

Determining and Expressing Semantic Meaning in Electronic Mail

Kevin Curran¹ Michelle Casey²
University of Ulster
Northern Ireland, UK

Abstract

Electronic mail and messaging systems are a powerful means of communication. They are fast become a primary means of communication. They are different from other means of communication, for instance the dimensions differ in: speed, permanence of the message; cost of distribution, deliverance to individuals and groups; an ability to filter, channel, record, and control messages. This paper describes the need for expression in electronic mail.

Keywords: Message communication, visual language, expressing emotions.

Introduction

Anyone who has ever sent an electronic message that was misinterpreted does not need convincing that there exists a need to transform the static nature of electronic mail into a more dynamic form that can offer new ways of communicating more effectively.

This provides the background to research that we are conducting into infusing messages with more authentic personality and expression. We hope to interpret the sender's thoughts and convey their emotion and personality through a combination of graphical components, image, and expressive typography. In contrast to the new developing successful language that is rapidly spreading in the use of mobile devices, this personalised e-mail will introduce a visual language that people will acquire in using their e-mails. We present our initial findings from an interactive quiz, where the viewer has to play a series of matching games with words and image in order to derive each user's meanings and interpretations. The quiz investigates the idea of reading words as sentences and the semiotic and linguistic meaning derived from those sentences.

Semiotics

A sign can be a word, a sound, or a visual image. Ferdinand de Saussure, Swiss linguist, (1857-1913), divided a sign into two components: the signifier (the sound, image, or word) and the signified, which is the concept of what the signifier means. The relation between the signifier and the signified is based on personal choice or chance rather than reason. Signs can mean anything people agree that it means, and they can mean different things to different individuals (Moriarty 1994). Studies of meaning derive from semiotics, which is a philosophical approach that tries to, interpret messages in terms of their signs and patterns of symbolism. The study of semiotics, arise

from a literary or linguistic context and has been expanding in a number of directions since the early works of American philosopher, Charles Saunders Pierce (1839-1914), and Ferdinand Saussure (Moriarty 1996). Linguistics is the study in understanding the elements and structure of language; semiotics is broader than just language and includes such sign systems as kinesics or body language, Braille, sign language, and algebra and chemistry. Visual communication can operate, in some sense, similar to a language sign system. The basic characteristics of the language are alike, such as elements, syntax, and grammar. In relation to graphic design, photography, video and film contains subtle sign elements (shots, typography, drawings, etc.) called Semes or Signemes. Syntax structures links between the elements and grammar in the form of typography which use visual or aesthetic codes that carry their own meaning (Sebeok 1991).

Umberto Eco (linguist) argues that the origin of semiotic interpretation goes back in time with hunters and trackers who could read the signs of nature (Moriarty 1994). Charles Saunders Pierce had an approach to understand how people make sense of representations. This approach was called “Abduction” that the meanings of signs are built and concluded by people instead of making, deductive or inductive conclusions. Decoding starts with observing the visual object (perception) and then interpretations conclude through parallel processing. Abduction is found between natural perception and cognitive processing and is made up of both the iconic and indexical levels (Moriarty 1996b).

Language as a spoken and written system

Taking a lead from contemporary linguists, language can be divided into three parts: phonology, grammar and the lexicon. Phonology is the study of sound system that identifies the phonemes that make up peoples speech. Grammar is the order and structure of language. Lexicon is how words within a language are formed and the tracing origins of its vocabulary. In order to get a greater understanding of deriving meaning, language has to be looked at with a greater in depth. The spoken word is the originator of the written language. The spoken system or speech system is referred to as phonetics (Bains & Haslam 2002). Phonetics can be divided into three areas: articulator phonetics, way people create sound; acoustic phonetics, physical properties of sound; and auditory phonetics, people’s perception of sound. Since the spoken system is not direct area to the project it is important not to rule it out it may have an indirect effect. Spoken language consists of phonemes, which have no meaning on their own but when combined in patterns to represent objects meaning is evoked. Example of this is when the letters W/O/R/D/ have no meaning as individuals’ letterforms but pronounced in the English language representation of something occurs. The English language has between 42 and 45 basic phonemes. These phonemes differ according to the country of people’s origin (Bains & Haslam 2002).

In England and America, linguists have developed symbols for the transcription of phonetics. Linguists examine the spoken word use of vowels and consonants different to the written word. Vowels are phonemes that are created with an open voice tract and consonants are created with constricting the voice tract. There is a machine that linguists use to create visual impression of speech called Spectrographs. Focusing more on the written systems in more detail, the clarification of subtle terms is required. Language is often used grouped to mean script (Bains & Haslam 2002). The western alphabet is a script used to record the majority of European

Alphabet. This alphabet was created to reflect the phonemes of English language. Jacques Derrida* a French philosopher argues that ideographic systems are not totally separate to phonetic systems that oppose the Ferdinand de Saussure theory. The letters of the alphabet are phonetic symbols, and are written. Punctuations marks, upper and lower case, italics, bold, and extended forms, expressive trimmings and rules, and spacing between words have no phonetic relationship. These elements are a typographer's glossary. Typography has sacrificed elements such as accent, gender, age, volume, speed, rhythm and geography in order to maintain meaning (Bains & Haslam 2002). (Gill 1988) defines typography as the "reproduction of letters by means of moveable types" In relation to typography, writing informed by deconstruction examines structures that emphasises the invasion of visual form into verbal content, the intrusion of "ideas" by graphic marks, gaps, and differences (Lupton & Thriller 1996).

Meaning

Gombrich' states that reading an image cannot and is not an active event. Gombrich views that a picture works as a visual image of something only after some observer has processed pictorial text and by projecting and adjusting their hypothetical reading. This process of is carried out by three variables: the code, the caption and the context (Gombrich 1996). Reading an image, like the reception of any other message, is dependent on prior knowledge of possibilities; we can only recognize what we know. Words mislead us into thinking that what they are and what they symbolise, are the same. Words nail down meanings where pictures only provide an approximate description. There is a possibility of a mismatch between sign and meaning. Wittgenstein comments on colour (1950-51), and observed that: "When we're asked 'What do the words 'red', 'blue', 'black', 'white' mean?' we can, of course, immediately point to things which have these colours, - but our ability to explain the meanings of these words goes no further" (Fletcher 2001).

Images as Sentences

Another example of people reading images as sentences is on a simple map. The map of the London Under-ground is a reading conventions to link various dots to stations (Charing Cross, Oxford Circus etc) and various lines on the map to railway lines. This map is worth a huge perpetuity of sentences (Philip 2000). A map is associated with reading conventions, which capable map users comprehend. These conventions divide into two: one links the syntactic elements of the map to entities in nature; the other tells people how to connect the properties of the visual display with properties of those entities. The map has certain syntax and the reading conventions attach its semantics. The colours used on a map are properties of the visual display, and the significant reading principle is that differently coloured regions correspond to territories with different political administrations. The main point is that a picture is not a linguistic unit but because a map says a lot of things at once (Philip 2000). In this discussion maps are treated as syntactic objects that receive a semantic interpretation through reading conventions. A map requires a lot of explaining when it comes to identifying the relevant syntactic elements and the significant properties of the visual display. There is a realization that providing official semantics

* <http://www.hydra.umn.edu/derrida/>

for maps and other pictures is a difficult task. But there are similar problems when it comes to the semantics of ordinary language (Casati 1999).

We hope to create a graphic language that has no communication barriers and in order to do this; images must be able to be read in sentences. Early man was reading long before writing dating back to translating symbols on caves walls and deriving information from animal footprint with the intent to track them. Since the change of tracking to scripting people have developed ways of recording thoughts and transferring messages. The Incas used arrangement of strings (quipus), which were in different lengths, colour, thickness and knots to signify something. The Ironquoi in North America stitched tiny shells and beads to compose pictorial messages on their belts (wampum). A difficult concept for people to comprehend is that the spoken word and written sign were completely unrelated before picture punning and the two have become elements with the same meaning as each other in people's minds.

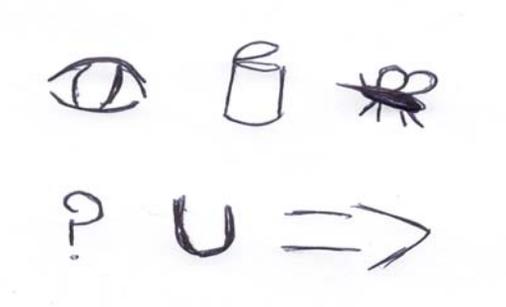


Figure 2. Abstract Thoughts

In Egypt, hierographs were invented, this was where the sounds and names of objects depicted forms of spoken words and this gave rise to punning pictures. One picture or a combination of two, or graphic marks could convey abstract thoughts (Figure 2). The expression of complex ideas was illustrated through comparison and metaphor. Graphic marks could indicate whether something was male or female, singular or plural, etc. Picture punning is said to be the origin of all languages (Fletcher 2001). In relation to the quiz, picture punning will be used to test the viewers understanding of it.

Electronic Mail and Emotion

Electronic mail is becoming the most widely used form of communication today, but is very limited in terms of communicating. The biggest problems in electronic mail are misinterpretation of e-mails and lack of ability to express oneself. A related topic is "flaming," in which emotions are expressed through electronic mail. There is a need to express emotion visually in electronic mail. At the moment emoticons are the only solution to the problem. Emoticons are the smiley icons that can be attached to peoples mail, but are restrictive in terms of expression and if misused they can block communication (Figure 3). Scott Fahlman is the originator for emoticons or "emotional icons". 'Emoticon' is such a grotesque label," Fahlman says. "I prefer 'smiley.' "



Figure 3. Emoticons

In the early stages of electronic communication, misunderstood sarcasm and wisecracks caused a lot of disputes between people, and led to response postings. Fahlman suggested using visual clues to communicate tone of voice. Even Fahlman now relises that emoticons have to be replaced with an improved approach in solving the problem of non expressive e-mail systems. As electronic communication grows more sophisticated, users will no longer rely on strings of dashes and words or sentences to convey their point. "A lot of people ask me whether I expect these emoticons to be around in 50 years," Fahlman says. "I'm amazed that they are around now. Smileys only make sense in an ASCII world. They resulted from ASCII's limitations." To communicate effectively people need more than just words to fully understand, interpret, and validate the meaning of information. The only emotions that do exist in electronic mail are the ones attached to the words. There are no other challenges in contradicting people's perceptions, only the misreading of information. Words are pegs to hang ideas on (Fletcher 2001).

Emotion

According to James-Lange, a sociologist, actions come before emotions and the brain interprets a response. The response may include any or all of the following: perspiration, heart rate elevation, and facial and gesture expression. The person is unaware that they are experiencing an emotion when the response occurs; only when the brain cognitively assesses the science of the normal function is it labelled as an "emotion" (Klein et al 1997). Walter Cannon opposed the James-Lange theory by stating that the emotion is felt first, and then actions follows. In their view, the thalamus and amygdale interprets a situation, which evokes emotion and sends signals to the ANS (autonomic nervous system) and to the cerebral cortex, which then interprets the situation cognitively (Klein et al 1997). Affective Computing is trying to build computer systems that, in their interaction with users, and consider their emotional needs. Computers need to be designed to support users' social and emotional natures. (Reeves et al 1996) have researched this topic and found that people have a preference for praise, particularly in the face of criticism. There has been identified two primary types of emotional needs: what is called "experiential emotional needs," such as the need to feel understood by others, the need for physical and emotional connection

with others; and the second type is "emotional skills" such as empathy and emotional awareness. Emotional skill needs are similar to what Daniel Goleman considers as faculties of "emotional intelligence" (Klein et al 1997). Educational technology could be twisted to construct emotional-skills that enable the users to meet their emotional needs. There are benefits to be made by this development to those with non-verbal learning disabilities, to autistics in need of emotional situation modelling, and dyslexia with difficulties in reading words.

It is a difficult thing to convey emotion in an email. People frequently get in trouble for typing exactly what they would say out loud. Without the tone of voice to signal their emotion, misinterpretation is easily made. People cannot make your voice higher or lower, louder or softer to denote emphasis, there are changes that can be made to typography and image to convey vocal pitch and emotion. (Gill 1988) argues the principle of phonography, as the common form of writing that people should write the way they speak. This way, the writing is a logical representation of speech.

A Visual Language System for Conveying Emotion

Semiotics involves the study of "signs". Signs take the form of words, images, sounds, odours, flavours, acts or objects, but such things have no essential to the basic nature of meaning and become signs only when people invest them with meaning.

A quiz was devised in order to derive peoples meaning from words and image as well as keeping the viewer stimulated and intrigued by the interactive interface. It gives an account of the purpose of this quiz, what information is to be gathered from the quiz, what the viewer will gain from their experience, and what essential design aspects are gone into the creation of the quiz. The viewer is required to click on words and the corresponding images that they think applies. The viewer's choices will be recorded, and they themselves are being timed, so at the end of the quiz there score and time is revealed. In the cases of the viewer being "officially" correct it is acknowledged by the highlighting of both words and image. If in the unlikely case of an error occurring there is an error prompting mechanism. The viewer will also have an option to leave a message on the guest book. The quiz itself is an experimental apparatus in researching the idea that people can comprehend arrangement of visuals and adapt to a new graphical language in expressing their emotions. The format of the quiz is CD-ROM based and web if necessary. In considering the previous research, that visual communication can operate, in some sense, similar to a language sign system. It is felt that the design layout of the interface will play a big part on the viewer's navigation choice. To avoid confusion and background interferences the design layout will be simple but articulate.

Keeping in mind the simplicity of the design layout, the colour scheme remains mostly neutral to avoid excess colour in evoking separate emotion. The special environment is replacing buttons and click menus to allow the user to access the subject matter intuitively. The interface offers simultaneity of accessing information by analytical category and by emotional approach that is based on visual stimulation. The interface will also take the printed based, static typography and make it a dynamic form that can offer new ways to interpret verbal information visually. The visual and navigational structure of the interface emphasises the role of the experimental as a tool of intervention. The user is expected to change or reassemble their method

of reading as they move from the expected to the unexpected. There are three main areas explored in the quiz, corresponding type and image according to meaning, reading images as sentences and deriving the meaning from expressive typography.



Figure 4. Quiz Screenshot

Black was chosen as a background colour for less confusion. Alan Fletcher states that; “All colours agree in the dark”. The above interfaces is the intro to the quiz, it is an assembly of letters that read “the task is experimental”, these letters merge into the above design and then into the main interface.

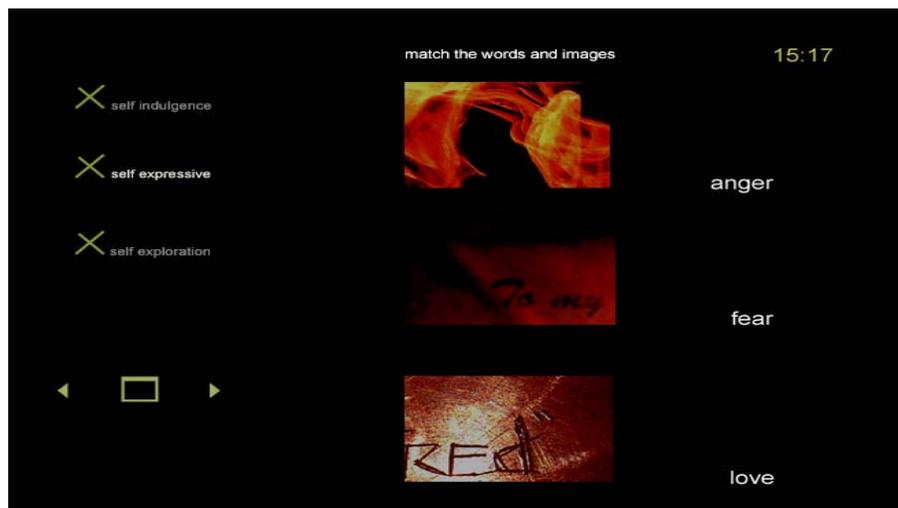


Figure 5. Quiz Screenshot

There are three main areas explored in the quiz, corresponding type and image according to meaning, reading images as sentences and deriving the meaning from expressive typography. These areas are illustrated through three categories, self-indulgence, self-expressive, and self-exploration. The first section is where the viewer has to match words and corresponding images. When they become successful the image and word will highlight. There is a constant clock present along with navigation aids to direct the viewer forwards and backwards.

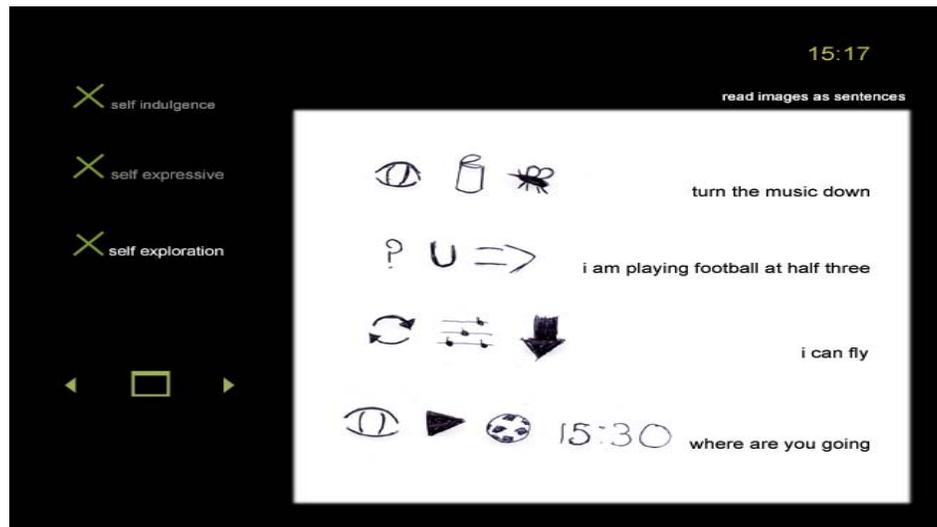


Figure 6. Quiz Screenshot

This interface also requires the viewer to read the images as sentences and match them with the provided meaning. In recapping, part of this article describes the creation of an interactive quiz which acts as primary research for the final idea, with a purpose to derive peoples meaning from words and image as well as keeping the viewer stimulated and intrigued by the interactive interface. The viewer will gain a complete enjoyable and educational experience, and at the same time feel unaware of being assessed.

Evaluation

The word Quiz was not used in the interface and this seemed to have a positive effect enabling the viewer to feel more relaxed and less edgy about been experimented with. In the word punning exercise, after a few visual word puns most users began to complete the exercise more successfully. Sometimes the viewer got stuck on the question mark symbol but understood it represented either: Where, When, What, Who, or How. The results in the database revealed that in the matching the corresponding image and emotion section the colour of the image and the aesthetic qualities played a sub sequential part in the final results. Images in the colour red seemed to evoke the emotions anger, love and fear depending on the viewer. That find left the question to weather or not people made their choice based on their past experience with the colour or could design aspects resolve this problem example the use of visual annotations. The typography section had interesting results, when the viewer was presented with the words “Dear john” in different formats and style of fonts (serif, sand serif, etc) the majority choice was the dynamic typography (A) and the reason was that it was more evocative (fig 5). Choice (B) and (D) where joint second and the reason drawn from this was that serif fonts were preferred when addressing someone by their name.

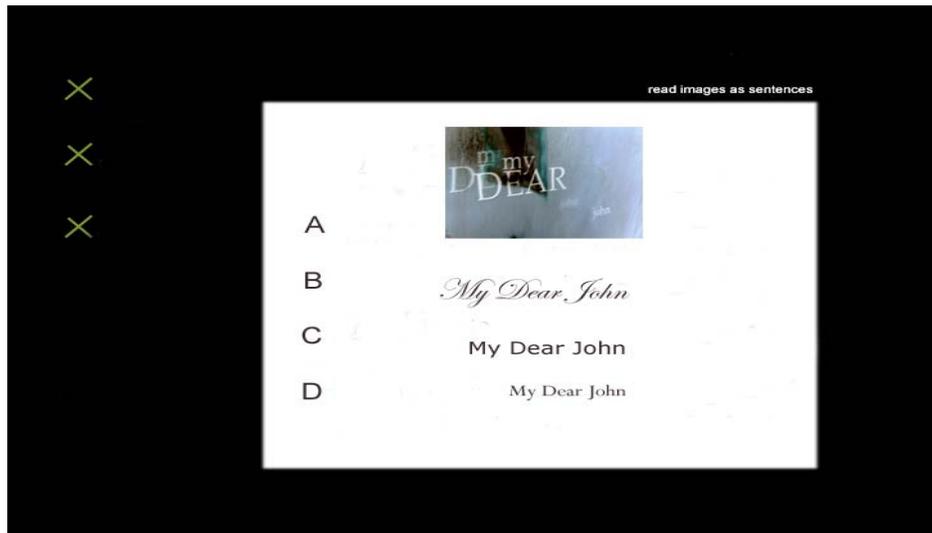


Figure 7. Topography Section of Quiz

This project intends to bring emotion to electronic mail systems. Affective Computing is trying to build computer systems that, in their interaction with users, and consider their emotional needs. Computers need to be designed to support users' social and emotional natures. (Reeves 1996) have found that people have a preference for praise, particularly in the face of criticism.

Conclusion

Electronic mail is becoming the most widely used form of communication, but is limited in terms of communicating. This research attempts to transform the static nature of electronic mail into a more dynamic form that can offer new ways to interpret verbal information visually. The key area of this research is determining the semantic meaning and provides means of expressing it. Relating the mapping system to the idea of reading images as sentences supports the main concept. People are able to read symbols even when they have a social responsibility, example road signs. Pictures can say many things at once. The adoption of annotations to electronic documents is relevant to this project and will help to express and bring personalisation to electronic mail. There is a realisation that the use of colour will have a big impact on the project and will have to be used with caution. The results provide confidence that this personalised e-mail will introduce a visual language that people will acquire in using their e-mails.

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¹ Dr. Kevin Curran is a lecturer in Computer Science at the University of Ulster in Northern Ireland. He has published over 200 research papers to date in the field of distributed computing especially emerging trends within wireless ad-hoc networks, dynamic protocol stacks and middleware. Dr. Curran can be reached at: School of Computing and Intelligent Systems, Magee College, Northland Road, Londonderry, BT48 7JL, UK. Email: kj.curran@ulster.ac.uk; Phone: +(44) 2871-375565; Fax: +(44) 2871-375470.

- ² Ms. Michelle Casey holds a Master of Science degree in Computing and Information Systems from the University of Ulster, UK. Her research interests include semantic meaning, middleware and the WikiWikiWeb.