The impact of gender, language and writing style on perceptions of participants in online political discussion forums

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Declaration

This dissertation is entirely my own work, and has not been previously submitted to this or any other third level institution.
Word Count:
Signature:
Date:

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Abstract

The aim of this research was to study the differences between male and female use of language in an online discussion forum. A discussion forum on the topic of politics was created and participants invited to use it over a period of two months. Quotes from the discussion were then used in a questionnaire to determine the participant's ability to identify gender from reading the text only. An equal number of male and females took part and a chi squared test found no significant difference between them in their ability to answer correctly. The results found that males and females do use language differently and that these differences are sufficiently obvious in most cases to accurately determine gender, based only on the type of language displayed in their postings.

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Chapter 1. Introduction

1. Introduction

Language is the communication of thoughts and feelings through a system of arbitrary signals, such as sounds, gestures and written symbols (American Heritage 2000).

Communication is the process of transferring information from one source to another.

Communication is commonly defined as "the imparting or interchange of thoughts, opinions, or information by speech, writing, or signs" (Webster 2009).

Technology offers many new ways for us to communicate which have new vocabularies and their own idiosyncrasies. Consider how text messaging has introduced many acronyms and short spellings for words. Language use online is evolving all the time with features such as emoticons, acronyms and specialised words becoming more commonplace. There are many applications available online to enable people to communicate. Social Networking Sites, chat, virtual worlds and discussion forums are very popular applications online. All of these enable members to communicate with many people including complete strangers who they have never met. How people use these tools and the psychology behind them is of interest to the study of Cyberpsychology.

Previous research into written and oral communications has shown that males and females use language differently; males tend to use it in self assertive ways while females use it more for affiliation purposes. This study examined the differences highlighted by the relevant literature and then compared them to interactions in an online discussion forum. A questionnaire also measured participants' ability to identify gender from text only. The online setting has additional features which differentiate it from face to face meeting and these are also discussed.

1.1 Discussion Forums

A discussion forum is an asynchronous communication tool that allows registered users to post a comment or question online. Other individuals who are also members of the discussion board may read that comment or question and respond with their own remarks. These questions and replies are known as a "thread" of conversation. A forum can contain many threads under many different topics. Forums are different to live chats which are for synchronous communication. Replies do not have to be made instantly and can be considered before being submitted. Members can supply profile information about themselves, use an avatar and ad a signature to all their posts. Additional features allow users

to quote each other or send private messages which are not visible to the other members.

These web applications are also known as message boards, discussion forums and bulletin boards.

Once registered with a forum members can communicate with each other over long periods of time. Discussion, arguments and even flaming can take place. Flaming is when two or more members of a forum trade insults or use offensive language. Having never met each other the members build mental images of each other based on their posts. This research examines their ability to identify the gender of other posters by language only.

1.2 Motivations for using Discussion Forums

The growth of the Internet has allowed more people to make their views available to larger numbers than ever before. Traditional media such as television, newspapers and radio have many barriers to entry which the Internet does not have. Broadcasting involves high start up costs and licences in addition to expensive equipment. The requirements for online communication are much more accessible, all one needs is a computer with access to the Internet and one can make opinions available to all.

This form of communication creates new interactions between people which are free of geographical constraints and who may never meet face to face. Members of these boards can express themselves in new ways, have personas which are different to their everyday lives and have new types of social relationships. When meeting face to face one reveals their identity or at least appearance. Those interacting online can choose how much of themselves to reveal, conceal or even distort.

The Internet provides people with a public forum to engage in political conversation and argument; a form of communication some people either cannot engage in or find in their daily lives (Stromer-Galley, 2003). Much of the previous empirical research on political participation in cyberspace has centred on the application and effects of communication technology on the political process (Groper, 1996). More recent studies focus on how citizens perceive and use online discussion forums and their motivations for discussing politics online (Light & Rogers, 1999; Stromer-Galley, 2002). It is not what the Internet can do to people; rather it is what people hope to get out of the Internet that motivates political discussions online. A political discussion forum was used in this study in order to encourage participants to interact with each other and take part. The views expressed were not of

concern just the language used.

1.3 Use of Language

Language as defined above comes in the form of voice, gestures, or written symbols. Text is the main form of communication on a discussion forum though there are others which are described below. There has been much research into the nature and existence of differences between how men and women use language. Within the social sciences, an increasing consensus of findings suggest that men, relative to women, tend to use language more for the instrumental purpose of conveying information; women are more likely to use communication for social purposes with communication serving as an end in itself (Brownlow, Rosamon, & Parker, 2003; Colley et al., 2004; Herring, 1993). Previous research has identified that males and females will use different syntax, words, references to emotion and writing styles.

1.4 Gender differences in language use

The first major research in this area was conducted by Robin Lakoff in 1975 in which he identified specific phrases which both genders use differently. Lakoff identified two specific types of phrases such as hedges "it seems like," and tag questions "...aren't you?" that are included in a wide variety of circumstances by females. This indicates an uncertainty or a need for affiliation which men do not display as often. Additional research had similar findings that women use phrases that communicate relative uncertainty by using verb phrases particularly those combining first-person singular pronouns with perceptual or cognitive verbs (Mulac & Lundell, 1994, Hartman, 1976).

This is consistent with research by Holmes (1995) which has shown women are more reluctant to force their views on another person and are more likely to use extra-polite forms such as "Would you mind". Mehl and Pennebaker also found evidence that women were more likely to use first-person singular.

The actual words people use can also be examined in order to identify gender differences. Women have been found to use more intensive adverbs, more conjunctions and more modal auxiliary verbs then men (Mehl & Pennebaker, 2003; Mulac et al., 2001).

Mulac et al, 1988, found that questions are more common in women's contributions to dyadic

interactions, whereas directives more common with males. "Will we get some food"? Instead of "let's get some food" for example. Males were found offer more opinions by Mulac, Studley, and Blau (1990).

When sentence length is calculated, women were found to use more words both in writing and speaking. (Mulac & Lundell, 1994). It is a common stereotype that women will refer to emotion more than men but several studies have reported that this is true (Mulac et al., 1990; Thomas & Murachver, 2001). This research found males less likely to refer to emotion except in terms of anger which they will refer to more often. Males have been reported to swear more, use longer words, use more articles, and use more references to location (Mehl & Pennebaker, 2003).

1.5 Language use online

Psychologically, inferences and evaluations drawn from messages are influenced by preconfigured schemas. These mental structures allow communicators to make sense of their world through organising perceptual information into neat categories (Fiske & Taylor, 1991). When a situation involving patterns similar to past events occurs, existing schemas are activated. Consequently, there is a higher tendency for a person to evaluate a message or its speaker heuristically based on past events, instead of using high-level cognitive processing to make attributions about the current subject of consideration. In other words people make assumptions based on their past experience.

Some negative consequences of using heuristics have been noted in stereotype studies, where incomplete or inaccurate assumptions are made about sources (Ross, Read, & Toglia, as cited in Bornstein, 1995). Spelling mistakes, slang, terms used and humour all give an insight into the posters identity.

Studies into email use have failed to replicate the findings of spoken and written studies, so there may be differences between the offline and online environments (Murachver's 2001). This study of e-mail communication found that men and women were equally likely to ask questions; offer compliments, apologies, and opinions when using computer mediated communications.

Previous studies (Dindia & Allen, 1992; Mulac, Widenmann, Widenmann, & Gibson, 1998) found that groups composed of all men or all women will represent extreme positions on

several linguistic variables, while mixed groups with fall between these extremes.

In a Computer Mediated Communication (CMC) context, Herring (1994) describes different gender styles consistent with task versus socio-emotional distinction; "The male style is characterised by adversariality, put downs, strong often contentious assertions, lengthy and/or frequent postings, self promotion, and sarcasm." The female-gendered style, in contrast, has two aspects which typically co-occur; supportiveness and attenuation".

Additional factors when identifying the gender of another person online include the amount of information disclosed and whether it is accurate. The online environment allows those communicating with people they do not know offline to take on personas or control the amount they disclose.

1.6 Self Presentation and Self Disclosure

Computer Mediated Communication environments enable the user to reveal, hide or distort their identity. In this context it is relevant to reference research into self presentation and disclosure online. The members of discussion boards have much more control over how they are presented to others. The opportunity for Internet users to create and maintain identity online is constrained by the predominantly text-orientated nature of many Internet environments. As Wallace has noted "the drive to manage our impressions in any social settings is strong, and Internet users are extraordinarily creative" (Wallace, 1999).

Identity is often characterised in terms of one's interpersonal characteristics, such as self-definition or personality traits, the roles and relationships one takes on various interactions, and one's personal values or moral beliefs (Calvert, 2002). Identity also involves a sense of continuity of self images over time (Grotevant, 1998). While physical constraints such as body, biological sex, race, or age can have a profound effect on self-presentation (Collins & Kaczaj, 1991), many of these attributes become flexible in online environments.

Self-disclosure refers to communication of personal information, thoughts, and feelings to other people (Archer, 1980; Derlega, Metts, Petronio, & Margulis, 1993). When meeting face to face we disclose our appearance, accent, facial expressions, age, gender, nationality etc. When communicating online all of these features are hidden and communication is primarily by text. Previous research has shown that online communication lends itself to self-disclosure (Joinson, 2001; McKenna & Bargh, 2000; Tidwell & Walther, 2002; Wallace,

1999).

However, self-disclosure can also be risky because it may invite ridicule or even rejection, thereby placing the discloser in a socially awkward or vulnerable position (Pennebaker, 1989). Consequently, people are more likely to disclose to a stranger (Derlega & Chaikin, 1977; Rubin, 1975) because they feel that they can express themselves and offer opinions which will not have any material impact on their everyday life. The essential functions of political discussions forums are to share information and to persuade. Past research indicates that asynchronous communication seems to have greater potential for more detailed and deliberative discussions, since its interactions are slower and more thoughtful (Lapadat, 2002).

1.7 Usernames

Members of a discussion board will select a username or nickname which they will be known by. This is chosen when first registering. Beachar-Israeli (1996) asserts that that the nickname will not necessarily reflect a person's personality traits or characteristics, or a person's external appearance, but might mirror that person's aspirations or dreams. He also found that people rarely change their nicknames. Most tend to keep one nickname for a long period of time and become deeply attached to it (Bechar-Israeli, 1996). Nicknames can form a central element of an Internet user's online identity. According to Bechar-Israeli, a self chosen nickname augments a person's self-image (1996).

A username is a name which the user gives to themselves so it more personal than the name they are given by their parents. Infants are aware of their names as part of their "selves" from as early age of one year or two. They hear their names called and are sensitive to compliments or criticism accompanying them. Children learn to speak their names before they learn to say "I", and they need their names in order to refer to themselves (Piaget, 1975).

Previous research has focused primarily on the denotation, or literal meanings, of nicknames. Bechar-Israeli (1995) analysed 260 nicknames on Internet Relay Chat, identifying seven major types: 1) people using their real name, 2) nicknames related to the self, 3) names related to the medium, technology, or their nature, 4) names of flora, fauna, or objects, 5) play on words and sounds, 6) names related to figures in literature, films, fairytales, or of famous people, and 7) names related to sex and provocation. It emerged that 45% of the nicknames were related to the self, meaning that they in one way or another characterised the individual

who used the nickname, for example shydude, badman, handsome. In studies of gender and chat communication, participants' gender is often determined by the researchers on the basis of nicknames, although Herring also found "gender indeterminate" nicknames in a Thai chat room.

The authors study included nicknames such as, Crisp, Exactly, Tinkerbell, LedZepShirt and Waffle. Another member viewing these names will receive indicators as to the personality and sometimes the gender of these people. For example Tinkerbell may seem female and LedZepShirt suggests a male. Assessing how accurate these observations are was one of the aims of this experiment.

Additional personal information which users disclose includes signature images or text, avatars, the use of language and emoticons. Signature files allow a forum member to include a signature of up to 50 characters as opposed to 9 in a nickname. These particular tools can be chosen, discarded, learned about or ignored by Internet users as they build an online persona. A full list of user profile options are available in Appendix a.

1.8 Anonymity

Members of the discussion forum often see themselves as being anonymous. This can influence how they communicate. Anonymity can be real or perceived. Real anonymity refers to a state where a person is not identifiable (Marx, 1999). Posts on a discussion board are not strictly anonymous as an Internet Service Provider (ISP) can trace the Internet Protocol Address of a poster. Despite this many users feel anonymous or perceive their posts to be so.

Scott (1998) defined anonymity as "the degree to which a communicator perceives the message source is unknown and unspecified" (p. 387). There has been much discussion regarding the role anonymity or perceived anonymity plays in communication. Anonymity has long been associated with a deindividuating effect, which may lead to unruly behaviour (Jessup, Connolly, & Galegher, 1990; Zimbardo, 1969). It is also related to certain pro-social behaviour (Johnson & Downing, 1979; Zimbardo, 1969).

There can be two sides to this coin it gives one freedom to express one's views online, regardless of social status differences. Individuals who might not meet socially under normal circumstances can exchange views online. Introverted or shy people who may not take part

in group discussion in real life can express themselves openly on a discussion boards without the social fears they might have. As well as positive aspects anonymity can encourage various forms of deviant behaviour, such as flaming of other discussants, malicious spreading of falsehoods, and hacking into private networks.

Views which might not be acceptable in face to face conversation such as racist or sexism can be expressed online without having to face the person. These conflicting situations arguably develop from a key structural characteristic of the Internet—the perceived anonymity of online users. Speakers in computer-mediated settings have the potential to adopt pseudonymous identities behind text-based personas. People can feel freer to share diverse ideas that they otherwise may suppress (Postmes, Spears, & Lea, 1998). However, anonymity may create difficulties in evaluating messages produced by unknown sources and may undermine credibility, at least in terms of the subjective experience of those reading the messages (Donath, 1999; Flanagin & Metzger, 2007).

Discussion boards offer different architectures with varying degrees of anonymity. The board used in this experiment attaches some users information, such as demographic data, number of posts submitted to date and Karma (as voter by other posters) together with the actual discussion board message. These details can be a type of status cue, providing background information about the source (Donath, 1999). The message text itself may also contain other identifying information. In the cue-lean world of text-based communication, the language that people use online becomes an important source of background information, possibly revealing their social position, gender, age, social class, and so forth (Gupta, 1998a).

Chapter 2. Research Questions

2.1 Aims of the Present Study

The overall aim of this study was to examine the impact of gender, language and writing style on perceptions of participants in online political discussion forums. Members of discussion forums interact with each other while discussing issues online. These interactions are mainly text based and can occur over long periods of time with people who have never met face to face. Can one identify the gender of a poster on a discussion forum from the language they use? This question is examined in this research. This study consisted of two main parts the creation and populating of the online discussion board and a questionnaire. Three hypothesise were tested.

2.2 Hypotheses

H1

Females are more likely to use language for affiliation purposes than males.

H2

Males are more likely to use language for self assertive purposes than females.

H3

These differences in language use are sufficiently obvious as to allow other forum users to accurately determine gender based on the language used in forum postings.

Chapter 3. Methodology

3.1 Creation and Population of Discussion Forum

Discussion forum applications have been used since the early days of the Internet and have evolved over time becoming more user friendly and with added functionality. There are many free discussion boards available online such as http://www.proboards.com which the author chose to use after testing a number of alternatives. Participants were invited by email to register which consisted of creating a log in and a password. They then decided upon a username which they selected themselves. The user names remained constant throughout the experiment. Some of the user names indicated gender such as "madeline" and "Liammu" while others were gender neutral, "bubbles" and "grasshopper". Once given access to the discussion forum participants were able to view threads and post on it.

A profile feature was also available which allowed those registered to share information about themselves. The full profile can be seen in Appendix a. The forum was located at http://cyberpsychologystudy.proboards.com/. None of those who registered reported any issues or difficulties with registering.

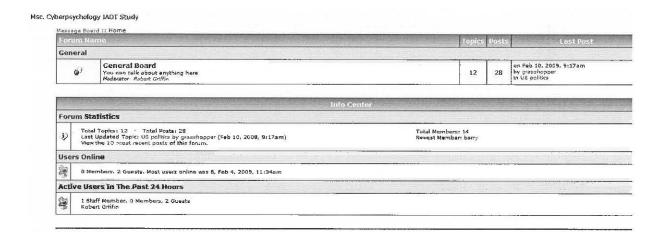


Figure 1: Screenshot from discussion forum.

Once registered the users began starting and taking part in threads. The purpose of the forum was to generate content for use in the questionnaire. Taking quotes from other discussion forums would have had ethical issues regarding their use. Politics was chosen as the topic in order to get people interacting. This topic turned out to be very broad as issues from the American election, banking and other social issues were discussed.

The board was available to participants for two months. The opinions presented were not of

interest in this study just the language and writing style used. Three quotes were selected for use in the questionnaire.

3.2 Questionnaire Creation and Design

A questionnaire consisting of 20 questions was then designed and hosted online on surveymonkey.com, appendix b. The purpose of the questionnaire was to ascertain quantitative and qualitative data about the participants. The sections of the questionnaire were to record the following. Demographic information about the participants in order to compare the data set. Experience of discussion forums was measured in order to determine how the participants have used these applications. Perceptions of gender online were also asked in order to assess the participants' opinions before they were asked to determine the gender of a poster from quotes alone. Opinions on quotes selected from the discussion forum to see how accurately gender could be ascertained from text alone. Participants were also asked to consider opinions from the relevant literature regarding language and gender. A link to the questionnaire was emailed to 80 people and 54 responded giving a 67.5% response rate.

3.3 Ethics Committee

Ethics Committee permission had been requested and received for this study from the Department of Learning Sciences Ethics committee. Those who completed the questionnaire were all over 18 years of age and gave consent for their participation. They were also invited to email the author with any questions or queries regarding the study.

3.4 Investigation of Hypotheses

H₁

Hypothesis 1 sought to investigate if females are more likely to use language for affiliation purposes than males. Participants were asked their opinion as to the gender of the writer of particular quotes. A 5 point likert scale asked their confidence in their answer, ranging from very confident to don't know. A comment section enabled participants to explain their answers. Additional questions later on in the questionnaire asked if they agreed with statements to the effect of H1.

H2

Hypothesis 2 sought to investigate if males are more likely to use language for self assertive purposes than females. The methods used to ascertain this was the same as that for H1.

H3

Hypothesis 3inquired if these differences in language use are sufficiently obvious as to allow other forum users to accurately determine gender based on the language used in forum postings. This hypothesis was tested by using quotes from the discussion forum, a likert scale and an option to comment for the reasons for participants' answers.

3.5 Analysis

Results from the questionnaire were analysed using a statistics package called SPSS.

Quantitative data was analysed in order to find correlation between answers provided. The findings are in the following chapter Results.

Chapter 4. Results

4.1 Introduction

Quantitative demographic data from the questionnaire found the participants to be a homogenous group. Participants were all English speakers the majority from Ireland. They were all familiar with the words and any slang used. No problems regarding this were expressed to the author or in the comments questions. Age and experience were also found to be similar within the data set.

4.1.1 Gender

54 participants completed the questionnaire and they were split evenly by gender 50% male 50% female.

4.1.2 Country of Origin

It was important to ascertain the native language and country of origin of participants. This was to ascertain that they were all native English speakers. Differences in language and culture could influence results and need to be considered in this study.

Ireland	35	South Africa	1
England	2	Brazil	1
Australia	2	No reply	10
Germany	2		

Figure 2 Country of Origin of Participants

4.1.3 Ages of Participants:

All participants were over 18 years of age and regular users of the Internet.

Age Frequency		Number of Participants	
18-22	13.5%	7	
23-26	5.8%	3	
27-31	23.1%	12	
32-36	40.4%	21	
37-41	11.5%	6	
42-46	1.9%	1	
47 or Above	3.8%	2	

Figure 3 Ages of Participants

The largest age group was aged between 32 and 36. 63.5% were aged between 27 and 36. Differences in age could be a factor in language use but none of the participants commented that this could be an issue in this case.

4.2.1 Use of Discussion Forums

Participants were asked about their use of discussion forums. Almost all had used discussion forums before, but have been using them for a relatively short time period. 68.1% first used a discussion board within the last two years. Forums have been available online since the beginning of the Internet and host discussions on many topics. Originally they were newsgroups and email mailing lists. Improvements in software and hosting capabilities have made them easier to use and more popular. The questions below indicate a similar level of experience among those who completed the questionnaire. Only seven had been using discussion forums for more than four years.

When was the first time you signed up to use a discussion Board?

Less than 1 year ago	42.6%
1-2 years ago	25.5%
3-4 years ago	17.0%
Longer than 4 years ago	14.9%

Figure 4 First time joining

4.2.2 Proportion of time online spent using Discussion Forums

This question was asked to ascertain what proportion of time spent online involved the use of discussion forums. The participants spent a relatively small proportion of time online using discussion forums 76.6% indicated it to be less than 10%. This demographic data indicates a test group of similar experience, language and age.

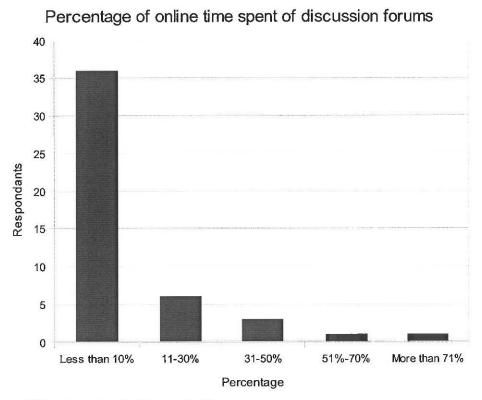


Figure 5 Percentage of online time spent of forums

4.2.3 Features Used

When asked which features of a discussion forum they used 72.3% responded that they indicate their gender. Other features which can be used to present self online where not used. An avatar is an image which a registered forum member can use as an identifier. Avatars are usually small pictures which can be still or animated. Only 12.8% of those questioned replied that they use this feature. Signatures allow posters to include a fixed amount of text under each post they make. Signatures often contain quotes, links or information about the poster. They were only used by 10.6% of respondents. None of the participants in the discussion forum created for this study used either of these features. This may be due to the short amount of time that the experiment was conducted over. These tend to be more advanced features used by more experienced forum users.

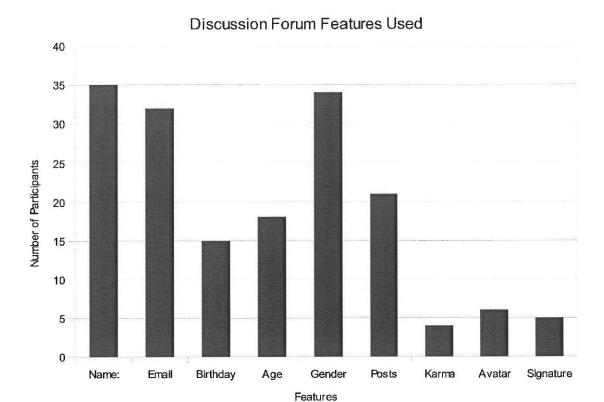


Figure 6 Forum Features Used.

The question also indicates that most would include their gender in the information that they present to others. Email, birthdays and age also indicate a willingness to reveal personal information to others online.

4.3.1 Gender of other forum members

When asked if they knew the gender of other posters when online there was a larger difference in opinion. Most answered sometimes when asked if they knew the gender of other posters online 43.6%. Only 10.3% answered no.

Do you generally know the gender of other posters online?

Yes	28.2%	11
No	10.3%	4
Sometimes	43.6%	17
Don't care	17.9%	7

Figure 7 Gender of other members

A text box below this question allowed participants to explain their answers. The replies are indicative of the gender differences discussed above.

4.3.2 Perceived Gender Differences in Language use

Participants were asked to which features of language they consider to indicate gender.

Replies have been grouped into three areas, language, references to emotion and topic of conversation.

Language use:

Language was mentioned is some of the responses. Participants believed they could tell the gender from the languages used. Sample quotes, "By the wording they use", "Men are generally more to the point, while woman skirt around the issue in case they might offend anyone" "Sometimes by language used and how they talk", "Sometimes it is possible when a poster writes in a real girlish or macho way but when it is a normal comment I can't tell", "Girls use different words than boys". These answers are consistent with previous research which indicated that males and females use language in different ways.

References to Emotion:

References to emotion were also identified as an indicator of gender as well as politeness and swearing: "Generally when someone mentioned how they feel about stuff", "there are telling emotions either side of the gender", "words used", "emotional responses", "Women are usually softer and less insulting than men". Previous research has shown that there are differences in how frequently the different genders refer to emotion. Males are less likely to refer to emotions except in the case of anger.

Topic:

The topic of conversation was also commented on, sample comments: "Topic of conversation and/or content of text." "The topic of conversation": "Depends on the topic, i.e. people discussing pregnancy etc tend to be female". Other comments indicated a reluctance to determine gender on text only grounds, "because I avoid making stereotypes", "It is not a real world, so everyone can assume to be whatever suit them".

These findings were also indicated in the answers to the next two questions in the questionnaire. Participants were given a list of the main methods of identifying gender on a discussion forum.

4.3.3 Identifiers to Gender

Question 8 asked participants which features of a discussion forum helped them to identify the gender of a poster.

Which of the following would you consider as identifiers to the gender of poster?

Identifier	Percentage	Frequency
Profile	61.5%	24
Avatar	30.80%	12
Username	69.2%	27
Signature	28.2%	11
Language	56.4%	22

Figure 8 Identifiers

A profile often contains gender information and the participants indicated in the previous answer that most do indicate their gender in their profile. Disregarding this feature language used was considered the second most important feature after username. 56.4% of respondents answering that language would be an indicator to the gender of a poster. Without a specific reference to gender such as a feminine or masculine username or in the profile language is seen as the most important factor.

The next question measured the degree of importance assigned to each of the identifiers.

Again profile and username featured highly but language was now the second most important identifier after profile.

Which of the following do you think is the most important to identify the gender of a poster?

	Very Important	Important	Neutral	Unimportant	Very Unimportant
Profile	54.1% (20)	29.7% (11)	16.2% (6)	0.0% (0)	0.0% (0)
Avatar	9.4% (3)	40.6% (13)	37.5% (12)	3.1% (1)	9.4% (3)
Username	28.9% (11)	34.2% (13)	23.7% (9)	2.6% (1)	10.5% (4)
Signature	10.8% (4)	37.8% (14)	29.7% (11)	8.1% (3)	13.5% (5)
Language	44.7% (17)	23.7% (9)	31.6% (12)	0.0% (0)	0.0% (0)

Figure 9 Level of Importance

78.4% considered language to be very important or important when identifying the gender of a poster. If profile is disregarded language is considered the most important feature according to this question. This indicates that those who answered this question do consider the language used as an identifier to a posters gender.

4.4.1 Testing Participants ability to identify Gender from text only

The following questions tested the participants' ability to name the gender of three posters using the text only. Three quotes taken from the project discussion forum were used and participants were then asked the gender of the person quoted below. The quotes below include spelling and grammatical errors.

Quote 1 (male)

"Doing the wrong thing for the right reason? There will a lot of that going on before this system gets fixed. A more interesting notion is a philosophical inquiry into what money actually is. Very few people know. I myself am only guessing. It can buy you things, but what is it really, how much if it is there, where does it go when share values plunge, like Enron or Anglo, what happened to the shareholder monies, did it vanish somehow contracting the money supply or did it move onto someone else's

balance sheet, if so whose? It is a deep rabbit hole."

This quote contains some of the features associated with male language use. There are no references to emotion, the author refers to himself and is asserting his opinion. The topic is economics which tends to be a more male interest and there is evidence of self affirmation in the quote. The majority of the participants correctly identified the gender of the poster as male.

Do you think the poster is?

Male	81.1%	30
Female	18.9%	7

Figure 10 Quote 1

81.1% gave the correct answer. The degree of certainty in their answers was also high with 48.6% answering very confident or confident in their answer.

To what degree of certainty are you sure you are correct?

	Very confident	Confident	Neutral	Not confident	Don't Know
Confidence	16.2% (6)	32.4% (12)	29.7% (11)	10.8% (4)	10.8% (4)

Figure 11 Quote 1 level of confidence

The subsequent comments posted to explain their answers indicated that the language used had some of the male traits identified in the relevant literature, those being more self affirmative words and a more aggressive style of writing. Sample quotes from the questionnaire "Phrasing of sentences and brevity of sentences", "Subject matter," "Possibly male philosopher - financial jargon", "Assertive but questioning at the same time", "Philosophy is generally considered a male job/interest", "It sounds a bit macho to me, like someone is trying to show off", and "My guess is based on the language".

The literature also refers to emotion being mentioned more by females and this was also indicated in the comments of the male quote. Some sample comments referring to emotion in the quote. "Very little emotion", "pragmatic words - lack of emotion", "too angry to be a female". The answers to this quote and the comments indicate that the participants agree

with the findings of previous studies into gender and language use. References to anger are also considered a male trait according to previous research.

Quote 2 (Female)

"I doubt that he will be that different at the end of the day. There is too much of a mess to clean and the world's eyes are on him watching his every move. I for one would not like to be in his shoes. Good luck to him and hopefully he will prove me wrong."

This quote contains features of both male and female language use. There are references to emotion but also affirmative words used. The topic was considered a more male topic as well according to the comments made.

This quote had a majority of incorrect answers 51.4% male to 48.6% female. The level of confidence in this answer was higher than the first quote. 55.8% were very confident or confident in their answer.

	Very confident	Confident	Neutral	Not confident	Don't Know
Confidence	5.4% (2)	51.4% (19)	24.3% (9)	8.1% (3)	10.8% (4)

Figure 12 Quote 2 level of confidence

Even though the majority of participants were incorrect the comments as to why they answered do show some of the features or language use described in the literature. The reasons given for answering male contain many of the stereotypes and results from previous research.

The topic being discussed was the election win of Obama. Some participants commented that this is a male type topic to be discussing: "Topic and language of imagining being in 'his' shoes, seems to be a male reporter" "not sure why I think its male just a vibe" "Topic is probably a giveaway", "Not as many girls into politics".

Emotion is also described as being a deciding factor "Is a bit more about feelings". Some comments refer to empathy and compassion the empathy describing him: "Shows signs of empathy" "It's about another person and more emotionally involved seems to sympathise a

lot with the man".

While others refer to a "Lack of emotion" "More aggressive language impersonal" "The last sentence sounds like a woman typed this" "Centred on values, maternal tone" "This text uses descriptions for cleaning and good wishes which I would think would be used more by a female". The reference to "in his shoes" made some think that the poster was a male.

Males are reported to use more self fulfilling language this is recorded in the comments: "point of view", "forthright language". Males are also supposed to make more mistakes and use bad language: "bad spelling" "the language use is too nice for a male".

The third quote was made by a male.

Quote 3 (Male)

"Very sad for people nearing retirement and finding their pension funds are lost in the stock market crash. Some have to work on but others have to go at 65. Some kick in the ass after a lifetimes work." Medical bills will add to the problems".

This quote got the highest percentage of correct answers 62%. The majority of participants were confident or very confident 51.7%.

Male	62.2%	
Female	37.8%	

Figure 13 Quote 3

To what degree of certainty are you sure you are correct?

11 (Penisodo)	Very Confident	Confident	Neutral	Not Confident	Don't Know
Confidence	5.4% (2)	45.9% (17)	27.0% (10)	13.5% (5)	8.1% (3)

Figure 14 Quote 3 level of confidence

The comments again indicate that topic, language and emotion expressed were factors in deciding. The term "kick in the ass" was highlighted as being something a male would say. Six participants commented on this. Research has shown that males use more aggressive language and are more likely to swear so these results concur with the research. Sample comments, "Kick in the ass" "Males tend to use bad language more often" "Stock market' and 'kick in the ass' would be more of a guys comment", "Tricky one but I'm guessing male

because of the kick in the ass comment sounds more like something a man would say", "kick in the ass phrase".

There were conflicting comments regarding emotion, those who answered female referred to the empathy and emotion expressed and saw it as being sympathetic: "Empathy", "suppose because it is sensitive", "More sympathetic" "compassionate" "seems to be a caring individual".

Other comments by those who selected male referred to a lack of emotion "just not emotional more practical" "I don't think a male would say "very sad for people nearing retirement". The number of correct answers and the comments following them indicates that the participants concur with the findings of previous research.

The last section of the questionnaire asked participants whether they agreed with particular quotes. These quotes state some of the findings of previous research into language differences between the genders. There was a high level of agreement amongst participants with the researchers.

4.3.4 Language Online

Do you agree or disagree with the following:

"Male and female posters on a message board will use distinct forms or language. For example, females are more likely to use language for affiliation purposes, and males using it more for self assertive purposes." Colley et al., 2004

	Strongly Agree	Agree	Disagree	Strongly Disagree
Agree/disagree	16.7% (6)	69.4% (25)	13.9% (5)	0.0% (0)

Figure 14 Literature Quote 1

86.1% of respondents agreed or strongly agreed to the statement made by Colley et al in 2004. These results in conjunction with the comments from the quotes above indicate that participants do agree with the first two hypothesis of this paper that "Females are more likely to use language for affiliation purposes than males" and "Males are more likely to use language for self assertive purposes than females". None of the respondents strongly disagreed with the statement and only 13.9% disagreed.

Many of the comments after the quotes used above concur with the statement.

Do you agree with the following statement?

"The male style is characterised by adversariality: put-downs, strong often contentious assertions, lengthy and/or frequent postings, self-promotion, and sarcasm."

	Strongly Agree	Agree	Disagree	Strongly Disagree
Agree/disagree	22.9% (8)	51.4% (18)	25.7% (9)	0.0% (0)

Figure 15 Literature Quote 2

Again there was consensus of agreement with this statement. 74.3% agreed or strongly agreed with the statement. The comments from the also questionnaire indicate agreement with the statement above.

Do you agree with the following statement?

"The female-gendered style, in contrast, has two aspects which typically co-occur: supportiveness and attenuation"

	Strongly Agree	Agree	Disagree	Strongly Disagree
Agree/disagree	2.8% (1)	88.9% (32)	8.3% (3)	0.0% (0)

Figure 16 Literature Quote 3

This statement received the highest level of agreement with 91.7% agreeing or strongly agreeing that the female writing style is usually supportive and attentative.

The results from these questions indicate a strong agreement amongst participants with the previous research.

4.4.1 Comparison of answers by Gender

Of the 54 participants surveyed the gender was even 50% Male, 50% female. A chi-squared test found no significant difference between the numbers of males and females who correctly identified the gender person who made the quotes. Males and females were found to be equal in their ability to identify the gender of the person making the quote.

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	.087 ^b	1	.769		12 10
Continuity Correction ^a	.000	1	1.000		
Likelihood Ratio	.087	1	.768		
Fisher's Exact Test				1.000	.519
Linear-by-Linear Association	.084	1	.772		
N of Valid Cases	37				

a. Computed only for a 2x2 table

Figure 17 Chi Squared test

Each quote used found a similar ability between genders to answer correctly.

Quote 1

1.00 represents male which was the correct answer.

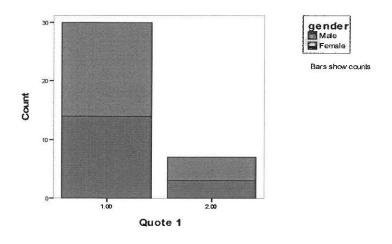


Figure 18 Chi Squared test Quote 1

b. 0 cells (.0%) have expected count less than 5. The minimum expected count is 6. 43.

Quote 2

2.00 represents female which was the correct answer.

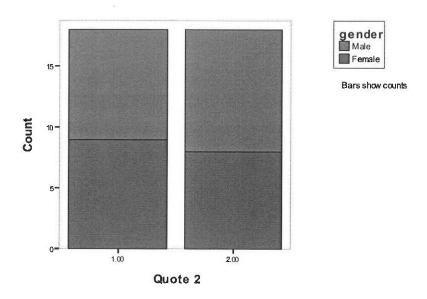


Figure 19 Chi Squared test Quote 1

Quote 3

1.00 represents male which was the correct answer.

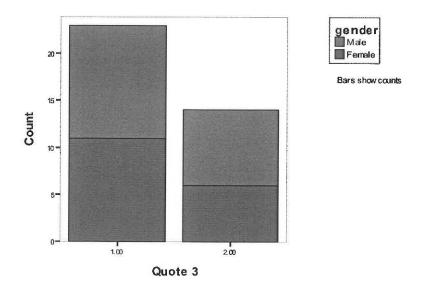


Figure 19 Chi Squared test Quote 1

The results above show that males and females were equal in their ability to ascertain the gender of a poster by text only.

A longer timeframe for a study would also be of interest to view how members of a forum interact with each other over a longer time period.

5.5 Conclusions

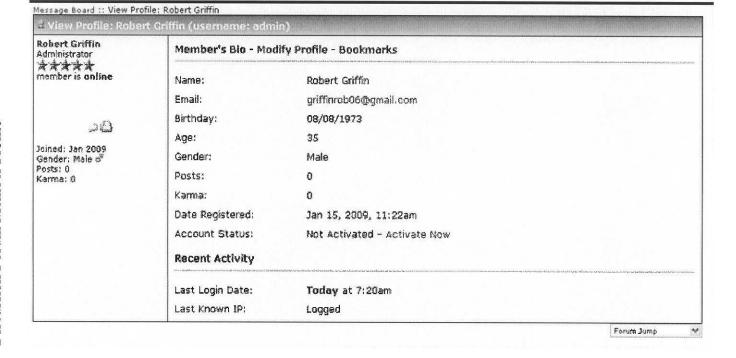
Overall this study did find that there are differences between genders in how they use language. The results from the discussion forum and questionnaire did agree with the previous research regarding differences in language use between genders. There was a high level of agreement with the previous research in this area. The participants demonstrated that they did use language to ascertain the gender of other members and that many of the techniques used were similar with those found by researchers in previous studies.

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Appendix a



Appendix b

Questionnaire

1. Gender, language and writing style online

Dear participant,

You are invited to take part in a research study about gender, language and writing styles online. The study is completely voluntary and has been reviewed and approved by the Institute of Art, Design and Technology, Dun Laoghaire.

If you decide to volunteer for this study you have to be over 18. As part of the study you will be asked to fill out a survey about your behaviour on discussion boards. You may leave the survey at any point by clicking on the exit link. Please be assured that your responses will be kept confidential. This means you will not be identified in any report or publication of this study or its results.

If you have any questions or concerns regarding this study please feel free to contact me at: Robert.Griffin@iadt.ie

Thank you for your time and interest.

Robert Griffin (IADT, Dun Laoghaire)

1. 1. Agreement of Participants

Drogged

You indicate that you have read the information provided above and voluntarily agree in
taking part by clicking "Proceed". If you do not wish to take part you can close your browser
window now. You can also leave the survey at any point by clicking on the "Exit" link.

	Trocccu
	Exit
2. I	Demographic information
1. F	Please indicate your Gender below:
C	Male
("	Female
2. V	Which country are you from

3. Please tick the box to indicate your age

("	18-22
Print.	23-26
(27-31
r	32-36
(37-41
1	42-46
("	47 or Above
3. F	Background Information
	When was the first time you signed up to use a discussion Board?
C	Less than 1 year ago
(1-2 years ago
C	3-4 years ago
	Longer than 4 years ago
	How many of the following profile features do you use?
Γ	Name:
100000	Email
- American	Birthday
	Age
	Gender
	Posts
	Karma
_	Avatar
onese.	Signature
	On average, which percentage of your online activities are on discussion forum sites?
(Less than 10%
g. gama,	11-30%
q.	31-50%
~	51%-70%
ą.	More than 71%

- 4. Perceptions of Gender Online
- 1. Do you generally know the gender of other posters online?

<i>c</i>	Yes No							
C	Sometimes							
<i>(</i> **	Don't care							
<i>c</i>	Oo you think y Yes No ase explain wh	ou can tell the Cay or why not?	Gend	ler of a pos	ter b	y text only	f?	
3. V	Which of the formal Profile Avater Username Signature Language use	ellowing would	you	consider a	s ide	entifiers to	the gender of a	poster?
4. Which of the following do you think is the most important to identify the gender of a poster								
		Very Important	Imp	ortant	Net	ıtral	Unimportant	Very Unimportant
Pro	ofile	Very Important	£***	Important	gran,	Neutral	C Unimportant	Very Unimportant
Av	atar	Avatar Very Important	r	Important	r	Neutral	て Unimportant	C Very Unimportant
Us	ername	Username Very	~	Important	~	Neutral	CUnimportant	Very Unimportant

Neutral

Important C

Important Neutral

Signature

Language used

Very Important

Signature Very

Language used Very Important

Important

^C Very

Very

Unimportant Unimportant

Unimportant Unimportant

5. Forum Posts

1. The following is a post on a discussion forum.

"Doing the wrong thing for the right reason? There will a lot of that going on before this system gets fixed. A more interesting notion is a philosophical inquiry into what money actually is. Very few people know. I myself am only guessing. It can buy you things, but what is it really, how much if it is there, where does it go when share values plunge, like enron or Anglo, what happened to the shareholder monies, did it vanish somehoe contracting the money supply or did it move onto someone elses balance sheet, if so whos? It is a deep rabbit hole."

Do you think the	poster is:			
Male				
Female				
Reason for your A	Inswer			
	alle. I a summer la summer			
d d	and a second			
2. To what degree	of certainty are you sure you		Not confident	Don't Vnov
Confidence in answer	Very confident Confident Very confident Confident	Neutral	Not confident Not confident	Don't Know C Don't Know
6. Forum Posts				
1. The following i	s a post on a discussion foru	m.		
clean and the world I for one would no	rill be that different at the end ld's eyes are on him watching of like to be in his shoes and hopefully he will prove	g his ever move.	re is too much o	of a mess to
Do you think the	poster is:			
Male				
Female				
Reason for your A	answer			

2. To what degree of certainty are you sure you are correct?

Very confident Confident Neutral Not confident

Not confident Don't Know

Confidence in answer	Very confident	Confiden	t Neutral	Not confident	C Don't Know
7. Forum Posts					
1. Do you think th	ne poster is:				
"Very sad for peo- market crash. Son Some kick in the Medical bills will	ne have to worl	k on but others imes work."			lost in the stock
~ Male					
Female					
Reason for your A	Answer	A.			
		annound the second			
2. To what degree of certainty are you sure you are correct? Very Out of the second					
	Confident	Confident	Neutral	Not Confid	ent Don't Know
Confidence in answer	Very Confident	Confiden	t Neutral	Not Confident	Don't Know
8. Language Onlin	ne				
1. Do you agree or disagree with the following:					
"Male and female posters on a message board will use distinct forms or language. For example, females are more likely to use language for affiliation purposes, and males using it more for self assertive purposes."					
	Strongly Agre		Disag	ree	Strongly Disagree
Agree/disagree	Strongly Agree	Agree	e C	isagree	Strongly Disagree

2. Do you agree with the following statement?

"The male style is characterized by adversariality: put-downs, strong often contentious assertions, lengthy and/or frequent postings, self-promotion, and sarcasm."

	Strongly Agree	Agree	Disagree	Strongly Disagree
Agree/disagree	Strongly Agree	Agree	C Disagree	Strongly Disagree

3. Do you agree with the following statement?

"The female-gendered style, in contrast, has two aspects which typically co-occur: supportiveness and attenuation"

	Strongly Agree	Agree	Disagree	Strongly Disagree
Agree/disagree	C Strongly Agree	Agree	Disagree	Strongly Disagree

9. End

Thank you for taking part in this study. The aim of this study is to investigate Gender and Language online. If you would like the results of the study forwarded to you when it is completed, or if you have any queries about the study, please don't hesitate to email me at Robert.Griffin@iadt.ie.

My supervisor Dr. Grainne Kirwan can be contacted at grainne.kirwan@iadt.ie