were more successful at influencing news media content across all three time periods, in addition to supporting the growing influence of digital information subsidies as an effective tool for agenda-building strategies. The theoretical and practical implications of these findings are discussed.

KEYWORDS   agenda-building; fracking; information subsidies; political public relations; time-lag; United Kingdom

Introduction

Hydraulic fracturing, or fracking, has undergone a rapid transformation in the mind of the British public. Initial support, which was believed to center on early framing of the economic, domestic energy, and environmental benefits of fracking, has regressed ("DECC Public Attitudes Tracking Survey" 2014). Despite an ongoing public relations campaign fronted by British Prime Minister David Cameron, fostering public approval for shale gas extraction has proven to be a fruitless endeavor. In fact, as public awareness of fracking has increased, public approval has steadily declined to an all-time low (O'Hara et al. 2015). Nonetheless, governmental policies supporting fracking have expanded, as have geographical areas approved for exploratory drilling (Gross 2013). This has prompted mild opposition to evolve into vociferous obstructionism as anti-fracking advocacy groups and local communities have organized to prevent fracking from taking place across the country (Gosden 2014; Kemp 2014; Marshall 2013; Mazur 2014).

As British public opinion data on fracking remain scarce, agenda-building offers a germane theoretical framework to better understand how competing stakeholder groups have fought to shape the narrative surrounding this issue (Kiousis and Strömbäck

2010). Beyond studying salience at the first (issues/objects) and second levels (issue/object attributes), the integration of third-level agenda-building, which examines the *co-occurrence* of elements (i.e., issue/object and attributes) on agendas and how these elements may affect the transfer of salience across several stakeholder groups, can add a unique and insightful lens to assess how a domestic energy policy has become so politically fraught (Guo, Vu, and McCombs 2012; Kiousis et al. 2013, 2015; Schultz et al. 2012).

However, limited political public relations research has focused on third-level agenda-building at the individual issue level, such as fracking, and little of this research has analyzed the influence of more than one tool of communication on news media (e.g., press releases) (Schweickart et al. 2015). In contrast, this study's single-issue focus includes multiple information subsidies from multiple stakeholder groups to offer a fuller picture of the communication environment that the British public has been exposed to. By increasing the frequency and scope of competing message strategies to include governmental, pro-fracking energy companies, and anti-fracking advocacy groups, it is possible to garner practical insight into the efficacy of traditional and digital information subsides on their ability to transfer key object and/or attributes to the news media about this issue (Graham et al. 2013).

Therefore, this study will examine agenda-building at all three levels during the most politically volatile two years of fracking expansion in the United Kingdom. In light of public opinion changing so radically during this relatively short period of time, a more refined temporal understanding of the interplay between message and stakeholder group is required. Thus, this study outlines four distinct time periods to discern the short-term, mid-term, and long-term temporal dynamics of stakeholder agenda-building with news media.

Literature Review

Fracking in the United Kingdom

The term fracking denotes a myriad of modern-day processes to extract reserves of natural gas and oil from shale formations deep underground (Boudet et al. 2014; Thompson 2012). Although offshore drilling in the North Sea has gained tacit acceptance among the British public as a source for oil and gas extraction, the transition to onshore drilling has been met with much antipathy since the first license for shale gas exploration was granted to Cuadrilla Resources in 2007 (Dam 1965; Jones, Hillier, and Comfort 2013). However, after fracking outside Blackpool in 2011 was reported to cause two minor earthquake tremors, a moratorium on all fracking was implemented pending review ("DECC Public Attitudes Tracking Survey" 2014; Green, Styles, and Baptie 2012). As a result, it was not until December 13, 2012, that there was an amendment made by the UK Department of Energy and Climate Change (DECC) to lift the previous restrictions ("Written Ministerial Statement by Edward Davey: Exploration for Shale Gas" 2012). With the establishment of the Office of Unconventional Gas and Oil to monitor fracking standards, major energy companies such as Total, Cuadrilla, and Centrica signed new legislation for the national expansion of fracking (White et al. 2014).

This process, which has been described by many anti-fracking advocacy groups as a "dash for gas," has not been plain sailing (Gross 2013; Hewitt 2012). Despite Prime Minister David Cameron claiming fracking was an opportunity Britain "cannot afford to miss out on"

and that Britain would be "going all out for shale," over time, public support for fracking has continued to decrease as anti-fracking protests have begun to increase (Cameron 2013). A YouGov poll in July 2012 showed public approval for shale gas at an all-time high of 58.3 percent, with only 18.8 percent of respondents in opposition. In January 2014, support had begun to slide as those who approved accounted for 53.3 percent, but by June 2014 there had been a major shift in public sentiment as both approval and opposition were evenly matched at 24 percent ("DECC Public Attitudes Tracking Survey" 2014).

Notably, this transition coincided with an increase in public awareness of fracking. In March 2012, 37.6 percent of respondents were able to identify fracking as a technique for extracting fossil fuels, but by September 2014 that figure had almost doubled to 72.3 percent (O'Hara et al. 2015). Despite the inverse relationship of awareness and approval over the two-year period, there remains limited public opinion data between these two time points. It is suggested, therefore, that an increase in news coverage of fracking may have cast a negative light on the process, and potentially caused such decline in public support. As such, it is critical to further understand, from a theoretical and practical political public relations perspective, how an issue could evolve from relative obscurity and moderate support to become one of the most salient and politically charged issues in the context of British energy policy history (Cotton, Rattle, and Van Alstine 2014).

Political Public Relations

Political public relations, or "the management process by which an organization or individual actor for political purposes, through purposeful communication and action, seeks to influence and establish, build, and maintain beneficial relationships and reputations with its key publics to help support its mission and achieve its goals" (Stromback and Kiousis 2011, 8), is a growing discipline within the public relations literature (Graham and Avery 2013). A political issue such as fracking involves a great number of stakeholders, all with competing and sometimes conflicting priorities and agendas. This study represents an empirical inquiry into the interplay between multiple political stakeholders and how this interplay influences political discourse and policy through message strategy and information subsidy utilization.

Temporal Understanding of Fracking

Given the multiple and conflicting stakeholder agendas associated with fracking, along with a variety of information sources, fracking has become a complex issue for the public to understand. For interest groups, government, or industry stakeholders, communicating political issues to the public is a dynamic process that occurs over time. Prior research demonstrates that this type of communication, and thus agenda-building, are cumulative processes that often take time to occur (i.e., months rather than days or weeks). This is particularly true for outcomes such as policymaking (Son and Weaver 2006; Tan and Weaver 2007). Time-lag analysis was first employed to understand how long media agenda-setting effects remain and which media messages among different time frames were most impactful on public opinion (i.e., Roberts, Wanta, and Dzwo 2002; Stone and McCombs 1981; Winter and Eyal 1981). Few empirical tests have been documented in an agenda-building context, with a few exceptions (Kiousis et al. 2016; Schweickart et al. 2015). This study seeks a temporal understanding of fracking by employing a time-

lagged design, so as to conceptualize short-, mid-, and long-term agenda-building influences over a two-year time frame. The following review of literature will provide a discussion of relevant studies and theoretical contributions to agenda-building research.

First-level Agenda-Building

The original conceptualization of agenda-setting involved the transfer of object salience from the media to the public (McCombs and Shaw 1972). Broader than agenda-setting, agenda-building is concerned with exploring the reciprocal relationships among stakeholder groups in the process of object salience formation, transfer, and exchange (Hughes and Dann 2009). Specific to political public relations, agenda-building is used to examine how stakeholder groups such as policymakers, news media, businesses, voters, interest groups, activists, candidates, parties, or non-profit organizations contribute to this process. Objects were originally conceptualized as issues (e.g., economy). However, further research has broadened the idea of object to include nations, political candidates, products, and organizations (McCombs 2005). Empirical support for first-level agenda-building has been demonstrated in many investigations (Kim, Xiang, and Kiousis 2011; Kiousis and Strömbäck 2010; Kiousis and Wu 2008; Ragas, Kim, and Kiousis 2011; Roberts and McCombs 1994; Sweetser and Brown 2008).

Some agenda-building inquiries have examined broad political public relations agendas. For example, President Obama's political agenda was examined in terms of public relations *outputs* (media coverage) and public relations *outcomes* (policymaking activity) (Kiousis et al. 2016). General political issues used in these analyses included: community issues, defense and homeland security, economy, education, energy and environment, ethics, foreign policy, health care, immigration, taxes, and technology. While these types of analyses primarily serve as theoretical contributions to agenda-building and political public relations, they lack a more nuanced understanding and representation of specific issue transfer and salience. However, some inquiries have focused on a single political issue such as healthcare reform or tobacco regulation, enabling scholars to provide an in-depth analysis of the agenda-building efforts for a single issue (Foster et al. 2012; Kiousis et al. 2013).

This study is unique in that it examines the salience of not only the traditional "issue" object, but also conceptualizes relevant stakeholders as objects. Therefore, the following hypotheses are proposed:

H1a–c: The salience of issues in political public relations messages will positively influence the salience of issues in news media content in short-term (H1a), mid-term (H1b), and long-term (H1c) time periods.

H2a–c: The salience of fracking stakeholders in political public relations messages will positively influence the salience of stakeholders in news media content in short- term (H2a), mid-term (H2b), and long-term (H2c) time periods.

RQ1: Which stakeholder group (government, industry, or advocacy) was most effective at influencing the transfer of object salience from political public relations messages to news media content in short-term, mid-term, and long-term time periods?

Second-level Agenda-building

Moving beyond object or issue salience, scholars have examined attribute salience as an element of the agenda-building processes. This research demonstrates that news media (or public relations efforts) highlight certain *aspects* of objects while also ignoring others to influence stakeholders' understanding of objects (e.g., Fahmy et al. 2011; Schultz et al. 2012; Sweetser, Golan, and Wanta 2008). In other words, second-level agenda-building is concerned with not only *what* stakeholders think about an object, but *how* it is thought about (e.g., Carroll and McCombs 2003; Kiousis et al. 2006; McCombs and Reynolds 2009; Wang and Shoemaker 2011; Wanta, Golan, and Lee 2004). This purposeful presentation of specific issues and attributes, or frames, is a strategic process that advances a stakeholder's political and social agenda by increasing the symbolism of that frame, and in turn, expands the boundaries and influence of a given attribute (Pan and Kosicki 2001). The most common types of attributes identified in the literature are substantive and affective. Substantive attributes refer to the cognitive dimension of attribute salience based on reasoning, while affective attributes are based on emotion. The present study is concerned with the substantive attributes of issues related to fracking and stakeholder groups. Previous studies have examined substantive attributes of issues during political campaigns along with candidate personality traits (Kiousis, Bantimaroudis, and Ban 1999; Kiousis and Shields 2008). The current study is noteworthy in that it expands substantive attributes to include stakeholder characteristics. More specifically, a number of these characteristics emerged from an overview of literature related to fracking and were chosen for this second-level agenda-building analysis.

Therefore, the present study is interested in examining the salience of substantive attributes of both issues and stakeholders, along with the affective attributes of issues:

H3a–c: The salience of substantive issues in political public relations messages will positively influence the salience of substantive issues in news media content in short-term (H3a), mid-term (H3b), and long-term (H3c) time periods.

H4a–c: The salience of affective issues in political public relations messages will positively influence the salience of affective issues in news media content in short-term (H4a), mid-term (H4b), and long-term (H4c) time periods.

H5a–c: The salience of fracking stakeholder attributes in political public relations messages will positively influence the salience of stakeholder attributes in news media content in the short-term (H5a), mid-term (H5b), and long-term (H5c) time periods.

RQ2: Which stakeholder group (government, industry, or advocacy) was most effective at influencing the transfer of attribute salience from political public relations messages to news media content in short-term, mid-term, and long-term time periods?

Third-level Agenda-building

More recently, scholars have conceptualized and empirically tested a third level of agenda-building that is concerned with the co-occurrence of objects and object attributes. Network theory has been used to test the third level of agenda-building (e.g., Guo and McCombs 2011; Guo, Vu, and McCombs 2012; Kiousis et al. 2013). The co-occurrence of

certain attributes and/or objects with one another leads to a greater likelihood that they will be perceived as salient *together*. This co-occurrence can be for a few items on an agenda to a whole pattern of connections among elements. Guo, Vu, and McCombs have summarized this by saying:

> news media can actually bundle different objects and attributes and make these bundles of elements salient in the public's mind simultaneously. Drawing from Lang's (2000) theoretical framework, the NAS model hypothesizes that the more likely the news media mention two elements in tandem, the greater chance that the audience will perceive these two elements as interconnected. (Guo, Vu, and McCombs 2012, 55)

Pan and Kosicki (2001, 43) described this process as "frame alignment", in which particular frames becomes discursively and ideologically aligned with others and form a "discursive community" in the public's mind (Powers 2008). In political public relations, this can have major ramifications for how issues, such as fracking, are depicted and perceived in political discourse. Dependent upon the position a stakeholder has in the political sphere, and the depth and scope of their strategic network, they can dictate the manner in which the public deliberates on an issue and how the information that feeds that deliberation flows through their "web of subsidies" (Pan and Kosicki 2001, 58). This process can significantly influence not only public opinion, but the outcomes of governing and policymaking. For example, past agenda-building inquiries have looked at how the Bush administration successfully linked Iraq and public fear of weapons of mass destruction. These two objects became salient together in both the media, and in turn, public discourse, thus bolstering support for the eventual invasion (Tedesco 2005). More recent examples of agenda-building can be traced to the increasing power of special-interest groups in the area of public health policy (Cook et al. 1983; Korthagen and Van Meerkerk 2014). For example, the coverage portraying the MMR vaccination as dangerous or unsafe, and leading to the development of childhood autism, has been blamed for reducing rates of vaccination in certain areas in the United States, which has resulted in greater incidence rates of childhood measles (Salmon et al. 2015). Interest groups like Don't Let Florida Go to Pot were able to successfully link the fear of teen marijuana use as a result of loopholes in the regulation of Florida's Amendment 2, which would have legalized the use of medicinal marijuana (Schweickart et al. 2015).

Given the implications for media, public opinion discourse, and policymaking, the co-occurrence and saliency of issues and attributes is of particular interest for this study. The following hypotheses are offered to examine the co-occurrence or third level of agenda-building of fracking objects in the United Kingdom:

H6a–c: The salience of network associations of issues in political public relations messages will positively influence the salience of network associations of issues in news media content in short-term (H6a), mid-term (H6b), and long-term (H6c) time periods.

H7a–c: The salience of network associations of fracking stakeholders in political public relations messages will positively influence the salience of network associations of stakeholders in news media content in short-term (H7a), mid-term (H7b), and long-term (H7c) time periods.

RQ3: Which stakeholder group (government, industry, or advocacy) was most effective at influencing the transfer of network associations from political public relations messages to news media content in the short-term, mid-term, and long-term time periods?

Method

This study employed a quantitative content analysis to explore the agenda-building relationships between multiple stakeholder groups and media. In order to provide a robust picture of the political discourse surrounding fracking in the United Kingdom, media coverage along with government, industry, and anti-fracking advocacy information subsidies were examined from July 1, 2012 to June 30, 2014. Information subsidies can be defined as "controlled information provided to a recipient at minimal cost and effort on his or her behalf" (Lariscy, Avery, and Sohn 2010, 114). Research suggests that up to 80 percent of news content or media coverage is generated from information subsidies provided by other stakeholders (Sweetser, Golan, and Wanta 2008).

Sampling Procedure

Diverse types of government information subsidies from the governmental website (www.uk.gov) were examined (including 60 speeches, 31 press releases, 31 blogs, and 36 announcements). Governmental subsidies were searched with the fracking-related keywords—"fracking," "hydraulic fracturing," and "shale gas"—from all governmental departments, including the Prime Minister's Office, Her Majesty's Treasury, and the DECC. In addition, social media messages were also obtained from the major stakeholders' Twitter ($N = 25$) accounts: David Cameron (Prime Minister), George Osborne (Chancellor of the Exchequer), Edward Davey (Secretary of State for Energy and Climate Change), and the official accounts of the Prime Minister's Office, Her Majesty's Treasury, and the DECC. In total, 1045 government information subsidies were included in the analysis.

After initial research into fracking by the authors, industry and advocacy groups were selected based on how prominent they were in the discussion of fracking issues in the United Kingdom. Using the same keywords and time frame, industry (Cuadrilla, Total, and Centrica) and advocacy (Friends of the Earth, Green Peace, and Frack Off) stakeholder subsidies were also obtained from their official websites ($N = 202$), Twitter accounts ($N = 256$), and Facebook accounts ($N = 175$). A total of 350 industry and 2770 advocacy subsidies were included in the analysis.

Media content of fracking was obtained through four prominent United Kingdom newspapers: *The Guardian* ($N = 88$), *The Times* ($N = 214$), *The Independent* ($N = 51$), and *The Daily Telegraph* ($N = 161$). These four newspapers were among the top list of UK daily newspaper readership (Hollander 2013), and reflect a broad spectrum of political orientation (Wring and Deacon 2010). Using the same keywords and time frame, a total of 2605 articles were collected. Due to the large population size, media content and information subsidies were systematically sampled to include 20 percent of the overall data population. The result was a final sample of 514 news content and 840 information subsidies, totaling 1354 unique coded items.

Object Salience: Issues

Nine issues related to fracking were chosen for analysis, including: (1) Environment (i.e., green issues, forest protection, water quality), (2) Economics (i.e., industry, markets, business, consumption patterns), (3) Politics/policymaking (i.e., political parties, energy policies, policy design and benefits, regulation), (4) Community action/civil society (i.e.,

protests, campaigns), (5) Corruption (i.e., in governing, law enforcement, unethical industry behavior), (6) Innovation/science (i.e., scientific findings, new technology, future energy supply), (7) Community relations (i.e., industry and corporate social responsibility), (8) Safety and health (i.e., concerns or outcomes of fracking), and (9) Other. These issues were adopted from a prior media-framing analysis study on climate change (Di Gregorio et al. 2013), and adapted to include safety and health as a category based on the coder's initial review of media content. Each issue was coded as 1 (present) and 0 (absent) for all messages sampled. Existing agenda-building studies have used the same dichotomous coding strategy (present or absent) for issues and object salience (Kim and Kiousis 2012; Kiousis et al. 2014).

Attribute Salience: Issue Frames and the Tone of Issue

This study examined the substantive and affective attributes of the nine issues related to fracking listed above. The substantive elements chosen were based upon previous scholarship, and included: (1) Conflict, (2) Cooperation (harmony), (3) Problem/issue definition, (4) Proposed solution to the problem, (5) Responsibility attribution, (6) Human interest, (7) Consequences and outcomes, (8) Morality and motivation to take actions, and (9) Other (Di Gregorio et al. 2013; Entman 2003). The affective element (tone) of an issue was coded as: (1) Positive, (2) Negative, (3) Neutral, or (4) Not applicable.

Object Salience: Stakeholders

To explore the salience of stakeholders at the first level of agenda-building, 14 stakeholder categories were selected: (1) National and bureaucratic actors (primary governmental stakeholders), (2) Local state actors (police officers, local council officials), (3) Legal, (4) Trade union, (5) Farmers' groups (landowners), (6) Indigenous organizations, (7) Non-governmental organizations (environment commitment), (8) Non-governmental organizations (without environmental commitment), (9) Business, (10) Fracking/energy industry (e.g., Centrica, Total, Cuadrilla, etc.), (11) Research institution, (12) Intergovernmental organizations (secondary governmental stakeholders), (13) Individual(s) (no organization affiliation indicated, citizens, member(s) of local community), and (14) Expert (university professor, etc.). These stakeholder groups were adopted and adjusted from Di Gregorio et al. (2013). Each stakeholder was coded as 1 (present) and 0 (absent) for all messages sampled.

Attribute Salience: Stakeholder Characteristics

To explore the salience of substantive stakeholder attributes at the second level of agenda-building, seven stakeholder attributes were adopted from Heath and Millar's (2004) crisis communication study. These attributes were conceptualized as stakeholder characteristics and developed into the following categories: (1) Proponent (of fracking), (2) Opponent (of fracking), (3) Beneficiary (financially benefiting from fracking), (4) Victim (financial or land loss or negative health issues as a result of fracking), (5) Facilitator (works on behalf of proponents of fracking), (6) Obstructor (actively protests or attempts to prevent fracking), and (7) Objective Observer (offers expert opinion on fracking). For stakeholders appearing in the messages, their characteristics were coded as 1 (present) or 0 (absent).

Intercoder Reliability

Four trained coders completed the coding process. A pretest was conducted to assess the coding protocol, with 10 percent of the sample analyzed to confirm intercoder reliability. Krippendorff's alpha (α) intercoder reliability scores were satisfactory for all main variables: issue (0.81), issue attributes (substantive: 0.77; affective: 0.86), stakeholders (0.80), and stakeholder attributes (0.86).

Data Analysis Strategy

This study used Spearman's rho cross-lagged correlations (e.g., McCombs and Shaw 1972) to assess the first- and second-level hypotheses and research questions regarding the transfer of issue, issue attribute, stakeholder, and stakeholder attribute salience between the various agendas. To test the third-level hypotheses and research question, UCINET 6.0 (Borgatti, Everett, and Freeman 2002) was used to generate quadratic assignment procedure (QAP) correlations, which measured the network agenda associations between the various agendas (Guo and McCombs 2011).

To the test our hypotheses on the relational influence public relations has on news media, a lagged model was used to assess temporal order across four time periods. The study's two-year timeline was divided into four six-month time periods to assess the short-, mid-, and long-term effects of agenda-building: Time 1 (T1; July 1 to December 31, 2012), Time 2 (T2; January 1 to June 30, 2013), Time 3 (T3; July 1 to December 31, 2013) and Time 4 (T4; January 1 to June 30, 2014). When a significant relationship between public relations and news media in two time periods is present, but not vice versa (e.g., public relations at T1 to news media at T2), we assume that there is a directional influence of public relations on media coverage. If there is a significant relationship in both directions, we conclude that there is bi-directional or reciprocal influence. Finally, if there are no significant relationships, we conclude that there is no influence between the two.

Results

First-level Agenda-building Findings

H1a–c predicted that the salience of issues in public relations messages would positively influence the salience of issues in news media content in short-term, mid-term, and long-term time periods. As shown in Table 1, H1a was supported in 5 out of the 18 possible short-term associations and for all types of information subsidies, except speeches. Some reciprocal (3 out of 18) and opposite direction (4 out of 18) of influence relationships were also found. H1b was supported in 5 out of the 12 possible mid-term associations showing that Twitter significantly influenced news media content in all possible mid-term associations. Some reciprocal (2 out of 12) and opposite direction (3 out of 12) of influence relationships were also found. H1c was supported in two of the six possible long-term associations with Twitter and governmental announcements. An opposite direction of influence was found with blogs while reciprocal influence was found with speeches and press releases. Thus, modest support was found for the first hypothesis.

H2a–c predicted the influence of public relations messages on news media in stakeholder associations. The short-term relationship in H2a was supported in only one of the 18 possible associations with Facebook at T2 (Table 2). Of the remaining associations, 17

TABLE 1

Linkages among information subsidies and news media content of fracking issues

Information subsidy	Public relations → National newspapers			National newspapers → Public relations		
Short term	T1 → T2	T2 → T3	T3 → T4	T1 → T2	T2 → T3	T3 → T4
Mid term	T1 → T3	T2 → T4		T1 → T3	T2 → T4	
Long term	T1 → T4			T1 → T4		
Speeches	0.73*	0.54	0.78*	0.65*	0.50	0.77*
	0.73*	0.55		0.50	0.85**	
	0.73*			0.85**		
Press release	0.79**	0.54	0.60	0.44	0.92**	0.84**
	0.68*	0.34		0.91**	0.82**	
	0.79**			0.95**		
Blog	0.90**	0.79*	0.54	0.53	0.78*	0.91**
	0.70*	0.54		0.88**	0.74*	
	0.51			0.74*		
Twitter	0.47	0.78*	0.50	0.56	0.29	0.58
	0.80**	0.68*		0.22	0.24	
	0.84**			0.41		
Facebook	0.04	0.68*	0.49	0.46	0.42	0.68*
	0.47	0.70*		0.28	0.36	
	0.46			0.48		
Announcement	0.91**	0.06	0.00	0.15	0.25	0.22
	0.76*	0.44		0.25	0.45	
	0.79*			0.45		

$*p < 0.05$, $**p < 0.01$.

showed reciprocal influence. H2b predicted agenda-building relationships within the mid-term time period. This hypothesis was supported in only 1 of the 12 possible associations, with Facebook at T1. Of the remaining associations, 17 showed reciprocal influence. Finally, there were no significant long-term agenda-building associations (H2c). All six associations showed reciprocal influence. Therefore, there was limited-to-no support found for the second hypothesis.

RQ1 asked what stakeholder group (government, industry, or advocacy) was most effective at transferring object salience (issues and stakeholders) from political public relations messages to news media content in all time periods. Table 3 highlights that, across all time periods, aggregated government information subsidies primarily showed shared influence. Aggregate advocacy subsidies showed mixed results in influencing issue salience in news media content. Advocacy public relations messages successfully influenced news media content in the short-term (one out of three), mid-term (one out of two), and long-term (one out of one) period. Finally, aggregate industry subsidies showed a significant relationship with only one (out of three) association. Hence, advocacy groups showed the most significant relationships (three out of six). In regard to stakeholder salience, all 18 associations present reciprocal influence (Table 4).

Second-level Agenda-building Findings

H3a–c predicted that the salience of substantive issue frames in public relations messages would positively influence the salience of substantive issues in news media

TABLE 2
Linkages among information subsidies and news media content of fracking stakeholders

Information subsidy	Public relations → National newspapers			National newspapers → Public relations		
Short term	T1 → T2	T2 → T3	T3 → T4	T1 → T2	T2 → T3	T3 → T4
Mid term	T1 → T3	T2 → T4		T1 → T3	T2 → T4	
Long term	T1 → T4			T1 → T4		
Speeches	0.82**	0.72**	0.62**	0.87**	0.73**	0.61*
	0.82**	0.81**		0.70**	0.76**	
	0.89**			0.74**		
Press release	0.78**	0.73**	0.86**	0.83**	0.84**	0.75**
	0.75**	0.81**		0.92**	0.74**	
	0.78**			0.68**		
Blog	0.89**	0.85**	0.90**	0.91**	0.80*	0.89**
	0.95**	0.91**		0.91**	0.85**	
	0.90**			0.84**		
Twitter	0.59*	0.76**	0.81**	0.53*	0.71**	0.84**
	0.71**	0.75**		0.82**	0.69**	
	0.78**			0.73**		
Facebook	0.62**	0.84**	0.59**	0.65**	0.41	0.87*
	0.75**	0.83**		0.46	0.67**	
	0.80**			0.68**		
Announcement	0.92**	0.72**	0.61*	0.82**	0.61*	0.52*
	0.71**	0.80**		0.61**	0.73**	
	0.80**			0.77**		

*$p < 0.05$, **$p < 0.01$.

TABLE 3
Linkages among aggregated information subsidies and news media content of fracking issues by stakeholder group

Stakeholder group	Public relations → National newspapers			National newspapers → Public relations		
Short term	T1 → T2	T2 → T3	T3 → T4	T1 → T2	T2 → T3	T3 → T4
Mid term	T1 → T3	T2 → T4		T1 → T3	T2 → T4	
Long term	T1 → T4			T1 → T4		
Government	0.85*	0.62	0.78*	0.76*	0.85**	0.64*
	0.68*	0.72*		0.95**	0.91**	
	0.78*			0.91**		
Industry	0.81**	0.52	0.73*	0.62	0.97**	0.28
	0.55	0.34		0.90**	0.62	
	0.44			0.55		
Advocacy	0.22	0.66*	0.55	0.36	0.37	0.74*
	0.61	0.67*		0.25	0.38	
	0.64*			0.52		

*$p < 0.05$, **$p < 0.01$.

content. Table 5 showed the results of the 18 short-term, 12 mid-term, and 6 long-term associations. No subsidy proved effective at transferring substantive issue salience to news media content. News media content were effective at influencing press releases

TABLE 4
Linkages among aggregated information subsidies and news media content of fracking stakeholders by stakeholder group

Stakeholder group	Public relations → National newspapers			National newspapers → Public relations		
Short term	T1 →T2	T2 →T3	T3 →T4	T1 →T2	T2 →T3	T3 →T4
Mid term	T1 →T3	T2 →T4		T1 →T3	T2 →T4	
Long term	T1 →T4			T1 →T4		
Government	0.95**	0.78**	0.76**	0.85**	0.81**	0.77**
	0.88**	0.84**		0.86**	0.96**	
	0.94**			0.85**		
Industry	0.70**	0.70**	0.61*	0.78**	0.69**	0.76**
	0.74**	0.73**		0.59**	0.68**	
	0.57*			0.67**		
Advocacy	0.69*	0.86**	0.93**	0.68**	0.79**	0.87**
	0.84**	0.85**		0.85**	0.76**	
	0.89**			0.75**		

*$p < 0.05$, **$p < 0.01$.

TABLE 5
Linkages among information subsidies and news media content of fracking substantive issue frames

Information subsidy	Public relations → National newspapers			National newspapers → Public relations		
Short term	T1 → T2	T2 → T3	T3 → T4	T1 → T2	T2 → T3	T3 → T4
Mid term	T1 → T3	T2 → T4		T1 → T3	T2 → T4	
Long term	T1 → T4			T1 → T4		
Speeches	0.51	0.25	0.46	0.06	0.46	0.32
	0.28	0.11		0.39	0.59	
	0.51			0.50		
Press release	0.17	0.19	0.85**	0.10	0.78**	0.65*
	0.03	0.10		0.83**	0.82**	
	0.17			0.82**		
Blog	0.77*	0.87**	0.73*	0.82**	0.81*	0.97**
	0.58	0.72*		0.84**	0.93**	
	0.67*			0.96**		
Twitter	0.18	0.23	0.43	0.06	0.35	0.57
	0.46	0.07		0.43	0.43	
	0.23			0.48		
Facebook	0.27	0.60	0.38	0.42	0.32	0.30
	0.46	0.52		0.36	0.06	
	0.27			0.08		
Announcement	0.51	0.11	0.41	0.25	0.41	0.59
	0.34	0.36		0.25	0.73*	
	0.51			0.59		

*$p < 0.05$, **$p < 0.01$.

TABLE 6

Linkages among information subsidies and news media content of fracking affective issue frames

Information subsidy	Public relations → National newspapers			National newspapers → Public relations		
Short term	T1 → T2	T2 → T3	T3 → T4	T1 → T2	T2 → T3	T3 → T4
Mid term	T1 → T3	T2 → T4		T1 → T3	T2 → T4	
Long term	T1 → T4			T1 → T4		
Speech	0.32	0.12	0.56**	0.15	0.53**	0.40*
	0.28	0.17		0.53**	0.45*	
	0.29			0.38*		
Press release	0.37*	0.13	0.55**	0.27	0.57**	0.21
	0.32	0.17		0.56**	0.43*	
	0.36*			0.46*		
Blog	0.48**	0.47**	0.46*	0.65**	0.61*	0.85**
	0.40*	0.47*		0.57**	0.71*	
	0.42*			0.71**		
Twitter	0.12	0.71**	0.54**	0.49**	0.28	0.64**
	0.37*	0.50**		0.41*	0.30	
	0.31			0.40*		
Facebook	0.03	0.42*	0.25	0.39*	0.12	0.50**
	0.51**	0.40*		0.16	0.21	
	0.40*			0.44*		
Announcement	0.25	0.09	0.03	0.17	0.29	0.34
	0.14	0.23		0.20	0.39*	
	0.09			0.38*		

$*p < 0.05$, $**p < 0.01$.

within three associations, spread across short-, mid-, and long-term time periods. Blogs showed a reciprocal relationship across five out of six possible associations. These findings provided limited support for our hypothesis.

H4a–c predicted the salience of affective issues in political public relations messages would positively influence the salience of affective issues in news media content in the short-term, mid-term, and long-term time periods. Table 6 shows that public relations messages were effective in influencing news media content in 4 of the 18 short-term associations and in 3 of the 12 mid-term associations. Particularly, relationships were found with press releases and social media subsidies (Twitter and Facebook). In addition, our results showed more successful relationships in the opposite direction. Five short-term, five mid-term, and three long-term associations were found showing news media content influencing public relations messaging. There were also 11 associations that showed significant shared influence, of which six of six blog–news media associations represented this relationship. There was moderate support for our hypothesis.

H5a–c predicted the salience of stakeholder characteristics in political public relations messages would positively influence the salience of stakeholder characteristics in news media content in short-term, mid-term, and long-term time periods. As shown in Table 7, this hypothesis was supported in 5 of the 18 short-term associations, 3 of the 12 mid-term associations, and three of the six long-term associations. Some opposite direction (three short-term associations and two mid-term associations) and reciprocal relationships (two short-term associations) were found. Overall, speeches were effective at influencing

TABLE 7
Linkages among information subsidies and news media content of fracking stakeholder characteristics

Information subsidy	Public relations → National newspapers			National newspapers → Public relations		
Short term	T1 → T2	T2 → T3	T3 → T4	T1 → T2	T2 → T3	T3 → T4
Mid term	T1 → T3	T2 → T4		T1 → T3	T2 → T4	
Long term	T1 → T4			T1 → T4		
Speech	0.62	0.11	0.69*	0.59	0.52	0.32
	0.53	0.70*		0.51	0.56	
	0.87**			0.51		
Press release	0.57	0.40	0.75*	0.80*	0.70*	0.90**
	0.39	0.67		0.86**	0.72*	
	0.87**			0.83*		
Blog	0.67*	0.70*	0.96**	0.81*	0.39	0.59
	0.67	0.85**		0.45	0.51	
	0.52			0.61		
Twitter	0.18	0.86**	0.31	0.20	0.02	0.90**
	0.64	0.38		0.18	−0.08	
	0.71*			−0.02		
Facebook	0.35	0.70*	0.14	0.34	−0.05	−0.05
	0.67	0.74*		0.00	−0.51	
	0.13			−0.40		
Announcement	0.57	0.30	0.41	0.18	−0.52	0.06
	0.40	0.54		−0.41	0.55	
	0.87**			0.60		

*$p < 0.05$, **$p < 0.01$.

TABLE 8
Linkages among aggregated information subsidies and news media content of fracking substantive issue frames by stakeholder group

Stakeholder group	Public relations → National newspapers			National newspapers → Public relations		
Short term	T1 → T2	T2 → T3	T3 → T4	T1 → T2	T2 → T3	T3 → T4
Mid term	T1 → T3	T2 → T4		T1 → T3	T2 → T4	
Long term	T1 → T4			T1 → T4		
Government	0.39	0.40	0.44	0.39	0.75*	0.48
	0.34	0.17		0.71*	0.62*	
	0.16			0.59		
Industry	0.80**	0.80**	0.39	0.81**	0.72*	0.57
	0.68*	0.85**		0.75*	0.70*	
	0.67*			0.68**		
Advocacy	−0.05	0.40	0.27	0.13	0.17	0.31
	0.20	0.08		0.28	0.05	
	−0.02			0.10		

*$p < 0.05$, **$p < 0.01$.

TABLE 9

Linkages among aggregated information subsidies and news media content of fracking affective issue frames by stakeholder group

Stakeholder group	Public relations → National newspapers			National newspapers → Public relations		
Short term	T1 → T2	T2 → T3	T3 → T4	T1 →T2	T2 → T3	T3 → T4
Mid term	T1 → T3	T2 → T4		T1 → T3	T2 → T4	
Long term	T1 → T4			T1 → T4		
Government	0.43*	0.27	0.41*	0.42*	0.60**	0.32
	0.37*	0.36*		0.52*	0.54**	
	0.41*			0.48**		
Industry	0.44*	0.30	0.32	0.38*	0.58**	0.02
	0.18	0.27		0.35*	0.28	
	0.18			0.12*		
Advocacy	0.10	0.46	0.61*	0.37*	0.30	0.67**
	0.47*	0.42*		0.52*	0.31	
	0.40*			0.48**		

$*p < 0.05$, $**p < 0.01$.

TABLE 10

Linkages among aggregated information subsidies and news media content of fracking stakeholder characteristics by stakeholder group

Stakeholder group	Public relations→National newspapers			National newspapers → public relations		
Short term	T1 → T2	T2 → T3	T3 → T4	T1 → T2	T2 → T3	T3 → T4
Mid term	T1 → T3	T2 → T4		T1 → T3	T2 → T4	
Long term	T1 → T4			T1 → T4		
Government	0.58	0.27	0.43	0.41	0.50	0.90
	0.56	0.23		0.47	0.66	
	0.63			0.54		
Industry	0.27	0.19	0.35	0.62	0.49	0.43
	−0.06	0.36		0.44	0.39	
	0.40			0.45		
Advocacy	0.44	0.94**	0.25	0.14	−0.02	0.86**
	0.78*	0.60		0.10	−0.20	
	0.76*			−0.11		

$*p < 0.05$, $**p < 0.01$.

news media content across all time periods, with press releases the subsidy type most influenced by news media content. These findings indicate moderate support for our hypothesis.

RQ2 asked which stakeholder group (government, industry, or advocacy) was most effective at transferring attribute salience from political public relations messages in news media content. For substantive issue frames (Table 8), no stakeholder group proved to be effective. However, news media content influenced three associations, all of which were governmental, and showed reciprocal influence with five associations, all of which were with industry.

TABLE 11

QAP linkages among information subsidies and news media content of fracking issues

Information subsidy	Public relations → National newspapers			National newspapers → Public relations		
Short term	T1 → T2	T2 → T3	T3 → T4	T1 → T2	T2 → T3	T3 → T4
Mid term	T1 → T3	T2 → T4		T1 → T3	T2 → T4	
Long term	T1 → T4			T1 → T4		
Speech	0.71	0.82**	0.87*	0.59	0.95*	0.89**
	0.73*	0.74**		0.51	0.94**	
	0.67			0.51		
Press release	0.71*	0.05	0.86*	0.80*	0.92**	0.82*
	0.73*	−0.13		0.86**	0.82**	
	0.67*			0.83*		
Blog	0.55*	0.75**	0.37	0.81*	0.53	0.91**
	0.63*	0.70*		0.45	0.97***	
	0.50			0.61		
Twitter	0.71*	–	0.62*	0.20	0.74**	0.16
	0.73*	–		0.18	0.73	
	0.67*			−0.02		
Facebook	0.35	0.50	0.02	0.34	−0.10	0.30
	0.57	0.74*		0.00	0.19	
	0.47			−0.40		
Announcement	0.90**	0.04	–	0.18	–	0.72**
	0.87**	0.39		−0.41	0.72*	
	0.83**			0.60		

$*p < 0.05$, $**p < 0.01$, $***p < 0.001$.

For affective issue frames (Table 9), only 2 out of the 18 possible associations indicated public relations influence on news media content with governmental information subsidies and advocacy information subsidies. Five associations indicate news content influenced public relations messaging while eight associations showed shared influence.

For fracking stakeholder characteristics (Table 10), there was limited evidence to suggest a strong relationship. Among the groups, advocacy proved to be the only stakeholder to have a significant relationship. As such, public relations messages positively influenced characteristic salience in three associations spread across short-, mid-, and long-term time periods. However, news media content at T3 did influence public relations messaging at T4.

Third-level Agenda-building Findings

H6a–c expected the salience of network associations of issues in political public relations messages would positively influence the salience of network associations among issues in news media content in the short-term, mid-term, and long-term time periods. Four short-term (out of 18), three mid-term (out of 12) and two long-term (out of six) associations were found indicating public relations messages influenced network associations in news content (Table 11). Across all time periods, governmental announcements proved the most effective subsidy for network issue salience transfer. News content

TABLE 12

QAP linkages among information subsidies and news media content of fracking stakeholders

Information subsidy	Public relations → National newspapers			National newspapers → Public relations		
Short term	T1 → T2	T2 → T3	T3 → T4	T1 → T2	T2 → T3	T3 → T4
Mid term	T1 → T3	T2 → T4		T1 → T3	T2 → T4	
Long term	T1 → T4			T1 → T4		
Speech	0.63***	0.49*	0.24	0.71***	0.47*	0.37*
	0.65***	0.50*		0.65**	0.68***	
	0.50**			0.82***		
Press release	0.54**	0.54*	0.56**	0.63**	0.68***	0.21
	0.59***	0.59**		0.85***	0.54***	
	0.69**			0.73***		
Blog	0.61***	0.70***	0.74***	0.85***	0.78***	0.80***
	0.69***	0.71***		0.84***	0.63**	
	0.66***			0.52**		
Twitter	0.04	0.39*	0.60***	0.17	0.46*	0.45*
	0.10	0.48**		0.46*	0.26	
	0.67			0.34*		
Facebook	0.22	0.69**	0.68**	0.40*	0.41*	0.81***
	0.59**	0.68***		0.39*	0.42*	
	0.57**			0.39*		
Announcement	0.85***	−0.04	–	0.11	–	0.27*
	0.53**	0.05		–	0.40**	
	0.51**			0.59***		

*$p < 0.05$, **$p < 0.01$, ***$p < 0.001$.

TABLE 13

QAP linkages among aggregated information subsidies and news media content of fracking issues by stakeholder group

Stakeholder group	Public relations → National newspapers			National newspapers → Public relations		
Short term	T1 → T2	T2 → T3	T3 → T4	T1 → T2	T2 → T3	T3 → T4
Mid term	T1 → T3	T2 → T4		T1 → T3	T2 → T4	
Long term	T1 → T4			T1 → T4		
Government	0.87*	0.32	0.79*	0.35	0.89*	0.84**
	0.84**	0.34		0.88*	0.86*	
	0.89**			0.84**		
Industry	0.38	−0.07	0.34	−0.06	0.35	0.41
	0.47	−0.19		0.45*	0.34	
	0.26			0.35		
Advocacy	0.37	−0.02	0.53	0.05	0.53	0.88**
	0.37	0.29		0.53*	0.86**	
	0.67*			0.87***		

*$p < 0.05$, **$p < 0.01$, ***$p < 0.001$.

showed similar capability in influencing public relations message network issue salience, with four significant short-term and two mid-term associations. Nine reciprocal associations were also found. As a result, there is limited support for our hypothesis.

TABLE 14

QAP linkages among aggregated information subsidies and news media content of fracking stakeholders by stakeholder group

Stakeholder group	Public relations → National newspapers			National newspapers → Public relations		
Short term	T1 → T2	T2 → T3	T3 → T4	T1 → T2	T2 → T3	T3 → T4
Mid term	T1 → T3	T2 → T4		T1 → T3	T2 → T4	
Long term	T1 → T4			T1 → T4		
Government	0.83***	0.48*	0.79*	0.74***	0.64***	0.59**
	0.65**	0.52*		0.78***	0.85***	
	0.62**			0.89***		
Industry	0.50**	0.30*	0.34	0.54**	0.43*	0.55**
	0.61**	0.36		0.42*	0.63**	
	0.55*			0.74**		
Advocacy	0.37*	0.79***	0.53	0.61**	0.53*	0.81***
	0.73**	0.83***		0.53**	0.50*	
	0.72**			0.50*		

$*p < 0.05$, $**p < 0.01$, $***p < 0.001$.

TABLE 15

Summary of information subsidies and news media content linkages

Information subsidy	Number of significant predictor associations[a]	Median correlation	Number of significant short-term associations (median correlation)[b]	Number of significant mid-term associations (median correlation)[c]	Number of significant long-term associations (median correlation)[d]
Speech	5	0.73	1 (0.69)	3 (0.73)	1 (0.87)
Press release	4	0.56	4 (0.56)	0	0
Blog	6	0.80	4 (0.83)	2 (0.74)	0
Twitter	13	0.71	5 (0.71)	5 (0.68)	3 (0.73)
Facebook	10	0.70	4 (0.69)	6 (0.72)	0
Announcement	9	0.85	3 (0.90)	3 (0.76)	3 (0.83)
Median correlation	–	0.72	0.70	0.73	0.83

Total number of possible correlations is: [a]42; [b]21; [c]14; [d]7.

H7a–c predicted that the salience of network associations among stakeholders in political public relations messages would positively influence the salience of network associations of fracking stakeholders in news media content across all time periods. As shown in Table 12, our findings demonstrate primarily a shared influence between public relations messages and news content (23 out of 36 associations). Only three associations supported our hypothesis while six associations were found in the opposite direction. Our hypothesis was not supported.

RQ3 asked which stakeholder group was most effective at transferring network associations in all time periods. Except government, no stakeholder group was effective at influencing network associations within news content. Six associations showed news content was effective at influencing public relations messages and four associations

TABLE 16

Summary of stakeholder groups and news media content linkages

Stakeholder group	Number of significant predictor associations[a]	Median correlation	Number of significant short-term associations (median correlation)[b]	Number of significant mid-term associations (median correlation)[c]	Number of significant long-term associations (median correlation)[d]
Government	2	0.64	2 (0.64)	0	0
Industry	2	0.77	2 (0.77)	0	0
Advocacy	7	0.67	2 (0.80)	3 (0.67)	2 (0.70)
Median correlation	–	0.67	0.74	0.67	0.70

Total number of possible correlations is: [a]42; [b]21; [c]14; [d]6.

demonstrated shared influence. In regard to the fracking stakeholder network association linkages, 15 out of 18 associations demonstrated a shared influence (Tables 13 and 14).

Overall, our findings provided mixed results suggesting public relations messages may have influenced news media coverage of fracking in the United Kingdom. As a subsidy type, social media have the most associations, particularly on Twitter (median correlation, 0.71) (Table 15). Governmental announcements were effective across all time periods (median correlation, 0.85); while press releases have limited agenda-building capacity outside of the short-term period. Although median correlation was highest in the long term, fewer subsidy types were able to significantly influence news content within that time period. Furthermore, anti-fracking advocacy groups were the only stakeholder group to successfully influence object/attribute salience in news content during the mid-term and long-term time periods (median correlation, 0.67) (Table 16).

Discussion

To advance both the theoretical and practical understanding of political public relations, this study examined three levels of agenda-building associations between public relations messages and news media content about fracking in the United Kingdom. The current study highlights the complex interplay among government, industry, and environmental advocacy groups as they compete to shape news media agendas and to offer insight into why British public opinion has changed so dramatically during this two-year time period. To provide a temporal understanding as to the efficacy of individual and aggregated public relations message strategies, information subsidies from these key stakeholder groups were analyzed through a time-lag analysis. The results present support for agenda-building at all three levels, in addition to providing valuable insight into which information subsidies were most successful at influencing news media coverage, and within what time periods.

Theoretical Implications

This study offers a unique theoretical examination into how the traditional study of object/attribute salience can be re-conceptualized to include the transfer of stakeholder

and stakeholder characteristics between political public relations messages and news media content. By employing this new approach, an additional lens of inspection is offered to the agenda-building process beyond the conventional examination of issue and frame salience and transference. The results of our analysis provide empirical support for the transference of object (first-level) salience from public relations information subsidies within news media, but also highlighted a distinction between issue and stakeholder salience transference. Specifically, and across all three levels, public relations messages were more effective at influencing news media content of issue salience, while stakeholder salience demonstrated a strong, shared relationship between subsidies and news content.

For attribute (second-level) salience, this dynamic tended to differ as substantive and affective issue frames in news media were poorly influenced by public relations messages. However, fracking stakeholder characteristics were more effectively transferred to news media content by public relations content. Of particular interest was the difference in aggregated information source efficacy (Table 10), as anti-fracking advocacy groups were the only stakeholder group effective in influencing stakeholder characteristics in news media content. Therefore, it can be hypothesized that, although there remained a limited number/type of stakeholders discussed in relation to fracking, there was a strong reciprocity among subsidies and news content, and it was advocacy public relations messages that facilitated the characterization of those stakeholders more effectively and more negatively.

These results may reflect the controversies surrounding the environmental impact of fracking. As we introduced earlier in this study, researchers, industries, and government officials experience conflicts and continue to disagree upon how to understand the pros and cons of fracking-related issues, such as technology, energy supplies, and environmental protection (Beauduy 2011; Boudet et al. 2014; Cotton, Rattle, and Van Alstine 2014; Goldstein, Kriesky, and Pavliakova 2012; Jackson et al. 2014; Nicot and Scanlon 2012). Consequently, agenda-building linkages between government information subsidies and media content are weak when the uncertainty level remains high. Pan and Kosicki (2001) describe this process as the strategic narrativization of information, which can increase the symbolism and dramatism of issue attributes being repeatedly presented to the public. It is possible, therefore, the negative characterizations presented by advocacy groups had a more significant impact on public perception of fracking and the stakeholders associated by way of the news media.

Collectively, the results of our study provide empirical support for the agenda-building process across three different levels. Our results also suggest solid support for network agenda-building regarding the salience of issues (Table 11), but a shared influence of stakeholders (Table 12). This study examined what Carroll (2016) refers to as uniplex relationships, or the salience of the link that connects objects or attributes. Our results further the theoretical understanding of the strength and frequency of links connecting objects or attributes and the saliency that may ensue in the news media and in public opinion. Previous network agenda-building studies have also examined uniplex relationships for crisis communication (Kim et al. 2016), presidential agenda-building (Kiousis et al. 2016), and special-interest groups (Schweickart et al. 2015). These studies theoretically demonstrate the importance of network analysis for understanding the agenda-building process. This study assesses the effect of network agenda-building in a unique issue-based context, and shows that the co-occurrence of objects is not uniform for all types

of objects. Specifically, the co-occurrence of issues was significantly greater than that of sta-keholders. This finding suggests that more empirical work is needed to identify differences in the type and frequency for object co-occurrence.

Practical Implications

The current study's findings counter previous research, which highlighted the contin-ued effectiveness of traditional political public relations subsidies in the face of burgeoning digital communication subsidies (Kiousis et al. 2016). By analyzing the US presidential agenda-building process, previous scholarship continually demonstrated that traditional subsidy types remain the most effective channels for political public relations messages to influence news coverage. Although the current study applied the agenda-building relationships within an international context in the United Kingdom, the results of this study support the growing influence of digital information subsidies as a means of disse-minating a multiplatform message strategy. In particular, Twitter was able to provide the greater number of significant relationships in influencing news content (Twitter: 13 associ-ations, median correlation 0.71; Facebook: 10 associations, median correlation 0.70; blogs: 6 associations, median correlation 0.80) across short-term, mid-term, and long-term time periods.

Even though the results indicate a shift in the efficacy of traditional subsidies for dis-seminating a stakeholder's message about fracking, for government, however, traditional information subsidies still played a role in shaping news coverage. Particularly, governmen-tal announcements, which had the strongest median correlation (nine associations, median correlation 0.85), continued to be effective across all three time periods, while press releases and speeches proved less effective.

By examining agenda-building associations within different time periods, our results encourage public relations professionals to consider the effectiveness of information sub-sidies in the long term. It may take a time longer to shape the social agenda for complex issues such as fracking, but consistent, if albeit less well-resourced, attempts to build an agenda may ultimately affect public opinion more significantly. When viewed collectively, advocacy groups were the most effective stakeholder group at influencing news coverage in the short-, mid-, and long-term time periods (seven associations, median correlation 0.67). As a result, their influence on building a negative representation of fracking within news media can be hypothesized to have contributed most strongly to the current negative public perceptions of fracking within the United Kingdom. Although governmental and industry groups were equally effective in the short-term time period, their influence as an aggregated message strategy was not found to be significant within the latter two time periods. This suggests that the influence of anti-fracking advocacy groups was not only more significant, but that it was more significant for longer periods of time.

Due to the erosion in the levels of funding, news organizations often depend on external sources for issue and saliency cues regarding key political and social issues (Kurpius, Metzgar, and Rowley 2010). As was evident in our study, the news media agenda is often influenced by different corporate, political, and advocacy sources that col-lectively influence news narratives through the promotion of object and attribute saliency. Moving beyond the issue and attribute agenda-building effect, our study advances research on third-level agenda-building by highlighting the interconnections of saliency cue transfer that together shape news media narratives (Kiousis et al. 2014).

Limitations and Future Research

The current study has some limitations that should be noted when interpreting the results. The major limitation of many agenda-setting and agenda-building studies is the suggestion of causal effects based on correlational data. This study attempts to reduce this limitation through the employment of a time-lag analysis to provide a temporal under-standing of who is driving the transfer of object/attributes and when. However, due to the large amount of reciprocal correlations we observed across time frames, time-lag analysis alone might not completely rule out the limitations of correlational data.

This study focused solely on national newspapers, although fracking is, arguably, a far more local issue to the British public. With the United Kingdom possessing eight times the population density per square mile of, for example, the United States, practical concerns over industrial traffic and fear of aquifer contamination have been raised more strongly by local community groups. Polling data suggests the strongest opposition to fracking is often when it is contextualized in a more proximal fashion. As such, residents are more con-cerned and more opposed to fracking when a well is proposed within 10 miles of their home (Ford 2016). From a media relations perspective, it also is easier for local community groups to collaborate and influence local media than it is to impact national media dis-course (Tewksbury et al. 2000). Therefore, instead of focusing solely on national newspa-pers, identifying regional newspaper differences and how those relationships are unique to areas most heavily targeted for fracking may have added a more holistic understanding of how the issue was communicated across the United Kingdom.

Future studies should move beyond the mere identification of issue and attribute sal-iency and examine the underlying mechanisms that may explain the agenda-building process. As noted by Lieber and Golan (2011), the dependence of media outlets on elite sources is a key factor shaping and supporting this process. Future studies should explore these dynamics more thoroughly through mixed-method data collection tech-niques, such as in-depth interviews and surveys of journalists and editors that focus predo-minantly on how and why a specific topic has been covered. Finally, in order to provide greater empirical evidence for the causal influence of agenda-building, more experimental studies should be conducted to identify which co-occurring issues and attributes are most effective at influencing audience attitudes and changing behaviors on an individual issue.

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