
Enhancing the understanding of genres of web-based communities: the role of the ecological cognition framework

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Abstract: Web-based communities have been an interest of social science researchers since the dawn of the millennium. To date, much research into them has focused on the methods to enhance community building and understand those who do not participate in community life, known as lurkers. This paper explores web-based communities as a type of media, classifying types of web-based community such as message boards, chat groups and weblogs as genres. A methodology is proposed based on the Ecological Cognition Framework (ECF) for reading these web-based communities in order to determine their genre and subgenre. Utilising both quantitative and qualitative methods to assess the images, text and other artefacts in these web-based communities, two specific subgenres of the weblogs and directories genre emerge as the political blog and the mommy blog and these are compared with the significant differences that are found between them that make them solid subgenres.

Keywords: virtual community; genre theory; ecological cognition.

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1 Introduction

The exploitation of new media technology has been the source of wealth creation for some developed countries, the USA in particular and in the age of globalisation even a developing country can be immensely benefited through the proper use of such

technology (Karmaker and Isaías, 2004), the implications of which are of relevance and interest to media researchers (Lievrouw and Livingstone, 2006). To date there have been few studies investigating online genres, though some authors have explored personal homepages as a genre (*e.g.*, Dillon and Gushrowski, 2000). One particular type of information system worthy of a genre analysis is the web-based community, which a personal homepage could potentially belong to. Kommers (2006) argues that web-based communities have gone from being islands into interlinked communities, and newer types of community such as weblogs and Wikis have become more dominant, perhaps due to their significant levels of intertextuality. While there have been definitions of web-based communities based on the forms they take from websites that provide facilities to discuss particular subjects or interests to groups of people communicating using instant messaging tools (Bishop, 2003), there exists a possible technical definition, which could be that a website is a web-based community if those that use it have to go through the membership life cycle identified by Kim (2000). Kim's life cycle proposed that individual members of web-based communities would begin their community life in each community as visitors, or lurkers, then after breaking through a barrier would become a novice, and settle in to community life, become a regular through regularly posting content, and then if they are fortunate enough break through another barrier to become a leader, and then once they have been in the community for a considerable amount of time become an elder.

To fully understand the role of the actor in web-based communities the virtual environment must be treated on par with the physical environment. Virtual environments contain other actors, structures and artefacts, such as mediating artefacts (Bishop, 2005). Both virtual and physical environments can provide stimuli that create impetuses in actors, and actors will be driven to participate in both environments as a result of experiencing them.

The Ecological Cognition Framework (ECF) developed by Bishop (2007a; 2007c) suggests that there are five binary opposition forces that impact on an actor that are activated when a change occurs in the actor's environment, which are social-antisocial, creative-destructive, order-chaos, vengeance-forgiveness, existential-thanatotic. Examples of each segment of these binary opposition forces can be seen in web-based communities. Social forces are very common in driving actors to take part in human-computer systems, which are often social spaces. Rhiengold (2000) describes 'the social web' in which people like him participate as a result of being driven by their longings to participate. Actors in these virtual environments often experience creative forces and will solve problems and create content. The existence of order forces is also apparent in web-based communities, where actors will carry out actions such as organising bookmarks, rearranging pages and some actors may take control of a situation, such as when members are flaming each other in a chat session, and others will attempt to create order when a bulletin board goes off-topic and will carry out actions to bring it back to the original topic, despite the fact that allowing a bulletin board to go off-topic can increase sociability in the community (Bishop, 2002). Actions driven by vengeance forces are very apparent in human-computer systems, as actors in virtual environments are known to be very aggressive (Kiesler and Sproull, 1992; Wallace, 2001), carrying out actions such as flaming, and posting negative feedback on other community members. Existential forces, such as eating, whilst not obvious in virtual environments have an impact on the actions of an actor that is part of them. Actions resulting from anti-social forces are

easily discovered in virtual environments, as actors will often flame others. Destructive forces are also apparent in information systems that can be edited, as some actors will 'blank' pages of content. Chaos forces can be seen in some functional systems that form part of virtual environments. The result of forgiveness forces can be seen in some information systems, where actors will apologise to actors that they have had a disagreement with, often what has resulted from order forces.

According to Gourlay (2006) analysing the behaviour of actors is important in understanding how they construct knowledge based on the media they consume. Neale (1980; cited in Price, 2003) indicates that media texts can be described in genres, which are systems of orientations, expectations and conventions that circulate between industry, text and subject. Neale argues that genre is as much about those that use the media as those that produce it, as audiences create expectations through previous contact with particular types of media text.

2 Identifying web-based community genres

Primary genres of web-based communities based on the above definition using Kim (2000) are easily identified by the technology platforms that underpin them, though there has not to date been a clear methodology for determining these genres analytically, something that will be addressed in this paper. Using the above definition of a web-based community, it is possible to see the personal homepage as a web-based community as in some cases those that use it have to go through the membership life cycle in order to post messages to a 'guestbook' or join a 'Circle of Friends'. The Circle of Friends method of networking, developed as part of the VECC Project (see Bishop, 2002; 2007b) has been embedded into social networking sites. The VECC Project, which stood for Virtual Environments for Communities and Commerce, sought to investigate the application of technology such as databases and server-side programming to developing interactive and innovative web-based communities. The Circle of Friends social networking technology developed during it is now used on many websites, some of which meet the above definition of a web-based community such as MySpace and Facebook, which are services that host a collections of web-based communities based on the personal homepage genre. One of the most popular genres of web-based community is the bulletin board, also known as a message board, which is a platform that the MySpace and Facebook services also use, perhaps making them hybrid sites. According to Kim (2000), a message board is one of the most familiar genres of online gathering place, which is asynchronous, meaning people do not have to be in the same place at the same time to have a conversation. An alternative to the message board is the e-mail list, which is the easiest kind of online gathering place to create, maintain and participate in Kim (2000). Another genre of web-based community that facilitates discussion is the Chat Group, where people can chat synchronously, communicating in the same place at the same time (Figallo, 1998). A genre of web-based community that has existed for a long time, but is also becoming increasingly popular is the virtual world, which may be a Multi-User Dungeon (MUD) or some other type of online fantasy game, where actors create their own world and interact with others. An example of this is the popular online community second life. Two relatively new types of web-based community are the weblog and the Wiki. Weblogs or blogs are websites that comprise of hyperlinks to articles, news releases, discussions and comments that vary in length and are presented in chronological

order (Lindahl and Blount, 2003). While the terms weblog and blog are used synonymously, the difference between the two is that a blog is intrinsically motivated based on the owners own thoughts and emotions, whereas the weblog is extrinsically motivated, based on media that the actor has consumed and experiences the author has had with others. According to Tadiou (2006) weblogs are a new type of web-based community and the community element of this technology exists when the owner, who is referred to as a 'blogger', invites others to comment on what they have written. A Wiki, which is so named through taking the first letters from the axiom, 'what I know is;' is a collaborative page-editing tool in which users may add or edit content directly through their web browser (Feller, 2005). Despite the newness of these they could perhaps be augmented with older models of hypertext system. The weblog has a similar structure to the internet directory, such as Amazon.co.uk and BlogExplosion.com, where the owner of the site sets the topics or products and users of the site are asked to leave comments. The Wiki can be seen to have a similar structure to hypertext fiction systems, where the owner of the site invites individuals to add nodes to the system and link them together. Hypertext fiction has resurged with the launch of NeverEndingStory.co.uk in 2006, though it has existed since at least since 1987 when Michael Joyce's *Afternoon* was launched. With the popularity of other online collaborative literary projects such as Wikipedia this appears to be a solid genre. A summary of the advantages and disadvantages of different genres is outlined in Table 1, adapted from Bishop (2002).

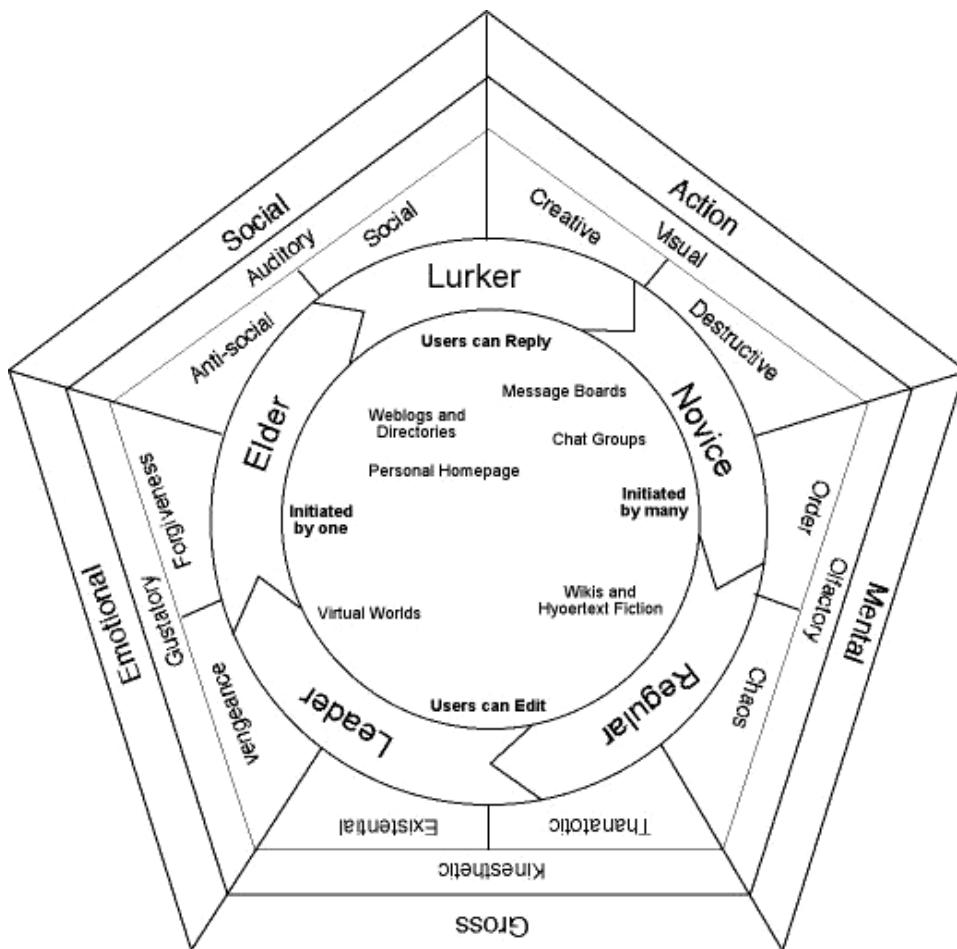
Table 1 Advantages and disadvantages of specific web-based community models

<i>Genre</i>	<i>Advantages/Disadvantages</i>
Personal homepage	Advantages: Regularly updated, allows people to connect with those that they know through leaving messages and joining circle of friends. Disadvantage: Members often need to re-register for each site and cannot usually take their 'Circle of Friends' with them.
Message boards	Advantages: Posts can be accessed at any time. Easy to ignore undesirable content. Disadvantages: Threads can become very long and reading through the messages is time consuming.
E-mail lists and newsletters	Advantages: Allows a user to receive a message as soon as it is sent. Disadvantages: Cannot always access an archive of messages.
Chat groups	Advantages: Synchronous. Users can communicate in real-time. Disadvantages: Posts can be sent simultaneously and the user can become lost in the conversation.
Virtual worlds	Advantages: 3D metaphors allow a user to get more involved in the community. Disadvantages: Requires certain hardware and software that not all users have.
Weblogs and directories	Advantages: Easily updated, regular content. Disadvantages: Members cannot start topics only respond to them.
Wikis and hypertext fiction	Advantages: Can allow for collaborative work on literary projects. Disadvantages: Can bring out the worst in people, such as their destructive natures.

3 Developing a genre analysis methodology

Academic approaches to media have for the purposes of analysis often tried to categorise and isolate media products with genre labels traditionally being used to categorise media by media audiences and those that criticise the media (Branston, 2006). Categorising web-based communities according to their ‘audiences’ is perhaps not suitable for this type of media text. Identifying subgenres for specific web-based community genres would not be most effectively achieved using audience research principles as the individuals that would normally be considered the audience are in fact those that are generating the media or at a minimum contributing to the generation of media through posting feedback, as is the case with the weblogs and directories genre. Any genre analysis methodology for web-based communities has to look at the whole of the virtual environment, seeing actors that use the media not simply as passive observers but active participants.

Figure 1 A model of web-based community genres, incorporating Bishop’s framework and Kim’s life cycle



3.1 A genre analysis methodology based on ecological cognition

According to O'Sullivan *et al.* (2003) the concept of genre is a way of classifying particular styles or types of media texts by identifying their common elements and distinctive features, as well as the codes and conventions associated with particular genres. The ECF provides a useful basis from designing a genre analysis methodology for web-based communities, particularly as it was developed through interpreting them. A three-stage methodology emerges to determine the genre and subgenre of a web-based community, which includes analysing the environment, analysing the dominance of actors, and analysing the nature and structure of artefacts. An outline of the methodology, including elements of Kim's (2000) life cycle and Bishop's (2007a; 2007c) framework is presented in Figure 1.

3.1.1 Stage 1 – Analyse the mise en scène and montage of the environment

According to Monaco (1977) film makers have to decide what to shoot, how to shoot and how to present the shot, with the province of the later statement being montage and the two former being mise en scène. In the context of the ECF the actors, artefacts, structures, *etc.*, can be seen as part of the mise en scène and the base on which these sit as the montage. Assessing the mise en scène should be able to reveal what genre of web-based community a particular website is, and assessing the montage should give some clue as to what the subgenre is.

3.1.2 Stage 2 – Analyse the dominance of actors

Actors in web-based communities become noticeable by the contributions they make, which is made possible by them making a judgement to contribute. Goffman (1959) suggests that the dominance of actors in a media text can be understood by the labels protagonist (the leading character), the deuteragonist (the secondary character), the bit player (a minor character with a background the audience is not aware of) and the fool (a character that uses humour to convey messages). These labels can be seen to map on to Kim's (2000) membership life cycle, as the novices will be the bit players, the leaders and elders will be the protagonists and the regulars will be the deuteragonists. According to Nielsen (2006), the dominance of actors can be understood quantitatively, as he found that 90% of the members of web-based communities are bit players, who read, observe but do not contribute, 9% of users are deuteragonists who contribute from time to time, and 1% are the protagonists, who account for most of the contributions Nielsen also suggests that with web-based communities based on the weblogs and directories genre the distribution of users is 95% bit players, 5% deuteragonists and 0.1% protagonists and for those web-based communities based on the Wiki genre the distribution of users is 99.8% bit players, 0.2% deuteragonists, and 0.003% protagonists. Identifiable from Nielsen's study is that the protagonists and deuteragonists account for the majority of contributions but are not the majority of users, and the bit players contribute from time to time as Novices, but make up a higher number of the overall users than the protagonists and deuteragonists. Assessing the dominance of the actors should reveal the genre a particular web-based community is.

The number of a particular type of actor is important. If there is only one protagonist, who sets the topic and allows others to reply, then this might be a weblog or directory or a personal homepage. If many people can start a discussion and many can reply then the website might be a message board or chat group. If many people can start a topic and they can also edit the content, then the service might be a Wiki or hypertext fiction. If there is only one person or group that has brought about the web-based community and many people can edit, it might be a virtual world.

3.1.3 Stage 3 – Analyse the nature and structure of artefacts

Research methods such as content analysis can reveal a great deal about how actors use artefacts in web-based communities, however according to Rose (2000) content analysis often ignores the structure of artefacts, which is a problem as structure carries meaning. Analysis the nature of artefacts, such as terms used can give some clue to the subgenre a particular genre of web-based community fits into, but the structure of these artefacts needs to be assessed to fully determine the meaning behind their use and what cognitions (*e.g.*, beliefs, interests) they originated from.

4 Using the genre analysis methodology to analyse web-based communities

The three-stage methodology provides two hypotheses to be tested relating to how genres and subgenres can be identified using it.

Hypothesis 1 The genres of web-based community will have specific qualities discoverable using the genre analysis methodology based on the ECF.

The genres of web-based community identified in Table 1 all have their own unique characteristics that could be identified using the genre analysis methodology presented above. It is hypothesised that through analysing the *mise en scène* patterns will emerge, such as those proposed by Figallo (1998) who indicated that platforms can be differentiated by analysing whether their comments are a response or posting, whether it is a topic or conversation, whether it is in a conference or folder and whether it takes the form of a thread.

Hypothesis 2 Subgenres will be able to be identified for web-based communities, which resemble those used in traditional media.

According to Atterberry and Hatter (2006) the weblogs and directories genre of web-based communities has shifted from being an intelligent alternative to the media to being more comparable to a top radio station. Traditional media outlets such as television and radio have established genres of programme. Malbon and Moran (2006) identify several classifications of television genres, including those used by MIPTV, which are current affairs, history/ethnology, discoveries, science and knowledge, arts/music/culture, adventure, lifestyle, personal viewpoint, docusoap and educational. According to their website, MIPTV is the global content event for co-producing, buying, selling, financing and distributing entertainment content across all platforms. It provides the key

decision-makers in the TV, film, digital and audiovisual content, production and distribution industry with the only market conference and networking forum to discover future trends and trade content rights on a global level.

4.1 Methodology

Two web-based community genres were selected for analysis; the message board, which is one of the oldest and the weblog and directory, which could be argued is one of the newest. Hypothesis 1 was tested by carrying out a comparative analysis of the *mise en scène* and montage of both these genres. The comparative analysis methods such as the one introduced by Ragin (1987) allow for systematic case comparisons across cases through representing each case as a combination of causal and outcome conditions. Hypothesis 2 was tested by investigating whether the television genres used by MIPTV can be mapped onto those categories used by directories of web-based communities and carrying out a content analysis and discourse analysis of two subgenres of the weblog and directory genre. Document analysis, such as content, discourse and narrative analysis can provide information that may or may not be accessible by other methods as sometimes qualitative material can best reveal innermost thoughts, frames of reference, reactions to situations and cultural conventions for the reason that language often tells more about people that they want to disclose, or than they know about themselves, and it can bring to light things that a researcher might not think to ask about (Gill, 2000; Smith, 2000). Despite the possibility of narrative analysis for analysing web-based communities, Beck (2004) argues that establishing narrative in terms of its defining qualities and limits becomes important in assessing whether websites qualify as narratives themselves and how they extend, supplement, reorient and supplant the cinematic texts, suggesting that a content analysis of a web-based community should look at text not just as narrative, but discourse also. The content analysis utilised in the study used a number of search techniques, including simple searches, placeholder searches and Boolean searches to look at the number of times particular piece of content appear in the discourse of the blog posts of the two subgenres.

4.2 Results

Investigating Hypotheses 1 and 2 confirmed the existence of genres presented in Table 2, and while the categories of programme used by MIPTV could be mapped onto web-based communities, two clear subgenres emerged for the weblog and directory genre.

4.2.1 Hypothesis 1

An information system could be deemed a web-based community if those individuals that use it each have to go through the stages of the membership life cycle identified by Kim (2000). Categorising these web-based communities into genres is possible using the ECF. All web-based communities contain contributions made by actors, though the structures and artefacts used to make these contributions can define the genre. Typical of the weblogs and directories genre is that structures that hold artefacts in place take the form of linear strips of content, though these are sometimes accessible through categorisation systems. The message boards genre on the other hand often organises

content into threads or topics. One of the key differences between the weblogs and directories and the message boards genres is that weblogs and directories typically have one or two dominant actors that have the authority to start topics or add products, with the remainder of the community simply consuming the content and making comments on it, whereas in the message boards genre there are typically more dominant actors as most members are usually given authority to post new topics or threads. There were also similarities between the two genres including that the content usually allowed for users to reply to it, it was often presented in chronological order and that it occasionally linked to external news sources.

Table 2 Truth table of the distinguishing differences and similarities in the two genres

<i>Factor</i>	<i>Message board</i>	<i>Weblog and directories</i>
Users can usually edit the originator's post	0	0
Linear and categorised strips of content	0	1
Threaded or topic orientated batches of content	1	0
Content initiated by one dominant individual or group of individuals as opposed to content being allowed to be posted by many individuals	1	0
Users can usually reply to the originator's post	1	1
Content often presented in chronological order	1	1
Content producers usually have to go through the membership life cycle	1	1
Content occasionally links to external news sources as the basis of the post	1	1

4.2.2 Hypothesis 2

Before analysing the montage and structure and nature of artefacts in web-based communities to determine subgenres, a small investigation was carried out to see whether the mainstream genres of programme used by the TV company MIPTV could be mapped on to those used by popular web-based community directories. A summary of the results is presented in Table 3.

Three directories for each of the selected web-based community genres were investigated, with BritBlog (BB), BlogExplosion (BE) and Yahoo! (Y!) being used to identify the number of weblogs that fit into each category and Google (G), VoyForums (V) and Yahoo! (Y!) being used to identify the number of message boards.

Three categories of web-based community dominate the two genres of message boards and weblogs and directories, which are current affairs, arts/music/culture, and lifestyle. In preparation for a quantitative content analysis, these three categories were narrowed down to two, with current affairs and lifestyle being selected as both these dominant categories have produced two possible subgenres for weblogs and directories, the 'political blogger' (current affairs) and the 'mommy blogger' (lifestyle).

Table 3 Numbers of web-based communities assignable to each MIPTV genre

<i>Genre</i>	<i>Weblog</i>			<i>Message board</i>		
	<i>BB</i>	<i>BE</i>	<i>Y!</i>	<i>G</i>	<i>V</i>	<i>Y!</i>
Current affairs	660	4307	391	4330	419	102 372
History/Ethnology	0	0	17	0	49	0
Discoveries	0	0	0	0	0	0
Science and knowledge	149	1892	53	3824	483	134 594
Arts/Music/Culture	569	2655	479	10 000	5764	419 763
Adventure	0	0	0	0	0	324
Lifestyle	484	3263	208	13 815	3258	242 359
Personal viewpoint	2758	8933	56	10 000	248	3237
Docusoap	0	0	0	0	0	0
Educational	0	488	66	10 000	361	664 685

4.3 Comparing political and mommy bloggers

A total of 40 web-based communities from the genre of weblog were selected for analysis using a probabilistic design, 20 from the ‘mommy blog’ subgenre, selected from the BlogExplosion directory and 20 from the ‘political blogger’ subgenre, selected from Iain Dale’s Top 100 Political Blogs (Dale, 2006). Noticeable from the weblogs of the two subgenres was the use of photographic artefacts. The mommy blogs tended to have pictures of their children, either what could be termed ‘baby pictures’ or pictures of older children at parties and receiving presents. Many of the political bloggers on the other hand had photographs of themselves and in some cases with more recognisable politicians. These photographs could possibly act as character codes (see Nicholas and Price, 1998) for the dialogue as often the photographic artefacts are anchored with textual artefacts relating to them. One mommy blogger’s deviation into the use of the term ‘Kyoto’ that was assigned to the political blogger category was in fact referring to a restaurant in her local community where she took her family and not the treaty that sought to tackle climate change. While there seems to be some extroversion in the discourse of the political bloggers, it appears that they mainly carry messages relating to their viewpoint on societal issues and mommy bloggers cover issues relating to their family and immediate community.

4.3.1 Quantitative content analysis

A total of 16 373 posts from the mommy blogger category and 173 268 posts from the political blogger category were analysed. The posts were analysed to assess whether they contained 52 terms, 26 taken from the Handbook of Parenting (Bornstein, 2002) that were attributed to the mommy blog category and 26 taken from Politics: An Introduction (Axford *et al.*, 2003) that were assigned to the political blog category. Each of the blogs were assigned a score between 0 and 1 based on how much they kept to the 26 terms assigned to their subgenre without deviating by using the 26 terms assigned to the other subgenre. A summary of the results is presented in Table 4.

Table 4 Mean number of posts and scores for political and mommy blog subgenres

<i>Subgenre</i>	<i>N</i>	<i>M Own</i>	<i>M Other</i>	<i>M Score</i>
Mommy blog	20	794.55	24.10	0.98
Political blog	20	5576.45	3086.95	0.59

Performing an independent samples t-test of the data showed a significant difference between the two subgenres ($t = 9.44$, $p = <0.001$). Observable was that most web-based communities assigned to the mommy blog category did not deviate into using the terms assigned to the political blog category with a Mean score of 0.98 ($SD = 0.03$) and posting a Mean of 794.55 posts using their own terms and only a Mean of 24.10 using the terms assigned to the political bloggers, whereas those web-based communities assigned to the political blog category did deviate into using the terms assigned to the mommy blog category, scoring a Mean of 0.59 ($SD = 0.18$) and posting a Mean of 5576.45 posts using their own terms and a Mean of 3086.95 posts using the terms assigned to the mommy blog category. A discourse analysis of the use of the 52 terms across the two subgenres was carried out to discover whether there were observable differences in the cognitions of the actors that posted in the two subgenres. A number of discoveries were made.

5 Discussion

Genre theory in media research has become so powerful that it dictates not only the interests and research agendas of many institutions, and the web-based community is one type of information system worthy of a genre analysis. Categorising web-based communities according to their ‘audiences’ is perhaps not suitable for this type of information system. Identifying subgenres for specific web-based community genres would not be most effectively achieved using audience research principles as the individuals that would normally be considered to be the audience are in fact those that are generating the media or at a minimum contributing to the generation of media through posting feedback, as is the case with the weblogs and directories genre. The ECF provides a useful basis from designing a genre analysis methodology for web-based communities, particularly as it was developed through interpreting them. A three-stage methodology emerges to determine the genre and subgenre of a web-based community, which includes analysing the environment, analysing the dominance of actors, and analysing the nature and structure of artefacts. This methodology was evaluated. It was quite clear from the discourse analysis carried out in the study that much of the mommy bloggers’ discourse was related to those actors they had an interest in, such as their family and their immediate community, whereas the political blogger would often talk about societal issues they had an interest in, providing their take on it. It was also apparent that political bloggers would often cite news articles they had read on the internet, whereas mommy bloggers were less likely to start a post on the basis of a news report, with it being more likely that they would refer to conversations or their own thoughts or experiences. For example one mommy blogger, ‘Jen the Mom’, often starts blog posts with reference to people in her life, such as the ones that read, “I forgot how nervous I was when I was pregnant with David. I read some of my pregnant posts and it all came back to me. The fear of what was happening to my body all over again” and “This has been the best weekend Chuck and I have had in a very long

time. Friday we went down to Champion. We went there for Chuck's grandfather's funeral, which isn't a pleasant reason but we were happy that he was able to go be with his wife again." One of the terms assigned to the mommy blogger category, 'baby' was mostly used by the mommy bloggers to refer the own children, whereas bloggers mostly used the term to refer to other people's children, with some political bloggers congratulating the UK's Chancellor of the Exchequer, Gordon Brown on the arrival of his child and others such as UK Member of Parliament Boris Johnson using it to refer the need for parents to immunise their children with the MMR vaccine.

Finding the most suitable research method is proving a challenge for researchers of web-based communities, as methods for analysing traditional media such as print and television are not easily transferred. This study has demonstrated that through developing methodologies based on frameworks designed around web-based communities it is possible to reveal relevant information about them that may not be picked up using methodologies designed for traditional media. The specific methods of content and discourse analysis provided useful information about the subgenres, and demonstrated that both quantitative and qualitative approaches are necessary to develop an accurate understanding of the genres and subgenres of web-based community. As the quantitative content analysis was conducted using tested search algorithms the possibility of error on the researchers part was minimal, although it was possible for some human error to have occurred in the carrying out of the comparative analysis. This paper has limitations in that it only explores two genres of web-based community followed by two subgenres of one of those. Future research could look into more detail into the other genres, for example the virtual world, such as second life and perhaps more importantly, the personal homepage, which has seen a resurgence with social networking services such as MySpace and Facebook.

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