Values of Stakeholders in the Net Neutrality Debate:
Applying Content Analysis to Telecommunications Policy

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Abstract

Net neutrality is an important telecommunications policy debate. This debate is closely tied to technological innovation, economic development, and information access. Values help shape stakeholders' positions on this debate. This paper examines the role of values in shaping the Net neutrality debate through a content analysis of public hearings on Net neutrality. The paper presents a quantitative analysis that reveals the top values implicated in the Net neutrality debate and statistically significant differences among individuals on opposite sides of the Net neutrality debate. A qualitative analysis reveals insights into the connection between specific values and positions on the Net neutrality debate. The paper concludes that values, technology, and policy are interconnected, and that it is useful to understand the values of the various stakeholders within policy debates.

1. Introduction

Recent innovations in telecommunications technology have radically transformed our access to and use of information. Ethics and policy issues related to privacy, access, control, and internationalization face new meanings and challenges as a result of rapid technological developments in telecommunications. Given this situation, it is increasingly important to consider the role of human values in the design and regulation of our telecommunications infrastructure. This study focuses on the role of values in an ongoing telecommunications policy debate: Net neutrality.

This study is guided by the three research questions: 1) What values are involved in the Net neutrality debate?; 2) What values are expressed by supporters of and opponents of Net neutrality?; and 3) How have the primary values shifted over time? Through the application of content analysis to public hearings about Net neutrality, the goal of this paper is to explore the value perspectives that lie at the core of the hotly contested Net neutrality debate.

2. The Net neutrality debate

Net neutrality is a timely and controversial issue. Although there is no single accepted definition of Net neutrality, most agree that this concept should include the general principles that "owners of the networks that compose and provide access to the Internet should not control how consumers lawfully use that network; and should not be able to discriminate against content provider access to that network" [12].

The Federal Communications Commission established four consumer-based principles to ensure that broadband networks are widely deployed, open, affordable, and accessible to all consumers. In adopting these principles, the FCC sought to protect consumers' unrestricted access to the Internet – fostering the creation, adoption, and use of broadband Internet content, applications, and services, and ensuring that consumers benefit from these innovations [16].

However, the Net neutrality debate no longer focuses primarily on these relatively uncontroversial rights. The debate now centers on the complex issues surrounding potential business relationships between service providers and content providers. Stakeholders are concerned about whether government regulations on Net neutrality will promote or hinder investments and innovations in both broadband infrastructure and information that flows through that infrastructure [1].

Net neutrality is a complex issue, not only because different stakeholders have different points of view, but also because the complex nature of the Internet makes it difficult to define and frame the issue. Proponents argue in favor of Net neutrality based on technological innovation and free speech, noting that Net neutrality protects consumers' rights to use any content, application, or service on a non-discriminatory basis without interference from service providers. They believe that service providers should not be allowed to charge for priority access to the Internet as a way of tiering service offerings. Opponents argue against Net neutrality based on property rights and efficiency of resource allocation. They claim that there is no current problem or clear harm to customers since competition

is sufficient to ensure the welfare of network users, while regulation of network management would reduce the incentive for investing in network infrastructure.

Values are embedded in Net neutrality discussions related to vertical integration [32], oligopoly pricing [21], non-discrimination of network access and lack of availability of certain services [31], decrease in incentives for investment [26], the reduction of technology innovation [2], and impediments to free speech [6, 21]. It is important to analyze the role of values expressed by relevant stakeholder groups, policy analysts, policy makers, and society at large.

3. Values in policy analysis

This paper builds on values as defined and classified by Shalom H. Schwartz, a leading scholar of the social psychology of values. According to Schwartz, a value is "a belief pertaining to desirable end states or modes of conduct that transcends specific situations; guides selection or evaluation of behavior, people, and events; and is ordered by the importance relative to other values to form a system of value priorities" [24]. Values serve not only as determiners of choices, but also as foundations for attitudes toward personal needs and societal demands. Values influence both individual choices and societal policy directions. Analysis of values within ongoing policy debates can help predict and explain individual and societal choices [25].

Values and policy are interrelated. Values influence policy goals, decisions, and implementation. At the same time, policy analysis also influences the values of participants in the policy-making process and of people affected by this process. Analysis of values can strengthen policy arguments and alter the state of ongoing policy debates. Thus, policy analysts cannot avoid the importance of values in their work. Value judgments about what is desirable cannot be completely separated from reality judgments of what is possible [5]. Value differences among each stakeholder group affect the nature of policy analysis.

Schwartz proposed a set of 56 basic human values, the Schwartz Value Inventory (SVI) [23]. The SVI was developed and validated through cross-cultural survey research. This paper examines the role that values play in motivating stakeholders in the Net neutrality debate.

4. Research methods

The aim of this research is to explore the value perspectives that lie at the core of the hotly contested Net neutrality debate and to provide an understanding of the value differences among stakeholder groups. To achieve this purpose, content analysis is needed to access and analyze people's values and attitudes toward Net neutrality regulation.

Content analysis is an established research method for systematic examination of textual materials that has been adopted by a wide range of academic disciplines, including communications, psychology, sociology, organizational research, and political science, and which incorporates a wide range of theoretical frameworks, methods, and analytical techniques [8]. It is an effective research method for studying attitudes, beliefs, values, and human relations [30].

Content analysis also provides an unobtrusive analysis of publicly available documents such as speeches, and testimonies and permits a longitudinal analysis which is unmatched by other research techniques [19]. Because of its unobtrusive nature, content analysis can be effective for assessing current value orientations [20]. Although content analysis is thought of as an established technique for textual data analysis, the traditional quantitative techniques are often criticized for missing syntactic and semantic information embedded in the text by reducing text into numbers [29]. Qualitative data analysis takes effect at the place where quantitative presentation reaches its limits. It goes beyond merely extracting objective content from texts to examine themes and patterns that appear or are latent in the manifest content [3]. This study employs a mixed-method approach to analyze values identified from actual words used by participants. In short, the content analysis of public documents can offer considerable promise in the research on values in telecommunications policy.

4.1. Data collection

Data collected for this study's content analysis are public documents in which various stakeholder groups express values and positions on Net neutrality. Public hearings serve as forums to gain insights and information about the consequences of various policy proposals. They provide useful data points that help to expose the values of various stakeholders, although it is important to note that such testimonies are often carefully crafted and polished statements that may reflect values that the authors intend to convey as well as values held deeply by the authors themselves. As such, this analysis, like all aspects of public hearings, must be viewed critically, not as absolute reality, but rather as one useful perspective on reality. This study focused on testimonies by individuals representing stakeholder groups in public hearings.

Data for this study included testimonies prepared for and delivered at Net neutrality hearings held by the U.S. Senate Committee on Commerce, Science, and Transportation on February 7, 2006 [28] and the

Broadband Network Management Practices En Banc Public Hearing held by the Federal Communications Commission (FCC) at Stanford Law School's Center for Internet and Society on April 17, 2008 [9]. These hearings are referred to henceforth as the 2006 and 2008 hearings. Twenty-eight prepared testimonies made by specific individuals were downloaded from the websites of the U.S. Senate Committee on Commerce, Science and Transportation and the FCC. These testimonies were from interest groups, administrative agencies, and research organizations. Six stakeholder groups were identified within this dataset: 6 government officials (U.S. Senators and FCC commissioners), 1 service provider (a local Internet service provider), 3 content providers (Internet and applications service providers), 10 interest groups (consumer groups and associations), 5 academics, and 2 other individuals.

4.2. Qualitative data analysis

Content analysis was used to analyze the testimonies. The recording units were congressional and FCC testimonies made by individuals belonging to specific stakeholder groups. The unit of analysis was sentence (as opposed to word, phrase, or document), although all sentences were analyzed within the context of the document in which they were contained. Each sentence was coded as containing a specific human value, multiple values, or as being free of values based on the entire set of Schwartz's 56 values. After coding the entire testimony, the position of each stakeholder toward Net neutrality (pro, con, or neutral) was coded based on the arguments made in the testimony. The analysis included 2,294 sentences, 2,008 of which, or approximately 87.5 percent, were annotated with at least one value. The mean number of values per sentence was 1.58 and the median was 1.

We computed Cohen's Kappa for each category over all 226 sentences in four documents that were coded by two independent human annotators. For the 17 categories in which both annotators assigned the category label more than once, the median Kappa was 0.38 (maximum 0.79, mean 0.39, minimum 0.10). Using the ranges proposed by Landis and Koch [14], this corresponds to two categories with "substantial" agreement for Kappa between 0.61 and 0.80, four categories with "moderate" agreement for Kappa between 0.41 and 0.60, eight categories with "fair" agreement for Kappa between 0.21 and 0.40, and three categories with "slight" agreement for Kappa between 0.00 and 0.20. For the purpose of qualitative analysis, the codes and quotations of this research can serve as anchors to our interpretation of values embedded in the Net neutrality debate.

4.3. Quantitative data analysis

Mann-Whitney U was used to compare the distributions of values included in testimonies coded as either pro or con. This analysis was performed on each hearing separately as well as across both hearings. Mann-Whitney U is the non-parametric counterpart of a t-test. It is robust and requires fewer assumptions than a t-test, and thus use of the Mann-Whitney U test is more likely to yield false negative results than false positive results (values that were not found to be statistically significantly different within this sample might be found to be statistically significant given a larger sample, but values that were found to be statistically significant are strong and reliable results). Medians and totals are provided as summaries, and box plots are used to depict the entire distribution of results wherever the Mann-Whitney U test revealed statistically significant differences. While there are more differences between the two hearings beyond the years in which they took place, such as the individuals testifying, the location and body hosting the hearing, and the specific mission of the hearing, the years are used as shorthand for the differences, and it is assumed that at least some although likely not all of the differences are due to chronology (this assumption could be tested by analyzing more hearings).

5. Values in Net neutrality

The analysis of both quantitative and qualitative data reveals that specific values are embedded in the Net neutrality debate and that these values vary according to stakeholder groups. The 28 congressional and FCC testimonies included stakeholders such as government officials (GO), interest groups (IG), academics (AC) and individuals (ID), and overall these were largely balanced between pro and con. However, the three content providers (CP) argued for Net neutrality regulation, while the service provider (SP) argued against Net neutrality regulation (see Table 1).

Table 1. Stakeholder groups and positions

	GO	SP	CP	IG	AC	ID	Total
Pro	4	0	3	4	2	1	14
Con	3	1	0	4	3	1	12
Neutral	0	0	0	2	0	0	2
Total	7	1	3	10	5	2	28

Table 2 provides a detailed summary of all values from among the 56 third-level categories that arose at least a total of ten times across all of the testimonies,

including median (for pro/con individuals) and total number of times raised by both proponents and opponents of Net neutrality. Thus, proponents and opponents of Net neutrality from different stakeholder groups can be distinguished not only by their stance toward Net neutrality but also by their values, demonstrating a connection between values and policy.

Table 2. Median and total value counts

Value	Median		Total		
	Pro	Con	Pro	Con	Total
Wealth	9	26	176	277	453
Freedom	11.5	8	231	100	331
Capable	5.5	9.5	178	135	313
Influential	8	10	124	167	291
Equality	9	4	186	77	263
Social Power	4.5	3	130	66	196
Authority	4	5	94	69	163
Helpful	3	5.5	51	103	154
Creativity	5	1.5	101	34	135
Social Justice	1	7	26	90	116
Social Order	3	2	47	57	104
A Varied Life	3	2	52	37	89
Choosing Own Goals	0	2.5	33	36	69
Intelligent	0.5	0	13	39	52
Successful	1	2	25	20	45
Responsible	0.5	2.5	15	27	42
Honest	0.5	0	33	8	41
Broad-minded	0.5	1	18	22	40
Politeness	1	2	16	24	40
Self-respect	1	1	17	22	39
Social Recognition	0	1.5	9	22	31
Respect for Tradition	0	0.5	15	12	27
Obedient	0	0	17	6	23
Reciprocation of Favors	0	0	5	10	15
Independent	0	0	5	9	14
Self-discipline	0	0	2	11	13
Daring	0	0	4	7	11
Family Security	0	0	4	6	10
Wisdom	0	0	6	4	10

The sections below provide an overview of the top ten values that arose within the Net neutrality discourse, as well as other statistically significant results. Since many sentences contained more than one value, the sentences used to illustrate specific values in each section below may also contain other values not discussed in that specific section.

5.1. Wealth

Wealth is the value related to money, material possessions, and/or valuable resources. It was the most frequently invoked value in the Net neutrality debate. Net neutrality opponents invoke wealth to emphasize service providers' need to remain innovative and profitable (which they argue is restricted by Net neutrality). An interest group representative argues, "With bandwidth usage growing at a rapid pace, continued investment will be needed to keep broadband services robust" [18]. An academic explains, "Keeping the Internet free of regulation has helped to spur tremendous investment and competition in broadband networks and services" [27]. A service provider states, "If rules and legislation are enacted that enforce these expanded definitions of network neutrality, they actually could put our small, competitive provider out of business" [13]. Thus, wealth is used to argue against Net neutrality.

Content providers, however, use wealth to shape the debate for Net neutrality by arguing, "carriers increasingly will have an economic incentive to use their power to block competitors, seek extra payments to ensure that Internet content can be seen, and generally control consumer activity online" [4]. Thus, perspectives on wealth served as motivations for participants on both sides of the Net neutrality debate.
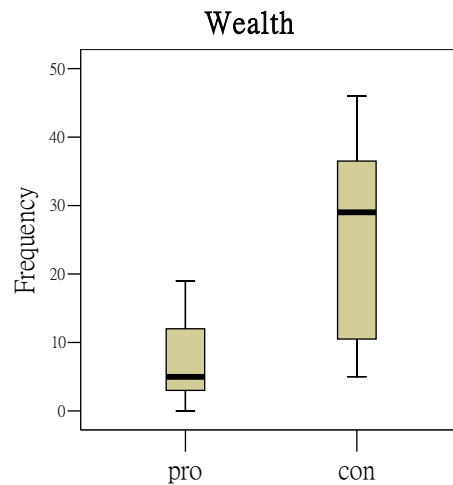

Figure 1. Wealth in 2008 (p<0.05)

Although there was no statistically significant difference for wealth in the 2006 hearing or overall, there was a statistically significant difference in the 2008 hearing. Figure 1 illustrates this finding, which demonstrates that in the 2008 hearing, Net neutrality opponents invoked wealth more frequently than supporters.

5.2. Freedom

Freedom is the value that people can do what they want, make their own decisions, and express their own opinions. From the content providers' perspective, the Internet is the platform that gives tremendous freedom to individual users and innovators. They argue the remarkable success of the Internet is based on "a few simple network principles – end-to-end design, layered architecture, and open standards – which together give consumers choice and control over their online activities" [7]. Academics and interest groups also invoke freedom to support Net neutrality legislation.

However, freedom is also invoked by opponents of Net neutrality. For example, one anti-Net neutrality academic argues that "the best broadband policy for the United States would result in lots of choice, innovation, and low prices" [22]. An anti-Net neutrality interest group representative invokes freedom in arguing that Congress shouldn't "limit the ability of Internet access providers to differentiate among different streams of information traveling over their networks" [17]. An anti-Net neutrality service provider downplays the extent to which differentiation among users is a hindrance to consumer choice and emphasizes that, "what would be a threat to consumers and to free speech is the elimination of competition" [13]. Thus, freedom was used to argue both sides of the debate.
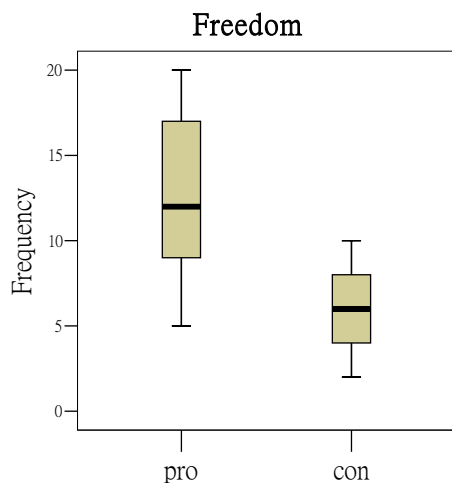
Although there was no statistically significant difference for freedom in the 2006 hearing or overall, as in the case of wealth, there was a statistically significant difference in the 2008 hearing for freedom. Figure 2 illustrates this finding, which demonstrates that in the 2008 hearing, Net neutrality supporters invoked freedom more frequently than opponents.

5.3. Capable

Capable is the value related to the capability or potential of doing something with effectively or efficiently. As Schwartz defined, capable is relevant to competence, effectiveness, and efficiency [23]. It is one of the main concerns for academics regarding the Net neutrality regulation. For example, one anti-Net neutrality academic argues, "the [Net neutrality] regulation must do so efficiently, in that the expected costs of the regulations are less than the expected benefits" [11]. The opponents of Net neutrality also argue that "if all purchasers face a uniform access price, without regard to usage, the common resource would be allocated inefficiently" [22], in the words of another anti-Net neutrality academic.

However, content providers view capable from a different perspective. They argue the Net neutrality regulation is the key to competitiveness. For example, one pro-Net neutrality content provider argues, "It is also critical to our nation's competitiveness - in places like Japan, Korea, Singapore, and the United Kingdom, higher-bandwidth and neutral broadband platforms are unleashing waves of innovation that threaten to leave the U.S. further and further behind" [4]. Thus, capable was used by participants from both sides of the debate.
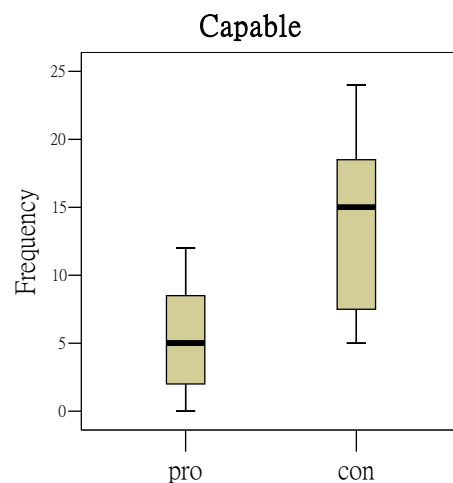

Figure 2. Freedom in 2008 (p<0.05)

Figure 3. Capable in 2008 (p<0.05)

Although there was no statistically significant difference for capable in the 2006 hearing or overall, there was a statistically significant difference in the 2008 hearing. Figure 3 illustrates this finding, which demonstrates that in the 2008 hearing, Net neutrality opponents invoked capable more frequently than supporters.

5.4. Influential

Influential is the value having an impact on people and actions as well as being an essential precondition for other actions or events. Service providers and anti-Net neutrality academics put significant emphasis on the value of influential. For example, one academic holds the view that "policy decisions regarding broadband networks and associated content and services can have important effects on the economy" [22]. A service provider elaborates by explaining that Net neutrality legislation "would drive smaller competitors with higher backbone bandwidth costs out of business" [13].

While service providers argue that Net neutrality regulation may influence the incentives of investment and competitiveness in the broadband market, proponents of Net neutrality argue for the need for innovation and competitiveness on a global stage. For example, a content provider explains, "In turn the way we approach those policy choices will have a tremendous impact on our ability as a nation to compete effectively on a global stage" [4]. Another content provider states, "As an entrepreneur that has used the Internet to change the way people communicate and conduct business, I am increasingly concerned that the inherent economic incentives of network operators will put the creativity from the Internet in serious jeopardy" [7]. Thus, influential is again invoked by participants on both sides of the Net neutrality debate.

5.5. Equality

Equality is the state of being equal, especially in having the same rights, status, and opportunity for all people. The value of equality is invoked in this case to refer to network players and consumers having the same rights and opportunities. Proponents of Net neutrality claim that service providers "should not discriminate among content or application providers" [15], in the words of one academic. To assure the equal competition among service providers, Net neutrality regulation is thus viewed as necessary by these Net neutrality advocates.

Service providers, not surprisingly, view equality

differently from Net neutrality advocates. Service providers argue that discrimination does not exist in the reality of competition between service providers. They argue that it is inappropriate to excessively rely on equality. For example, in the words of one service provider, "Unfortunately, because "network neutrality" seems like such a sensible idea and has so much momentum, various parties have sought to extend the definition beyond this basic principle -- in ways that favor their own interests and which are, ironically, non-neutral" [13]. Thus, the opponents in the Net neutrality debate have very different and contrasting views on equality.

Although there was no statistically significant difference for equality in the 2008 hearing or overall, there was a statistically significant difference in the 2006 hearing. Figure 4 illustrates this finding, which demonstrates that in the 2006 hearing, Net neutrality supporters invoked equality more frequently than opponents.
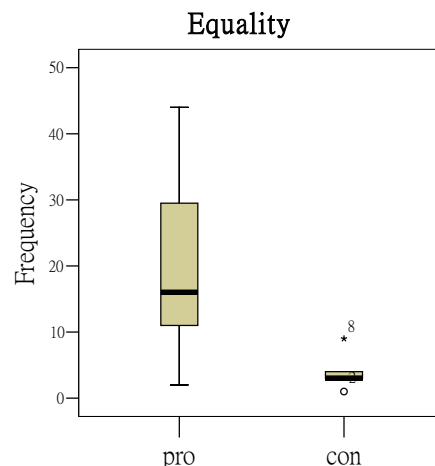

Figure 4. Equality in 2006 (p<0.05)

5.6. Social power

Social power includes control or dominance over people and resources. It is the ability or opportunity for actors to exert power over others. Net neutrality opponents argue that Congress should not limit the right and the ability of service providers to differentiate among different streams of information traveling over their networks. For example, one academic argues, "A dominant local access firm could use its power to extract rents from upstream providers through a variety of pricing and discrimination methods" [22]. From the service providers' point of view, they are not seeking to control or restrict the Internet. Similarly, an interest group representative explains, "It [the access tiering] has nothing to do with management of the Internet. It's

supply and demand" [17].

According to one content provider, "Network neutrality debate is about who will control innovation and competition on the Internet" [7]. This content provider continues, "There is nothing in statute or regulation today to protect consumers or Internet application providers from potential network discrimination" [7]. Thus, participants on both sides of the Net neutrality debate invoke social power.

5.7. Authority

Authority is the value related to the right to lead or command and have the power to make decisions or tell people what to do. One anti-Net neutrality interest group representative argues that the success of the Internet today is because "the government has maintained a vigilant, but hands-off approach that has allowed companies to innovate in direct response to the evolving wants and needs of their customers" [17]. Net neutrality opponents hope that the government will demonstrate restraint in exercising their authority.

Net neutrality supporters, contrastingly, argue that the government should use their authority to increase the competition and protect consumer rights. One academic states, "It is my view that Congress should ratify Powell's 'Internet Freedoms,' making them a part of the FCC's basic law." Participants on both sides of the Net neutrality debate invoke authority.

5.8. Helpful

Helpful is providing assistance and working for the welfare of others. Proponents and opponents agree on the need to work for consumer and social welfare. Academics argue Net neutrality regulation should take consumer welfare into account and policymakers must ensure that regulations will help consumers and society at large. For example, one anti-Net neutrality academic states, "The task of policymakers is to sort through the many and varied claims of interested parties and determine which policy prescription can be expected to advance the interests of consumers and overall economic welfare best" [11]. Both sides of the Net neutrality debate invoke helpful, but they have different views about how the government can be helpful and whom the government should help.

5.9. Creativity

Creativity is the ability to create new ideas or things involving uniqueness and imagination. Both proponents and opponents of Net neutrality agree on the need for innovation. As one content provider

explains, "It is innovation, not legislation, that created our service and brought this competition to consumers" [7]. He further urges, "The Internet remains an open and competitive foundation for innovation" [7]. Service providers also see the importance of investment on innovation, noting that "we need to ensure U.S. policy encourages vigorous investment in continually upgrading network capacity" [17]. Thus, Net neutrality supporters and opponents agree that creativity is an important value in this debate.

5.10. Social justice

Social justice is related to correcting injustice and caring for the weak. Net neutrality opponents frequently invoke social justice to support the notion that "those who cause the costs should be charged" [22] in the words of one academic. As an interest group representative explains, "businesses that seek to profit on the use of next-generation networks should not be free of all costs associated with the increased capacity that is required for delivery of the advanced services and applications they seek to market" [17]. Thus, Net neutrality opponents place more emphasis on Net neutrality as a social justice issue than supporters. For social justice, there was a statistically significant difference both in the 2008 hearing (Figure 5) and overall across both hearings (Figure 6).
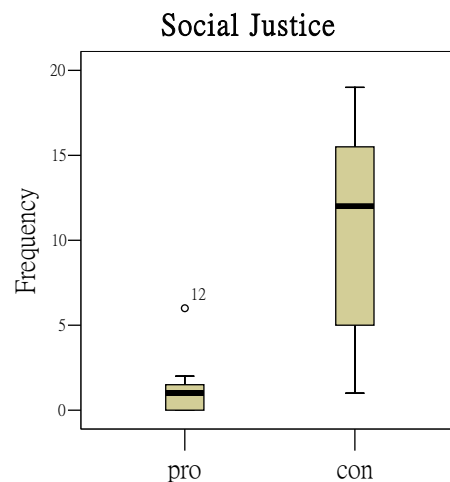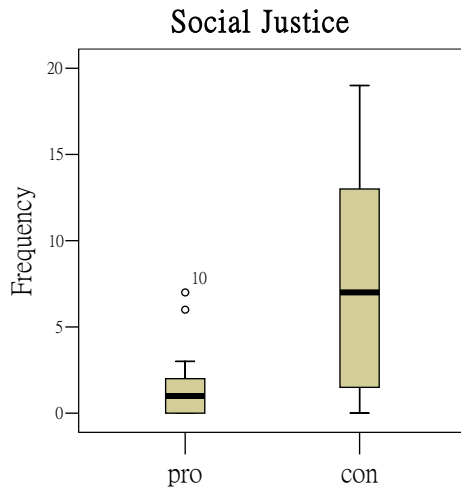

Figure 5. Social justice in 2008 (p<0.01)
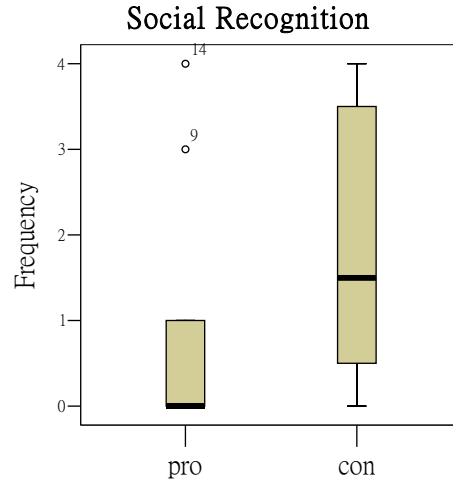
Figure 6. Social justice overall (p<0.05)

Figure 8. Social recognition overall (p<0.05)

5.11. Other statistically significant results

This study identified two additional statistically significant results. First, in the 2006 hearing, opponents of Net neutrality placed a higher value on "choosing own goals" than supporters, illustrating the restrictions that Net neutrality opponents at that time felt Net neutrality might place on them and the changes in the Net neutrality debate (Figure 7). Choosing own goals focuses on doing what one thinks is best or right.
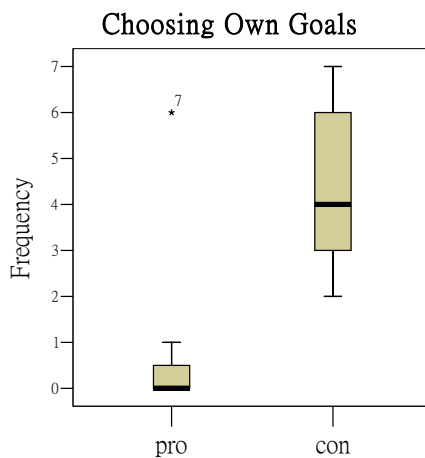

Figure 7. Choosing own goals in 2006 (p<0.05)

Second, opponents of Net neutrality placed a higher value on social recognition than supporters at both hearings, demonstrating that Net neutrality opponents frequently called upon their own social recognition, accrued as a result of their past innovations, as support for their opposition of Net neutrality (Figure 8).

6. Discussion

Net neutrality is a complex issue that has evolved over time. Similarly, the values expressed by supporters and opponents of Net neutrality appear to have changed over time, although it is important to note that there are also other differences between the two hearings that may explain these differences at least in part. In the 2006 hearing, near the start of the Net neutrality debate, supporters of Net neutrality placed a higher value on equality, while opponents placed a higher value on choosing own goals. At that time, supporters framed the debate in terms of equal access to content for consumers and opponents framed the debate in terms of service providers' ability to choose to self-regulate. The emphasis on equality and choosing own goals may be due to the need for learning why a problem exists at first when the debate was in its early stage. Equality appeared to be the salient value for proponents in framing the debate.

By the 2008 hearing, equal access was no longer a controversial issue. Both proponents and opponents agreed on the importance of equal access. The debate had shifted significantly. Supporters framed their argument in terms of freedom, explaining that content providers and consumers should have the freedom to whatever content and services they wanted without tiering or discrimination. Opponents, by contrast, framed the debate in terms of wealth, emphasizing the need for service providers to remain profitable; capable, illustrating the need for service providers to remain efficient, and social justice, framing the issue of Net neutrality as a basic fairness issue but, interestingly, arguing that Net neutrality is inherently unfair to service providers for not being able to charge for the bandwidth content providers consume.

7. Conclusions

This study illustrates that it is critical to identify the values held by stakeholders and to understand the value differences among stakeholder groups, especially how these values change over time. Values serve as an explanatory framework for understanding policy issues and can be used to predict and explain individual and societal choices related to ongoing policy debates. For the analysis above, specific values were expressed more frequently by people who were either for or against Net neutrality and certain values can be embedded in the statements with the intent of persuasion. It is helpful to understand the motivations that drive the arguments people are making for or against Net neutrality and how they change over time. This analysis can also help policy analysts and policy makers to monitor value conflicts when the debate evolves. As the value conflicts increase, the range of analysis widens and a diverse set of arguments unfolds. The links between values and specific policy positions and interests also increase. As such, for policy analysis to be successfully employed in a particular political situation, there must first be some fundamental agreements [10]. Such agreements serve as mediating principles under which conflicting elements of belief or value system can be organized. By applying Schwartz's value categories, this study concludes that the most salient values in Net neutrality are wealth, freedom, capable, influential, equality, social power, authority, helpful, creativity, and social justice. Values are not necessarily determinate in policy debates but values are often one of the key factors that inform agenda setting and decision-making.

Further, this study illustrates the transformation over time of the Net neutrality debate. As the debate itself has shifted, so too have the values used to advocate particular positions in relation to this debate. It is particularly interesting to apply this approach to understand the shift in the debate over time.

Content analysis of testimonies at public hearings can thus serve an important role in understanding ongoing telecommunications policy debates such as Net neutrality. Since these hearings constitute a major dimension of the public forum for discussion of Net neutrality issues, including a diverse range of stakeholders, they are ideal for studying the relationship among values, policy, and technology.

Three major limitations of this study should be addressed. First, within the data set, only one service provider and three content providers were involved in the Net neutrality debate. Based on the limited samples, only inferences can be drawn about the saliency of values based on data analyzed in this paper. Second, this study describes values in only one specific discourse of Net neutrality with the assumption that the statements of stakeholders are transparent windows into their values toward Net neutrality. Third, the coding scheme that was selected was originally used for surveys, and the 56 value categories may lead to ambiguity and information overload for coders. This resulted in only fair agreement in inter-coder reliability.

For future research, analyzing all Net neutrality testimonies and other data sources such as news articles and academic journals could lead to broader insights for understanding the role of values in shaping the Net neutrality debate. One way to expand analysis would be to automate content analysis or at least provide computational assistance to human coders performing content analysis. It would also be valuable to create a coding scheme for analyzing values on information policy issues that could lessen the ambiguity and information overload of coding and improve inter-coder reliability. In the future, hopefully it will be possible to conduct even broader and more sweeping analyses through the assistance of computational linguistics tools that can help us to perform policy analysis that is as sophisticated as the technologies that are the focus of the policy debates.

8. Acknowledgements

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