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Psephological Peer Production

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Tim Watts
MSc in Politics and Communication

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Tim Watts

ABSTRACT

This study uses content analysis of the coverage of polling data in the Industrial Media and an online psephological community of interest during the year proceeding the 2007 Australian Federal election to empirically test the predictions of a growing body of theoretical literature describing the non-organisational, non-market Peer Production of information and cultural products. This research finds evidence that supports the proposition that high profile nodes within Peer Production communities of interest will produce information and cultural products of relatively high quality in areas that demand technical expertise and are also significantly influenced by the pressures of commoditisation in the Industrial Media. In the context of the general absence of empirical data in this field, the evidence obtained by this paper provides valuable direction for much needed further research in this emerging area of research.

1. INTRODUCTION

The rapid proliferation of the blogosphere and its increasingly visible influence on the public discourse has attracted significant academic and popular interest in recent times. However, in the rush to evaluate the implications of the medium in the contexts of empowerment, the democratic discourse, political influence and the future of professional journalism, little attention has been given to systematically evaluating the content being produced by the blogosphere. At present, much of the literature discussing the implications of the blogosphere proceeds on the untested assumption that the visible biases, limited resources and absence of editorial oversight that often characterize the medium will result in it being inevitably less reliable than the traditional media.

This assumption deserves testing. There is a growing body of academic literature that outlines how, in specific circumstances, the voluntary Peer Production of information and cultural goods in the blogosphere can produce content of a higher quality than that produced by the profit driven, industrial model of production employed by the traditional media (referred to in this paper as 'The Industrial Media'). While there is currently little empirical evidence directly testing these claims, recent studies provide circumstantial evidence of this proposition in the form of research indicating that the education level of elite bloggers is generally higher than that of industrial journalists and further, that readers invest greater credibility in the blogosphere than they do in the Industrial Media. In this context, there is a need for empirical research comparing the quality of the output of Peer Production with that of the Industrial Media.

The existing literature on the Peer Production of information goods provides a sufficient theoretical framework to inform an investigation of areas in which it may produce more accurate content than the industrial model. This literature suggests potential advantages of Peer Production over the Industrial Media in terms of increased specialisation, increased capacity for information aggregation and a lack of distortion by financial incentives. As such, research comparing the output of the peering and industrial models of production should start by investigating an area of media coverage in which these factors may play a significant role.

Media coverage of polling data is useful area in which to empirically test the relative accuracy of each model of production. Covering polling data requires a level of specialisation

beyond generic reporting as it requires a basic technical understanding of statistical interpretation. Further, there are substantial bodies of literature in both political science and statistics that have identified the negative impact that commercial incentives have on the reporting of polling data. Additionally, the presence of objective standards against which the validity of statistical inferences may be judged avoids many of the methodological hurdles inherent researching media 'quality'. While an examination of the relative accuracy of blogosphere and Industrial Media coverage in the niche area of polling will not provide a categorical verdict on the relative quality of the media in a more general sense, it can provide valuable data to inform further research and theoretical development in an area that is presently largely bereft of empirical evidence. Finally, given the substantial prominence afforded to the reporting of polling data in the coverage of politics, the examination of the nature of this coverage has intrinsic value in and of itself.

2. THEORETHICAL BACKGROUND

EXISTING LITERATURE ON THE BLOGOSPHERE

Many perspectives, little data

Blogs, or *"web page(s) with minimal to no external editing, providing online commentary, periodically updated and presented in reverse chronological order, with hyperlinks to other online sources"* (Drezner & Farrell, 2008, p. 2) have attracted much academic and popular attention in recent years. In light of the medium's increasingly influential role in the public discourse (Zhou & Moy, 2007), (Rogers, 2005), (Drezner & Farrell, 2004, p. 2), (McIntosh, 2005, p. 385), (Bahnisch, 2006, p. 144) there has been a veritable race to explain the implications of the medium within a number of contexts.

Intense debate has emerged in the context of blogs' impact on democracy. Disputes have occurred over whether blogs empower citizens by democratising the media (Lessig L. , 2004, p. 41), (Armstrong & Zuniga, 2006, p. 146), (Matheson, 2004, pp. 451 - 452), (Kavanaugh, Zin, Carroll, Schmitz, Perez-Quinones, & Isenhour, 2006, p. 79), (Bahnisch, 2006, p. 139) or whether the medium simply perpetuates existing off-line power inequalities (Kavanaugh, Zin, Carroll, Schmitz, Perez-Quinones, & Isenhour, 2006, p. 80), (Margolis & Resnick, 2007, p. 313), (Hindman M. S., Forthcoming, p. 88). Others have questioned whether the medium improves the quality of deliberative democracy by encouraging engagement between participants (Anderson, 2006, p. 198), (Bahnisch, 2006, p. 139), (Benkler, 2006) or whether it hinders deliberation by 'polarising' debate within hermetically sealed communities of likeminded individuals (Adamic & Glance, 2005, p. 14), (Sunstien, 2001, p. 3), (Sunstien, 2001, p. 3), (Munger, 2008), (Prior, 2005).

Authors within the media studies discipline have debated whether blogging threatens the future of journalism as a profession (Reese, Rutigliano, Hyun, & Jeong, 2007, p. 236), (Bahnisch, 2006, p. 140), (Matheson, 2004, pp. 451 - 452) or represents an opportunity for improving its efficiency and responsiveness (Beckett, 2008, p. 47), (Gillmor, 2004, p. 18), (Bowman & Willis, 2003, p. 13), (Woodly, 2008, p. 115), (Lasica, 2003). Other authors have debated whether blogs primarily perform a '5th estate' or 'gatewatching' role, fact checking and supplementing Industrial Media coverage (Bruns, 2006, p. 12), (Singer J. B., 2006, p.

28) or alternatively function as a independent fount of content production in their own right (Benkler, 2006), (Gillmor, 2004).

Despite these numerous, vigorously contested areas of debate, the most striking feature of current academic literature is the lack of substantive empirical data on the medium (Sunstein C. R., 2008, p. 94), (Bahnisch, 2006, p. 140), (McKenna, 2007, p. 211). The literature within and between the areas of debate outlined above is divided on both on the factual characteristics of the blogosphere and its normative implications (Hindman M. S., Forthcoming, p. 91). Drezner and Farrell sum up this tendency well by noting that *"[t]here is a plethora of arguments made on the basis of anecdotes but little substantive data."* (2008, p. 7).

These factual and normative disagreements are compounded by the fact that both empirical and theoretical work has mainly been undertaken within the silos of debate outlined above and broader 'general' theories of the nature of the medium have been neglected. As a result, when empirical evidence has been gathered, in general little attempt has been made to rationalise the resulting factual and normative inconsistencies within and between the established areas of debate. In many cases, these inconsistencies could be addressed with the application of better empirical data. However, even with better empirical data, often these inconsistencies can only be understood in the context of a better theoretical framework that transcends the current narrow areas of academic debate on the medium.

A Holistic Perspective on the Blogosphere: Blogging as a New Model of Production for Information and Cultural Products

Despite the lack of holistic theoretical perspective in much of the blogging research, a 'general theory' of the blogosphere has emerged within a parallel body of literature studying the Peer Production of information and cultural products. Variously referred to as 'open source', 'commons' or 'peer' production, this literature describes the emergence of Internet enabled information and cultural production outside of the organisational and market structures that have traditionally coordinated production (Benkler, 2002), (Shirky, 2008), (Tapscott & Williams, 2007, p. 11), (Surowiecki, 2004). This literature originally focused mainly on studies of open source software development (see for example (Raymond, 2000)), but in recent times has broadened in scope to encompass the production of other information and cultural goods, including blogging (Gillmor, 2004), (Benkler, 2006).

The theoretical strength of the Peer Production literature over the multiple theories within the more narrow contexts discussed above is that it offers a holistic explanatory framework for understanding the blogosphere. By adopting the Peer Production theoretical framework, superficially unconnected and seemingly inconsistent factual and normative conclusions within the more narrow bodies of literature discussed above can be reconciled and broader insights drawn. For instance, some authors writing within the context of blogging as a challenge to journalism have drawn negative normative conclusions about the impact of the medium on the quality of cultural production based on observations of the open nature of participation in the medium and the ability for outsiders to have a voice. At the same time, other authors have drawn negative implications about the impact of the blogosphere on democratic empowerment on the basis of empirical research that shows that only a very small number of elite, highly educated individuals are able to utilise the openness of the medium to attract a large enough audience to influence the public discourse (Hindman M. S., Forthcoming, p. 100). However, as discussed in further detail below, by applying the more holistic Peer Production theoretical framework to these findings it can be seen that these seemingly inconsistent bodies of literature are merely functions of a new model of production in which access to the means of production is egalitarian, but attention to output is meritocratic.

The Characteristics of the Peer Production Model

There is already a broad theoretical agreement (if little empirical evidence) on the distinct characteristics of the Peer Production model within the existing literature. Most authors agree that Peer Production occurs where a community of interest forms around a topic within a structure that allows large scale information aggregation and specialised participation through the voluntary contributions of large numbers of participants. The various elements of this model and their implications are discussed below.

Formation of Communities of interest

All authors who have written on Peer Production have identified the formation of communities of interest around a common topic as the foundation of Peer Production. Benkler describes these communities as 'clusters' (Benkler, 2006, p. 242), Shirky as 'groups' or 'communities of practice' (Shirky, 2008, p. 101), and Tapscott and Williams as 'Peer

Production communities' (Tapscott & Williams, 2007, p. 25). This paper will use the term 'communities of interest' to describe this phenomenon.

The communities of interest that underpin Peer Production emerge when likeminded people find each other and communicate on a shared topic of interest. As Shirky has recognised, internet enabled social tools such as email, blogs and social networking sites have dramatically reduced the transaction costs of finding and maintaining contact with likeminded individuals (2008, pp. 20-21). As a result, communities of interest allowing large scale collaboration outside traditional organisational or market relationships have only proliferated in recent times (Shirky, 2008, p. 47), (Benkler, 2008, p. 49), (Tapscott & Williams, 2007, p. 25).

Within the blogosphere, communities of interest form around and between topic oriented blogs (Shirky, 2008, p. 102), (McKenna, 2007, p. 219). Individuals with an interest in the topic of the blog converge around the site and interact with the blogger and each other through the comments section and other social media tools (eg email, social networking sites). Other interested bloggers also interact with the blog through almost ubiquitous comment 'trackback' functions that aggregate incoming links and comments for the blog (McKenna, 2007, p. 220), (Benkler, 2006, p. 260), (Sunstein C. R., 2008, pp. 87-88). As a result, each blog acts as both a platform for, and a participant in, collaboration within communities of interest.

However, despite the superficially open nature of participation in, and engagement between, these communities, it is important to recognise that these relationships are characterised by substantial inequality. Inequality manifests itself most prominently in the dramatically skewed distribution of attention (in terms of audience and incoming links) within the blogosphere. The fact that a relatively small number of blogs attract extremely large audiences (referred to as the 'A-list'), while the vast majority of have relatively small audiences (the 'long tail'), is one of the few areas of consensus in the literature (Shirky, 2003, p. 78), (Hindman, Tsioutsiouliklis, & Johnson, 2003, p. 26), (Hindman M. S., Forthcoming, p. 97), (Drezner & Farrell, 2004, p. 4), (Benkler, 2006, p. 242), (Kinniburgh & Denning, 2006, p. 5). This skewed distribution of attention is visible not only at the macro-level, but also manifests itself fractally; power law distributions are also visible at the micro level within each smaller topic orientated community (Hindman, Tsioutsiouliklis, & Johnson, 2003, p. 26). This means that in the same way as there is a skewed distribution of attention

for general political blogs, there is also a skewed distribution of attention left wing and right wing blogs, for geographically delineated general interest political blogs, and for blogs in specific policy areas etc. As such, while the means of production with the blogosphere may be democratised, there is an underlying structure and hierarchy to the distribution of attention within the medium (Tapscott & Williams, 2007, p. 25).

Information Aggregation within Communities of Interest

Most authors agree that the most basic collaborative activity within communities of interest is the sharing and aggregation of information by participants (Shirky, 2008, p. 47). The literature on Peer Production frequently cites the ability of these communities of interest to aggregate the decentralised, independent contributions of large numbers of individuals on a topic of interest as a frequently observable characteristic of the model (Benkler, 2002, pp. 412 - 413), (Benkler, 2006, p. 260), (Munger, 2008, p. 129), (Sunstein C. R., 2008, p. 87), (Singer J. B., 2005, p. 177), (Kavanaugh, Zin, Carroll, Schmitz, Perez-Quinones, & Isenhour, 2006, p. 79). As Benkler has described it:

> *"Peer production has an advantage over firms and markets because it allows larger groups of individuals to scour larger groups of resources in search of materials, projects, collaborations, and combinations than is possible for firms or individuals who function in markets"* (2002, pp. 376 - 377)

Within the blogosphere, this information aggregation process occurs at a number of levels. At the intra-blog level aggregation occurs when the readers of a blog contribute their individual knowledge and perspectives on a topic, either via the comments section or directly to the blogger by other means eg email or instant message (Munger, 2008, pp. 128 - 129), (Woodly, 2008, p. 115), (Bar-Ilan, 2005, p. 299). At the inter-blog level, information aggregation further occurs when other blogs within the broader topic specific community contribute their collective knowledge and perspectives (Drezner & Farrell, 2004, p. 13). Unfortunately, beyond these basic observations little research has been done at this point to investigate information aggregation within communities of interest in any real detail.

Filtering of Aggregated Information within Communities of Interest

The Networked Public Sphere:

The large volumes of information aggregated within communities of interest in the blogosphere would be of little practical utility without a mechanism for filtering these contributions (Tapscott & Williams, 2007, p. 69). Some authors have argued that despite the absence of formal editors in the blogosphere to perform this function, alternative, decentralised filtering practices have emerged within and between communities of interest. Amongst those authors that argue that a filtering process operates within the blogosphere Benkler's theory of the networked public sphere is the most theoretically comprehensive description of the process (Benkler, 2006, p. 242).

According to Benkler, each blog constitutes a node in the networked public sphere around which a community of interest may form. As discussed above, the contributions of participants in each community of interest are aggregated at the intra-blog level through the comments section and via direct communication with the blogger (McKenna, 2007, p. 219). The blogger then performs an initial filtering function, exercising discretion as to which contributions are then integrated into the body text of the blog in subsequent posts (Woodly, 2008, p. 117), (McKenna, 2007, p. 216). The body text of each blog is then subject to filtering at the inter-blog level through a process of peer review within the broader community of bloggers writing on the relevant topic (Benkler, 2006, p. 242), (Drezner & Farrell, 2004, p. 7).

Benkler theorises that this process of decentralised peer review will result in attention in the blogosphere being distributed according to the quality of each contribution, regardless of its source. Benkler theorises that this will occur because high quality, salient contributions within the networked public sphere are likely to attract increased attention in the form of favourable coverage at other blogs and resulting links back to the original post. Low attention nodes have an incentive to try to draw attention to their higher quality posts by alerting more prominent bloggers in their immediate communities of interest to their posts via email, comments or trackbacks. These more prominent bloggers will filter these submissions and link back to high quality posts. As a result, high quality content that emerges from a low visibility node will diffuse through the community by moving up the attention distribution to be incorporated in high attention blogs (Lessig L. , 2004, p. 43),

(Hindman, Tsioutsiouliklis, & Johnson, 2003, p. 29). This attention distribution process is further accelerated by Google's link-reliant, PageRank search algorithm that provides increased prominence to posts on blogs with more links (Benkler, 2002, p. 392), (Tapscott & Williams, 2007, p. 41).

In contrast, according to Benkler, a low quality contribution from a low attention node is likely to be ignored, or at most criticised by other bloggers within the community and is unlikely to attract further attention from within the community of interest. A high attention node that produces a low quality post is likely to attract criticism the community in the comments of the post in the short term and if the node continues to produce low quality information in the longer term, is likely to lose attention within the community (Lasica, 2003, p. 73), (Woodly, 2008, p. 122), (Johnson & Kaye, 2004, p. 624). While inaccuracies are not prevented from being published, they are unlikely to be systemic and accuracy is likely to increase in the long term.

McKenna describes this peer-review process as it operates within the blogosphere as follows:

> *"By linking to other blogs, responding to posts of other bloggers, responding to content in the media, and responding to commenters, bloggers are consciously and unconsciously refining how they frame their argument. They learn how to word their arguments to gain the most support of the public. (Policy Bloggers) quickly learn what words and ideas resonate with the public and what falls flat."* (2007, p. 220)

Benkler theorises that while not perfect, over time this process will generally result in higher quality, more salient information attracting more attention and low quality, low salience information being rejected or ignored. The implication of this community judged, meritocratic attention distribution process is that the reliability of information aggregated at any node within the networked public sphere will increase with the prominence of that node within a community of interest (Benkler, 2006, p. 260), (Woodly, 2008, pp. 115 - 116). In this way, Benkler essentially uses attention within the blogosphere as a proxy for quality and uses the skewed distribution of attention within communities of interest as a heuristic for judging the quality of blog content.

On top of the attention distribution filtering mechanism discussed above, the reliability of the content incorporated into the 'A-list' blogs within a community is further reinforced by the complimentary effect of "Linus' Law" of Peer Production on the attention distribution process.

Linus' law provides that *"Given enough eyeballs, all bugs are shallow"* (Raymond, 2000, p. 30), (Bruns, 2006, p. 19), that is that the participatory nature of the blogosphere will ensure that if enough people are viewing a piece of information someone will highlight any inaccuracies in this information, allowing it to be corrected (Benkler, 2006, p. 218), (Sunstein C. R., 2008, pp. 87-88). As such, the more people that are reading a blog, the more likely it is that someone will highlight an error in a post. In this way, filtering within the blogosphere occurs post-publication rather than pre-publication (Shirky, 2008) (Bruns, 2006, p. 16) (Singer J. B., 2006, p. 25). Benkler shows that while there are generally no formal editors vetting the content of an individual blogger pre-publication, the skewed distribution of attention within the blogosphere creates points at which an editorial filtering process can occur post-publication (Anderson, 2006, p. 68), (Tapscott & Williams, 2007, p. 41).

These theoretical claims about the filtering process in the blogosphere can be counter-intuitive and are still highly controversial. Further, the major accounts of this process in the literature are at present largely anecdotal and have not been subjected to systematic empirical testing. Many authors dispute whether such a filtering process even exists and argue that this is one of the obstacles to the blogosphere's reliability (Savigny, 2002, p. 6). Other authors have questioned whether the systematic, decentralised filtering process of the blogosphere undermines quality by creating an uninformed *'mob rule'* rather than legitimate peer review (Pein, 2005). Others have questioned whether bloggers' desire to maximise their attention in the blogosphere would in fact create incentives to publish information that was inaccurate, but conformed to the biased world view of their readers (Sunstein C. R., 2008, p. 90). However, despite these critiques and the lack of direct empirical evidence on the question, there is indirect empirical evidence consistent with Benkler's theory of the networked public sphere.

The 'Elite' Bias of the A-List:

While there has been limited direct research focusing on the quality of the output of blogosphere and any potential relationship this may have with the distribution of attention in the medium, there is some circumstantial evidence to support the view that the attention distribution process may be meritocratic. Firstly, it has been recognised that not only are bloggers generally better educated than the general population (Tremayne, Zheng, Lee, & Jeong, 2006, p. 297), (McKenna, 2007, p. 213), (Lenhart & Fox, 2006, p. 23), but further the bloggers who maintain 'A-list', high attention blogs are extraordinarily highly educated. For instance, Hindman has found that eight of the ten political blogs with the highest attention in

the US are run by bloggers who were educated at an 'elite' institution of higher education. Seven of the top ten had either a J.D. or a P.H.D (Forthcoming, p. 100). Similar patterns can be seen amongst the next tier of attention within the blogosphere (Forthcoming, pp. 102 - 103). Hindman (Forthcoming, p. 105) concluded from his study that:

> *"In a general, bloggers are people who write for a living..... Running a successful political blog requires strong analytical training, an encyclopaedic knowledge of politics, the technical skill necessary to set up and maintain a blog, and writing ability equal to that of a print journalist. It is not an accident that there are no factory workers or janitors in the upper ranks of the blogosphere."*

As Hindman recognises, while these findings pose questions for those proclaiming the empowerment credentials of the medium, these findings also provide circumstantial evidence of Benkler et al's (Forthcoming, p. 109) claims that attention in the blogosphere is distributed on a meritocratic basis:

> *"If our primary concern is the factual accuracy of blogs or the quality of bloggers' analysis, the elite backgrounds of the top bloggers may be reassuring."*

Other authors who have investigated the backgrounds of elite bloggers have reached similar tentative conclusions in this regard:

> *"The quality of writing, although not measured for this study, is likely a significant predictor of success in the blogosphere"* (Tremayne, Zheng, Lee, & Jeong, 2006, pp. 303 - 304).

The Credibility Advantage of the Blogosphere:

This circumstantial evidence that high-quality sources within the blogosphere attract more attention than low quality sources is also reinforced by the findings of research into audience perceptions of the credibility of the medium. A number of studies have found that readers view the blogosphere as being more credible than the Industrial Media. (Johnson & Kaye, 2004, p. 633), (Johnson, Kaye, Bichard, & Wong, 2007, p. 2). While these findings are not direct evidence, existing research on the level of education of the most prominent bloggers and on audience perceptions of the credibility of the medium provide indirect support for Benkler's argument that attention in the blogosphere is distributed on a meritocratic basis.

Specialisation

A further often cited characteristic of the Peer Production Model recognised in the literature is the increased potential for specialisation it allows relative to the Industrial Media. While some have argued that the organisational division of labour within the Industrial Media has allowed significant specialisation amongst professional journalists (Lowrey, 2006, p. 483), this degree of specialisation pales in comparison to that which manifests itself in the blogosphere.

As discussed above, Peer Production takes advantage of the dramatically lower transaction costs of collaborative activity to form communities of interest around niche topics (Lasica, 2003, p. 73), (McKenna, 2007, p. 9). The extremely low cost of the medium makes it possible for area experts to coalesce around and collaborate on extremely narrow topics with limited broader appeal (Drezner & Farrell, 2004, p. 4), (Surowiecki, 2004, p. 71). The relatively higher cost structure and profit imperative of the Industrial Media precludes an equivalent level of specialisation. The high capital costs of the Industrial Media and the consequent need to produce content that cost effectively appeals to a broad audience means that it is simply uneconomic for the Industrial Media to employ journalists who specialise to the extent seen in the blogosphere.

In addition, the voluntary nature of participation in Peer Production communities allows members to self-select the ways in which they contribute (Benkler, 2002, pp. 375 - 376), (Tapscott & Williams, 2007, pp. 68-69). This has two benefits. Firstly, individuals are able to further limit and specialise the nature of their contributions within already specialised niche communities of interest (Benkler, 2002, p. 414). Secondly, this self-selection process allows talent to be allocated to a task much more efficiently and at a low cost than is possible within the top-down hierarchical constraints of the Industrial Media. This level of specialisation has been recognised as a major driver of success for bloggers within the medium (McKenna, 2007, p. 217).

Lack of Profit Motive

The final generally agreed characteristic of Peer Production is the 'non-market' nature of the model and the consequent absence of the sometime distorting influence of financial incentives (Benkler, 2006, p. 260), (Woodly, 2008, p. 115), (Singer J. B., 2005, p. 176), (Drezner & Farrell, 2004, p. 4), (McKenna, 2007, p. 209). As the costs of blogging and the

formation of communities of interest are relatively low, there is much less pressure within these communities to realise financial returns from their output when compared to the Industrial Media (Tapscott & Williams, 2007, p. 68). Consistent with this claim, survey research in the United States has found that 85% of bloggers state that financial returns are 'Not a reason" for their blogging (Lenhart & Fox, 2006, p. 8). Additionally, only half of those bloggers who do seek a financial return from their blogging (less than 4% of bloggers) do so via advertising (Lenhart & Fox, 2006, p. 15), further reducing the financial influences that dominate in the Industrial Media (Woodly, 2008, p. 118), (Lessig L. , 2004, pp. 43 -44).
In the absence of financial incentives, the actual motivations of bloggers vary and the literature canvasses a broad range of potential motivations ranging from anthropological analogies of gift-giving economies (Berquist & Ljungberg, 2001) to simple personal satisfaction (Dalle, David, Ghosh, & Steinmueller, 2004, p. 15), and social-psychological rewards (ie status) (Benkler, 2002, p. 426). Again, more research in this area, in particular into the sustainability of contributions to these communities in the long term without financial incentives would be of value.

STATEMENT OF CONCEPTUAL FRAMEWORK

This paper uses this Peer Production literature as a conceptual framework for researching the content produced by the blogosphere. The Peer Production theoretical framework outlined above predicts that the aggregated, voluntary contributions of a community of interest will be of relatively high quality when compared to the Industrial Media where specialisation and expertise play an important role in the production process and where the profit motive may have a negative impact on the quality of output. The theoretical framework further predicts that the output of the communities that form around the highest attention nodes will produce higher quality content than low attention nodes.

Objectives of Research

As discussed above, while there is now a growing body of literature that discusses the Peer Production of information and cultural products, much of this literature is either purely theoretical or largely anecdotal. There has been little work done to test the predictions of this literature empirically. In particular, while the need for research of this kind has previously been recognised (Adamic & Glance, 2005, p. 12), to date there has been no empirical research undertaken to assess the relative quality of the content produced by

specialised communities of interest and by the Industrial Media (Woodly, 2008, p. 116) (though (Giles, 2005) has many parallels with this kind of research)[1].

As such, there is a need for research that empirically tests whether, as predicted by the theoretical literature:

- high attention nodes within subject specific communities of interest will produce high quality information products relating to that subject; and
- Peer Production will have an advantage over industrial production where specialisation can have a significant positive impact on the quality of information products and the profit motive can have a significant negative impact.

An attractive area in which to test these predictions is the coverage of political polling data. There are large bodies of literature in both the political science and statistics fields going back more than twenty years that recognise the negative impact that both a lack of expertise and the influence of the profit motive have on the quality of the Industrial Media's coverage of polling data (Pan, Abisaid, Paek, Sun, & Houden, 2005, p. 347). Testing the predictions of the Peer Production literature in the context of polling data also has significant methodological benefits. While evaluating the 'accuracy' of media coverage can be highly subjective, coverage of polling data lends itself well to an objective and systematic analysis of accuracy. Unlike examinations of accuracy in more subjective areas that inevitably involve questions of perspective and judgement, the reporting and analysis of polling data can be evaluated against a set of well-established, objective norms of statistical inference. As such, the coverage of polling data in a specific instance serves as a useful theoretical and methodological starting point for testing the predictions of the Peer Production literature.

Research Questions

With this in mind, a research question may be developed in order to test the predictions of the Peer Production literature:

- How accurate was the coverage of polling data relating to the 2007 Australian Federal Election in the Australian psephological community of interest relative to the Industrial Media?

[1] It is recognised that (Goot, 2008) has recently undertaken such a comparison to test the extent of personalisation in each medium.

- Do the characteristics of Peer Production described in the theoretical literature explain any revealed disparity in accuracy between the mediums?

3. RESEARCH DESIGN AND METHODOLOGY

CONTENT ANALYSIS

The object of this study is primarily to draw comparisons between the content produced by different media. As such, the most appropriate research tool for this question is content analysis. Content analysis allows for the systematic and replicable measurement of media content (Krippendorf, 1980, p. 21).

Coding Frames

As a proxy for testing the validity of the statistical inferences contained in each medium's coverage of polling data, coding frames were developed to measure the extent to which generally accepted techniques for responsible inferential statistics were employed in each medium. Wherever possible, objective standards developed by authoritative third parties have been selected as the basis for coding frames. The complete coding frames used for this research are included in Appendix 1 and a brief explanation of the rationale for these frames is discussed below.

Poll Methodology Disclosure

Much of the literature evaluating media coverage of polling data has focused on the extent to which the methodology of the relevant poll has been disclosed (Hardmeier, 1999, p. 261). These methodological polling requirements are also the focus of the Australian Press Council's guidelines on the reporting of polling data (Australian Press Council, 2001)**.** As such coding frames have been developed to reflect the most basic of these methodological disclosure requirements; disclosure of poll sample size and margin of error. These coding frames have however been modified to take into account the norms of the blogosphere.

As has been recognised by a number of authors, the blogosphere is underpinned by a *'see for yourself'* culture in which it is expected that bloggers provide a link to any source data underpinning a post (Benkler, 2006, p. 218). In this context it was determined that a link in a post to the underlying methodological information would be sufficient to constitute a methodological disclosure, a position that has found some support in the limited academic literature on psephological blogging (Blumenthal, 2005, p. 666).

Techniques for Drawing Inferences From Polling Data

While the disclosure of methodological information is undoubtedly important, it is unlikely to influence the casual reader's understanding of the reporting of a poll. In reality, the body text of coverage of a poll is likely to have a much greater impact on most readers (especially when these disclosures appear in graphics on distinct pages to the article in question) and reveals more about the understanding of the author about the limitations of drawing inferences from polling data (Rotfeld, 2007, p. 187). With this in mind, a series of coding frames were developed to evaluate the methodology employed by each medium when drawing inferences from polling data and whether this methodology adequately accounted for basic statistical principles.

The most significant factor influencing the accuracy of inferences from polling data in media coverage is the relevance of the margin of error[2]. The fact that in statistical terms, movements of poll data between two data points within the margin of error are generally more likely to represent 'noise' than movements in the underlying population has been widely recognised in the statistical literature (Patterson, 2005, p. 719), (Wlezien & Erikson, 2006, p. 75), (Leigh & Wolfers, 2006, p. 336). However, despite this broad agreement, many authors are critical of the fact that the Industrial Media frequently fails to take this into account when drawing inferences about movements in point estimates from one poll to another (Gawiser & Witt, p. 8), (Tiffen, 2007, p. 5), (Leigh & Wolfers, 2006, p. 327), (Miskin, 2004), (Wlezien & Erikson, 2006, p. 75).

Sampling error can also affect the legitimacy of descriptions of the gap between two point estimates. This most commonly arises in the context of political polling where a 'lead' is attributed to a candidate or political party on the basis of relative levels of support in a poll. Again, it has been widely recognised in the literature that not only do many Industrial Media journalists fail to take into account the margin of error when assessing 'leads' in point estimates, but also that those who do recognise its importance often fail to appreciate that the potential impact of sampling error must be taken into account for each point estimate.

[2] There are of course many other factors that may undermine the social or statistical significance of a poll including systematic bias (Rotfeld, 2007, p. 188), the extent to which voters may change their opinion between the poll date and election day, (Tiffen, 2007), the impacts of non-response or undecided voters (Leigh & Wolfers, 2006, p. 327) and even possibly incentives for strategic responses to poll questions (Burke & Taylor, Forthcoming). In light of this, when modelled against other predictive methods (eg betting markets, predictive models) some authors have suggested that merely taking into account a poll's margin of error still substantially over-estimates the accuracy of the findings (Leigh & Wolfers, 2006, p. 334).

As such, the margin of error on the difference in support between two candidates is actually twice the sampling error for the poll in question (Worcester, 1996, p. 8), (Gawiser & Witt, p. 9), (Zukin, 2006, p. 4).

A further issue of statistical interpretation relevant to the coverage of polling data that emerges from the literature is the treatment of poll results that are 'outliers' from the general trend of the data. An often neglected aspect of discussions of sampling error in media coverage is the fact that these margins of error are generally only calculated at a 95% confidence interval. This means the point estimates returned by a poll are likely to fall within the margin of error of the actual level support within the population 95% of the time. However, one out of twenty polls will return a point estimate outside even the margin of error (Rotfeld, 2007, pp. 187-188), (Blastland & Dilnot, 2007, p. 94), (Gawiser & Witt, p. 14), (O'Shannessy, 2007). In light of this, caution should be exercised when drawing inferences from a poll that includes produces a point estimate that seems to deviate substantially from the long-term trend. As the BBC Editorial Guidelines set out:

> *"Poll results which defy trends without convincing explanation should be treated with particular care."* (BBC, 2005).

In light of these limitations, coding frames were developed to identify the use of generally accepted techniques for improving the accuracy of inferences from polling data in each medium. Coding frames were developed to code the instances in which a coding unit used analogous, contemporaneous polls to test and provide context for point estimates (as is standard practice for the interpretation of polls within political organisations, see for example (Carville & Matalan, 1994, p. 254) and (Gould, 1999)). In a similar vein, coding frames were developed to test whether movements in point estimates were discussed in the context of a multi-poll trend or merely from one poll to another (Gawiser & Witt, p. 13), (BBC, 2005), (Blumenthal, 2005, p. 667), (Blastland & Dilnot, 2007, p. 41), (Warhurst, 2007). Coding frames were also developed to measure the extent to which each medium's coverage raised other methodological issues that might influence the reliability of a poll (eg a smaller than usual sample size, short-comings of any extrapolations drawn from polling data and systemic bias within a polling organisation). Finally, coding frames were developed to test the frequency that each medium alerted their readers to the fact that a substantial movement in a point estimate may not reflect a change in underlying support and may in fact be the product of a rogue poll. A complete list of the coding frames used in this analysis are outlined in Appendix 1.

Sample Selection

Population representativeness

Given that the objective of this research was to draw inferences about the relative accuracy of the traditional mainstream print media and the psephological community of interest, there was a need to ensure the representativeness of the selected coding samples (Deacon, Pickering, Golding, & Murdock, 2007, pp. 121-122). Given the relatively small number of both newspapers and psephological blogs in Australia, it was decided that a random sample from all potential media outlets would be unlikely to produce a sample that was genuinely representative. As such, media outlets were purposively sampled.

Industrial media:

Within the print medium, it was decided that one publication should be selected from each of the three broad categories of daily newspaper in Australia: National broadsheets (*The Australian, The Australian Financial Review)*, State broadsheets (*The Age, The Sydney Morning Herald)* and State tabloids (*The Courier Mail, The Telegraph, The Herald Sun, The Mercury, The Advertiser, The West Australian, The Northern Territory News)*. On this basis, *The Australian*, *The Sydney Morning Herald* and *The Courier Mail* were selected as being representative of these broad categories.

The Blogosphere:

Selecting a representative sample of blogs analysing Australian polling data was more complex. In the first instance, the objective of this research was to evaluate the accuracy of coverage within the psephological community of interest, not the broader political blogosphere. While polling data is widely discussed on general interest political blogs, the communities of interest that form around these blogs are more likely to be founded on shared partisanship rather than a shared interest in psephology. As has been recognised in previous literature on the coverage of polling data in general interest blogs, these partisan, rather than professional, shared values are unlikely to produce high quality, psephological coverage (Blumenthal, 2005, p. 657).

As such, the goal of the purposive sampling exercise was to select the most prominent 'A-list' blogs within the Australian online psephological community. The most reliable way of identifying this A-list would be to undertake an automated crawling process in which the

links between psephological blogs were traced in order to map the extent of the community and identify the blogs with the most links (Reese, Rutigliano, Hyun, & Jeong, 2007). Unfortunately, such an exercise was beyond the technical limitations of this paper.

However, in light of the expectation that the highest profile blogs would also return the highest ranking search results within Google, a generic Internet search for 'Australia Federal Election poll blog' was undertaken in order to identify sample blogs. From this sample, linking behaviour between the most prominent blogs was subjectively explored. This process identified four blogs that were much more frequently linked to than other Australian psephology blogs:

1. *Oz Politics*
2. *The Poll Bludger*
3. *Mumble*
4. *Possums Pollytics*

These blogs have been independently recognised as the leading Australian psephological blogs by other authors who have investigated the medium and were also prominently named by *The Australian* in an op-ed on the Australian psephological blogosphere (Bruns, 2008, p. 3), (Wilson, Saunders, & Bruns, 2007), (Norrington, 2007). Despite this validation, it is recognised that the absence of objective link mapping of the Australian psephological blogosphere for the purposes of sample selection is a limitation of this paper.

Content Unit Definition

In both the Industrial Media and the blogosphere only content units containing specific discussion of primary vote, two party preferred (House of Representatives) or preferred prime minister polling data (ie figures) for either the Labor Party or the Coalition were selected. It should be understood that this coding frame did not capture the full extent of either medium's psephological output and in the blogosphere in particular, a substantial volume of more theoretical posts (eg regression analysis, technical discussions of polling methodology etc) were not caught by this selection process.

Within the Industrial Media, the content unit was defined as individual articles. For the blogosphere, a more nuanced approach was taken. The most obvious coding unit that might be selected for analyzing the blogosphere is the individual blog post. However, blog posts are living content and can change in ways that newspaper articles cannot. Bloggers often

update the content of their posts, correcting errors and adding further information in an iterative manner. Further, many blogs allow readers to comment on the blogger's post at the bottom of the page. This raises the question of whether these revisions and comments ought to be included in the coding unit or whether the original post ought to be considered in isolation.

For the purposes of this study, the coding unit was defined as the blogger's final product at the end of the period of analysis. As such, the comment section was excluded from the coding unit but subsequent post revisions (often incorporating insightful content from commenters) were included. This approach was selected in an attempt to capture the potential for the collective production of information made possible by blogs, whilst filtering the considerable unhelpful noise present in comment sections until explicitly incorporated by the blogger. Instances when posts were updated were however coded for classification purposes.

Time dimension

The temporal sampling period selected for this content analysis was the 12 months immediately preceding the 2007 Australian Federal Election (i.e. 24/11/2006-24/11/2007). This period is ideal for the purposes of the analysis as it includes a large swing in support from the Coalition to the Labor Party followed by a long period of relative stability leading up to the election (Bennett & Barber, 2008, p. 19).

Coding Pilot

An inter-coder reliability exercise was run on 10% of the coding units and all results other than V05Description were within acceptable ranges. In light of the low reliability of the V05, this variable was excluded from the discussion of results. The results are included in Appendix 2.

4. RESULTS AND INTERPRETATION

The results of the content analysis undertaken in this paper supports the hypothesis that high attention nodes within subject specific communities of interest will produce quality information products relating to that subject relative to the Industrial Media, particularly where specialisation and the profit motive can have significant impacts. Consistent with the predictions of the literature, the relevant community of interest produced higher quality coverage of polling data than the Industrial Media. The psephological community of interest employed the identified techniques for drawing more accurate inferences from polling data much more frequently than the Industrial Media. While there was relatively little evidence of collaborative Peer Production (i.e. peer facilitated aggregation or filtering) observable on the face of the text of the content units, the absence of financial influences in the community of interest and the presence of highly specialised expertise on the part of the proprietors of each blog can be seen to have played a major role in the quality of the medium's output. While this conclusion would benefit from further research focusing more closely on the nature of the production process within these communities of interest, the conclusion that high attention nodes within Peer Production communities of interest can produce content in niche areas of expertise that is of a relatively high quality is a significant finding.

RESEARCH FINDINGS

Approach to Inferences from Polling Data

The content analysis undertaken for this paper found that the psephological Peer Production community of interest took a more statistically considered approach to the interpretation of polling data than the Industrial Media.

Drawing Inferences from Trend Data

The psephological community of interest was more appreciative of the risks in drawing inferences about movements in underlying support on the basis of a single poll. 10.7% of peer production content units included explicit warnings about the need to consider the multi-poll trend of movements in support compared to just 1.3% of Industrial Media articles that included similar cautionary guidance. Consistent with this, only 26% of Industrial Media content units included reference to the actual multi-poll trend of the data in question when

interpreting polling results compared to 39.3% of Peer Production content units (Table 5). The rarity of the Industrial Media's reference to multi-poll trends does not improve significantly even if only articles that refer to polling in the first or second paragraph, and could be considered to focus primarily on the reporting of polling data, are included. Within Industrial Media articles focusing primarily on polling data only 1.9% included explicit warnings about the need to consider multi-poll trends (Table 4) and only 32.1% included reference to the actual multi-poll trend of the data in question (Table 6).

Use of Analogous Polls to Support Inferences from Single Poll

Another way to account for the relevance of sampling error in poll results is to consider the results of contemporaneous, analogous polls when drawing inferences from a particular poll. In this respect, peer production also outperformed the Industrial Media. 25.6% of Industrial Media articles used analogous polls undertaken during the sample period to check the reliability of a poll compared with 34.6% of peer production content units (Table 7). However, the Industrial Media's result does improve to 38.7% if only articles focusing primarily on polling data (ie those discussing polling in the first or second paragraph) are considered (Table 8).

Warnings as to the Reliability of Poll Data

The peer production community explicitly warned their readers about issues potentially affecting the reliability of poll polling data much more frequently than the Industrial Media. Industrial media articles discussed the prospect that the current or immediately preceding poll may have been a rogue poll in only 0.6% of content units compared to 6.9% of content units in the Peer Production (Table 9). Again, these findings did not alter significantly where only articles referring primarily to polling were included (Table 10).

Similarly, not a single Industrial Media content unit raised the inferential limitations of the higher margins of error associated with the use of relatively small poll sample sizes, whereas these limitations were raised in 4.4% of Peer Production content units (Table 11). The Industrial Media raised the inherent shortcomings of the process of extrapolating inferred two party preferred votes from primary vote survey data in only 1.3% of content units, while this methodological issue was raised in 6.3% of content units in the Peer Production community (Table 11). Other methodological questions (eg question order, wording etc) were raised in only 1% of Industrial Media content units against 5.7% of Peer Production

content units (Table 11). Again, these results did not vary significantly where only articles focusing on polling data were considered (Table 12).

The general credulity of the Industrial Media's approach to polling data was further reflected by the fact that polling data from partisan sources features in the Industrial Media without including any warnings about the reliability of such data in 4.5% of content units compared to only 0.6% of content units in the Peer Production sphere that provided this dubious source with a similar level of credibility (Table 13).

In fact, the only area in which the Industrial Media took a more measured approach than the Peer Production community was in the use of betting market data as a supplement to interpretation which the Industrial Media did in 4.5% of content units compared to 2.5% of content units in the Peer Production community of interest. The import of this result is however undermined by the fact that two blogs within the psephological community discussed betting market data extensively, but in separate posts to discussions of polling data and as a result were not picked up by the coding frames (Table 14).

Treatment of Methodological Issues

The Peer Production community of interest provided methodological information underpinning polling data with higher prominence than the Industrial Media. 36.9% of Peer Production content units disclosed the sample size of the poll in question in the body text of the article against only 16.6% amongst the Industrial Media (Table 1) (21% for articles focusing primarily on polling – Table 2). In fact, only 37.1% of Industrial Media Articles included this data at all (generally in the fine print of tables of results) (Table 1). Interestingly, this figure only improved to 43.3% when only articles focusing primarily on polling are considered (Table 2).

Output of the Psephological Community of Interest

The psephological community of interest produced an extraordinary depth and breadth of content within the sample period. There were 318 Peer Production posts from the four selected sources that included the specified polling data in the 12 month period compared to 308 articles from the three Industrial Media sources. This volume of content was especially impressive when it is considered that the content analysis undertaken for this paper focused on the way in which specific polling point estimates were interpreted in each medium, and as

a result a substantial amount of more general content produced by the community of interest was not caught within the sample. This content included aggregations and moving averages of polling data, sophisticated and data intensive multi-variate regressions of historical polling data, analysis of the relationship between different polling indicators (in particular the relevance of secondary data as an influence on voting intention), detailed discussions of methodological issues (eg the impact of the prevalence of mobile phones on sample representativeness, online polling etc), analysis of historical electoral results, analysis of demographic data and detailed discussions of Australian electoral procedure (eg enrolment eligibility, redistributions).

Impressively, two of the blogs in the sample, *Mumble* and *Oz Politics* produced their own trend and moving averages of polling data by aggregating results from different polling companies (see Figures 1 and 2 below) (however these posts were not always picked up by the coding frames as specific data points were not always stated in the posts). Possums Pollytics regularly published graphed trends of poll results that included error bands (Figure 3). Another blog, *The Poll Bludger* produced lengthy (in the multiple thousands of words), electorate level guides to individual seats in the election discussing the impact of redistributions, historical results, demographic change and local issues on the election.

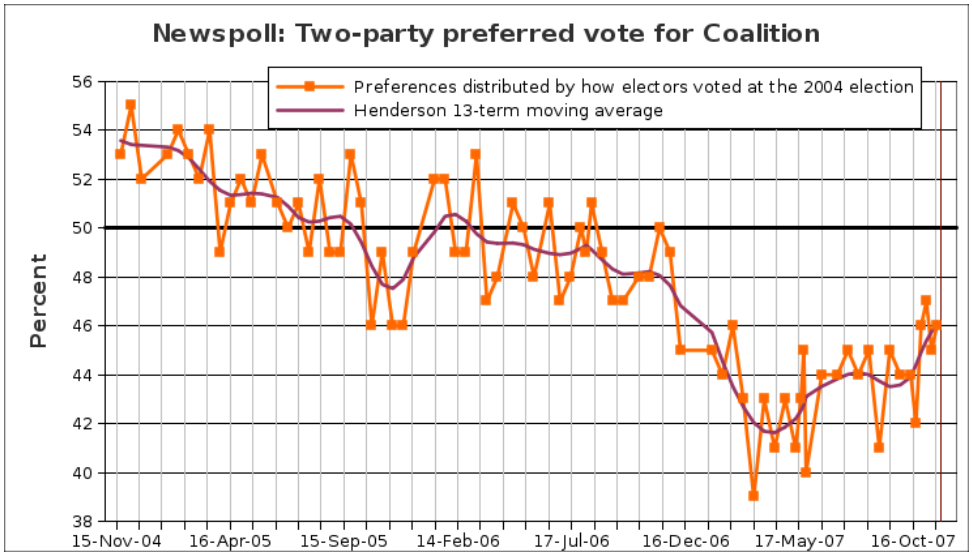

Figure 1 - Moving Average of Newspoll Data from *Oz Politics*

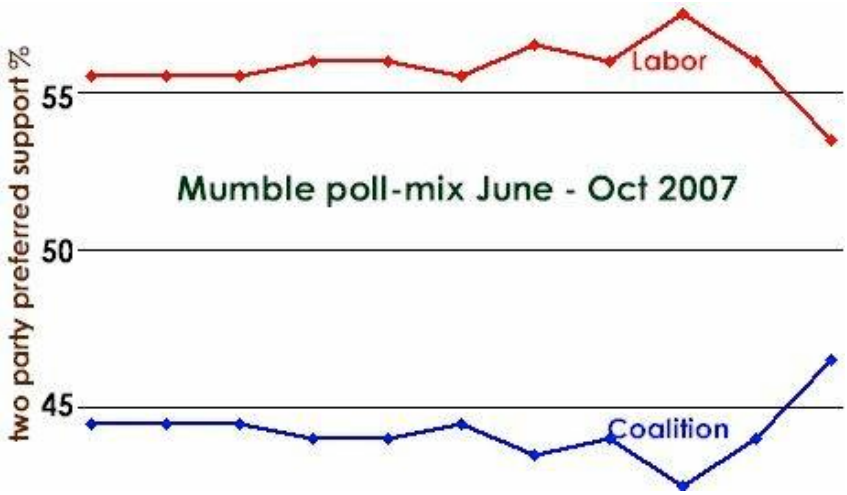

Figure 2 - Weighted Average of Aggregated Poll Data from *Mumble*

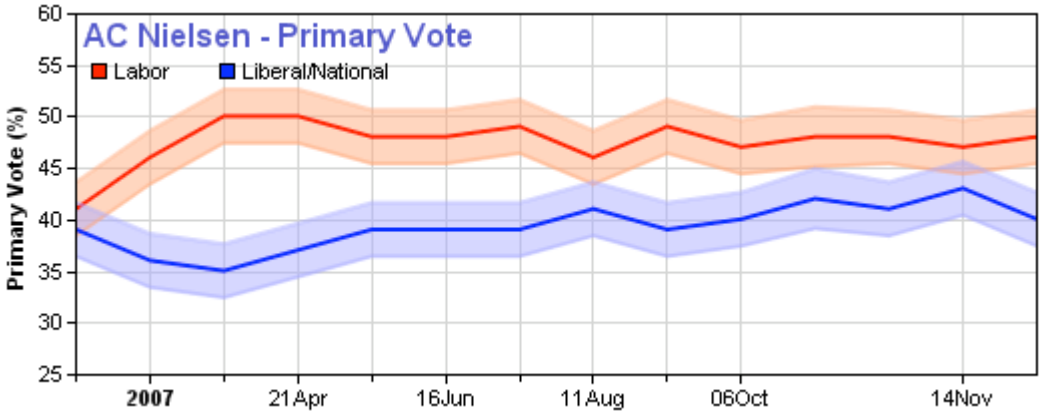

Figure 3 - *Possums Pollytics* Banded Margin of Error Trend Graph

However, despite the volume of content produced within the community of interest, it was difficult to see evidence of regular collaborative production occurring on the face of the output of the medium. Coding frames employed to record any evidence of Peer Production in the manifest content of the content units produced limited evidence of collaboration with the community of interest studied by this paper. Only 12.8% of Peer Production content units showed evidence of subsequent updates after the original post (Table 18). Only 9.1% of blog content units included evidence of reader contributions (Table 16) and only 7.2% evidence of contributions by other bloggers (Table 17). The most heavily visited site, *Oz Politics*, showed evidence of reader contributions in only 3.6% of posts (Table 19).

While extensive collaborative Peer Production was not visible on the face of the text within the sample, there is reason not rule out its existence. Contrary to existing norms of acknowledgement in the medium (Drezner & Farrell, 2004, pp. 7 - 8), the proprietors of these blogs may not have explicitly acknowledged relevant contributions in the text of the

posts. In fact, *The Poll Bludger,* the only blog to allow reader comments for the entire sample period, was a hub for substantial interaction between readers, regularly attracting around 1000 comments on each post including regular contributions from experts in the field including Antony Green, the Australian Broadcasting Corporation's election specialist (Bruns, 2008, p. 6). However despite the extent of this interaction, reader contributions were explicitly referenced in only 10.8% of subsequent posts.

Similarly, further research in the form of interviews of bloggers and blog readers may reveal collaborative activity occurring outside of public view, in particular in the form of emails between readers and the blogger. Consistent with such a suggestion, Peter Brent, the proprietor of *Mumble* has stated that:

> *"I get emails from journalists and political staffers... Modesty aside, I think I am read by a section of the political class."* (Norrington, 2007)

As such, while there was little manifest evidence of collaborative production within the Peer Production community, without further research it is not possible to exclude the possibility that the collaborative aggregation process discussed earlier was occurring outside of public view.

INTERPRETATION OF FINDINGS

The Relatively Poor Quality of Industrial Media Coverage

The relatively poor quality of Industrial Media coverage of polling data found in this study was not surprising in light of the existing literature. There are substantial bodies of literature critical of the Industrial Media's coverage of polling data in both the statistical analysis (Golin, 1980) and media studies disciplines. This literature includes articles from a diverse range of media environments including the United States (Patterson, 2005), Canada (Andersen, 2000), Europe (Hardmeier, 1999), and Australia (Brent, 2007) (Leigh & Wolfers, 2006).

Consistent with the findings of this paper, many authors within these bodies of literature have criticised the overly credulous manner in which the Industrial Media reports poll data. Patterson has previously questioned:

> *"the tendency of journalists to report small changes from one poll to the next as a manifestation of actual change in voters' preferences rather than as a reflection of survey error"* (2005, p. 717).

Similarly, Leigh and Wolfers have recognised the statistically unjustified degree of faith that journalists attribute to polling results and noted that:

> *"...the media needs to display substantially greater caution in interpreting changes from one poll to the next. Indeed, even with the published margins of error, a 1% movement from one poll to the next is unlikely to be anything more than noise"* (2006, p. 336).

A content analysis of the 1997 Canadian election produced similar findings and lamented the fact that within the Industrial Media *"Polls were typically treated as matters of fact, with their limitations rarely discussed"* (Andersen, 2000, p. 285). These critical perspectives are not limited to academia with interviews conducted by Rosentiel revealing high levels of dissatisfaction and concern amongst professional pollsters at the quality of Industrial Media reporting of polling data (2005, p. 714).

The two most frequently advanced explanations for this poor quality coverage offered by this literature strongly mirror two of the key strengths of the Peer Production model discussed above; the perverse incentives of the profit motive and a lack of expertise.

The Perverse Incentives Created by the Commoditisation of the Industrial Media

The profit motive underpinning production in the Industrial Media and the consequent commoditisation of journalism is the most widely accepted cause of the medium's poor quality coverage of polling data. The general impact of commoditisation on journalism is widely recognised in the media literature (Woodly, 2008, p. 112), (Beckett, 2008, p. 45), (Bruns & Jacobs, 2006, p. 6), (Gillmor, 2004, p. 4). In short, the substantial capital costs of printing, production (eg journalists' and editors wages) and distribution inherent in the Industrial Media's model of production necessitates the extraction of equally substantial advertising and subscription revenues from mass audiences (Lowrey, 2006), (Tapscott & Williams, 2007, p. 68), (Benkler, 2002, p. 377). This in turn has led to the development of a paradigm within which news content is assessed not solely according to its probative value, but as also a commodity, the value of which is determined by its costs of production relative

to its capacity to attract a mass audience. Lowrey (2006) has described the impact of this process on the output of journalists as such:

> *"Being housed in an organisation means journalists must compromise professional values so as to move in directions that enable organisational survival or ensure corporate profit. For journalists this may mean adopting a marketing or entertainment orientation at the expense of serving the public through in-depth and meaningful coverage and opinion."*

Survey evidence of professional journalists supports this view. A recent survey found that 68% of US journalists believe that commercial pressures are 'seriously hurting' the quality of their coverage (Project for Excellence in Journalism, 2008, p. 5). Further, 87% of US journalists believe that this pressure has increased over the past three years. (Project for Excellence in Journalism, 2008, p. 5). Only 49% of US journalists believe that the public interest is a higher priority for their management than financial performance (Project for Excellence in Journalism, 2008, p. 8).

As polling data represents low cost and potentially high news value content, commoditisation has had a deeply negative impact on the way that polling data is reported in the Industrial Media. Within the commoditisation paradigm, the 'news value' of polling data as a media commodity increases with the novelty of the survey's findings (Woodly, 2008, p. 113). As such, coverage of polling data that discounts minor movements in a point estimate as statistically insignificant and withholds judgement on the existence of a movement in support within the population until confirmed in subsequent polls is likely to be of relatively low news value. In contrast, by ignoring the inevitability of sampling error, a steady flow of high news value stories is created from a series of polls as chance moves findings up and down from one poll to another. In this way, journalists have an incentive to be wilfully blind of the statistical significant of the polling data they are reporting.

As Rosentiel has noted:

> *"Polls that are outliers, diverging from the results of other polls, are also provocative and draw traffic to a news outlet, particularly to a website, where consumers who hear about a poll on TV might subsequently visit the site that originally published it"* (2005, p. 705).

Along the same lines, Crewe stated:

> *"The specially commissioned poll guarantees an exclusive story, however dull the campaign. Sampling error alone is likely to produce an apparent movement of opinion."* (1992, p. 475)

These incentives are further exacerbated by structural trends in the relationship between polling companies and the Industrial Media. In recent times, newspapers and polling companies have formed symbiotic relationships in which pollsters provide newspapers with a regular flow of low cost (sometimes even free), news content with potentially high news value and in return, receive free publicity and prestige for their side businesses in market research (Crewe, 1992, p. 476), (Rosenstiel, 2005), (Warhurst, 2007), (Brent, 2007, p. 134), (Gollin A. E., 1980, p. 447). This commercialisation of the coverage of polling data is often taken a step further by developing long term relationships designed to turn polling data into what Rosenstiel has described as "*'branded news',* that is synonymous with a particular news outlet when discussed in other media forums (2005, p. 703).

While commercially beneficial to both parties, this arrangement effectively extends the perverse incentives for reporting polling data faced by journalists in the Industrial Media to the polling companies with whom their newspaper deals. In the context of this symbiotic relationship it is not in the financial interests for either the journalist, or the pollster to recognise the limitations of polling data. As Cliff Zukin, the then Vice President of the American Association for Public Opinion Research has stated

> *"The media own much of the polling industry. So when you change the values and practices of the press, the values and practices of the polling industry change."* (Rosenstiel, 2005, p. 714)**.**

The consequence of this challenge to professional values manifested itself during the sample period of this research when the CEO of Newspoll, the company providing the majority of the polling data for *The Australian* and also a partly owned subsidiary of the newspaper, wrote an op-ed in response to public criticism of the publication's interpretation of Newspoll polling data, an action he later admitted to professional colleagues that he regretted (Green, 2007). In light of these direct and indirect financial incentives, the relatively credulous approach to reporting polling data within the Industrial Media is easily understood as a rational, profit maximising practice.

The Absence of Commoditisation Within Peer Production Communities of Interest

In contrast to the Industrial Media, Peer Production communities of interest are free from perverse incentives of this kind. As the costs of production within the blogosphere are effectively zero, there is no imperative for bloggers to secure a revenue stream from their content in order to cover their costs. Peer Production communities of interest are 'amateur' forums of production, where:

> *"(A)mateur doesn't mean inferior or without talent, but instead ... created by people who produce not for the money, but for the love of what they do."* (Lessig L. , 2006, p. 193)

The absence of direct financial incentives to maximise interest in a specific content unit is an important characteristic differentiating production within communities of interest from production within the Industrial Media.

Consistent with this, not one of the bloggers in the sample sought to obtain revenues directly from their content. Three of the bloggers (Peter Brent, William Bowe and *Possums Pollytics*) did leverage their profile as online experts into roles as semi-regular paid contributors in Industrial Media publications and one of the bloggers (William Bowe) made direct appeals to his audience on occasions in order to pay the minor costs of high bandwidth usage. However, importantly, these revenues were not directly tied to the size of the audience that any content unit was able to attract in the way they are in the commodity paradigm that predominates in the Industrial Media.

These differing incentives have a significant impact on the output of the community of interest. As Beckett has identified members of these communities of interest face a different set of incentives:

> *"(Bloggers) are not usually in it for the money. They are part of a community – often quite a small, self-regulating community – that polices itself... The bloggers online currency is their trustworthiness ... The untrustworthy or irrelevant blogger tends to be ignored."* (2008, p. 63)

The community of interest was free of the imperative to maximise the 'news value' of the coverage of polling data. Absent the need to maximise their audience with content of general appeal, the community of interest was free to explore important, but esoteric methodological questions inherent in polling data without the fear of limiting their audience. Absent space

constraints imposed by high capital costs, the community of interest was free to provide lengthy, detailed coverage of complex technical issues. Subject only to the judgement of their peers, rather than that of the market, the bloggers were free to focus only on the probative value of their output and to interpret polling data with explicit reference to the statistical limitations of the sampling process. As William Bowe, the proprietor of *The Poll Bludger* has said:

> *"I don't have an editor leaning over my shoulder telling me I have to make a story. I can say that a poll doesn't mean anything, if that's what I believe."* (Hills, 2007)

The limited literature investigating the coverage of polling data has echoed this potential for the medium to offer an alternative to the distorted coverage produced by the use of 'news frames' in the Industrial Media. Rosenstiel, while broadly critical of the tone of coverage in the blogosphere, has noted in the US context that:

> *"(bloggers) were, in their own sometimes curious fashion, performing (a) journalistic function better than journalists."* (Rosenstiel, 2005, p. 713).

The Role of Expertise in the Coverage of Polling Data

In addition to the perverse incentives resulting from commoditisation, many authors, particularly within the statistical literature have suggested that a genuine lack of expertise on the part of journalists also plays a part in the poor quality of the Industrial Media's coverage (Hardmeier, 1999, p. 266), (Andersen, 2000, p. 286), (Baines, 2005, p. 159), (Rosenstiel, 2005, p. 703). These authors argue that the increased competition and commercial pressures faced by modern newsrooms have not only negatively influenced the incentives within newsrooms, but have also reduced the opportunity for journalists to specialise, and develop experience in reporting polling data (Rosenstiel, 2005, p. 703). In contrast, the Peer Production literature discussed above emphasises the potential of the model to utilised increased specialisation and expertise. In light of this, it could be expected that expertise played a substantial part in explaining the relatively more accurate coverage of polling data within the blogosphere.

The evidence of the influence of differing levels of expertise in the mediums as an explanatory factor for the differing quality of content in each medium is however, mixed. Consistent with the predictions of the Peer Production literature, two of the four bloggers within the community of interest were PHD students with a background in statistics and electoral processes (William Bowe and Peter Brent) and another holds a PHD in policy and

politics. One of the bloggers in the sample, *Possums Pollytics* published anonymously under a pseudonym, however obviously has a background in statistics from the detailed and complex regression analyses that characterise his blogging. Similarly, non-blogging participants in the community of interest also included a number of highly educated and informed individuals including Antony Green, the Australian Broadcasting Corporation's Election Expert and numerous political apparatchiks.

In contrast, there were some notable indications of basic lack of expertise on the part of journalists in the Industrial Media within the sample (one journalist describing a sample of 300 as a 'good sample size on an electorate level' is one memorable example). Indeed, in the context of an ongoing dispute between the Industrial Media and the psephological community of interest, one academic observer noted that:

> *The irony that – while citizen journalists are often depicted as amateurs attempting to do the work of professionals – it was professional* journalists *(who were) manifestly amateur* psephologists*, .. were criticising professional election analysts should not be ignored in the present case..... Possum Comitatus and his fellow bloggers offered their readers a virtual masterclass in psephology, providing detailed analyses of polling data as well as background information about margins of error, polling methodologies and their respective biases, and the track records of leading Australian pollsters.* (Bruns, 2008, pp. 4 - 5)*.*
>
> *...in their struggle to maintain their superiority in interpreting the opinion poll results, professional journalists were ultimately cast in the role of hapless amateurs attempting to criticise professional psephologists* (Bruns, 2008, p. 8)*.*

Other academic observers noted that:

> *"If the psephological bloggers have attracted a loyal audience, it's because they offer reasoned, evidence-based, long-term assessments of a range of poll data, which takes into account not just Newspoll but other surveys, as well as betting markets, leaked internal party materials, and anything else that gives quantitative insights into electoral behaviour. ... bloggers attract a premium readership by offering more considered takes on the electoral battle."* (Wilson, Saunders, & Bruns, 2007)

However, despite this there were a number of factors that militated against this being the primary explanation for the poor quality of coverage. Firstly, each of the Industrial Media outlets in the sample consistently assigned one or two journalists to write the first story on each new poll (Dennis Shanahan for *The Australian*, Peter Hartcher and Philip Coorey for *The*

Sydney Morning Herald and Clinton Porteous for *The Courier Mail*). Contrary to the predictions in the literature, journalists in the Industrial Media were able to specialise to a relevant extent and reporting on polling data once a fortnight should have been sufficient for these journalists to develop expertise in the area absent perverse incentives.

Similarly, on occasion, relevant statistical principles like the margin of error and rogue polls were discussed by the Industrial Media, suggesting that these journalists, or at least their editors, were aware of the relevance of these concepts. Similarly, two of the Industrial Media outlets employed polling consultants (Sol Lebovic at *The Australian* and John Stirton at *The Sydney Morning Herald*) to provide expert insight into the results and as such would not have been unaware of the statistical significance (or lack thereof) of the findings. In this context, it seems more persuasive to attribute the poor quality of the Industrial Media's coverage of polling data to perverse profit incentives discussed above rather than to a benign lack of expertise.

As such, the higher quality of coverage of polling data within the Peer Production community of interest in this study can be seen to be a function of the model's ability to apply expertise to a subject area, but most importantly, to do so without suffering from the perverse incentives of commoditisation. While there was evidence to suggest that the Industrial Media had access to the sources of expertise necessary to provide statistically informed coverage of polling data during the sample period, this expertise was not fully utilized due to the perverse incentives present in the medium.

While the relatively poor quality of the Industrial Media's coverage of polling data is easily understandable in light of the incentives at play in the medium, it is still of democratic normative concern. Given that a series of studies has shown that the reporting of polling data features in more than half of election stories in some countries, inaccurate coverage of a topic of this prominence is troubling (Patterson, 2005, p. 719). While it is far from clear that the way in which polling data is reported influences the formation of public opinion (Daves & Newport, 2005, p. 675), (Andersen, 2000, p. 286), (Pan, Abisaid, Paek, Sun, & Houden, 2005, p. 340), it is beyond dispute that this coverage influences the behaviour of political actors and organisations (Andersen, 2000, p. 285), (Gollin A. E., 1980, p. 452). The influence of overly literal media interpretation of polling data on politics can readily be seen in the fact that on two occasions within the sample period probable rogue polls (the Newspolls of 10-12 November 2007 and of 31 August – 2 September 2007) triggered periods

of serious leadership instability for Kim Beazley and John Howard respectively. While later poll results more in line with the long run trend stabilised Howard's leadership, the damage to Beazley's leadership was terminal despite later poll results returning to the long run average. In this context, the see-sawing, horse-race style journalism that is fuelled by an overly literal interpretation of polling data in the Industrial Media can be seen to have real consequences for the health of democracy.

IMPLICATIONS

The findings of this paper have a number of implications for the various perspectives within the existing literature on the factual and normative impact of the blogosphere. In particular, this paper presents both support and challenges to the work of networked journalism theorists. This paper's finding that there was a large volume of rapidly produced, high quality content within the relevant community of interest is consistent with networked journalism theorists' suggestion that journalists have much to gain from drawing on the latent expertise of the blogosphere (Beckett & Mansell, 2007, p. 7). In this regard, this paper largely confirms the view of Drezner and Farrell that:

> *"Specialist blogs greatly reduce the search costs for journalists in acquiring information on a developing story. Speciality bloggers that promote their posts on salient topics have the potential to convert the information-gathering activities of "general interest" bloggers and journalists from high-cost police patrols to low-cost fire alarms"* (2004, p. 16)

However, given that the relatively poor quality of coverage in the Industrial Media appears to be more a function of the profit imperative faced by journalists in the Industrial Media than a result of relative expertise, it seems questionable whether journalists will utilise this resource in practice. Access to expert insight on the meaning of new polling data has been available to journalists for some time, however despite this as Gollin has noted, it is:

> *"imperatives intrinsic to daily journalism that largely determine how the press makes use of polls. ... conceptions of 'news', space or time constraints, .. These institutional considerations would seem to limit the play of impulses toward self-reform among the press.'* (1980, p. 454).

This situation can be seen clearly in the Australian context where despite the evidence of the production of quality content shown in this paper, the Industrial Media's out of hand dismissal of the potential of the blogosphere has been clear for some time (Bahnisch, 2006,

p. 143). This hostility was dramatically illustrated during the sample period when the Editor in Chief of *The Australian* contacted Peter Brent, the proprietor of *Mumble* and told him that rather than drawing on his content for incorporation in Industrial Media coverage;

> *"the paper is going to "go" Charles Richardson (from Crikey) and me tomorrow. Chris said by all means criticise the paper, but my "personal" attacks on Dennis* [A journalist at The Australian] *had gone too far, and the paper will now go me "personally".*

The next day, *The Australian* dedicated its entire editorial column to a attacking the credentials of the psephological peer production community (The Australian, 2007). Headlined *'Online prejudice no substitute for real work'* the editorial accused the blogosphere of being a *'wooly-headed', 'smug, self assured, delusional', 'defamatory', 'confused' ,'politically coloured', 'blinded by bias', 'one eyed, anti-Howard cheer squad now masquerading as serious online political commentary'* , *'sheltered academics and failed journalists who would not get a job on a real newspaper'* that had *'exhausted its claim to be taken seriously'.* The editorial concluded by stating *'We understand Newspoll because we own it....So let's not mince words. We just don't think many of our critics have any real clue about polling and very little practical experience of politics'.* The print edition of *The Australian* followed up the editorial by subsequently accusing the blogosphere of being little more than *'online therapy for Labor voters'* (Wilson, Saunders, & Bruns, 2007).

This exchange was a clear example of the barriers to the realisation of networked journalism in practice. While networked journalism theorists correctly identify the opportunity for journalists present by the blogosphere, they have not yet offered any explanation for why journalists will act contrary to existing incentives to take advantage of this situation.

5. CONCLUSION

This paper has sought to empirically test the predictions of the theoretical literature describing the Peer Production of information and cultural products in niche communities of interest. This paper has found evidence that supports the proposition that Peer Production communities of interest will produce information and cultural products of a relatively high quality in areas that both demand technical expertise and also are influenced by the pressures of commoditisation in the Industrial Media. The evidence obtained by this paper is offers much needed empirical substance to a relatively young area of theoretical literature. Importantly, this evidence suggests that there may be merit in subsequent authors using the Peer Production theoretical framework in research into the nature and impact of the blogosphere rather than pursuing the narrow contexts of debate that currently characterise the literature. However, despite the evidence provided by this paper there is still a clear need for much more empirically focused research in this area.

POTENTIAL AREAS OF FURTHER RESEARCH

This paper has established that peer production communities of interest *can* provide more accurate coverage than the Industrial Media in certain circumstances. However, even the advocates of the Peer Production model do not suggest that this will be the case in all circumstances (Benkler, 2002, p. 381). While the theoretical literature offers potential answers to the 'where', 'how' and 'why' of quality Peer Production, more empirical work is needed to test these hypotheses. In particular, further ethnographic and interview research is needed to provide insight into the threshold conditions necessary for quality cultural and information products to emerge from communities of interest. Topics for further research that readily come to mind in this regard include the number and kinds of participants needed for a community to become viable, the nature of the topics of interest amenable to peer production and the relative efficacy of bloggers' practices within these communities (eg how community contributions are aggregated, filtered and incorporated etc).

In parallel to this community focused research agenda, there is also a pressing need for research situated in the media literacy context offering insights into how new readers, as outsiders to these communities are able to determine whether a particular community satisfies any relevant threshold requirements for quality production. The findings of further

research of this kind will be of significant value both to academic understanding of the medium, and the development of policy responses to this new and rapidly evolving medium.

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