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Bröer, C.

Publication date
2008
Document Version
Final published version
Published in
Critical Policy Analysis

Private Trouble, Policy Issue: People's Noise Annoyance and Policy Discourse

Christian Bröer
University of Amsterdam Department of Sociology and Anthropology

Abstract

It is well know that social problems are defined as such in policy processes. Simultaneously, there is ample evidence for the construction of problem perception at an individual level. In this article, I shall report on a study on the relation between the two: how policy discourses affect problem perception. The research focuses on aircraft noise annoyance.

How do people become annoyed by aircraft sound? Existing research shows that sound levels alone cannot explain annoyance. In this article, I shall present a novel approach to noise annoyance. I shall use Hajer's argumentative discourse approach to analyze noise policy. This is combined with the concept of 'resonance' from framing studies and discursive psychology to assess citizens' everyday perception of aircraft sound. The question is raised as to whether the dominant noise policy discourse resonates in citizens' perception. If this is the case, aircraft sound would be perceived differently in different policy settings. Therefore I conducted qualitative research in two cases: Amsterdam Schiphol (The Netherlands) and Zurich Kloten (Switzerland). In both cases I collected policy documents, interviewed policy makers and experts, and attended protests. I analyzed interviews (89), complaints (250), letters (148) and public enquiry statements (29). The analysis suggests that the dominant policy discourse does indeed resonate in peoples' perception. Therefore, citizens perceive aircraft sound as a different problem in the Netherlands as compared to Switzerland. Noise complaints and protest closely follow the openings presented in policy processes. Either people adopt the policy

Critical Policy Analysis (2008), vol. 2, no. 2, pp. 93-117.

93

discourse (a relation I term 'consonance') or they partly adopt it and partly go against is (a relation I term 'dissonance').

I can show that the dominant noise policy discourse triggers compliance and certain forms of opposition or conflict. Only rarely did I find people not relating to the dominant policy discourse (a relation I term 'autonomy'). Dominant policy discourses shape our experience. This relation – called 'resonance' here – merits further investigation. The fact that the power of a policy discourse can be demonstrated for an apparently non-social trigger – sound – suggests that policy discourses have a significant impact on citizens when it comes to issues that are social in nature.

> *If policy treats a situation as problematic, people will experience the situation as problematic. (Bröer, 2006)*

For several decades, political scientists and sociologists have demonstrated that policy processes cannot be fully explained by the prior existence of social problems. The linear and objectivist model of policy – in which existing problems propel us to take action – has been replaced by a range of subjectivist, non-linear models. Their common ground is that social problems are identified or even shaped in policy processes.

In policy science in the early 1970s, Cohen, March and Olson proposed a 'garbage can model' of policy (Cohen et al., 1972). Instead of a linear rational process, they said, (policy) choices depend on a fluid mixture of problems, solutions, opportunities and actors. Kingdon further developed this model to clarify processes of agenda setting (Kingdon, 1984). In sociology in the 1970s, Spector and Kitsuse applied a constructivist ontology to social problems (Spector & Kitsuse, 1977). They defined social problems as 'claim making activities' about 'putative conditions'. They radically reversed the relation between social problems and policy when they stated that ' solutions produce problems by providing the framework within which these problems can be stated' (Spector & Kitsuse, 1977 p.84).

Several other concepts have emerged since then, of which 'framing' and 'discourse' will be discussed in more detail later. In any case, policy cannot be regarded as an activity 'after the fact'. Policy, is a 'public domain' in which social problems are contested and constructed (Hajer, 2003). Politics in this sense deals with struggle over policy (Graaf & Hoppe,

1992).Often, the analysis of 'meaning making' in policy processes is separated from the analysis of meaning making in citizens' everyday lives. This article addresses exactly this point: whether and how policy discourses and the way issues are framed affect the way citizens perceive an issue. Sociologists early on suggested that 'if men define situations as real, they are real in their consequences' (Thomas, 1967 (1923)). But, as Goffman has remarked, 'those who are in the situation ordinarily do not *create* this definition, even though their society can often be said to do so (Goffman, 1975 p. 1). This is where policy might come in, since policy 'can be *constitutive* of identities' (Hajer, 2003 p.161, italics in the original text). This idea is the starting point for the research and the resonance model I present here. My suggestion is that citizens' definitions of a situation are informed by definitions which are institutionalized in policy and spread through policy measures.

In this article, the relationship between policy and perception is worked out and applied to aircraft noise policy. I combine Hajer's argumentative discourse analysis, framing theory and discursive psychology in a discourse resonance model. Then I go on to analyze aircraft noise annoyance policy and its effect on citizens' noise perception and to show that annoyance is shaped by policy. Before doing so, I shall briefly summarize current noise annoyance research and present the methodology of my research.

Aircraft Noise Annoyance

Air traffic is a symbol of modern life. It spans nearly the entire globe and has a highly localized impact where it touches the ground (Urry, 2000). Air traffic is, at the same time, highly valued and intensely contested, with noise annoyance often being a major part of the conflicts that surround airports. It seems evident that increasing noise levels lead to increasing annoyance among those living near airports. However, noise annoyance research has consistently shown that sound pressure in and of itself does not sufficiently explain noise annoyance. People experience the same sound in different ways and it seems that in western countries today, the same level of sound is now experienced as more annoying than 40 years ago (Bröer & Wirth, 2004; Guski, 2003). Moreover, differences in annoyance hardly correlate with income, education, age or sex (Fidell et al., 1991; Fields, 1993; Guski, 2003; Miedema & Vos, 1998; Stallen, 1999). Instead, distrust, anxiety and the idea that one cannot control noise increase annoyance, as surveys and experimental research suggest (Fields, 1998; Glass & Singer, 1972; Guski, 2003; Job et al., 1996; RIVM & RIGO, 2006; Stallen, 1999; Staples et al., 1999; TNO-RIVM, 1998; Van Kamp et al., 2004). Citizens who distrust political authorities experience sound as more annoying, which in turn strengthens their distrust. Maris et.al. , for example, showed in an experimental setting that people who evaluate noise exposure as unfair report more annoyance than people who assume that noise exposure has come about in a way that is fair (Maris et al., 2007). Stallen therefore repeatedly urges us to analyze noise annoyance as a part of a political relationship, as 'you expose me' (Stallen, 1999; Stallen, 2001).

Noise annoyance is often singled out as peculiar to or even the most prominent social problem related to air traffic. But there are other tendencies. Griggs and Howarth have pointed

to a particular campaign against airport expansion in which local anti-noise protest and wider ecological, social and anti-globalization issues came together (Griggs & Howarth, 2004). Protests against the expansion of Tokio Narita airport are driven strongly by conflicts over landownership. Urry points to the exclusionary effects of (aircraft) traffic (Urry, 2000). In brief, noise annoyance is not the obvious social problem. The noise annoyance issue has specific historical political roots in each country, and these can be uncovered in a constructivist and discourse analytic approach (Abma, 2001; Bijsterveld, 2008; Bröer, 2006; Bröer, 2007; Wagenaar & Cook, 2003).The majority of current noise annoyance research is of an objectivist and quantitative kind. It presumes a given acoustic stimulus, which is moderated by psychological factors. This implicit theory itself is not explicated, but based on convention. Noise annoyance research is often lacking in theory (Fidell et al., 1991; Stallen, 1999). For example: the observation that rising sound pressure levels correlate with rising annoyance might be explained by a cultural norm too (Complain more when exposed to more sound.) Furthermore, the survey and experimental approach treats distrust or fear as isolated factors. Instead, it is more likely that factors like distrust of authorities have a different meaning to different people, within their discourse. Lastly, given the limited explanatory power of the current approach, one should step back and explore what annoyance means to people.

In sum, our understanding of how annoyance comes about is insufficient and there is intermittent evidence that we should consider whether political processes contribute to the perception of sound as a problem. In the research reported here, I explored what citizens mean when they speak about aircraft sound. Next, I raised the question of whether their everyday theory was informed by noise annoyance policy. To answer this question, I combined a discourse analytic approach to policy with a discourse analysis of everyday talk in the discourse resonance model.

Policy Discourse

Policy can be said to define a social problem. Furthermore, I suggest that policy spreads that definition among citizens through implementation, interactive policy making and communication. This is not to say that policy is the only process in which social problems are defined and in which definitions are spread among citizens. Obviously, social movements, broadcast and print media, or civil society organizations can be relevant too. For now, however, I want to focus on policy as a process in which citizens' perception is shaped. I picture this as follows:

A constructivist model for social problems
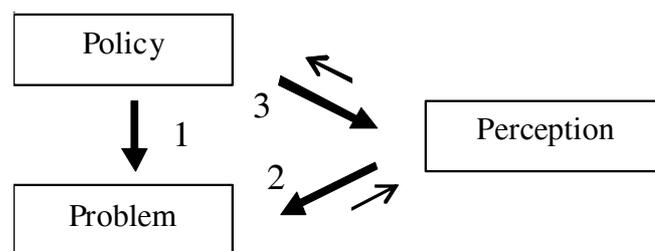
Relationship 1 is established in interpretive and constructivist approaches (see Introduction). In this research, I specifically used Maarten Hajer's argumentative discourse approach (Hajer, 1995; Hajer, 2003; Hajer, 2005). Relationship 2 is part of symbolic interactionist sociology, social psychology and the sociology of risk (for an introduction, see: Blumer, 1969; Mead & Morris, 1934; Slovic, 1987). This relationship is not separately addressed here, but as part of relationship 3. Relationship 3 is what I call resonance, a term borrowed from framing studies which I define in a novel way. I shall now propose the discourse resonance model.

Discourse is defined here as a pattern in language use which structures the meaning we give to the world; in this case, aircraft sound. (For an introduction to discourse theory see: Howarth, 2000; Wetherell et al., 2001.) The power of a discourse lies in its ability to exclude alternative ways of thinking and acting. On a macro-sociological level this might be called dominance (Hajer, 1995) or exclusion of a discursive outside (Laclau & Mouffe, 1985).

I am using Hajer's argumentative discourse analysis to assess policy discourses (Hajer, 1995; Hajer, 2003; Hajer, 2005). Hajer sees policy as a practice in which meaning is formed and stabilized. Political issues get their content in policy controversies. He prefers to speak about argumentative discourse analysis (Hajer, 2003) to stress the relational character of discourse: arguing, convincing, positioning. He defines discourse as: '... specific ensemble of ideas, concepts and categorizations that are produced, reproduced and transformed in a particular set of practices and through which meaning is given to physical and social realities' (Hajer, 1995 p.44). Hajer's prime example is acid precipitation, metaphorically referred to as acid *rain*. How acid rain is discursively constructed is part of a certain way of dealing with environmental problems which blames specific actors and suggests particular measures. As Hajer reminds us, discourse is not the same as discussion; it is a quality or structure of a discussion.

In Hajer's approach, one looks for story lines, which he defines as 'a condensed statement summarizing complex narratives, used by people as "short hand' in discussions' (Hajer, 2005). The use of storylines enables the illusion of mutual understanding and contributes to 'discourse coalitions'. A discourse coalition exists when different and even opposing actors act as if they share basic assumptions. Typically, different actors subscribe to certain storylines or metaphors and reject others. The group of actors is then connected through the use of the same story line. This leads the analysts beyond established interest groups.

In political processes, certain discourses gain dominance. According to Hajer, we recognize a dominant policy discourse when 1) documents and utterances share certain features ('structuring') and exclude other ways of defining; 2) if a discourse is institutionalized in policy. In the analysis of noise policy below, I focus on Hajer's concept of dominance and describe which definition and practice of dealing with noise annoyance is supported by (virtually) all actors.

Hajer's work focuses on the policy process itself (Relationship 1 in the model above). He hints at the effect of the policy process on citizens too (Relationship 3). Hajer suggests that dominant policy discourses have effects far beyond the actual policy domain. In 'A frame in the fields, for example, he suggests the possibility that local citizens develop identities in reaction to national environmental policy (Hajer, 2003). This suggestion is central to the resonance model I shall now introduce.

Discourse resonance

The word 'resonance' means echo or repercussion, in this case the echo of a dominant policy discourse in citizens' lives. The discourse resonance model combines the analysis of policy processes with the analysis of people's everyday utterances and is novel in this respect.
The concept of resonance originates in framing theory. The literature on framing as such goes back at least to Goffman in sociology, Benford and Snow in political science, Rein and Schon in policy science and Entman in communication science (Benford & Snow, 2000; Entman, 1993; Goffman, 1975; Rein & Schon, 1993; Snow et al., 1986). In this article, the focus is on the effect of framing on people, called resonance in the literature. The concept is used in framing and media studies on social movements (Benford, 1993; Benford & Snow, 2000; Ettema, 2005; Ferree, 2003; Gamson & Modigliani, 1989; Schrock et al., 2004; Schudson, 1989) and appears in discourse theory on social movements (Koopmans & Olzak, 2004, Bröer and Duyvendak, forthcoming).

In social movement research, resonance means that a frame 'strikes a responsive chord' in people and thereby affects perceptions of opportunities. This happens not so much by introducing completely new ideas as by pulling together existing ideas into a partly new whole. In social movement literature, the idea is that framing is more successful when it resembles pre-existing mindsets. Koopmans and Olzak further specified this: when established actors express support for a social movement, Koopmans and Olzak speak about *consonance*. When social movements are criticized Koopmans and Olzak talk about *dissonance* (2004: 205). Dissonance is very important: generally, critics repeat the message they want to counter. Thereby, even criticism makes a frame or movement more visible. (A related approach to dissonance can be found in: Wilson & Stapleton, 2007.)

Now, if we conceptualize consonance and dissonance as two possible effects of a dominant policy discourse (not of a marginal social movement message), we can expect that a dominant discourse structures support *and* criticism at the same time.

How does this work out in citizens' perception? In everyday life, people draw on socially produced discourses when they give meaning to, in this case, aircraft sound. The question is whether the dominant policy discourse resonates – or echoes - in people's lives. I side here with text-sociology (Nijhof, 2003) and more specifically with discursive psychology (Billig, 1987; Billig, 1988; Edwards & Potter, 1992; Potter, 1996; Potter & Wetherell, 1987 Billig, 1988 #200; Wetherell & Potter, 1992). Discursive psychology 'applies the theory and methods of discourse analysis to psychological topics' (Edwards, 1999 p.271). One tries to find out how 'versions of the world, of society, events and inner psychological worlds are produced in discourse' (Potter, 1997 p.146). Meaning is the outcome of discursive interaction rather than a state of mind. In 'critical discursive psychology' one is particularly interested in dominance or hegemony: how certain discourses are naturalized and reified on an interactional level (Horton-Salway, 2001; Horton-Salway, 2007). But, in general, discursive psychology does not directly investigate where hegemonic discourses originate. My hypothesis is that the way people define noise annoyance is shaped by the dominant policy discourse.

The discourse resonance model is comprised of three possible relationships:

1. Consonance: people reproduce the dominant policy discourse.
2. Dissonance: people reject parts of the dominant discourse and accept others. Rejection leads to an argumentative conflict.
3. Autonomy: people do not reproduce the dominant discourse and this does not lead to an argumentative conflict.

Consonance means that people employ policy discourse when they give meaning to their own life and social world around them. Specific policy terms become taken for granted in everyday categories. In this way, a policy discourse becomes naturalized or reified.

Dissonance means that we can see a conflict when people do not adopt the dominant policy discourse fully. This occurs when people perceive a policy discourse as contradictory or perceive a contradiction with other discourses. The conflict arises from the disciplining power of the dominant discourse, against which people struggle. To resolve the conflict, people will strongly embrace parts of the dominant discourse, play down other parts and create new arguments. This is also called reduction of cognitive dissonance. Cognitive dissonance is an established theory in social psychology (Billig, 1987; Cooper & Carlsmith, 2001; Festinger, 1962; Stone & Cooper, 2001). But, instead of 'cognitive', I would rather speak of 'discursive dissonance' to stress the social and rhetorical origin of dissonance (Billig, 1987). Discursive dissonance comes close to what Billig call's 'dilemmatic thinking' and stresses that an opinion is the outcome of an argument or dilemma, rather than the outcome of a belief or value.

In the case of autonomy, people neither reproduce the dominant discourse nor do they struggle with it. People draw on other discourse to furnish sound with meaning. But, contrary to the dissonant position, they do so 'at their ease' and do not refer to the dominant discourse. For example, some people refer to aircraft sound on Sundays as a violation of the Christian world order, since the seventh day is meant for rest. This critical stance does draw on religious discourse and argues against or with to any established policy position. To establish this position, one does not need to counter the policy discourse. Almost the same holds true for the position that noise is a form of violence and breaches this basic human right of bodily integrity.

These kinds of arguments are autonomous, but not 'individual'. The meaning of noise is constructed without specific policy-discourse coming under investigation.

In the next paragraph I will described my research on noise annoyance and present some findings. With the resonance model in mind, I formulate the following *research question*: does a dominant noise annoyance policy discourse resonate in people's utterances?

Method: comparative analysis

If policy influences the perception of aircraft sound, we should see that people experience sound differently in different political contexts. Therefore, I have compared two cases that are similar in many respects, but with different noise policies: Amsterdam Schiphol and Zurich Kloten.

The airports of Amsterdam and Zurich are both close to the capital and both have flight paths which lead across the cities. Both have evolved into regional centers for air traffic, at least until 2002, when Zurich started to decline temporarily. The two cases are also fairly compatible as far as socio-economic position and democratic tradition are concerned. But they are markedly different in terms of the polity. Switzerland has the most elaborate system of referenda of anywhere in the world (Klöti 2001; Lane 2001; Papadopoulos 2001) and is a much more decentralized polity than the Netherlands. I chose this difference in order to test my theory: I expected that the influence people have on noise annoyance policy would affect their perception of sound levels.

Both cases comprise material about the policy process (policy documents, PR-material, web-pages, interviews and participant observations). In both I paid attention to the historic roots of noise policy as evidenced in existing literature (Dierikx & Bouwens, 1997; Gallati, 2002) and in an analysis of older policy documents. Already existing discourse-oriented research added to the analysis of the last decade of noise policy (Abma, 2001; Bijsterveld, 2005; Bijsterveld 2008; Donicie, 2003; Pestman, 2001; Smit & Van Gunsteren, 1997; Van Duinen, 2004; Wagenaar & Cook, 2003).

In both cases, I collected personal material: 89 semi-structured interviews in neighbourhoods with the same amount of noise: 250 noise complaints, 148 letters published in major newspapers; and 29 public enquiry statements. Part of the research was undertaken in neighbourhoods with similar noise levels.

The material is diverse on purpose. First, because we could not be sure that the concept of 'annoyance' was more or less the same in different settings. Second, the research included material that had been produced in interaction with policy-makers and material that had not been produced in interaction with policy makers. That way, I was able to see if the influence of the policy discourse stretched beyond direct contact between citizens and policy makers. One might, in other words, expect that citizens strategically adopt a certain way of speaking or writing when they were faced with, for example, a complaint agency. If we found similar behavior in other situations, we could infer that the behavior was not solely dependent on the setting.

In these sources, all utterances in which people speak about annoyance were singled out. I then analyzed which arguments people used to support the statement that aircraft sound was or was not annoying. I searched for all expression which (implicitly) followed the argumentative structure 'aircraft sound is (not) annoying because . . .'. This was done in part with qualitative analysis software (Atlas.ti), which led to more than 1400 coded segments. Inductively, these arguments were clustered into types. Deductively, I searched for the policy discourse within these personal arguments and for references to policy processes and actors. The research aimed at understanding annoyance and tracing processes of meaning making. Therefore it was mainly qualitative in kind, combined with quantitative analysis.

In the next two paragraphs, I describe the noise policy discourse and the way people perceived aircraft noise in both cases.

Noise Policy Discourses (1950-2004)

In this paragraph, I shall present the dominant noise policy discourses for Schiphol Airport in the Netherlands and Kloten airport Switzerland. I shall also point to commonalities and differences in the policy discourse and its history.

Air travel is over a hundred years old and large scale civil aviation took off after World War Two. In Amsterdam, Schiphol airport had to be rebuilt after the war and in Zurich, Kloten airport was completely new (Dierikx & Bouwens, 1997). In both cases, policy makers presented their airport plans in a similar way. In the Netherlands this was done in parliament and press; in Switzerland, as well as this, the government informed citizens directly as part of a referendum. The following citation is from the referendum on constructing a new airport in the Canton of Zurich in 1946:

> **Introduction of the New Airport in a Referendum 1946**
> *In the future, there will not only be air travel between the large centers of the continent; this will also be the means of transport from continent to continent. Our country has to take part in this traffic, whether we like it or not, if we don't want to fall behind. Our export, trade, banking and tourism can only compete with foreign countries if the Swiss business world can do business as fast as their foreign competitors. (Treichler et al., 1998 p.10 author's translation)*

In this excerpt, air traffic is presented as a necessary and inevitable trend. Note that in most countries, airports still had to be built. The necessity was an expectation at best. The referendum is put into a perspective of global competition in which Switzerland has to take part. This hides the fact that Switzerland has a history of isolationism in other policy areas. Furthermore, the referendum is put in a national perspective, although it is about the plans of the Canton of Zurich alone. Other Cantons might set up an airport to satisfy the alleged needs (which they later did).

Comparing several policy-documents of the 1940s and 1950s, one finds similar expressions which together constitute a *trend argument*. From the 1950s on, government and industry presented air transport development as a natural process that was inevitably heading towards growth. The iron logic of growth 'reifies' (Berger & Luckmann, 1967 p. 89) man-made policy. The *trend argument* was hardly challenged in the past and remains dominant in airport policy today. As in the governmental information folder for a referendum, this was meant to create support for airport policy by excluding alternatives.

The trend argument became dominant partly because it was institutionalized in policy-related science. From the beginning of aircraft noise policy in the 1950s, policy makers in both places turned to scientists to estimate (future) annoyance. In both cases, scientists worked out noise annoyance criteria that incorporated the trend argument. A detailed demonstration of these exceeds the limits of this paper, but can be found in (Bröer 2006) and Bijsterveld (2008). One, hopefully, clear example are noise annoyance limits. In both cases, annoyance

limits were based on the average annoyance score in a given area. The average score consisted, of course, of diverse individual scores. This meant that below the annoyance limits, there were still a substantial number of people who were actually 'highly annoyed' as the variable was called. Actually, the majority of annoyed citizens lived outside the areas which were addressed by noise policy. Only in the first years of noise policy and in the margins of noise protests we did find different approaches, approaches which did not accept large-scale annoyance to a certain degree. Some Dutch scientists in the early 1960s pleaded for a different runway layout to avoid any contact with urban areas. In Switzerland, in the 1950s, lawyers pleaded for 'silence as a basic right' as opposed to silence as a relative interest. And several years ago, Heathrow neighbours asked the European Court for Human Rights, to rule that night noise breached their right to sleep. In other words, aircraft noise could be approached in different ways.

In policy, large scale annoyance is implicitly accepted as part of the trend argument. Politicians, for their part, legitimate noise policy with reference to science-based criteria. But scientists have in fact been unable to find unambiguous acoustic definitions of noise annoyance. An analysis of early noise annoyance research shows the same results for both Amsterdam and Zurich. Scientists were able to present correlations and distributions of noise annoyance over regions or groups. But they were unable to determine how much noise was too much, since this was a political question. Still, scientists came up with limits by incorporating already existing policies in their reports and methods (Bijsterveld, 2008). Altogether, trend arguments and scientific practice are 'black-boxing' political decisions.

The last similarity between the two cases concerns the timing of noise annoyance policy. In Zurich and Amsterdam, the trend argument preceded attention to the harmful effects of air traffic. Policy documents first spoke about airport enlargement and economic benefits (1945-1955) and only later included noise or other concerns (from 1955 onwards). This was even the case for successive plans to enlarge the airports or alter policy: repeatedly, policy makers were first concerned with economic benefits and later added other concerns. Differences between the cases are visible when it comes to the way noise annoyance was introduced for the first time. In the Netherlands, airport planners and policy makers introduced the noise issue themselves, while citizens played a more active role in Switzerland.

In Amsterdam, the first plans for airport enlargement contained no reference to noise. The first report to mention noise annoyance was '*Basics for the development of airport Schiphol' of 1955, written by municipal planners (Gemeente Amsterdam, 1955). Engineers, policy makers and scientist were devising long-term plans for Amsterdam and The Netherlands and stated that 'the problem of annoyance has become more current all over the world'. This referred to recent conflicts over noise in New York, of which some planners had heard. As part of their planning practice, they envisaged that flight path and housing plans might collide in the future. Therefore, they called in other professionals, notably scientists, to estimate future noise production and annoyance (Bijsterveld, 2008; De Maar, 1976; Dierikx & Bouwens, 1997). That way, annoyance became part of a long-term spatial planning practice, for which the Dutch have invented the word *planologie* or *planology* (Faludi & Van der Valk, 1994).

When aircraft noise was first brought up as an issue, experts used this already existing and widely shared practice to tackle it. In spatial planning, annoyance was defined as a national problem, which could be solved by central planning policy and noise limits for wide areas. Experts figured prominently in the planning practice. People were approached as a standardized and passive population. Planning was done for them and noise annoyance was treated as an averaged quantity. Spatial planning, combined with the trend argument, meant that noise production as such was accepted, but exposure had to be controlled in the long-term.

The noise issue came up among planning professionals at the airport and spread to politicians, media and citizens (De Maar, 1976; Dierikx & Bouwens, 1997; Stokvis, 1981). In 1960, about five years after the start of the noise policy, individual citizens started complaining and started to address local politicians and airport officials. Citizens and protest groups came up with proposals that undermined the current policy; most notably they pleaded for the relocation of Schiphol. At the same time, they further strengthened the dominant discourse: most activists subscribed to the acoustic and technocratic model of spatial planning, noise limits and noise contours.

At the end of the 1970s and the beginning of the 1980s, the planning approach ran into a deadlock. It had activated concerns about airport expansion and noise abatement measures whilst at the same time there were plans for a new runway. This lead to a zero-sum situation: noise limits or expansion. Neither the noise limits nor the plans for the new runway were implemented. The matter changed with the advent of ecological modernization.

From the 1980s onwards, the planning approach became mixed with ideas from ecological modernization (Hajer 1995). Ecological modernization comprised a new, positive-sum logic: a promise from policy makers to expand the airport and alleviate noise exposure at the same time. In this perspective, one could at the same time increase air traffic and lower environmental impact.

Noise exposure and airport extension were framed in terms of ecological modernization for the first time in 1986, in a report on economic development commission by the central agency for spatial planning (again!) (Rijksplanologische Dienst, 1986). In that document, Schiphol was called a 'mainport' for the first time. This term was invented by experts and used to for Schiphol and the Rotterdam harbor. It caught the technical aspect – the central of 'hub' position of the airport –, summed up the older trend argument, and became the central story line of airport policy.

Within the frame of ecological modernization, the new runway was reframed as an 'environmental runway', since it was supposed to handle flights with less noise exposure. Ecological modernization came with a repertoire of similar phrases: 'sustainable airport growth', 'moderate growth' or 'conscious growth'. Ecology and "mainport" were institutionalized as the central idea with the central government's 'project mainport and ecology for Schiphol' in 1991 and successive policy plans. Ecological modernization made it possible to start building a runway and implementing noise limits. Noise, in this policy, was seen as an environmental problem (and less as a health problem for example) and became the yardstick for evaluating the negative effects of airport growth.

The impact of the policy discourse can be judged from its effect on social movements. Several years after the mainport and environment discourse gained prominence, the national environmental movement took up the issue. The policy had created an entry point at three ways: firstly it reframed sound as an environmental problem and secondly it further stressed national policy as the place to address this issue. Therefore, the national environmental movement was able to put itself at the head of several local protest groups, which earlier on had been more concerned with local living conditions. Thirdly, policy-making changed. In the 1980s, planning procedures gradually became 'interactive'. In the case of Schiphol and airport enlargement, this had several implications: citizens were informed about airport policy plans extensively and early; government, industry and protest groups told citizens that they had a stake in airport policy and they all pointed to noise as a source of (future) harm. Furthermore, complaint facilities and inquiry procedures were set up or enlarged and presented to the public. Citizens were invited to take part in 'interactive policy-making'. The government redefined protest groups as stakeholders and invited them for consultation.

Ecological modernization discourse facilitated policy making in the sense that it solved the contradiction which arose in the 1960s: airport expansion versus noise mitigation. Both were redefined as part of one, ecologically modern, policy. But, the same policy further emphasized noise as the central problem of airport growth. Following the Dutch policy concepts I have termed this the 'mainport and environment discourse', which became dominant from 1991 onwards. The central government's attempt to get more citizens involved in the policy process gave rise to a contradictory situation: noise policy was still based on expert knowledge, standard annoyance reactions, central planning and a passive population; but the process itself mobilized social movements, individual citizens and their own judgments.

In contrast with the Netherlands, citizens were more important from the outset in Switzerland. In 1956 noise annoyance at Zurich airport was mentioned for the first time in the national parliament, which immediately appointed an expert commission on noise annoyance (Gallati, 2002). Members of the parliament had been steered up by the newly founded Swiss League against Noise. In 1955-1956, two jurists from Zurich had got together to protest against several noise sources and claimed a basic right to silence in their first declaration.

The Swiss League against Noise 1956
A citizen has a fundamental right to silence, to being protected against acoustic load, to integrity of his private sphere, which includes quietness. (Cited in: Gallati, 2002 p.34, author's translation)

The League insisted on quietness as a human right. They portrayed technology as a threat to human freedom which had to be tamed by democratic legal rule. Members of the League were active members of the ruling party and high ranking professionals. Their concerns were soon taken up in federal policy, but not to their satisfaction. The government appointed its 'Federal Expert Commission' in 1956. In the Commission, policy makers, industry and experts held a majority. Most importantly, quietness was reframed as one among many different interests

(economic benefits for example). The Commission set itself the task of balancing those different interests, which lead away from the idea of a 'basic human right'. From the first report of the Commission in 1963, noise annoyance versus other interest was defined as an 'inevitable conflict'. This conflict, the Commission stated, should not be solved as such but lead to a 'compromise'. (Eidgenössisches Expertencommission, 1963 p.144-5).

The expert commission was appointed by the Federal Government. Later, the Regional Government (*Canton*) followed with a commission of its own. Municipalities, and even villages, developed their own noise policy. The different layers of the polity also collaborated and diverged about the noise issue, and this interaction is an ongoing feature of noise policy for Zurich Kloten airport. Annoyance was 'federalized', it was approached as an issue of federal policy making from the outset, which means:

- National, regional and local governments are responsible at the same time.
- The National Government delegates responsibilities downwards, but not automatically. Responsibilities are negotiated repeatedly.
- Citizens participate in the policy process through referenda and through direct pressure on local politicians.

As in the Netherlands, where noise was approached as a planning issue, policy makers in Switzerland in the 1950s employed an already existing discursive practice to address the upcoming issue of aircraft noise. This 'federalization' of noise meant that local communities were involved strongly from the beginning. Policy was formulated at national, regional and local level and bound together in several policy processes. Citizens were addressed about it as a political subject. Noise was seen as a source of political conflict and not just a technical planning issue. Local, regional and national governments have a say in this process, with an emphasis on the Regional Government.

At the end of the 1990s, federalization resulted in what I call a *distribution discourse*. Literally, the concept of 'distribution of aircraft movements' was introduced into the policy process by a member of the cantonal parliament, Mr. Jeker, in 1996. In an appeal to the Parliament of the Canton of Zurich he argued for a new policy: instead of flight movements being concentrated, these should be 'distributed more evenly' (Regierungsrat, 1996) . Jeker was especially concerned about the great number of aircraft movements in his own constituency (the western district). Later, when he became Minister of economic affairs for the Canton, and as such responsible for airport policy, he took up the idea of distribution again. But this time, distribution was meant to increase the number of flights too. The liberalization of civil aviation led to more lenient noise abatement policies in Switzerland and the *Canton* pleaded for new flight paths under the heading of 'distribution'.

'Distribution' became the central storyline, because it could support different positions: sharing the burden of noise and increasing the total noise production. Together with the first connotation came ideas of 'solidarity' and the democratic protection of minorities: the majority of the citizens of the Canton should not put the burden of noise on a small number of villages.

As such, distribution hit a central question of Swiss federal polity: how to reconcile the different layers of the polity.

Within the distribution discourse, aircraft noise became redefined as something that had to be distributed differently. Aircraft movements and flight paths became the defining characteristics of noise in the public debate. This is in contrast with The Netherlands, were annoyance is primarily defined as an acoustic load in large areas. The distribution policy coincided with a regional consultation process, new legislation, a conflict with Germany, and the spread of information on possible flight paths by the airport. The possibility that aircraft movement might be distributed differently in the future alarmed many neighbouring communities and citizens. Within a year, dozens of new protest groups emerged, all directed at the protection of their own local community. Distribution alarmed citizens in quiet areas: in the future they might be exposed to aircraft noise. Distribution presented a window of opportunity to already exposed communities: they argued for 'solidarity' and urged other communities to 'take their share' of the noise. Noise seemed to threaten local communities or, as they say in Swiss German, *Heimat*.

The ensuing conflict even undermined existing consultation bodies. The regional consultation body of local communities reached a compromise on distribution, which was then neglected by the Canton. The *Canton*, for its part, appointed a similar body: a round table of local communities (2003-2004). But this round table soon failed: it proved impossible to decide which communities should participate. The distribution policy had alerted so many people and local politicians that about 200 different political bodies wanted to participate in the round table talks. The distribution discourse had lead to conflict which could not be solved by the institutions that had produced the distribution discourse in the first place.

To sum up, the same aircraft sound became two largely different kinds of problem in Amsterdam and Zurich in different policy processes. In Amsterdam it became a problem of ecological modernization and technical solutions; while in Zurich in turned into a political conflict about democracy. In both case, we see markedly different storylines. In both cases, the option to decrease flight movements and avoid noise exposure altogether is discursively excluded (see the table opposite for an overview).

People's Discourse

We have just seen that Dutch and Swiss policy deals differently with the noise of civil aviation. If policy discourses shape people's perception, then we should see a difference between people living near Zurich Airport and those living near Amsterdam Airport. To investigate this, I searched in 516 personal documents (266 from Amsterdam and 250 from Zurich) for the argumentative construction of aircraft noise. As explained above, this means that I isolated all utterances in which sound was described as (not) annoying. Next, I analyzed the issues, actors and ideas to which people related annoyance. In other words, lay theories about annoyance were singled out and compared to the dominant noise policy discourse. Now what does this exercise tell us?

First of all, people hardly bother to describe the noise as such; instead, they talk about

Table 1: Noise Policy Discourse in Amsterdam and Zurich

	Amsterdam	*Zurich*
Dominant discourse	Mainport and Environment	Distribution
Practice	Spatial planning	Federalization
	Ecological modernization	
Definition of air travel	Trend	Trend
Definition of annoyance	Environmental problem	Distribution problem
	Planning problem	Threat to local life / 'Heimat'
	Objective	Subjective
	Acoustic	Political
Solution	Possible	Impossible
	Positive sum game	Zero-sum game
Position of citizens in policy measures	Passive	Partly passive, partly active
Position of citizens in policy process	Active: complaints and public enquiries	Active: referenda and public enquiries
Main Level of annoyance policy-making	National	Regional

aircraft noise in terms of what it means in everyday life. People relate exposure to noise to particular situations and experiences. There is a clear pattern in the variety of annoyance reactions, demonstrating that policy is a crucial part of personal noise experience:

1. People explicitly refer to policies when they talk about annoyance.
2. Consonance: people use the policy discourse.
3. Dissonance: people struggle against the policy discourse.
4. The discourse people use influences their level of annoyance.

1: People Refer to Policies

Firstly, politics and policies are a major issue when people talk about aircraft sound. Of all arguments about aircraft sound, 41 per cent (Amsterdam) to 45 per cent of people (Zurich) literally referred to policy, policy makers and politicians (about 1000 arguments were coded in Atlas.ti, more by hand, the numbers refer to the digitally coded part). The following example comes from beginning of an interview in which I typically included a question about the sound itself.

> ***Interview Amsterdam (17:21, author's translation)***
> *I: You have lived here for 14 years. Can you describe what aircraft sound your hear here in you apartment?*
> *R: It depends on which runway they use and there are days, especially in summer, that you are annoyed by it.*

This respondent is asked to talk about the sound and interprets this as a question about noise annoyance (which happened repeatedly in the Netherlands). Annoyance, according to this man, is dependent on what 'they' do. In the Dutch context, one can conclude that 'they' points to government and industry policy alike. Noise, then, is not a question of decibels, but of a relation, of 'you expose me' in the words of Stallen (1999).

When I asked a Swiss man if there were more, less or the same amount of aircraft movements, he replied that sound was not a problem for him, given the hard times the national carrier was experiencing (Interview Zurich 4:34). This man was strongly in favour of the policy of supporting the Swiss air company(Swiss Air) and therefore did not 'problematize' the sound.

Even when explicitly asked to judge the quality of the *sound*, people switch to the quality of the *policy*. They relate aircraft sound to politicians, political influence of industry and social movements. Hearing noise means evaluating noise policy.

2: Consonance: People Use the Policy Discourse

Secondly, what people say is often consonant with the dominant policy discourse. People regularly use the concepts, storylines and logic of the annoyance policy. People adopt the trend argument and the 'mainport' storyline which was invented in the policy process, to describe the airport. Of more than 1000 arguments about aircraft sound, 45 per cent are consonant with the respective policy discourse.

If we look at specific arguments we can see, for example, that in Switzerland, noise is almost twice as often described as a problem of local living conditions as in the Netherlands (12.7 per cent against 7.2 per cent of all noise arguments). This relates to the distribution policy discourse which emphasizes the effect of noise on local communities, while in the Netherlands, noise is discursively constructed as a general problem for the whole population. In the Netherlands, to give another example, complaints are an important part of noise policies. Therefore, Dutch people talk about annoyance as a matter of complaints almost three times as much as Swiss people do. Of all utterances about aircraft sound, 8,4 per cent refers to complaints in the Dutch case and 3.0 per cent of the arguments refer to complaints in the Swiss case.

More specifically, noise complaints show how a dominant discursive practice structures noise annoyance in detail. The way people report to the complaint agencies in the respective cases follows the requirements of the agency. When people are asked to complain in terms of the number of times they were disturbed, as in the Netherlands, they do so. If people are asked to describe their specific local situation, as in Switzerland, they do so too. As well as the content of the complaints, the number changes too. The number of complaints follows from the policy. In the Netherlands, complaints have become more important in the mainport and environment discourse. The Dutch government redefined itself as being complaint-responsive and displayed interactive policy making as a part of airport planning. Citizens were advised to raise concerns about different policy proposals. This advice turned complaints into a vote on planning policy and became a way of expressing concern about future noise. When

policy offered a window of opportunity, the number of complaints went up. Noise annoyance policy brought forth massive complaints in the Netherlands. The agency at Zurich Kloten has never, except for one time, facilitated serial complaining and the number of complaints has remained low. The number of complain*ants* changes with openings in the policy process too. When people are called upon to raise their voice in planning processes, more people complain. When policy decisions have been taken, the number of complaints decreases.

Up until now, I have only shown that people adopt the policy discourse and use its openings. In terms of the resonance model, we have seen examples of *consonance*. But there are conflicts or discursive dissonance: people go against the dominant discourse, at least partly.

3 Dissonance: People Struggle with the Policy Discourse

The dominant discourse leads to conflicts or dissonance. People struggle with dominant arguments when they establish their own position. This is accompanied by specific argumentative features like 'ridiculing' or 'exaggeration'. I will first give one example of an interview, then I will turn to noise complaints again. Next, I will briefly describe the dissonant discourses I have found in the two cases.

> ### Interview Amsterdam (10:8)
> *I: Can you tell me more about that (why complaining is pointless)?*
> *R: No. In general it has to do with society and politics.*
> *I: Ja.*
> *R: Like, what can I do? (What difference can I make?)*
> *I: Ja.*
> *R: What can I do? In recent years, I have tried to raise my voice a bit more, and then I have the impression that things can change if more people do that. But I don't have much faith, I guess. I am even convinced that we all worship <u>one</u> god in this society and that's money, and economic interests are, are put above everything else, above every other value, so norms and even noise norms (limits) too are subordinated to it. And if you witness how Schiphol deals with exceeding the limits, they don't have to do anything. They just pay and settle.*

Probably, this line of criticism sounds quite familiar. In everyday terms, it's a variant of ideology critique. But there is more to it. This man has complained to the complaints agency several times. Now, he evaluates the effectiveness of that. Sharp criticism is coupled with feeling powerless in interaction with a central institution of Dutch noise policy. He also evaluates the way the government enforces noise limits, another centerpiece of Dutch policy. The last sentence refers to the first and last time the Airport was fined for exceeding the noise limits. So, his personal account of powerlessness is constructed in relation to the main elements of noise policy for Amsterdam Airport (Schiphol). This man evaluates the promise made in Schiphol's policy to combine economic growth and protect the wider area against noise and draws a negative conclusion. Still, he is not totally fatalistic and leaves room for social action. This

refs, I think, to the ongoing governmental effort to interactively engage with airport neighbours. Seeing the problem and hoping for joint action versus powerlessness produces argumentative dissonance. This man resolves this through exaggeration: economic interests are 'deified', said to rule everything like a god. The 'rule of money' is a frame in which a range of observations are explicable.

Another example of dissonance is the way citizens use the complaint procedure. Some citizens hand in thousands of complaint per year. This is facilitated by easy-to-fill-in registration forms. These forms specifically ask people to register every single aircraft which causes annoyance. Citizens use these forms and at the same time they sharply criticize policy and the complaints agency in particular, in the open section of the form. So, it is possible for a person to hand in a pile of complaints and at the same time argue against collecting piles of complaints. This dissonance is argumentatively resolved with sharp criticism and cynicism. Note that the complaints agency does not answer complaints and does not ask for 'qualitative' information. People's extra comments are not strategic or necessary. They are, instead, a sign of a struggle with the dominant discursive practice. Dissonant positions reproduce the policy discourse, strongly opposing it at the same time. Dissonant arguments are shaped by the disciplining power of the dominant discourse. This can also be exemplified with the following case from Zurich.

Letter to the Editor, Switzerland (25:46)

> *Fighting aircraft noise*
> *Secretary Homberger describes the opening of the new runway as not relevant for noise. How far will he go and is he willing to go with the approval of additional noise terror against the southern communities? (…..)*

This part of a letter in a national newspaper refers to current policy measures and defines them as a threat to specific local communities. Again, we can see ridiculing of the policy position and exaggeration of its impact (terror). At the same time, this letters affirms the dominant policy discourse that noise is a problem of local communities and distribution.

The dissonant fragment from Amsterdam depicted a 'God': the rule of economic interest over everyone. The dissonant fragment from Zurich instead depicts aircraft sound as a juggernaut, crushing areas that lie directly in its way. More generally, different policy discourses give rise to different dissonances. In the Netherlands, the dominant discourse – mainport *and* environment – is turned into mainport *or* environment. Dissonant arguments have the structure of 'more mainport less environment' or 'less mainport more environment' This argumentative move preserves the most important parts of the policy discourse and creates an oppositional position at the same time.

In Switzerland, the protection of the local community is sometimes taken to the more extreme position of a 'local resistance' discourse. The perceived threat to one's community justifies a militant opposition, which, since 2003, has actually led to instances of violent action by citizens. The local resistance discourse seems to be far removed from the dominant policy.

But it actually builds on it because people are invited to be concerned about noise in their community in local policy processes. Local resistance furthermore is a decisive element of Swiss politics and political culture: Swiss national history is said to have started with William Tell, the mountain peasant who stood up against the Emperor and killed his envoy. People who stick to a resistance discourse, exaggerate the 'local' arguments of the dominant discourse. This can be characterized as conservative or Not In My Backyard behavior. However, a more sociological explanation starts with the contradiction in the dominant policy discourse. Noise is presented as a threat to everyday life yet inevitable at the same time. If people adopt both perspectives, all they can do is protect their own backyard (implicitly, this mechanism is visible too in: Gamson & Modigliani, 1989). The protection of one's own backyard is radicalized because the distribution policy has eroded existing institutions that might channel local demands. NIMBYism is a product of Swiss noise policy, and therefore much less prominent than in the Netherlands. In many ways, people use the dominant discourse or struggle with it.

Altogether, I have found consonant personal discourse in each case, and I have found 2 (Amsterdam) or 3 (Zurich) dissonant discourses. I have briefly discussed examples of dissonance. About 45 per cent of all noise arguments are consonant and 45 per cent are dissonant. This leaves us with 10 per cent of the arguments that do not relate to the dominant discourse. For example, incidentally, people describe aircraft noise on Sunday as a violation of God's will.

4. The Discourse People Use Influences their Level of Annoyance.

So far, this article has argued that the way people perceive aircraft sound is shaped by policy discourse. How does this relate to noise annoyance, as it is conventionally measured in survey research? As I have briefly pointed out above, annoyance response in questionnaires can only partly be explained by the noise load to which respondents are exposed. I want to argue that, in line with a discourse theoretical approach, noise annoyance should be seen as part of meaningful whole. Whether sound triggers annoyance strongly depends on the discourse in which this sound is furnished with meaning.

To assess this assumption, I asked people how seriously annoyed they felt in my first round of research (interviews all held in an area with the same noise exposure). I saw a correlation between the annoyance score and individuals' discourse. To further test this observation, I used a different approach. With the aid of Q-methodology (Kroesen & Bröer, forthcoming) we assessed 'political subjectivity' (Brown, 1980). A factor analysis pointed to roughly the same discourses which I found in the qualitative study. And again, there is a correlation between discourse and annoyance on an individual level. A consonant position goes together with an average annoyance score. Dissonant positions tend to the extreme: to severe annoyance or no annoyance at all.

Conclusion

In this article, I have combined the analysis of meaning making in policy with the analysis of meaning-making by people. The influence of the former on the latter I call resonance. Policy

discourses resonate in people's everyday perception. As far as aircraft noise annoyance is concerned, the dominant political discourse in the Netherlands and Switzerland clearly structures how people construct noise annoyance. The variety of utterances about aircraft noise in 516 personal documents can largely be explained by the dominant political discourse. Around Amsterdam Schiphol, the same sound is experienced differently compared to Zurich Kloten. These differences clearly relate to different policy discourses. Resonance happens when citizens take part in a political process at a distance from politicians. Therefore, I conclude that the effect of the policy discourse goes beyond strategic or temporary compliance with 'the rules of the game'.

The policy discourse structures what people can and cannot say. In part this is a form of consonance, which means that people internalize and reproduce the dominant discourse. Partly people are in conflict with the dominant discourse, which I have described as dissonance. Discursive dissonance offers a sociological explanation of NIMBY'ism, for example. As with social movements, citizens rarely hold on to 'radical discourses' (Ferree, 2003). Rather, they adopt parts of the dominant discourse, evaluate the policy according to the criteria the policy has set, and reject some parts of the dominant policy discourse. Opposition, in this sense, is shaped by the policy discourse too.

Here I explain the wide impact of a policy discourse within the scope of policy practices. Information provided by authorities, consultation, referenda, complaint procedures and other policy measures regularly bring people living close to airports into contact with the dominant policy discourse. People become socialized in policy processes. In everyday life, policy concepts become taken for granted in lay understanding of noise. Consequently, conflicts arise in particular from contradictions within the policy discourse. In both cases, the dominant policy stirs up individual concerns and describes noise as a serious threat and future problem. Yet the same policy naturalizes the choice not to avoid noise annoyance completely. In both cases, a trend discourse has been firmly in place since the 1950s: air traffic is treated as a necessary development and a national asset in global competition.

The political decision not to avoid annoyance is hidden behind science, particularly in the Netherlands, where all parties accepted the acoustic definition of noise annoyance and noise levels became a fetish. In Switzerland, expert knowledge is more openly and more often politicized

What we see here is a process of rationalization and emotionalization of noise annoyance. Government, industry, science and social movements approach annoyance in a bureaucratic way. At the same time, people are urged by these parties to be alert and react emotionally.

Altogether, the discourse resonance model offers a coherent way to interpret the fact that the same sound is perceived differently in Switzerland and the Netherlands. Policy defines a problem and positions citizens, in this case as objects of policy and as stakeholders in the policy process. Policy provides the basic terms of subjectivity or stake. This does not lead to full compliance since it generates its own contradictions. The resonance model can be applied to social movements or risk theories (Bröer, 2007; Bröer & Duyvendak, forthcoming).

Furthermore, critical and interpretive discourse approaches can extend into mixed-method research strategies. I have shown that interpretive findings can be replicated (Kroesen &

Bröer, forthcoming) with quantitative measures, e.g. q-methodology (Brown, 1980). These findings might be relevant for other policy issues as well. Everyday experience is highly valued by politicians, particularly populists, these days. This research indicates that there is no straightforward way to do justice to what people experience. Major shifts in policy actually change people's experiences and perceptions. If policy treats a situation as problematic, people will experience the situation as problematic. As I have shown, some people will follow the policy discourse, while others will partly go against it. In the case of aircraft sound, this mechanism explains noise annoyance quite well. The way government and industry approach annoyance, backed by science and social movements, shapes our everyday understanding of aircraft sound.

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