ISSA Proceedings 1998 – Is It A Monologue, A Dialogue Or A Turn In A Dialogue?

1. Introduction

This paper is motivated by two concerns, one theoretical and the other rather more practical. The former regards the status of monologue, and in particular, persuasive monologue. Argument analysis frequently focuses upon dialogue – either by designing systems of exchange and incurred commitment, (e.g. (Hamblin, 1970), (Walton and Krabbe, 1995)) or by viewing apparently monologic argument as an "implicit dialogue" between writer and imaginary foe (Eemeren and Grootendorst, 1992). Yet despite the great abundance of persuasive monologue (examples are offered by advertisements, editorials, political addresses, theses and academic papers, amongst others) there seems to be little recognition of the status of monologue as a distinct medium for argument. If such a status is granted to monologue, then the hazy distinction between monologue and dialogue requires careful investigation.

The second concern forms a component of recent work which has focused upon the design of a computational system for generating text (Reed, 1998), (Reed and Long, 1997). This system aims to generate the structure of coherent, persuasive argument – monologic argument. Determining a reasonably rigorous definition of persuasive monologue is thus a prerequisite of establishing the functional remit of this system.

The discussion is based upon ideas presented in (Reed, 1997), and those offered in reply by Vorobej (1997), and is divided into four sections: the first three characterise persuasive monologue on the basis of its aims, physical situation and internal structure; the fourth then points out some common misconceptions of what comprises monologue, which are then rejected on the basis of the three preceding sections.

2. Aims of Persuasive Monologue

The aims of persuasive monologue (and indeed persuasive dialogue as well) fall into three groups. Firstly, to alter the beliefs of either the hearer (e.g. a letter from one academic to another discussing some matter upon which they disagree),

a particular audience (e.g. an academic paper presented at a small, focused workshop), or a general audience (e.g. an article in *Scientific American*). As discussed in (Perelman and Ohlbrechts-Tyteca, 1969), the difference between the constructs *particular* audience and *general* audience is used in defining the distinction between persuasive and convincing argument. The further distinction between particular audience and single hearer (which in the work of Perelman and are conflated) is important for determining an appropriate level of confidence in the model of the hearer (broadly, that a model of a single hearer is likely to be more reliable than a less specific model which abstracts the beliefs of an entire audience). It is often not transparently obvious who the intended audience is in any given situation – in the debating chamber, for example, the speaker has one or more opponents to whom she is supposed to be addressing herself – the primary aim of her discourse, however, is to change the beliefs of the nonparticipatory audience. This form of 'misdirection' is very common in monologue, especially in those examples where a particular position is being attacked. Other permutations are rarer, but one could imagine a scenario in which a monologue was addressed to a general audience and yet the speaker hope only to influence the beliefs of some particular subset of that audience. It should also be noted that Perelman's terminology is a little misleading, for under the heading of 'altering belief' is included more than just persuading and convincing, viz. shedding doubt, confusing, confounding and dissuading. Often, a speaker's 'best hope' may be to persuade, but would settle for simply reducing the audience's certainty in their belief.

Changing the beliefs of an audience is not the only – or even the most common – aim of persuasive discourse. For although most such discourse is constructed in such a way that it *appears* that the speaker's aim is to influence belief, in point of fact, orators frequently "aim principally to alter behaviour, generate enthusiasm, or create feelings of various sorts (guilt, pleasure, solidarity), rather than alter beliefs." (Vorobej, 1997, p2)

The second type of monologue aim, then, involves changing hearer behaviour. As with discourse aimed at altering belief, that concentrating on changing behaviour can be aimed at an individual, a particular audience or a general audience, and has similar scope for 'misdirection'. Indeed the similarities between epistemic and behavioural change are very great, since commitment to action can be defined as propositional belief (Walton and Krabbe, 1995) (though as Walton and Krabbe point out, p15, such a relationship may break down if commitment is incurred by

an unstructured, heterogeneous audience). It is useful to class these behavioural aims distinctly, because the arguments which service them often involve characteristic reasoning patterns and stylistic constructions.

The third and final group of aims of persuasion are emotive in nature, engendering particular feelings in the audience (- notice that Vorobej's 'generating enthusiasm' can be classed either under this head if it is undirected, or as a behavioural aim if it is directed towards a particular action). This sort of manipulation is unlikely to meet with acquiescence from the audience were it blatant, hence the common technique of building a façade that a monologue's aim is to alter belief. There is a wide variety of emotive aims which can be fulfilled through persuasive monologue, which, in addition to Vorobej's list, include impressing the audience, inducing fear or shock, and causing amusement through humour or wit, (and of course, these are far from mutually exclusive). Despite this wide range of characteristic aims – both epistemic, behavioural and emotive – together they distinguish between persuasive discourse and the other argument forms listed in (Walton and Krabbe, 1995), (but note that the use of persuasion monologue to alter behaviour clouds the distinction slightly between persuasion and deliberation – this situation can be remedied in part by consideration of the action-oriented nature of deliberation and its typical use of means-ends reasoning). The aims alone, however, fail to distinguish between persuasive monologue and persuasive dialogue. This distinction rests in part on the physical situation in which the argument is conducted.

3. The Context of Persuasive Monologue
As discussed in more detail in (Reed, 1997), O'Keefe's (1977) proposal that the term *argument* should be divided into the argument1 – "something one person makes (or gives or presents or utters)" – and argument2 – "something two or more persons have (or engage in)" is enlightening in that it highlights the distinction between seeing an argument as a process on the one hand and as a product on the other. From an NLG perspective, this is a particularly important distinction to recognise since although monologue is generally viewed (e.g. implicitly by O'Keefe) from the argument-as-product stance, the creation of a monologue from a set of beliefs and goals is necessarily a process. And, crucially, the process of creating a persuasive monologue is assumed to be complete before it is uttered to an audience. Vorobej voices concerns that although a persuasive monologue may not admit linguistic response from the hearer, there may nevertheless be nonverbal indication of a monologue's reception. He thus

distinguishes *veiled persuasive monologue* – *"where there is no possibility of any physical, verbal, or symbolic contact between the audience and the speaker"* – *from face-to-face persuasive monologue* – "where the audience is verbally silenced, but may symbolically interact with the speaker in other ways." (Vorobej, 1997, p3). In a computational setting, such 'face-to-face' persuasive monologue is difficult to envisage, since the channels for non-linguistic communication would have to be expressly designed and built, but it is important nevertheless to emphasise that the computational model in (Reed, 1998) assumes that no modification to the monologue plan occurs after realisation of that plan has commenced. To permit such run-time modification would be to re-introduce almost all of the problems of a full dialogue system – indeed it could well be argued that the scenario represents an – albeit impoverished – dialogue. (Furthermore, eschewing the generation of face-to-face monologue also side-steps Vorobej's criticisms concerning the claim in (Reed, 1997) that the potential for true retraction – a defining feature of persuasive dialogue – is absent in persuasive monologue).

The physical situation and involvement of the hearer also forms one facet of the distinction proposed by Blair (Blair, 1997) between *fully-engaged* dialogue and *non-engaged* dialogue. In examples of the former, "what is supplied by each participant at each turn is a direct response to what was stated or asked in the previous turn", p5.

In contrast, the interlocutors in a non-engaged dialogue "take up the same topic, defending (apparently) incompatible positions on it, but they do not interact directly with one another … Even where they interact, each side chooses which of the views of the other side it wants to attempt to refute and which of its own claims it wants to support, and is not forced by questions or challenges from the other side to address the issues that other side deems important.", p8. Clearly, Blair too conflates into his second category the limited interaction available in Vorobej's face-to-face monologue with the absolute absence of interaction in veiled monologue. However, the key distinction between fully-engaged and non-engaged dialogues, Blair maintains, is not the physical situation, but the permitted complexity of each turn in the dialogue. He identifies thirteen levels of complexity: at the level of greatest simplicity are question and answer dialogues in which the questions are designed to elicit yes/no answers, and the respondent may only answer yes or no. At the next level of complexity, questions may elicit single propositions. The third level allows an admixture of these two (and is

characteristic of Plato's *Dialogues*). The next level, Blair proposes, is in a separate class, whereby the proponent can offer simple arguments, and the opponent can question the propositions or inferences employed in those arguments. At the next level of complexity, more than one simple argument is permitted. At level six, the opponent is allowed to offer arguments for his doubts. At level seven, the roles of proponent and opponent are allowed to fluctuate dynamically. Level eight again represents a new class, in which arguments can be chained (with supports for support). At the next level, the length of these chains is unrestricted. At level ten, more than one line of argument can be put forward at each turn, and at the next level, multiple lines of argument each of arbitrary length are permitted. Level twelve again enters a new class, where refutations of opposing arguments may be offered. Level thirteen, the most complex, represents the combination of twelve and eleven.

It seems, however, that such an approach is characterised on the basis of the result of the process rather than on the *process itself*. Blair's 'level-thirteen complexity' is characteristic of non-engaged dialogue precisely because it comprises the most appropriate forms of reasoning for the process of such dialogue to employ.

4. The Structure of Persuasive Monologue

Persuasive monologue is composed of two forms of reasoning. Firstly, the intuitive 'case-building' of presenting arguments in support of the thesis. Premises are supported by subarguments, which themselves are further supported, and so on until basic premises are reached which fulfil one of three conditions:

(i) the speaker believes them and has no further information available with which to support them;

(ii) the speaker believes the hearer believes them (irrespective of whether the speaker herself believes them);

(iii) the speaker believes the hearer will accept them without further argumentation (even though, as far as the speaker's model of the hearer goes, he doesn't currently believe them).

Without opportunity for the speaker to defer supporting argumentation until prompted by her audience, this case-building is clearly essential. Furthermore, the speaker will often employ multiple chains of support – not because she believes that one particular line of support is insufficiently strong, nor even

because she assumes that the hearer will find one line of support weak. Rather, she is 'hedging her bets' – given the fact that the hearer model is assumed to be imperfect, it may turn out that a premise assumed to be acceptable to the hearer is in fact rejected, and in such a situation, auxiliary arguments may become vital.

Secondly, there is the more complex technique of presenting counterarguments to the thesis propounded, and then offering arguments which defeat those counterarguments. One example of accomplished use of the technique is Turing's (1950) *Computing Machinery and Intelligence* in which he proposes that human intelligence is theoretically and fundamentally reproducible in a computer, and goes on to counter nine common objections from various philosophical, theological and intuitionistic viewpoints. Each counterargument is aimed at a different hearer, the theological to the theologian, etc., and is constructed precisely for that hearer. Thus the theological objection is countered from theological premises, which Turing indicates he considers dubious at best (– to paraphrase, the objection is that humans are the only beings upon which God confers a soul, and the counter, that this impinges upon His omnipotence, inasmuch as He should be able to confer a soul upon anything).

Turing also explicitly identifies the two components of monologue which appear in his paper (the counter-counterarguments and the case-building):
"The reader will have anticipated that I have no very convincing arguments of a positive nature to support my views. If I had I should not have taken such pains to point out the fallacies in contrary views. Such evidence as I have I shall now give …" (p454)
Turing thus claims that the counter-counterarguments he has presented would not be required if he could offer unassailable arguments for his thesis, and indeed this seems to be generally the case: counter-counterarguments play an ancillary role to the more central case-building argumentation (Reed and Long, 1997). Again, however, counter-counterargument represents an appropriate strategy for the process of creating non-engaged dialogue: without the opportunity to deal with counterarguments if and when an opponent tables them, a speaker runs the risk of losing the hearer. If the hearer believes he has a valid counterargument for some claim in the speaker's monologue, he may conclude that – regardless of the content of the remainder of the monologue – the speaker's argument is flawed (and therefore not worthy of any further attention). By anticipating and countering as many counterarguments as possible, a speaker improves the likelihood that a hearer will remain unbiased to the end. This claim is supported

by noting that in the Turing example, which argued on a very emotive and contentious issue, his own arguments came *after* his long list of the various counter-counterarguments.

Thus rather than defining monologue from a product-oriented stance (as Blair does), a more incisive approach is to offer a definition from a process-oriented stance. Using multiple lines of reasoning, for example, is not simply the defining feature of 'level-five complexity' -rather, it is a technique employed in response to situations in which the speaker is aware of her imperfection in modelling the hearer and wants therefore to maximise the likelihood of her thesis being accepted through utilisation of a whole battery of support. Considering only the product of argument leaves any definition susceptible to weakness since no such product can be a true record of the argument -the context will have been lost, and with it, the information necessary to perform classification. The importance of context (a process attribute) can be demonstrated by considering the problems with Blair's scale of complexity. Employing counter-counterarguments, he claims, is at the highest level of complexity (i.e. at the furthest 'solo argument' end of the scale). Somewhat less complex is the use of multiple chains of support; less complex again, single lines of support; and much less complex again, single argument units. However it is perfectly possible to envisage a persuasive monologue (i.e. a non-engaged, solo argument such as a letter-to-the-editor) which employs nothing more complex than a single argument unit. Equally, it is possible to imagine a debate -involving true engaged argument – in which the first question from the floor involves counter- counterarguments and multiple lines of support. Thus the scale of complexity does not seem to coincide well with a scale ranging from monologue to dialogue. Indeed, the text of either of the previous examples could be found in situations characterised as either unequivocally solo or unequivocally duet argumentation. In order to distinguish monologue from dialogue, then, it is essential to examine the physical and cognitive context in which the process of argument occurs.

Blair's complexity hierarchy also suffers from another problem in the way in which it implicitly characterises monologue as subordinate to dialogue. The hierarchy discusses the complexity of an individual turn; when that complexity reaches a sufficiently high level, the result can be termed a monologue. However, it seems inappropriate to class a monologue as an extended turn in dialogue, and the reason again turns upon consideration of the process of creating the

argument. For that process is not constrained by what the opponent has previously uttered, it has no (external) concept of 'local thesis' or 'current topic', and is not in any way constructed from rules of some super-system. It also makes many more assumptions about the beliefs of the hearer, as monologue is not afforded the opportunity for maieutic elicitation of those beliefs. The speaker is obviously aware that these assumptions concerning hearer beliefs (and attitudes – scepticism, bias, etc.) are not verifiable, and as a result, makes rather more careful use of them, perhaps placing less reliance (or less obvious reliance) upon them than she might in a dialogue, where oversights or carelessness can be addressed at subsequent turns. A speaker recognises that a monologue is a one-shot deal, and that no extra explanation or backtracking can be performed if she misjudges the hearer is some respect. Monologue, then, is constructed with rather more diligence and with greater consideration given to its reception by the intended audience than is a turn in dialogue which is generally more forgiving due to the inherently dynamic nature of its environment. This distinction clearly relies upon examining the process of monologue, and taking into consideration the various contextual factors. For the resulting product could then not only be analysed as a dialogue turn, but could in fact function as a turn in dialogue – a good example is that offered in both (Reed, 1997) and (Blair, 1997) of an academic paper followed by a published criticism: each is constructed as a monologue but can be retrodictively analysed as a turn in dialogue (and indeed this is the thrust of the second half of Blair's paper). The fact that the monologue product is functioning as a turn in dialogue in no way alters the fact that the process was one of monologue (with the various contextual expectations mentioned above) rather than one of constructing a turn in dialogue (which would not have had those expectations). Again, the same piece of text could be the result of the process of monologue in one situation and the process of creating a turn in dialogue in another. So again, identification of monologue relies upon an analysis of the process by which the text was created and the contextual factors thereof.

5. Things a Persuasive Monologue is not

The assumption that monologue is the same as a turn in dialogue is one of the most common misconceptions regarding its nature. This is demonstrated by the fact that it is held not just in argumentation theory, but also in other areas, including computational research (e.g. (Fawcett and Davies, 1992)). It is not the only such misconception, however, and mention of several others will bring this digression into a definition of persuasive monologue to a close.

Monologue is not simply a record of a line of reasoning entertained by the speaker to reach some conclusion for her own benefit. For a persuasive monologue has an aim – to alter the beliefs, behaviour or emotions of an audience, and to this end, makes careful use of the hearer model. In contrast, the reasoning processes of the speaker are neither hearer sensitive nor directed towards affecting the beliefs of anyone but the speaker. Similarly, the vital role played by consideration of the hearer's beliefs means that monologue is not soliloquy. The fact that persuasive monologue is constructed around the aim of affecting the hearer is termed by Vorobej the 'intention condition'.

Monologue is not an account of an internalised dialogue between the speaker and the speaker's model of the hearer – or between the speaker and some other conflicting model maintained by the speaker (such as a devil's advocate position). This is a particularly strong claim to make, since many authors agree that any argumentative text – whether monologic or dialogic – can be analysed as an 'implicit dialogue'. The point is made by van Eemeren and Grootendorst:

"Argumentative discourse can, in principle, always be dialectically analysed, even if it concerns a discursive text that, at first sight, appears to be a monologue.… A speaker or writer who is intent on resolving a dispute will have to take just as much account of implicit doubt about his standpoint as of doubt that has been expressed explicitly. His argumentative discourse is … part of a real or imagined *implicit discussion*" (Eemeren and Grootendorst, 1992) pp42-3.

Similarly, Freeman (1991), extending original ideas discussed by Toulmin (1958), suggests that precise implicit questions give rise to the various types of argument structure (viz. divergent, serial, convergent, linked) – the relevance question, 'why is that relevant?', causing the further premises to be adduced in a linked structure, and the ground adequacy question, 'can you give me another reason?', causing convergent structure, etc. (Freeman, 1991, pp38-9).

There is, however, a crucial difference between the process of dialogue and the process of creating a monologue, an explanation of which requires the identification of two subsets of a speaker's beliefs. Firstly, the set, S, of beliefs pertaining to propositions the speaker herself holds to be true. And secondly, the set, Hm, of beliefs the speaker believes the hearer to hold. There are two relevant facts about these sets: (1) S -> Hm can be either consistent or inconsistent; (2) Hm can be either a perfectly accurate model of the hearer's true beliefs (in the current arena of discussion) or can be flawed.

In a dialogue in which the hearer model is imperfect, the speaker will need to

detect the success or failure of her actions and perhaps re-plan subsequent parts of her argument if appropriate. She will also have the opportunity to dynamically update Hm at each turn. In situations where S _ Hm is inconsistent, the speaker may make errors -this might be characterised as the speaker not having 'thought it through'. In other words, she is aware of hearer beliefs which contradict her own, and yet which she has not yet dealt with (either by creating arguments which defeat those beliefs, or by retracting some of her own beliefs). This seems to be a common situation given the fact that significant cognitive resources may be required to assimilate a hearer's complex belief set -especially as the model is continually changing throughout a dialogue.

In the case where the hearer model is perfect and S -> Hm is consistent, a bizarre dialogue may ensue, in which the speaker will (a) be able to completely predict each hearer response (except perhaps the order in which they are given) and (b) be able to predict with absolute certainty the effect of her utterances. Any dynamic aspect is lost, and it is thus extremely difficult to imagine any real world dialogue in which this could happen. Given the complete absence of any dynamic flow, it would be perfectly possible for the hearer to offer her entire argument in a single turn. Or, to put it another way, the dialogue could be recorded and every utterance of the hearer discarded, leaving only the speaker's utterances. If such a dialogue were to be internalised and conducted between the voice of the set S and the voice of the set Hm, then we have the the process of monologue. Hm is obviously perfect in this process, since Hm is acting as a model of itself – the dialogue at this stage is being conducted between Hm and S. This process can indeed be seen as dialogic, but with the caveat that such a dialogic characterisation is one which differs importantly from real world dialogue, since Hm is perfect. Notice that it is not claimed that a real world dialogue simply *couldn't* be held between a speaker a a hearer of whom the speaker has a perfect model. Rather, such a dialogue (a) is very strange and (b) could be used to create a monologue to convince the same hearer.

The is also one further permutation for consideration: a perfect Hm but inconsistencies between Hm and S. Such a scenario is very similar to the real process of creating an extended monologue – one in which the speaker changes their mind part way through and changes what she already intended to say because she realises that the hearer could offer a counterargument (for example). This permutation seems, therefore, to be a component of the process of

generating a complex monologue. Importantly, however, it is not a phase which can be inferred from the final structure of that monologue. For the final monologue product will not involve any retraction on the part of the speaker. Similarly, a dialogic analysis of the creation of the monologue will also not involve any retraction – it will appear as though it was constructed using a perfect Hm and consistent set S -> Hm. By way of example, consider the simple example in Figure 1. Figure 1 (a) shows the process employed to create the monologue – the inconsistency between the sets S and Hm manifests itself as a retraction by S at S5. The final monologue might run as in (b). An analysis of the monologue in (b), however, would run something like (c), in which there is no retraction on the part of S because the sets S and Hm are consistent.
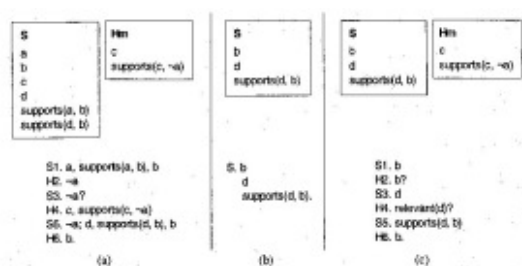

Figure 1: Sample process, (a), product, (b), and analysis, (c) of monologue

The 'pure' process of monologue (i.e. the process determined through analysis of the product, such as Figure (c)) can thus involve no retraction – that is, a speaker cannot directly assert a proposition and its negation within a single monologue. This fact further underscores the difference between the dialogic process involved in creating monologue and that occurring in real world persuasive colloquy, for the latter is usually characterised by the presence of the potential for retraction – without this potential, there would be no hope of one party successfully changing the beliefs of another (Walton and Krabbe 95, p10). (It is noted however, that there are situations in which it would be possible to have a dialogue, with one party – even the speaker – refusing any retraction: Vorobej offers an example of discussing Catholicism with the Pope (Vorobej, 1997, p6). It is clear however, that such dialogues represent rather unusual examples of persuasive discourse).

This absence of retraction in monologue is also true in instances where the monologue actually voices some of the Hm counterarguments generated during

the internalised dialogue between S and Hm. This generally occurs where the speaker wishes to offer counter-counterarguments (as discussed above), and needs to make the counterarguments clear in the first instance. At no stage in the 'pure' process does the speaker perform retraction – to do so would render the monologue incoherent and irrational.

In summary then, a definition of persuasive monologue requires first to distinguish the process of monologue from the resulting product, since the latter has no intrinsic indicator of whether it is monologue or a turn in dialogue. The distinction rests entirely on the various factors which form the context of the process, such as the speaker's expectations concerning potential for recovery from various communication failures, the precise aims of the discourse, the amount of time allotted for preparation and of space for presentation, the possibility for and frequency of hearer model update, etc. The intrinsic structure of the argument is unable to determine absolutely, but can contribute to the distinction since certain forms (in particular, those that are highly complex) are characteristic of monologue, whilst others (those that are less complex) are characteristic of dialogue turns – due to contextual pressures. Furthermore, any monologue or turn in dialogue can be analysed dialogically. The dialogic process involved in creating monologue, however, differs importantly from usual real-world dialogue in that the speaker's model of the hearer position is perfect, and as a result, the speaker is never led to retraction.

These features can be employed to frame the objective for an artificial system which is to generate persuasive monologue. This characterisation has a number of computational ramifications. Firstly, the process of generating a monologue operates in a certain, predictable environment. The speaker plans the monologue by considering the simulated effects of the actions on a simulated model of the hearer's beliefs within the speaker herself. Within this internal environment of the speaker's beliefs and simulated hearer's beliefs, the planned utterances forming the monologue have predictable effects (even if those effects model the expected variation in responses of a hearer, the model will rest on a representation of the specific range of variation). By exploiting an internal environment the speaker avoids the need to interact during the planning process and therefore is not bound by the constraints of social verbal interaction at that time. Thus, the resources available during the planning process are far less constrained than during dialogue. Often the plans themselves are less rigorously bound by resource

constraints during execution. Lastly, focus is entirely under the control of the speaker and plans which direct it very carefully between successive elements of a monologue are typical.

6. Conclusions

This paper emphasises the need for an approach to the analysis – and automatic synthesis – of monologue which is clearly delineated from techniques in which the focus is upon dialogical structure.

The discussion involves two key claims which at first sight may appear to be at odds. In the first place, for a given interlocutor, monologue and dialogue are fundamentally different: a significantly different set of constraints affect the creation of a monologue from those active during a dialogue. Equally though, monologue and dialogue (or, more precisely, a turn in a dialogue) have no intrinsic differences: analysing the structure of an argument alone cannot suffice to distinguish one from the other. These two claims are not at all inconsistent. That the *process* by which an argument is developed differs between the two forms does not entail that the *product* necessarily differs.

It is argued that although monologue can be analysed as an implicit dialogue, the dialogue reconstructed in this analysis is of a peculiar kind – one in which no retraction is evident. A monologue is thus not best described as an account of an internalised dialogue, since that dialogue does not involve the characteristic dynamics of dialogue in the real world.

The characterisation of persuasive monologue and its relation to dialogue and turns in dialogue is not complete: it is still not clear, for example, how best to characterise the scalar transition from true dialogue turns to true monologues. Nevertheless, the individuation of monologue, dialogue and dialogue turns, the identification of role the role played by the contextual situation in which the argument is constructed, and the analysis of persuasive monologue, have together provided not only a basis from which to explore these ideas further, but also a framework for the automatic construction of persuasive monologic argument.

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ISSA Proceedings 1998 – Learning Of Argumentation In Face-To-Face And E-Mail Environments

1. Introduction

Recent studies (e.g. Littlefield 1995; Marttunen 1997) have shown that learning environments based on interaction and debates between students are beneficial when the aim is to promote students' argumentation and critical thinking skills. However, learning environments that support this objective are quite rare in Finnish higher education. Previous studies (Steffensen 1996) concerning higher education in Finland have indicated that the typical Finnish student lacks both a critical attitude towards knowledge and a willingness to engage in critical discussions on the study contents. Similar results are also reported by Mauranen (1993) and Hirsjärvi, Böök, and Penttinen (1996), who found that the students in a Finnish university seminar hesitated to criticize each others' opinions or that of the teacher, who was experienced as an authority whose views should not be called in question. Finnish students' argumentation skills have similarly proved poor (Marttunen 1997), and for this reason, especially when they were approaching the end of their studies, students have sometimes found it difficult to participate in seminar debates (Laurinen 1996). Hence, more such learning environments and study methods that activate the students in mutual dialogue and argumentative discussions of the study contents is needed in Finnish higher education.

The development of new information technology, such as electronic mail (e-mail), has facilitated communication between people. Recent studies (e.g., Ruberg, Moore & Taylor 1996) have also indicated that e-mail is effective in establishing interaction between students. E-mail as a communication medium includes many features that facilitate person-to-person communication. First, e-mail discussions are asynchronous (time and place independent) in nature, which makes it possible for one to write and read e-mail messages at any time convenient to him/her. Thus, e-mail working can also be easily integrated with working that presupposes simultaneous presence at certain time and place. Second, e-mail has been characterized as a "democratic" medium that allows various kinds of people regardless, for example, of their race, looks, occupational status, and level of education, to participate in interaction on an equal basis. When communication is textual and the participants do not see each other it is not so difficult to put over one's own points of view as it may be in face-to-face situations. Third, the informal nature of e-mail language also makes it easier for one to put forward opinions and arguments: a typical feature of e-mail culture is that the texts do not have to be

carefully revised, but it is enough that the writer's thoughts are delivered to other people. However, when e-mail is used one has to formulate his/her thoughts into written text, which makes the message more considered than in the case of spoken language.

This article describes a teaching experiment in which academic argumentation was practised in a university course. The course was carried out at the Department of Education in the University of Jyväskylä, Finland, during the spring term 1998. The learning of argumentation by e-mail has previously been studied (Marttunen 1997) at the same department. The results of this earlier project indicated that the level of argumentation in students' e-mail messages improved as the e-mail discussions proceeded. Thus, the study suggested that e-mail can be regarded as an appropriate medium for developing the skills of argumentation. The main deficiencies of the previous study were, first, the lack of a comparison group in which argumentation skills would also have been practised in a face-to-face situation. Second, the actual teaching intervention in the e-mail study experiment was quite slight: the students were not taught argumentation in the strict sense, but merely carried out argumentative group discussions with the help of e-mail.

The current study builds on the results and experiences of the previous project. First, argumentation was practised in both face-to-face and e-mail environments. This makes it possible to compare the nature of textual e-mail and oral face-to-face argumentation. Second, the teaching of argumentation was especially emphasized in the course: two lectures on argumentation were included in the course, four different working methods (free debate, problem-solving discussion, role play, and panel discussion) were used in organizing students' argumentative seminar discussions, and students performed preliminary exercises with authentic texts before the seminars. The results reported in this article concentrate on the description and comparison of the appropriateness of the different working methods in teaching and studying argumentation in face-to-face and e-mail environments.

2. Method
2.1 Subjects
The subjects (n = 49) of the study, 40 women and 9 men, were students of education who were in the later stages of their academic studies. The majority (42/49) of them were actual students of the university, while 7 students studied in

the Open University. Three teachers, who all belonged to the faculty of the university, also participated in the study.

2.2 Learning material

Studying in the course was based on the learning material that consisted of argumentative writings taken from newspapers and periodicals, as well as scientific texts. The material was divided into 7 text packages based on four educational themes: 1) Sex roles and equality in education (2 packages); 2) Discipline problems in school work: causes and proposed solutions (1 package); 3) The compulsory teaching of Swedish in school (2 packages), and 4) Physical punishment as a child-rearing method (2 packages). The main reason why these educational themes were chosen was that it was supposed that they would readily arouse conflicting opinions among the students, and thus, effectively bring about argumentative discussions. Each text package also included exercises in argumentation, the purpose of which was to practise the students' skills in analysing argumentative texts, and in this way also prepare them beforehand for the seminar work.

2.3 Design of the study

The study was quasi-experimental in nature (Campbell & Stanley 1963). The subjects were divided into four experimental groups (n = 27), and to a control group (n = 22). The experimental groups were named face-to-face group A, face-to-face group B, e-mail group A, and e-mail group B. The groups were matched so that both men and women as well as young and older students were represented in each of the groups. The students of the experimental groups studied argumentation during a ten week course, while the students of the control group did not engage in argumentation studies. Before the course all the subjects took part in a pretest, and after the course, in a posttest. The tests measured the level of the students' argumentation skills. The design of the study is shown in *Table 1.*

Table 1 The design of the study

2.4 Learning environments

During the ten weeks of study, the students of the experimental groups practised

argumentation by engaging in argumentative discussions on the basis of the course material. The central aim of the discussions was to develop the students' academic discussion and argumentation skills.

The discussions in the *face-to-face groups* were real-time and oral in nature. Eight seminar sessions once a week were organized. Two of the weeks were reserved for lecture teaching. Each seminar session was based on different text material and exercises relating to it. The students read the texts and did the exercises before each seminar session. Each of the two face-to-face groups had its own teacher. The lecturer was the same teacher who taught one of the face-to-face groups. The task of the teacher was to direct the discussions so that the students would present well-grounded arguments on the subjects encountered in the texts, and counterarguments to other students' opinions. The aim was to establish active debates between the students. The teacher also took part in the discussions by presenting her own grounded points of view.

The discussions in the *e-mail groups* were, by contrast, textual and non-real time in nature. E-mail study was based on exchanging e-mail messages between the participants of each group. There was a distribution list attached to the e-mail program (Pine for Unix) which enabled many-to-many communication within the members of the groups. The e-mail studies lasted for 10 weeks, of which two weeks were set aside so as to give students the chance to write supplementary messages in cases where they had not written all the messages needed in time. The discussions held during each week were based on different texts and exercises. The students read the texts and did the exercises before taking part in the discussions. Students had to write at least three messages a week in order to pass the course. The messages were supposed to include both the students' own well-grounded arguments relating to the course material and critical comments directed towards other students' positions. Both e-mail groups were directed by the same e-mail tutor. The tutor concentrated on directing the discussions so as to ensure that the students would present a number of well-grounded arguments, counterarguments, and refutations of other students' counterarguments. The aim of the study was to establish argumentative dialogues between the students, and to produce long counterargumentation chains. The tutor did not actively take part in the discussions, but instead let the students discuss subjects they found interesting by themselves.

2.5 Working methods

A free debate, role play, problem-solving discussion, and panel discussion were devices used in organizing the seminar discussions. The *free debate* and role play were based on individual working, while the problem-solving and panel discussions involved group working. In the face-to-face seminars all four working methods were used, while for the e-mail studies, only free debate and *role play* were involved. The reason for this was that e-mail studying was not thought to provide a suitable environment for group working (see Garton & Wellman 1995). During the free debate, students presented their own grounded opinions on the questions encountered in the text material, as well as counterarguments to the claims encountered in the material and in other students' messages. The discussion topics were not defined beforehand. Thus, the students could freely emphasize those topics that they found interesting, contradictory, or important. In the role play, half of the students were given a point of view that they had to support in the discussions, and the other half were given an opposite point of view to support. In this way the discussion was restricted to topics in which there are two contradictory opinions. The viewpoint given to a student did not necessarily represent his/her own personal point of view on the issue in question. The aim of the *problem-solving discussion* was to reach a common understanding between the members of the group on the given problem.

At first, students discussed the topic by putting forward their own viewpoints on the problem, and the reasons to support these. Subsequently the work was supposed to proceed through negotiations and collaborative working of the group members, aimed at reaching a common solution for the problem. The panel discussion was based on group working as well. In the subgroup working phase, students were divided into two subgroups, who were assigned opposing points of view on a "contradictory" topic. In this phase the members of both groups negotiated by themselves and created a common strategy designed to support the standpoint of their own group. In the panel discussion phase the groups encountered each other in a panel debate, in which the task of the students was to work as a group and defend their standpoint according to the strategy they had created in the previous phase.

2.6 Argumentation studies

The study of argumentation in the course involved a) lectures (2 x 2 hours), b) exercises in the course material (7 text packages), and c) 10 weeks of practical applications in face-to-face debates or in e-mail groups, using the different working methods. Of these three elements, the studying of argumentation in

practice in the seminar groups played the biggest part. The purpose of both the lectures and the exercises was to support the seminar working. The purpose of the exercises was to introduce the students to the content and argumentative structure of the text material, and in this way to prepare them for the argumentative discussions in the seminar sessions. In the first two hours' lecture, at the beginning of the first half of the course, the students were taught the main conceptual apparatus of the argumentation process which was to be utilized in the seminar discussions. In the second lecture, at the beginning of the second half of the course the students' knowledge of argumentation was deepened by teaching them the fundamentals of argumentation analysis. During the lecture the students analysed the e-mail discussions of the first half of the course by applying Toulmin's model (Toulmin, Rieke & Janik 1984) to analyse argumentative text. In this way the students were provided with more developed cognitive equipment for the seminar discussions during the second half of the course.

During their studies the students were taught that the process of argumentation consists of three phases: the presenting of one's own standpoints and supporting reasons (phase 1), the presenting of counterarguments against other peoples' standpoints (phase 2), and refutation of counterarguments (phase 3) when one defends oneself against criticism brought forward by other people. These three phases are recommended by Björk and Räisänen (1996) in their guide for academic writing and text analysis. The exercises the students did in the course material, in particular, supported the learning of the argumentation process phase by phase. The exercises relating to the first two text packages concerning the first theme (Sex roles ...) stressed the presenting of one's own arguments: the students were, first, asked to freely formulate their own positions with regard to some topic encountered in the texts, and second, to define and mark grounds in the texts that supported those positions. In the exercises relating to the text package concerning the second theme (Discipline problems ...) the students were asked to a) look for reasons why different things were defined as discipline problems in schools, b) define in the texts the means which might be used to solve the problems, and the rationale for using these means, and c) to compose their own counterarguments against the supposed effectiveness of these problem-solving means. Finally, in the exercises relating to the texts packages concerning the third (The compulsory ...) and fourth themes (Physical punishment ...) the whole argumentation process, starting from phase 1 and ending with phase 3, was rehearsed: the students were asked to define in the texts a) the grounds for a

standpoint given to them, b) the counterarguments against that standpoint, and c) to compose their own refuting counterarguments against the counterarguments they had defined in the text.

Right from the beginning of the course, it was impressed on the students that the purpose of the seminar was to deploy and rehearse critical argumentation in practice. The students' task throughout the course, regardless of the working method used, was to put forward arguments for their positions and to criticize other student's opinions by presenting effective counterarguments (cf. van Eemeren & Grootendorst 1994). However, during the seminar discussions the emphasis on the rehearsing of different phases of the argumentation process varied according to the working method employed. In the discussions carried out during the first half of the course by means of free debate (face-to-face and e-mail groups) and problem-solving discussion (face-to-face groups) the emphasis was on the presenting of one's own arguments and counterarguments. During the second half the process of argumentation was completed. The purpose of the discussions which involved role play (face-to-face and e-mail groups) and panel discussions (face-to-face groups) was to bring about the kind of interaction in which the students a) put forward arguments for their positions, b) produced counterarguments against other students' positions, and c) defended themselves against criticism by refuting other students' counterarguments. The structure of the argumentation studies during the course is shown in *Table 2.*

Table 2 Structure of the argumentation studies carried out during the course

The discussion themes were selected on the basis of the working method employed in the course. The discussions that took place during free debate and problem-solving sessions were designedly based on discussion topics that readily

evoke different kinds of opinions and approaches to the issues. Sex roles, equality between different genders, and discipline problems in the schools were chosen as representing such many-dimensional themes. The working methods that were designed to sharply divide the opinions (role play and panel discussion) of the participants presupposed, by contrast, themes that were prone to polarize peoples' standpoints. The questions relating to the teaching of Swedish in Finnish schools as a compulsory subject (an actual controversial educational topic in Finland) and the acceptability of the physical punishment of children are both topics that divide people into two camps: those who are for and those who are against.

2.7 Data

The data of the study were collected before, during and after the course. In addition to the pretest and posttest measurements, the face-to-face discussions were video-recorded and the e-mail discussions stored by the computer. The students also evaluated the teaching they received during the course. The face-to-face students filled in a questionnaire after each seminar session, and the e-mail students filled in an e-mail questionnaire twice: in the middle of the course and at its end. The group interviews of the teachers and the exercises the students did in the text material were also included in the data.

The following results are based on preliminary analyses of the teachers' interview, the students' questionnaires, and the e-mail material. In the analyses of the interview and questionnaires, the students' and teachers' main experiences and perceptions of the different working methods were investigated. Furthermore, some of the students' e-mail messages were analysed utilizing the methods of analysis taught in the course.

3. Results

3.1 Free debate

The students from the face-to-face seminars found free debate to be a good working method, appropriate especially at the beginning of the seminar working. They characterized free debate as an interesting method that allows the free expression of thoughts when many kinds of opinions, even unusual ones, arise in the course of discussion. The face-to-face teachers characterized free debate as a good warming-up method for further discussion allowing the students time to familiarize themselves with the pedagogical idea – the studying of argumentation – which lay behind the course. Since Finnish students are not familiar with studies

based primarily on discussions, it was important that at the beginning of the course the students were given freedom of expression in order to get them acquainted with the new study method. The disadvantages mentioned by the students were that free debate gives an advantage to talkative persons, which easily leads to an unequal distribution of talking time in the seminar. In addition, an aspect worth noticing is that both the students and teachers noted that criticism and counterargumentation occurred only rarely during free debate.

The opinions of the e-mail students were along the same lines as those of the face-to-face students. The e-mail students found free debate to be a good method that led to a smooth beginning to the discussions by allowing them to freely write their own opinions. However, the students found many of the e-mail messages to be too long, too kind to the other person, and rather unstructured, making them difficult to comment on. This led to uncritical discussions in which counterargumentation was rare. The e-mail teacher's observations were similar to the students: the students' messages included a lot of loose text and only a little counterargumentation.

In spite of the rarity of counterarguments and the straggling texts produced by free debate, the preliminary analyses of the e-mail messages indicated that the messages also included developed argumentation. The e-mail message shown in example 1 was sent during the course of the studies, and its argumentative structure is analysed using Toulmin's model. The analysis is identified in the text by symbols referring to the elements of Toulmin's model (C = Claim; G = Ground; W = Warrant; R = Rebuttal) and summarized in Table 3. An analysis of the message was also included in the teaching of argumentation during the second lecture in the middle of the course.

Example (1): An e-mail message sent during the course
Working method: Free debate
Sent by: A female student of education, aged 22, 110 study weeks**[i]**
Date sent: Wed, 11 Feb 1998, 09:13:52
Subject: Think about school, my friend (Theme 1: Sex roles and equality in education)

Table 3 The analysis of the e-mail message (example 1) by Toulmin's model

Grounds		Claim
1. Boys have more room in schools. 2. Boys receive more attention 3. Teachers find boys to be more interesting 4. Boys are allowed exemptions 5. Boys are not so readily forbidden 6. Girls are not rewarded and encouraged in the same way as boys are		School is an unequal place, or girls are left in the shadow of the boys
	Warrant	Rebuttal
	Implicit generalization made on the basis of six different grounds	One has to remember the differences between individuals: teachers do not necessarily favour all the boys.

Table 3 The analysis of the e-mail
message (example 1) by Toulmin's
model

Frankly speaking I am annoyed at that school is so an unequal place (*C*)! Everywhere else people mouth in foam are nagging for equality, while at the same time poor children are neglected and left without attention. Even from my own school experiences I remember that there are more room for the boys than for the girls (*G1*). Girls tend to be left in the shadow of the boys (*C*) when all the attention is directed to the boys (*G2*) due to their disturbing behaviour or well doing. I totally agree with Tuula Vainikainen's comment that teachers find boys to be more interesting and challenging than girls (*G3*), and in this way girls are left automatically in the shadow. In addition, boys are allowed certain exemptions so that they are not so much pressed for the failures than girls (*G4*). Boys are not either forbidden as eagerly as girls (*G5*). At least in my childhood boys were allowed to rage during the lessons, but if girls made a noise they were at once pointed by a finger and said that "what is that whispering?" and that "please, behave yourself". There has been a lot of talk about the topic that since already at the elementary school girls are not rewarded for success or encouraged in the same way than boys are (*G6*), girls do not have, for example, possibilities to succeed in mathematics, even if they were good in it. Children are unconsciously made to understand that girls cannot succeed in mathematics, and that it is better to be successful in handwork and arts. If girls are not, already when they are small, directed and encouraged to do things they feel good, they may perhaps never become experts in mathematical occupations even if they had resources. Of course one has to remember that there are many kinds of students and teachers, and thus, generalizations should not be done (*R*), but on the basis of study results it can clearly be said that girls are defeated and left in the shadow of boys (*C*).

The message represents a typical text sent during the studies: in order to open up further discussion the student has presented her own critical argument concerning a subject she has found interesting or controversial in the text material. In addition, the message also indicates that relevant argumentation took place during the course: the argumentation analysis of the text reveals six

supporting grounds for the claim made and a rebuttal, as indicators of the high level of argumentation in the message. Finally, the claim is implicitly warranted by a generalization: six grounds for the claim justifies the generalization.

3.2 Problem-solving discussion

The discussions which took place following the problem-solving method in the face-to-face groups resembled the discussions during free debate, since the expression on ideas was based on students' personal opinions. The students' task during the first part of the discussions was to have a debate on the reasons underlying different kinds of discipline problems in schools, and during the second part the students were supposed to formulate a common solution for the problems. According to the students, the problem-solving discussion during the first half worked, in that there was a lot of debate and counterargumentation on the topic. However, the solutions for the discipline problems in schools that the students had hoped to find during the second part remained elusive. The teachers pointed out the same problem: the students were not able to formulate any common solution. Most of the students were not teachers themselves, and a general opinion among them was that the task of formulating a common solution was difficult and artificial.

3.3 Role play

The face-to-face students' prevalent opinion of role play as a study method was that it worked well: the students found that it was easier for them to commit themselves to the discussions when the standpoint they were to take was pre-determined for them, and they were not allowed to change it. The students also noted, first, that when one has the possibility to hide behind a role, one's arguments tend to be stronger than would otherwise be the case, and second, that role play also forced one to put forward one's points of view. Some of the students, however, found it difficult to argue the grounds for a given claim, especially in situations in which they did not have anything essential to say. The two-dimensional nature of the role play, to have to be either for or against some position, was also experienced as a problem by some of the students: usually it is possible to find a certain amount of support fort both of the opposed viewpoints, and to maintain the same stand all the time is not necessarily easy for everyone. In addition, the face-to-face teachers, and some of the students as well, noticed that during role play the personal opinion of some of the students began to change. In particular, the personal opinions of the students who defended a claim

opposite to their own viewpoint at the beginning of the discussions gradually changed so as to resemble the one they defended in the role play. This result suggests that one of the objectives of the course was reached: to make the students aware of the fact that many educational issues can usually be viewed from many angles, each of which can be supported by good arguments.

The e-mail teacher's main observation was that during role play students' messages became more argumentative, and more student-student debates arose. The preliminary analysis of the e-mail discussions supports the teacher's view. The students' discussions included many long counterargumentation chains, in which different debaters presented their opinions and criticized each others' positions by means of relevant counterarguments. Example 2 illustrates the e-mail discussions carried out during role play. The example is a combination of parts of four messages sent by two e-mail students (A and B). The students are engaged in a debate on the issue of whether the Swedish language should be compulsory in Finnish schools or not. Student A (A male student of education, aged 27, 140 study weeks) is against, and B (A male student of sociology, aged 26, 101 study weeks) for the compulsory
study of Swedish.

Example (2): An argumentative dialogue between two e-mail students

A: Claim and grounds
I think that to be able to speak Swedish and to study it is unnecessary, but the problem is that studying is compulsory. Compulsion does not fit to the current view of the nature of learning, student-centred thinking and meaningful learning, motivation and understanding the student as a subject of the learning process.

B: Counterargument
Did you say that compulsion does not fit to the current view of the nature of learning. But have you noticed that the whole idea of the comprehensive school is compulsion. Nobody criticizes the compulsory mathematics or mother tongue.

A: Refutation of the counterargument
Is it reasonable to set languages at the same line with other subjects? Is the studying of mathematics similar, for example, to the studying of Swedish? I think that it is not. The target of language teaching is, in particular, the diversified use of the language in question: to talk, to write and to read. The matter concerned in

the studying of mathematics is, rather, the learning of a certain way to think, the ability to set, for example, a problem, to form an equation, and to solve it.

B: Refutation of the counterargument
Of course subjects differ from each other in terms of the content and to study them is different. However, the studying of Swedish can be placed at the same line with the studying of mathematics in the sense that both are compulsory subjects in Finnish elementary school. Both of the subjects are experienced as important in Finland in general, since there must be some reason for that they had become compulsory.

The progress of the argumentation process in example 2 is mainly in accordance with the phases of the argumentation process taught to the students in the lecture which preceded the task. The dialogue starts from the grounded claim made by student A followed by a critical comment from student B. After this both students aim at refuting each other's counterarguments by presenting grounds for their own standpoint.

3.4 Panel discussion
Like the role play, the panel discussion too got positive feedback from both the students and the teachers. The participants found it a positive thing that in the panel discussion the essential elements of the argumentation process were combined: the advancement of one's own grounded opinions, and the anticipation of possible counterarguments during the subgroup working phase, and refutation of the counterarguments of the opposite side during the panel discussion phase. In addition, the students stated that the panel discussion method taught them to anticipate and think about the possible attacking strategies the opposite side might use in the panel debate. The teachers' main point concerning the panel discussion was that the students really seemed to work as a group: during the subgroup working phase a common defence strategy was created and during the panel discussion phase the groups followed that strategy.

The most critical issue for the students was related to the discussion topic, Physical punishment as a child-rearing method. Many of the students whose task was to defend the acceptability of physical punishment felt anxiety when they had to put forward arguments for a position which conflicted with their personal moral values. For this reason, in the second discussion session on physical punishment the students were, contrary to the original plans, allowed to discuss the topic freely without being obliged to play pre-determined roles.

4. Discussion

The preliminary results concerning the different study methods revealed that it was when students were given a certain position to defend, that most counterargumentation was provoked in discussions: the conflicting positions aroused critical discussion and debate between the students. Playing specific roles also structured and directed discussions in the desired direction. Free debate, on the other hand, turned out to work best at the beginning of the study course, as a means to get students acquainted both with the study method and the discussion group, and to remove initial tension before the discussions got properly started.

Preliminary analyses of the discussions in face-to-face and e-mail environments indicated that the e-mail discussions were the more structured, and included more argumentative opinions and counterargumentation between the students. The discussions that took place during role play, in particular, turned out to include several heated debates and counterargumentative episodes between the students. The first impression of the face-to-face discussions, by contrast, was that they were much more incoherent: they included a lot of different opinions, short responses to these, and arguments whose rationale was somewhat doubtful. Furthermore, the interviews with the teachers revealed that in an e-mail environment it was easier for the teacher to give feedback to the students: the e-mail teacher has more time to analyse the level of argumentation in the messages and to give the students personal advice on how to improve their argumentation. In a face-to-face environment, by contrast, the tempo of the discussions is high, and the teacher has only limited opportunities to provide students with considered feedback and advice. However, the face-to-face teacher's feedback is immediate, whereas in an e-mail environment the problem often is that the teacher's feedback comes too late.

It is important to note that e-mail discussions, unlike face-face-to discussions, do not develop oral argumentation skills. The ability to present well-grounded arguments orally is an important cognitive adjunct in many kinds of negotiations, for example, in scientific meetings and business life. Thus, learning environments based on both face-to-face and written communication are needed when practising argumentation skills. One suggestion the teachers of the current course made was that perhaps the most appropriate environment for the studying of argumentation skills would be one in which the favourable features of both environments were combined: time to think over and consider the written

arguments in an e-mail environment, and the chance to exercise ready wit and negotiation skills in a face-to-face environment. One possible way of putting this idea into practice might be, for example, a panel discussion including some written final work or short thesis. In the subgroup working phase, the discussion is equal and collaborative, aiming at a common defence strategy for the group. In the subgroup phase the students also have time to consider their own arguments and anticipate the opposite side's counterarguments. As a final task of the subgroup work, both groups could practise written argumentation by producing a paper or a thesis. The paper could consist of a summary of students' arguments for the position of their own group, and counterarguments against anticipated attacks by the other side. Finally, at the panel discussion phase the students would practise their skills in putting forward arguments orally, and practise reacting to criticism with a ready tongue.

In further analyses of the data the following questions, in particular, will be explored: a) was there any development in the students' argumentation skills by different working methods in face-to-face and e-mail environments? b) what are the characteristics of the argumentation produced by different working methods in face-to-face and e-mail environments? and c) what things are relevant in terms of the teaching of argumentation, especially in the methods of the teacher, in the course material, and in the exercises.

NOTES

[i] In Finnish university studies, one "study week" is defined as corresponding to about 40 hours of work. During one year a full-time student usually completes approximately 40 study weeks.

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ISSA Procedings 1998 – Public Argument In The Post-Mass Media Age

In recent years, the demise of the "public sphere" has been a frequent subject for discussion, among philosophers, political scientists, sociologists, cultural critics, and argumentation theorists (Goodnight 1982; 1987; Hauser 1998; Verstraeten 1996). The discussion has been provoked, at least in part, by Jurgen Habermas' (1975; 1979; and 1989) declarations that the public sphere had been "colonized." Habermas' argued that we needed to emancipate public discourse and identify new communication practices that could both create and sustain a more democratic "lifeworld."

Our own interest in this topic has resulted in a series of papers that examine both argumentation theory and pedagogy. In previous studies we explored the demise of the argumentative free marketplace for ideas, the importance of having students engaged in "real world" disputes, the poverty of conventional forms of argumentation in politics and democratic processes, and proposed alternative sites for a democratic lifeworld (Hollihan, Riley & Klumpp 1993; Klumpp, Riley & Hollihan 1995; and Riley, Klumpp & Hollihan 1995). This essay extends our project by considering how the changing media environment may impact the possibility for public argumentation and civic deliberation.

We argue that the era of the mass audience and mass media is ending. While an optimistic reading of the future might lead one to claim that the advent of new media technologies will enhance the possibilities for civic participation by increasing the opportunities for citizens to express themselves, the new technologies may serve only to further isolate citizens and decrease their political influence.

The paper proceeds by:

1.considering the origins and emergence of the notion of the public sphere and

the liberal political philosophy it reflects;

2. discussing the development of mass society and the mass media as a modernist invention;

3. arguing that the era of mass media is coming to a close;

4. assessing the consequences of a post-mass media society on the ablty to form a democratically engaged citizenry; and

5) identifying some responses mandated for argumentation study and pedagogy by the new media world.

This essay raises many new questions as it offers insights on changing publics and arguments. It is only through such preliminary discussions and criticisms, that argumentation scholars can help ascertain the approaches available for public argument that can strengthen the citizenry's voice in their own governance and place in the global milieux.

1. Origins of the Public Sphere Concept

The notion of an engaged, civic minded public capable of forming themselves through social interactions emerged as enlightenment thinkers contemplated the requirements for democratic civic engagement. This was an essentially bourgeois vision, conceptually described as a forum accessible to as many people as possible, where a wide variety of social experiences could be expressed. The public sphere, thus came to occupy a space between the state, and the private spheres of life where questions of individual beliefs or conduct remained autonomous (Habermas 1989; Balthrop 1989). This sphere was the salon, the coffeehouse, the pub, or in the early days of the American republic, the town meeting. Citizens engaged in the public sphere provided a rich storehouse of public opinion, defined as a body of discourse and arguments constituting public will and values, from which governmental officials and other societal leaders could draw rhetorical sustenance and legitimacy.

In the public sphere, opinions, deliberations, and ultimately, democratic choices were framed in rational discussion. Individuals and communities negotiated the meaning of their everyday experiences and developed a texture of preferences for political action. This notion of the public sphere, explicitly liberal in philosophy, was best suited to a politics of place. Citizens contributed to the public discussions based upon their personal experiences or those of their kin and neighbors with whom they came into contact in their daily lives. Most citizens lived their lives within fairly proscribed geographic spaces, and thus had few

opportunities for learning about life outside of their village. Indeed, one source of power for the ruling class, and especially for monarchs, was that they alone possessed knowledge about life in other villages, because they had access to information gleaned from their agents, like tax collectors, military attaches, etc. (Tarde 1898).

The notion of a public sphere fulfilled an almost mystical faith in the possibility that citizens might willingly submit their prejudices and predispositions to the risk that they might be dislodged by the force of competing ideas and arguments. According to this view, a public is created through its argumentation. For this to occur, a "required agreement" on some fundamental terms or issues – a "universe of discourse" – is necessary (Blumer 1946: 191). People engaged in meaningful public deliberations must take into account each other's opinions and must be willing to compromise in order to determine an acceptable course of action. This debate and interaction may be highly emotional and prejudiced, rather than highly intelligent and thoughtful, but the very process of discussion enhances deliberative consideration and helps to ensure a more or less rational outcome (Blumer 1946).

By the late nineteenth, and early twentieth centuries, the idealized public sphere, assuming the idealized form ever took practical form, was gone. A combination of forces of modernization dramatically reshaped the day-to-day patterns and life experiences of civilization, and fundamentally altered public discourse. Knowledge of a new world beyond the horizon, and access to ships capable of transporting settlers to this new world to begin life anew in colonial outposts, uprooted communities and societies that had lived in ethnic isolation and forced them to make contact with other cultures and peoples. Military invasions, urbanization, industrialization, education, and mechanized agricultural production also changed the ways in which people lived, put bread on their table, and sustained their family and communal experiences. Increasingly this modernization meant a diminished level of interpersonal contact and influence and an increased level of formal social control and influence. As societies modernized and industrialized, people were more likely to work for others rather than to produce the foods for their own table. Rather than barter their produce, they worked for money, and increasingly entered the marketplace as consumers (Sennett 1974).

Modernity meant that workers punched time cards, adapted to schedules imposed by others, dressed in appropriate fashions or even uniforms, and educated their

children in accordance with a standard core curriculum designed to instill the appropriate cultural, consumer, and political values. For example, the expressed purpose of many 19th century "settlement" houses, such as Jane Adams' Hull House in Chicago, was to help the city's newest residents adapt their lifestyles to the new urban industrial values so they could take their place in capitalist society. Likewise the original goal of the Urban League was to help Southern, rural African-Americans adapt to life in Northern cities.

By the mid-twentieth century, this trend had produced a mass production and consumption society. "Where there once existed relative independence (pig-rearing, smallholdings, weaving and sewing, etc.) there now existed a dependence upon capitalistically produced and marketed commodities. The reproduction of social life was fueled by the products of capitalist factories – not only its material reproduction, but also, and increasingly its psychic reproduction" (Robins & Webster 1988: 4).

As societies modernized, the means of communication changed as well. Citizens increasingly acquired the information they needed to monitor the events in their world not in the interpersonal communication settings envisaged by the liberal enlightenment philosophers, but from the mass media. The media permitted citizens to acquire information, and ultimately to form opinions about life beyond the borders of their own village, and as local contact and identity were diminished, national identity and class identity were strengthened (Tarde1898).

2. Politics and the Shift to a Mass Society

While the rush to modernize and incorporate new scientific discoveries into daily life was greeted enthusiastically by most citizens, social critics warned that the shift from "public" to "mass" society might diminish the prospects for citizenship and democratic participation. Walter Lippman (1922: 29) wrote that: "Accurate knowledge of public affairs, on which sound opinions must be based, is simply unavailable to the ordinary citizen. The political world is out of reach, out of sight, and out of mind." According to Lippman, most citizens form their ideas from sorely incomplete accounts.

Having little or no contact with actual events, they filter all they see and hear through their prejudices and fears. Lippman was dismayed by the prospects for democratic governance, or for a political rule formed through the careful cultivation and respect for public opinion. He thought the world – of the 1920s, mind you – had become too large and too complicated for most citizens to comprehend or navigate.

Lippman's suspicion of ordinary citizens' ability to govern was as old as the republic (Wood 1991) but he believed that the current century had yielded citizens that had become passive spectators in public life (cited by Price 1992). Perhaps they were passive because mass society gave them so little opportunity for interaction or self expression. Mass society is composed of anonymous individuals and is marked by little interaction or communication among its members. It is extremely heterogeneous, and includes people from all strata of society. It is widely dispersed geographically, more loosely organized than the public, and its members are typically unable to act in concert. What binds together the mass is neither shared emotions (as in a crowd), nor disagreement and discussion (as in a public), but instead a common focus of interest or attention (Price 1992). This shared attention is essentially the only common link among members of the mass. They do not act together through collective will, they are unable or unwilling to effectively communicate with each other, and they are left to act separately in the pursuit of their own self interests (Price 1992).

Blumer (1946: 187) noted that mass behavior was becoming common as increased mobility, the mass media, and education all "operated to detach individuals from customary moorings and thrust them into a wider world." Mass society caused people to withdraw from local life and civic discussions, and to rely on the mass media for virtually all political information. Thus the twentieth century was the century of mass communication. For most of the century, communication was linear in fact as well as conceptualization – a singular source formulates a message which is disseminated to large, assumed homogenous individuals isolated physically but united into a uniform audience of the communication technology. In totalitarian societies, mass communication became a mechanism by which political leaders controlled society. In democratic societies, tremendous pressures of cultural sameness imposed similar pressures to conformity. In the latter, mass communication dictated a particular economy of discursive practice. C. Wright Mills (1956) described democratic politics within a society of mass communication:

In a mass,

1. far fewer people express opinions than receive them; for the community of publics becomes an abstract collection of individuals who receive impressions from the mass media.

2.The communications that prevail are so organized that it is difficult or impossible for the individual to answer back immediately or with any effect.

3. The realization of opinion in action is controlled by authorities who organize and control the channels of such action.
4. The mass has no authority from institutions; on the contrary, agents of authorized institutions penetrate this mass, reducing any autonomy it may have in the formation of opinion by discussion (p. 29).

Mass society was created and sustained through the mass media. By the selection of issues, and the tenor in which they were covered, the media determined what views and behaviors were acceptable or even praiseworthy, and what was unacceptable or outside of the mainstream. Audiences learned how to conduct themselves in social and work settings, how to cope with their personal crises, how to evaluate their social institutions, and what issues were important or significant. The media shaped the standards of justice and morality, and in the process gave life to a set of cultural values that most audiences accepted. The media helped overcome the pervasive regional, cultural, and even ethnic differences in the United States, and led to the creation of a more homogenous society. As the U.S. media companies exported their programming and brand name advertising abroad, the media helped assure that other countries and cultures would become more like America (Graber 1993).

Critics complained about the "narcotizing dysfunction" of mass communication, and protested that the public was exposed to a continuous stream of tidbits about public affairs that allowed them to settle into their role as spectators rather than as participants in their own societies (Lazarsfield & Merto 1948). These mass audiences may come together to view the same situation comedies or half hour news shows, but the only discernible patterns of collective behavior or shared social action that they seemed to take was to purchase those products that the capitalists who controlled these media relentlessly advertised throughout the day and night.

In addition to fueling the engine of modern consumer capitalism, public opinion in the media age was no longer shaped by ongoing civic discussion. Instead, opinions were the feedback that the public gave when they responded to questions from pollsters. The use of social scientific public opinion polling treated public opinion as merely an aggregate of what individuals believed, and not as a force that emerged from organized society (Habermas 1989; Crespi 1989; Herbst 1993). Public opinion research revealed that people were willing to express "strong" views on matters on which they had almost no information (Lane & Sears

1964). Research suggested that as many as 33 percent of the opinions gathered in general population surveys were "top of the head" responses offered without the benefit of previous thought or discussion (Bishop, Oldendick, Tuchfarber & Bennett 1980). This type of polling reinforced status quo assumptions and policy choices, discouraged minority opinions, and inhibited political expression that might challenge existing hierarchies (Miller 1995). Polls reduce the range of acceptable political choices, pressure respondents to commit themselves to opinions that are not well thought out or that they might not have been able to articulate on their own, and have difficulty measuring the intensity of belief (Rucinski 1993; Lau 1994).

Polls help shape public opinion rather than merely reflect it. They can have a "bandwagon" effect on the emergence of support for a candidate, and as a consequence they influence how the press covers issues or candidates, how campaign funds might flow to the candidates, and ultimately how voters may choose from among candidates (McAllister & Studlar 1991; Bartels 1985). Poll results may inhibit, or even end the conversation on significant social issues by communicating to the public and the media either that people are not interested in this topic, or that their minds are already made up so further deliberation is unnecessary (Anderson, Dardenne, and Killenberg 1994).

Peters (1995) argued that the public opinion industry had essentially created a "visible fiction" of public opinion. He claimed that citizens did not create public opinions through their interactions with fellows, but instead had their opinions represented to them through the machinery of modern polling. If the public opinion in mass society is a fiction, however, it is an important fiction because political candidates, elected officials, media moguls, and others are always claiming that they have acted in response to the "will of the people" (Bennett 1993; McGee 1975).

3. The End of the Mass Media Era

While political and cultural communication in the 20th century were dominated by the mass media, as the century draws to a close changes in the economics and technology of communication are eroding the immense power of the mass structure for media communication. Some of these changes have resulted from changes in the economic organization of the media. The late twentieth century, for example, has seen the development of highly segmented media markets. Advertisers and other proponents of the mass structure for media dissemination have begun to reorient their planning toward differentiated markets.

Differentiation may come on geographic or demographic characteristics, but either way messages are designed for smaller and smaller market segments. Technologies of printing, delivery, and broadcasting have facilitated these changes.

The structural result of market segmentation has been the growth of narrowcasting as a substitute for broadcasting. The explosion of cable networks, for example, address interests from gardening to the law. Radio stations now think of "good numbers" in terms that would have led to the unloading of unprofitable stations in an earlier day. In large media markets, stations consider themselves successful with ten to twenty percent of their audience.

The end of the unlimited power of the mass media has come also from technological innovation. The growth of cable television was a critical element in the demise of the massification of the media. Cable systems are now available to 92 percent of American homes (Broadcasting and Cable 1996) and provide somewhere between 40 and 500 channels, in many cases with public access programming providing opportunities for minority voices.

But the variety of programming pales beside the earliest of the technological changes – the growth of home videocassette recorders (VCRs). According to one study, 95 percent of American homes own video cassette recorders (Broadcasting and Cable 1996). With the spread of VCRs, commercial tapes multiplied to provide programing on demand from previous producers of mass media content. The VCR provided access to home television sets not only for the products of the film and television industry, but for tapes generated by various political and religious groups. From the Iranian revolution to "the Clinton Tapes" the VCR provided a means to infiltratethe video market with ideological and political material.

Potentially, none of these changes has as dramatic an impact on the splintering of the mass audience as does the Internet. The Internet is a global computer communication network that already connects millions of users around the world. The number of Internet users doubled every 53 days in 1995, a rate of growth that may be unachieved by any other new technology (Kelly, cited in the Year of the Internet 1995/1996). The number of Internet users is certain to continue to increase as more people acquire personal computers, as the technology improves and becomes easier to use, as the speed and capacity for network connections improves, and as the quality of the Internet content improves (Hoffman, Novak & Chatterjee 1995; Krantz 1996). Internet users send and receive electronic mail, see text and graphics posted by individuals and organizations, communicate with

interest groups and government agencies, acquire news and public information, learn about and purchase products, meet new friends, develop relationships, and satisfy their sexual urges and curiosities through pornographic Web sites, some of which are highly (if not yet technically capable of being fully) interactive. Most major newspapers and many television stations have Web sites, so readers are no longer limited to their local newspaper for in-depth and up-to-the-moment coverage of issues. They can via telephone and computer modem log on to almost any major newspaper (and many minor papers) in the world.

Together these many changes define what we call the Post-Mass Media age. The days of gatekeeping control over the media are gone. The reorganization of communication dramatically alters the potential for argument in the public sphere.

4. The Possibilities for Citizenship and the Civic Community

The changes in the media of communication inevitably transform the character of the public sphere. We see the changes that result as inherently neither positive nor negative – their outcomes depend on the structuring of communication and argumentation within the choices presented by the post-mass mediated age. We call four important changes to your attention.

First, and most obviously, the new media increase exponentially the number of voices that have access to the public sphere. The mass media's pattern of the single speaker with media power addressing the masses has been replaced by a multiplicity of voices in the greatly expanded commercial media, on alternative channels in the increasingly fragmented world of narrowcasting, and in chat rooms and web sites across theInternet. Anyone with a videocamera or a computer terminal now has an electronic threshold. The new organizational patterns provide access to others with VCRs or computers, and often to narrowcasting beyond.

Second, this media involves increasing interactivity to replace the passive audience of the mass media era. The most dramatic of the new media to exemplify this greater interactivity are the chat rooms and on-line conferences made possible by the Internet. But other, more subtle ways also increase interactivity. The media increasingly use various "town hall" devices to give voice to those previously unheard in direct response to leaders and spokespersons from the public sphere. The passive audience is disappearing amid the inevitable choices that the proliferating media present to those formerly thought of as a mass audience. The broader choice of media and of content within media gives the

consumer power that was unthinkable two decades ago in selecting the communication circle within which s/he will participate.

The third change follows from this greater consumer choice: the increasing importance of the media consumer's construction of the message as the central activity in media behavior. Today, as never before, messages are fragmented, multiple, and disjointed. The assembly of coherence has become a task for those selecting the media rather than for those formulating the message (McGee 1990). This postmodern condition has created vital new importance on communication skills not previously featured. For example, where students first exposed to public issues once expressed difficulty in gathering information on a topic, the recent experience is that they find multiple sources of information of varying quality and ideological bias. Today, knowing how to assemble reliable and useful information and arguments from diverse sources to make sense of an issue is a vital skill.

The final change we point to is the fragmentation of the public into publics (Fraser 1992). With the gatekeeping function of the mass media diluted, and many more entering the communication milieu, something akin to Habermas' salons are now possible again. The result is an altered structure of public discourse. Those who participate in the new media often find themselves developing voice within confined spheres of interactive communication. These may be among like minded communicants or – just as likely – interacting with those with whom one disagrees to try out ideas in dissent. We have earlier argued that where the development of social movements – social factions in this viewpoint – were once controlled by access to the media, the new media permit the use of multiple communication sites to encourage development of localized positions (Riley, Klumpp & Hollihan 1995). In chat rooms and other spheres where public argument proceeds unabated by the constraints of access to mass media, new ideas and new voices are incubating, giving them confidence and preparing them for a broader public stage.

While these developments are neither inherently positive or negative, certain potentialities are clear. Several dangers to the public sphere could result. Perhaps the most important is the alteration in the balance between stability and anomy presented by the loss of mass media control. Gone is the era when the political rituals of nations that tied a people together in a common community were daily fare on the media. Certainly important rituals will continue to be televised, but with decreasing audiences. Even something so basic as the common experience of evening news is now a thing of the past. A President of the United States today

delivers a State of the Union Address with its ritualistic celebration of national identity in competition with sitcom reruns, sporting events, garden shows, videotapes of legal cases, and even Matt Drudge. Just as important is the potential for home-based communication channels such as the Internet to pull people from a physical public sphere into a virtual public sphere. The fear is that people will retreat to virtual spaces and communicate only with others who share their beliefs and views. Rather than reach out and form bonds of communities with their neighbors inhabiting their shared local spaces, they will communicate through the Internet with those who may be far away from them in distance, but close to them in experiences and ideology. Academics interested in argumentation theory, for example, can easily keep in touch with colleagues in Asia, Europe, and the United States via electronic mail and can having rousing discussions about their concerns viz. a viz. the public sphere. Engaging in these discussions is much easier than engaging with one's neighbors in the community about the deplorable state of the public schools (at least in many American cities), or about the widening rich-poor gap.

Also of concern are the related issues of privacy and personal freedom as the individualized post-mass media society seems to hold even more dangers than did mass society. Mass society was created in part through surveillance of consumer viewing, buying, and voting habits. Public opinion polls, marketing studies, television ratings, etc. were all designed around measuring the will and interests of the masses to assure that political candidates, product manufacturers, advertisers, and television programmers could satisfy their whims and desires. With cyberspace, however, we are seeing the emergence of technology that will go further still toward identifying audience interests and desires. No longer are the purveyors of products and programming able to respond only to the needs of masses. Now the technology permits them to tailor their products or messages directly to individual users.

Every time a user logs on to an Internet Web site, an electronic record is created. Thus, one can determine who is logging on to the site; what sites they are coming from or will go on to; how much time they spend on a site; what stories they read and what stories they ignore; what advertisements they pause over and which they skip; etc. Like Jeremy Bentham's (1843) well-known "Panopticon" (a circular building of cells where a guard could look into each cell to monitor the behavior of those inside without those in the cell from being able to determine whether or not they were being watched), Internet observers are omnipresent and

omniscient, while the communicator is marginalized and monitored. On the Net, the virtual panopticon arguably has a chilling effect, limiting the range of acceptable arguments and behaviors. In the United States, for example, the Federal Bureau of Investigations is known to closely monitor Web sites that involve discussions among anarchists, political radicals and reactionaries, and pedophiles. The Web is not just a means for communication then, it is also an integrated system of surveillance, intelligence, and control. Access to information about electronically mediated activity – cable viewing, electronic financial transactions, telephoning, computer usage, etc.– creates records that provide in-depth information about individuals and the groups with which they associate. This information gives insight into their whereabouts, movements, daily patterns of work and recreation, friends, tastes, and preferences. Such information is a valuable asset to governments, industry, and media producers, the diverse centers of power in the new age (Robbins & Webster 1988). In this sense, the information society in the post mass media world expresses conflicting patterns of centralization and decentralization, of concentrated political power and of fragmented public impotence, the hallmarks of the new era (Robbins & Webster 1988).

It is clear that some common topoi of argument will dissappear as society loses the common experience of mass media. Common metaphors, analogies, and other figures today are more likely to be grounded in the shared experience of the mass media than they are common literature such as the Bible. Dan Quayle's references to Murphy Brown are particularly egregious but illustrative examples of the place of the mass media in public argument. The fragmentation of communication threatens to rob even this common mass media experience of its power to provide usable themes. Without these, the construction of community through discourse may be a more limited process. As public argument's home is more regularly located in virtual or isolated communities of discourse, we are threatened with a balkanization of society with all the implications that metaphor has on social progress and peace. This is the dark side of the post-mass media age.

The move toward a global society has already changed the fundamental relationships between citizens and the political state as evidenced by the newly emerging European Union. The citizens of Western European nation states shaped by distinct cultures, languages, religious experiences, senses of history and identity are being asked to overcome centuries of hostilities and competition in order to form a common union, despite the fact that they do not have any

newspapers or television networks that transcend their political boundaries. Indeed, the closest thing to a European multinational television network is the U.S. owned and dominated news channel CNN. What are the opportunities for a shared political culture and for the creation of a civic society when the symbolization, representation, and construction of self-interest remain deeply embedded in the psyche of individuals and in their indigenous cultural practices (Capelli 1995)?

One vision for the success of the new European Union is that the citizens of these disparate nations are drawn together by their common problems to overcome their historical differences and to engage in arguments that search for common solutions. Another vision, however, is that these citizens and their governments have become virtually irrelevant, in a world in which it is multinational corporations and not people and governments who make the decisions that shape societal destinies. Technological information systems that empower elites, weaken citizens, and that create an illusion, rather than a real sense of political and discursive power and influence may be the most effective way to "manage" the citizens (or should we say inmates?).

But the changes provide obvious potential for the improvement of democracy. Primary among these possibilities is the enhanced ability to participate in public arguments. No longer silenced or circumscribed to friends in their interaction with others, public voices and their arguments have a chance to be tested across a broad spectrum of issues. The increased volume of public discourse provides a much richer mix of public opinion – in the original, non-quantitative sense of the term – for those social and political leaders who will connect with the new publics. The result is not simply an avenue to sample public opinion in a different way, but also an opportunity for exposure to new ideas outside the control of media elites and a sort of public arena to witness the strength of various arguments for and against particular positions. Issues can emerge and be explored in a much richer framework.

These opportunities could greatly enhance the health of the public sphere. Greater participation can facilitate a greater pool of ideas and strategies for addressing public problems. Greater contact between the public sphere and the governmental sphere can enhance the legitimacy of leadership and support for governmental officials. A vibrant structure of public argument would facilitate the quality of public life.

5. The Direction of the Study of Public Argument

Perhaps not surprisingly, the study of argument in the public sphere during the twentieth century assumed a mass media model of dissemination. That model assumed several characteristics of communication:

1. that communication originates in a source with access to the mass media for the dissemination of the message (Head 1972);

2. that messages are designed to appeal to the needs, interests, and aptitudes of the masses (Graber 1993);

3. that mass audiences are understandable in terms of quantitative expression of attitudes, preferences, and responses (Peters 1995); and

4. that consumers of media are essentially passive receivers and processors of messages, open to influence (Reardon and Rogers, 1988).

Our present understanding of public argument similarly posits that:

1. the arguer with access to the media is the key source of argument,

2. s/he appeals to his/her audience by identifying enthymatic premises common to both social and local knowledge, and

3. s/he can measurably impact attitude or opinion change in those who listen to the argument and vote or respond to polls.

These assumptions are challenged in the post-mass media age. Just as media theorists have begun to revise their models and questions in the face of the changing media landscape, argumentation scholars must also redefine public argument. The effect of these challenges is to alter both the questions asked and the grammar used to view the public argument process.

First, we should shift our model of argument to recognize the increased importance of the structure of the argumentative sphere and particularly the role of public participants as receivers as well as generators of argument. This requires a new grammar in which the focus is placed on the texture of discourse and participation in interactive relationships within argumentative communities (McKerrow 1990). Are our old notions of argumentative practices that contribute to a healthy public sphere altered by the new media and the proliferation of spheres? What strategies will assemble arguments from the fragmented messages of the new media environment and return them to the public sphere? How do participants sort arguments? Accompanying these important questions is a reaffirmation in our pedagogy of the importance of assembling fragmented messages as a key process in public argument. This component has traditionally been taught as a preparatory skill to making arguments oneself. It now takes on

an increasing importance.

Second, we must focus beyond the governmental sphere on various public spheres formed by interest groups, particular ideologies, and movements. What is the character of arguments in these groups? What closes such discourse to refutation and criticism? What opens it up to the full advantages of critique in argument? How can we not just encourage participation but meaningful exchanges that facilitate the objectives of a healthy public sphere?

Third, we must better understand the relationship between the multiplying public spheres and the governmental sphere that manifests concentrated power in our culture. How do arguers pass from sphere to sphere and how do they adapt arguments from other spheres? How do we assure that the quality of argument in one sphere energizes the other? How do we balance the advantages of the public spheres as incubators of argument and arguers against the dangers of public spheres that become insular and exclusive?

Fourth, we need to reconceptualize the place of the media in leadership to better reflect the new media. The mass media era lent itself to a highly manipulative environment, manifested by governmental control in many nations and cultural control in others. The techniques of manipulation have adapted nicely to the new media. Already in place are manipulative schemes such as sophisticated audience segmentation techniques, direct mail to a confined base, the use of strategies of exploitation of "enemy" interest groups. Similarly, governmental regulatory strategies designed to control the mass media are being adapted to the new media: controls over software dissemination, national security justifications for limitations on and access to Internet traffic, and even controls over pornography. How do arguers resist such manipulative strategies? What regulatory policies and/or individual behaviors will free control of the new media from the constraints of the mass media era?

Finally, we must rethink the priority we place on old questions about important arguments being covered by the media. In the mass media era, a primary concern for many academics, and at least some government regulators was to assure access to the media, through the creation of educational television channels, public access channels, etc. As Shaprio (1998: 37) argues:

The task is different, however, in a post-television world of converged media, where "channels" are essentially unlimited and almost anyone is able to speak. The problem is not scarcity of space but the opposite: an abundance of space – and content – which creates a scarcity of attention. In other words, the good stuff

will be out there, but with so many competing information sources it will be difficult to get anyone to know about it, let alone listen.

At this point, the questions are probably more important than whatever answers are available. The new media are here and they are changing the nature of argumentative exchange. Furthermore, they represent open opportunities that will structure argument for years to come. Standing on the threshold of the mass media age in the early twentieth century, choices were made that created the environment that we have lived with throughout the century. We are given such a choice again. What choices will be made? Perhaps the questions we have posed will spark an ongoing dialogue and conversation that goes beyond this conference and fosters a considered shaping of the potential of the new media to improve the quality of democratic life.

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ISSA Proceedings 1998 – Conditional Reasoning

1. Introduction: logic and argumentation[i]

I would like to start with a pronouncement: I believe that logic is and must be a essential tool for the testing, classification and explication of arguments as well as reasonings. Specially, it's the job of logic to distinguish between *valid* and *unvalid* arguments, as well as between *good* and *bad* reasonings. In this sense, the main role of logic in the theory of argumentation is not descriptive nor explanatory, but normative. I think this deontic dimension is necessary for drawing the boundaries between rhetoric and argumentation, which are the boundaries between proving and persuasion.

This solemn beginning is not just to release myself. From my point of view, it's not a passing fancy to remind the normative character of logic. A logical entity may be used as a model for a physical or mental entity, but in any case it's a ideal model. In the case of argumentations, this means that it has not the properties of the real entity, but the properties that we think the real entity *ought to have.*

The aim of this lecture is to provide a definition as well as a brief explanation of a special kind of reasonings which I will call "conditional reasoning". This definition must be understood as the first step to a general theory of conditional reasoning which is not explained here, and whose main bricks are the logical theory of conditionals (see Vilanova 1995, Vilanova 1996). The term "conditional reasoning" is a new one in the literature, so some people will look to it in surprise. Nevertheless, a lot of authors have defined similar notions, and all of them have showed a big interest in the topic. Later on we will see some examples. For the moment it's enough to note that the medieval logicians use a very similar notion when defining the "dubium proponitur" (I propose to doubt) arguments: arguments where something evident or firmly believed is negated, in order to know what theoretical consequences it would produce.

2. A "prima facie" definition

I will begin by explaining the two words included in the title. I would distinguish two senses of the word "reasoning":

i. *Cognitive or Psychological sense:* a mental event consisting in a thinking process directed to the resolution of some problem. This is the customary sense of the word reasoning, the sense we mean when we talk about the reasonings that our neighbours make, or the reasonings that our politicians don't make. In other words, this is the action to which we compel when we say "use your brain, reason!"

ii. *Logical sense*: a triad D,C where P is the set of premises, C is the conclusion, and D is a deduction of C from P. P, D and C are set of sentences. They may belong to a formal language (for example, the language of first order logic with some supplementary symbols as identity, modal symbols, conditional operators...). But they may belong to a natural language. Sherlock Holmes stories, as well as scientific books, are full of reasonings in this sense where the sentences belong to a natural language. The main difference between an argument and a reasoning is that in a argument the premises are supposed to be true. On the contrary, in a reasoning the premises don't need to be true; they are just those propositions not proved in the deduction.

We may understand a reasoning in the logical sense as a *model* of a reasoning in the cognitive sense. In other words, we use linguistic entities (propositions) for modelling mental entities. Some philosophers and psychologists, as Fodor, think that mental entities are also linguistic entities belonging to a special language, the language of mind. If they are right, then we ought to speak about public linguistic reasonings (second sense) as models of private linguistic reasonings (first sense).

Regarding the second word in the tittle, there are two important notions related to the word "conditional":
i. *A conditional statement* (in English) is a statement of the form "If ..., then... " or a statement that can be paraphrased in this form. For example,
(1) If I were a rich man, I would buy a lorry is a conditional statement. But also
(2) When the sun rises, the cock sings
(3) You eat, you pay.

ii. A conditional operation (*or operator*) is a function from pairs of statements to statements. For example, the material implication "_" is a conditional operator which gives, for every pair of statements, B a statement "A_B" such that "A_B" is true if an only if A is false or B is true.

We use conditional operators for modelling conditional statements. In other words, we define conditional operators that represent what the words "if-then" express in English. A conditional operator _ would be a good model of a class of English conditional statements _ (it's very probable that there is more than of one significant class of statements) if the truth value of A_B depends on the truth-value of A and B in the same way in which the truth value of "If A, then B"

depends on the truth value of A and B for all the statements of _.

We can give now a *prima facie* definition of a conditional reasoning. A conditional reasoning is a two-steps reasoning such that:
– The first step is the formulation of a hypothesis (a supposition, a not-known-to-be-true proposition).
– The second step is the deduction of consequences from the hypothesis.

An example will help to understand this definition. Suppose that I want to go to the cinema this night, but I have not car. Now it's half past nine, and the night session starts at ten o'clock, so I will not arrive to the cinema on time going by foot. My brother suggests to use my bicycle. Immediately, I put my brain to work. First of all, I make the supposition of my using the bicycle, so I imagine myself taking the bicycle out of the garage, driving it... Then, I try to infer that I'll arrive to the cinema on time for the movie. I calculate how much time I would need to arrive to the cinema, and I discover that it would take at least twenty minutes to go from my home to the cinema. Then I remember that I have to inflate the tyres, and I calculate that I will need at least fifteen minutes to pump them up. I conclude that I will not arrive on time and I decide to see the television show at home. This example shows two important features of conditional reasonings. First, it shows that conditional reasonings are guided towards a specific goal (the deduction of a statement). Second, it shows that sometimes they miss their goal, their fail to prove the desired statement.
Conditional reasonings very often come into sight in everyday life. Some times we are not sure about the truth-value of a proposition, or we just want to talk about the future, or we want to talk about the way things could happen. In all these cases we have a proposition which is not true (perhaps it's not false also), so we start our reasoning by stating a hypothesis. Really, conditional reasonings are essential in common sense reasoning. In the tradition of the logical positivism and the analytic philosophy the paradigm of reasonings (in the logical sense) were reasonings taken from formal languages.
Philosophers in this tradition use these kinds of reasonings in the logical sense for modelling the inferences typical in scientific research, but the greater part of the reasonings we make in everyday life resisted to analysis. Today many investigators show a special interest in modelling common sense reasonings as the bicycle one, which require more powerful and expressive logics.

3. Some references

As I said, up to a point, conditional reasoning is a novel notion. This means that at least I don't know of the existence of any precise definitions of this concept. But some authors, specially in the field of conditional logic, have defined related notions. I feel that it's noteworthy to give some examples of these related notions, in order to see that the "novelty" is not "too" new.

Donald Nute (Nute 1980: 5-16) use the notion of "hypothetical deliberation". For Nute this is the kind of inference we follow when we have to manage to extract conclusions from a false statement A. According to Nute, the hypothetical deliberation has the form of a mental experiment. We design alternative situations where the statement is true, and that are *reasonable* enough. If we want to known if another statement, B, follows from A, we try to design a reasonable alternative to the actual situation that makes A true, and where B is false. If we arrive to such a definition, B follows from A. If we fail to arrive to such a situation after a good piece of deliberation, of we judge that it's not possible to elaborate such a counterexample, then we conclude that B follows form A. The basic point in Nute's theory is the word "reasonable". As Nute explains, our standards about what is reasonable change depending on the occasion. There are situations that are reasonable in a context but not in a different context. Even in a concrete context, the reasonability criteria are not precise: they don't use to be explicit, and only vaguely they are presupposed in their totality. In any case, there are two boundaries for the alternative situations: those preposterous, crazy situations, and those "ad hoc" situations that confirm very clearly B.

Pollock use the term "subjunctive reasoning" to name the common feature of a set of phenomena that traditionally has been deemed philosophically problematic (Pollock 1976: 1-4). These phenomena include counterfactual statements (Conditional statements whose antecedent is false), but also laws of nature, causal statements, dispositions and probability statements. The "subjunctive" element of these phenomena is the recurring to state of things, events of situations that doesn't happen in the actual world, and consequently we have to resort to verbs in the subjunctive mood to express them. Lets take a disposition as example:

(4) This piece of gold is soluble in acid. In order to explain the meaning of this sentence we make use of a subjunctive sentence:

(5) If this piece of gold were submerged in water, it would be dissolved.

Following Pollock, subjunctive reasoning presuppose a "strange metaphysically

suspicious" kind of logically contingent necessity:

"To say that the Watergate scandal would not have occurred had Kennedy been president in 1972, seems to be to assert some kind of necessary connection between those two states of affairs. If there were no such connection, how could the occurrence of the one possibly effect the occurrence of the other? This same kind of necessity rears its ugly head repeatedly through subjunctive reasoning. The necessity in question is clearly not logical necessity, but what other kind is there?" (Pollock 1976: 2)

Explaining this "strange kind of necessity" is, according to Pollock, the key to the understanding of subjunctive reasoning. I think that the word "subjunctive" in Pollock's notion plays the same role that the word "conditional" in my notion of conditional reasoning. Likewise, the word "hypothetical" in Nute's account, "conditional" in Stalnaker's notion of "conditional deliberation", and "counterfactual" in Lewis's formal model, all of them point to the same kind of phenomena. A phenomena which is closely related to conditional sentences.

4. Conditional sentences

Conditional sentences play an important role in conditional reasonings. On the one hand, rational agents, while following a conditional reasoning, make implicit or explicit use of conditional statements: "if it were the case that…, then it would be the case that…". On the other hand, when expressing conditional reasonings, human resort to conditional statements. In the bicycle example, in order to communicate to my brother my inference, I will say something like that:

(6) If I want to use the bicycle I'll have to inflate the tyres; But if I inflate the tyres it'll will take me ten minutes, and if I go by bicycle from here to the cinema, it will take another twenty minutes.…

Furthermore, conditional reasonings produce conditional statements. In the bicycle example, my conditional reasoning ends when it reaches the conditional statement:

(7) If I use the bicycle I'll not arrive on time.

The result of the reasoning, its effect, is a conditional statements. Conditional statements are processes directed to the production of conditional statements, but there are other ways to produce conditional statements. For example, and restricting the discourse to material implication, if we have a disjunction:

(8) I'll go to the cinema or I'll stay at home we can use the rule of disjunctive

syllogism:

(9) If I don't go to the cinema, I'll stay at home.

Sometimes we use the Aristotelian syllogism, when we have as premises two conditional statements such that the antecedent of one them is the consequent of the other one. For example, from:

(10) If the bell sings, the calf lows.

(11) If the calf low, the cow moos.

I can infer:

(12) If the bell sings, the cow moos.

Which is the way conditional reasonings make conditional statements? A conditional reasoning follows the pattern of the implication introduction rule. In the application of this rule, we start by making some assumption A. Then we deduce another sentence B from A, the premises and the set of all tautologies. When we arrive to B, we cancellate A (it can not be used in later deductions) and we conclude that A implies B. If we represent the making of a assumption with a horizontal line, and the cancellation of the assumption which another horizontal line connected to the previous one by a vertical line, an application of the rule of the implication rule goes as follows:

A

…

…

…

B

A_B

Which kind of operator is ->? This is, still, an open question. For sure it is not material implication, at least in common sense reasonings. A -> B amounts to the truth of B or the falseness of A. This is a very weak relation between A and B. Quoting Pollock, there may not be any kind of "necessary connection". Even it's possible that A and B express two isolated, completely unrelated events, for example "Galilee was Italian" and "Venus is a planet". But when we arrive to a conditional statement by using a conditional reasoning we conclude something stronger, we conclude that A entails, carries on or causes B. Material implication won't do!

The operators defined in modal conditional logic are meant to express these kind of conditional relations between sentences. The counterfactual implication of the V-logics defined by David Lewis(->), or the conditional implication defined by Stalnaker (>), are good candidates for at least some classes of conditional reasonings. Let's be precise about this point. If the conditional sentences produced in conditional reasonings (If A, then B) have the syntactical properties and the truth value conditions of one of these operators (A B, or A -> B), then this operator may be selected for modelling conditional reasoning. Actually, I think that one single operator is not enough for all the relevant conditional sentences. In Vilanova (1995), (1996) and (1998) I propose a set of four conditional operators, and I pretend that they are enough to give an account of a great proportion of the natural language conditionals produced in everyday reasonings. This is not the place to describe these operators or to discuss their respective merits. I just want to point out that if we take some of these operators as the formal counterpart of the "if-then" English words, we need to allow in the deduction of B from A some inferences that traditional logic doesn't include. We need to allow the use, for example, of some rules that fall back on semantics, as the presentation of interpretations as counterxamples, as well as the use of iconic representations, w-arguments, inductive inferences... Modelling these strategies of reasoning is not easy, and a lot of work has still to be done. The notion of hyperproof of Etchemendy and Barwise progresses in the line of including these strategies, and some important and recent logical developments, as nonmonotonic, fuzzy logic or epistemic logic, invite also to optimism. In any case, we will omit this problem in this paper, and we limit ourselves to classical logic.

5. *Formal definition*

A *Conditional reasoning* is a sequence <P,S,O,G,D,C> such that:

A *Conditional reasoning* is a sequence <P,S,O,G,D,C> such that:

    1) $P \cup S \cup O \cup D \cup C$ is a set of sentences.

    2) P (the premise set) is the union of the set B (background knowledge) and F (the frame premises).

    3) S is a sentence called the *supposition*, and O is a set of sentences called *secondary suppositions*. G is a set of sentences called the *goals*.

    4) D (the deliberation or deduction) is a sequence of sentences $<A_0, A_1, \ldots, A_n>$ such that:

        4.1.) $A_0 = S$

        4.2.) for any A_i $(1 \leq i \leq n)$, rather $A_i \epsilon O$ or A_i is the result of the application of some deduction rule to some sentences belonging to $\{A_m / m < i\} \cup B$

        4.3.) For every $A \epsilon O$, there is a cancellation of A in D.

    5) C is $S \to A_n$.

We say that a conditional reasoning is SUCCESSFUL if $A_n \epsilon G$.

The set B may be not explicit or extensionally defined. For example, it may be just "background knowledge" or "a description of the actual world". The set F include the explicit premises, what we take as the point of departure of the problem we want to solve. It may include the description of the situation involved in the problem (its frame) or the particular context of argumentation. In any case, F (and in extreme cases also B) may be empty. The set O include the assumptions we make in the course of deduction that are cancelled before ending it.

These secondary suppositions mark conditional reasonings that take place in the course of the main reasoning. An example: in the bicycle reasoning I may consider two alternative routes, one through the park and another by the main road. Then I calculate how much time each of them will take. So I open a secondary assumption (I' ll go through the park), I calculate the time and conclude twenty minutes.
I open another secondary assumption (I will go by the main road) and conclude another twenty minutes. So I conclude that it will take twenty minutes.
I think that the definition is clear by itself, and I will not extend myself in explanations. It's more interesting to look for some interesting cases of conditional reasonings.

6. Applications
In this paragraph, I'll suggest the application of the former definition to some typical human reasonings.
Evaluation of counterfactual statements.
Counterfactual statements are statements whose antecedent is false. One typical problem we have to resolve is determining if some concrete counterfactual statement is true or not. When dealing with counterfactual statements we can not contrast the conditional relation with the real world, because the event expressed by the antecedent doesn't happen in the reality, so we have to make a "mental experiment". Ramsey proposed a test for the truth of a counterfactual :
– First, revise your beliefs in order to make the antecedent true.
– Then, if the consequent is true according to your revised beliefs.
If the consequent is true, the counterfactual is true. The counterfactual is false otherwise.

A application of the Ramsey test is a sort of conditional reasoning. In this case, B is a description of the actual world (complete in the ideal case), F is empty, S is the counterfactual antecedent and G is the set composed by the consequent and

the negation of the consequent. In the ideal case, the reasoning is always successful: the counterfactual is true when An is the consequent; the counterfactual is false when An is the negation of the consequent. In real situations we must take into account a third option: those cases where the rational agent is not able to deduce the consequent nor its negation, and accordingly he still doesn't know the truth value of the counterfactual (the conditional reasoning is not successful).

Prediction Problems.
Prediction problems may be seen as the search of an answer to the next question: "Lets suppose that such event happens, what will it follows?". In this case G is the set of all sentences, because we look for any consequence of the event. G is, of course, the event. F is the description of the present state of affairs, from which we try to deduce the forthcoming events. B is the rational agent's background knowledge. This background knowledge include what the agent knows about the "physics" of the world, as well as what we may call "common sense" knowledge, general information of a more doxastic than scientifical character.

Decision-making problems.
Decision-making tasks are inquiries about the consequences of our actions. We may see them in terms of this question: If I decide to do this action, will I get some of my objectives?. In this case, S is the action I'm thinking on do, G is the set of the subject's goals or ends. We suppose S and we make deductions till we arrive to one of the goals. F and B are as before.

Diagnosis (Ginsberg 1986).
Diagnosis may be explained in terms of the conditional relation between the cause (disease) and the observation (symptom). The question here is: Would this disease produce this symptom? F is the description of the system, S is the possible cause and G is the observed failure.

Hypothetical-deductive method.
In scientific research it's usual to try out a theory by inferring from it propositions which are verifiable by observation or experimentation. In this case, S is the thesis and we try to infer from the thesis a verified statement B or its negation ¬B, so G is the set composed by B and ¬B. If An is G then the theory is explanatory. If An is ¬G, then the theory is unvalid.

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ISSA Proceedings 1998 – Conditions For Spontaneous Production Of Computer-Mediated Argumentative Dialogues Between Learners

1. Introduction

This research aims to experiment the conditions for spontaneous production of argumentative dialogues between learners, in problem-solving situations. Since relatively little research has been carried out in this field of research, this paper proposes a restricted set of hypotheses, from both theoretical and practical points of view, on the conditions under which such discussions can be produced. A computer-based environment, involving synchronous typewritten communication, has been implemented in order to test these hypotheses, and to collect a corpus of argumentative interactions that is adapted for the validation of a cognitive model of this type of interaction. Preliminary analyses of the corpus gave quite encouraging results.

Up to the present date, some research in the field of cooperative learning has been carried out on the role of dialogic interactions in the processes of concept acquisition or comprehension (e.g. Thorley & Treagust 1987 ; Baker 1996). However, much less research relates to the study of the conditions under which argumentative interactions are produced between learners. Golder (1996) carried out research on young pupils' criteria for obtaining argumentative texts (the task was to compose a coherent text, while arguing successively in favour of two conflicting points of view, with respect to a particular question). Other research has been carried out on the design of computer-based environments, using computer mediated communication (CMC) for promoting certain types of interaction, by a suitably structured dialogue interface (Baker & Lund 1997). All of this research shows, that the conditions for producing argumentative dialogues are very diverse, including for example cognitive, social aspects as well as the design of the interface itself. The approach described here is practical as well as theoretical, the main aim being to collect a corpus of argumentative dialogues within a cognitive modelling framework.

This paper presents a experimental situation, designed for the production of argumentative dialogues, by computer mediated communication (CMC), between learners, on a specific problem-solving task in physics : the elaboration of simple qualitative models of energy ("energy chains", Tiberghien 1994). Once this work has been situated in the framework of research related to argumentation modelling, the hypotheses and modelling constraints that contribute to the elaboration of the experiment are exposed. Then a corpus sample is given, that includes a CMC discussion of one dyad and the individual attitudes of the two participants, just before and just after the interaction. In conclusion, some

qualitative preliminary results are given, related to the evaluation of the situation with respect to its original aim : provoking spontaneous argumentative dialogues.

2. Research project

The work described here is situated within the research framework of a PhD thesis in cognitive science, the aim of which is to investigate the cognitive changes (specifically, changes in attitudes) of learners that result from engaging in argumentative dialogues. As part of this work, a computational model based on artificial intelligence techniques is currently under development (Quignard & Baker 1997). The model comprises two belief sets (Doyle 1979) imbedded in two artificial agents, whose dialogue is based on a dialectical model of argumentation (Barth & Krabbe 1982) using multifunctional communicative acts (Bunt 1989).

From a methodological point of view, this cognitive modelling approach requires collecting specific empirical data, for validation of the model. This data must include a dialogue corpus, containing modellable argumentative phases, and give access to the participants' attitudes at the boundaries of these phases. Since that kind of corpus is not naturally available, a specific experimental situation has been designed and implemented for this purpose.

3. Design hypotheses and modelling constraints
Preliminary remarks

Previous corpora analyses of problem-solving dialogue between learners confirmed what teachers have always known : students are not naturally likely to argue spontaneously with each other, at least with respect to the subjects taught in school. It may also be observed that interpersonal conflicts or individual contradictions are not sufficient to provoke the incidence of argumentation, nor the incidence of argumentative attitudes. Nonnon's work (1996) partially explain this phenomenon : concepts that are not yet sufficiently mastered (since they are being elaborated, and learned) will not allow students to take risks to defend or attack them.

Our investigations on the situations promoting spontaneous argumentative interactions between learners are structured on one hand by pragma-dialectical and psychological hypotheses, and on the other hand by some modelling constraints, in order to collect the expected data.

Pragma-dialectical hypotheses

The design of a situation where the interpersonal relationships between participants may hopefully lead to an argument, is based on the following pragma-

dialectical hypotheses (van Eemeren & Grootendorst 1983, 1992).
– *Conflict must be externalised*: disagreement must be openly declared, so that personal positions are known and established.
– *Some common ground must exist* : conflict resolution by verbal means depends on sharing a common language (at least to some extent).
– *Participants must agree on the authorised rules* to resolve their conflict, legal moves for attacks and defences and rejected fallacies (Walton & Krabbe 1995).

Psychological hypotheses
Golder (1996) summarises the major obstacles for students to in understanding an argumentative situation. She defines three spaces, that must be wide enough to leave space for an argumentative debate:
– *the referential space* : students must be able to grasp the concepts that are to be discussed. This referential space may be quite narrow when subjects are students, since these concepts are being elaborated (Nonnon 1996).
– *the cognitive space* : subjects have to be able to build their own opinions and to understand that other attitudes may also be adopted. The cognitive space represents the ability to apprehend opinions with respect to a given problem.
– *the production space* : subjects have to be able to, and be allowed to, express their opinions in the current situation. For example, certain types of debate cannot take place at school, or with some persons. The dialogue situation may present physical obstacles to the discussion.

The first hypotheses manifest the need for a preliminary task, that may help students to grasp the concepts of the main task, and to step back in order to apprehend attitudes, differences of opinions and contradictions. The last hypothesis warns of the advantages and disadvantages of a computer-mediated typewritten discussion. Although such communication channels may facilitate control of emotions or dissimulation, and give more time for reflection (typewritten discussions are much slower than spoken ones), they also impose a particular way of representing concepts (typewritten language), that may be a semiotic obstacle to reasoning. In the current case, solutions can better be presented by diagrams than by language, and drawings cannot be produced on-line.

Modelling constraints
Modelling argumentative dialogues in conjunction with changes in the participants' attitudes makes strong constraints on the situation in which a

suitable corpus can be collected. Attitudes and explanations have to be collected just before and just after discussion, so that one gets a good representation of the participants' knowledge, of the attitudes they may hold during the interaction and of the arguments they may use. An external intervention has to be designed at the boundaries of the interaction in order to collect this information, yet it must not alter neither the content nor the progress of the discussion.

A spontaneous emergence of a critical discussion is expected as soon as the appropriate dialogical attitudes have been expressed and the communication between participants' screens is established. This implies that dyads have already been established, i.e. which students will discuss together in pairs. This does not leave much time to analyse the individual solutions and process a matching algorithm. Since the combinatory space that has to be investigated is very large (105 combinations for 8 students), dyad constitution that is based on analysis and comparison of individuals' problem solutions needs to be achieved by a computer.

The spontaneous start of the discussion in the argumentative mode also requires avoiding preliminary dialogues, whose goals are to build up the common ground, to externalise the initial conflict, and to set up the initial positions of the participants, since these phases are usually done in a non-argumentative way. These goals must of course be achieved, but for the purposes of modelling this must not be done in the dialogue itself.

Participants are required to discuss only by means of language, excluding other non-verbal forms of communication, such as gestures, facial expressions and diagrams. This may cause a strong handicap when solutions diagrams are to be communicated. Such a requirement is imposed in order to collect the maximum of the communicated information exchanged by participants. In previous corpora, collected by face-to-face interactions, it was very difficult to access the real content of what was communicated.

4. Description of the situation
The choice of a task: energy chains

The choice of the task is a crucial compromise : the main topic is expected to be both debatable (in the sense of Golder, op. cit.) and modellable, i.e. it allows automated analysis and dyad constitution. The task chosen was the qualitative modelling of energy, using by energy chains (Tiberghien 1994 ; Tiberghien & Megalakaki 1995), by high school students (16-17 years old).

Energy chains are composed by the following elements : *reservoirs* (that store energy), *transformers* (that transform energy) and *transfers* of energy (work, heat

and light). This task also contains a fundamental syntactic rule : chains must start and finish by a reservoir ; these reservoirs must be different. The experimental situation students have to model is the case of a bulb connected to a battery by the mean of two conducting wires. The correct corresponding chain is given figure 1.

Figure 1 The correct energy chain for the 'battery – bulb' problem

Figure 1 – The correct energy chain
for the 'battery – bulb' problem

The choice of this task is grounded by the following facts. Firstly, students' problem solving strategies are now well known for this task (Megalakaki & Tiberghien 1995; Collet 1996 ; Devi et al. 1996). Secondly, the task implies a wide knowledge space for debate, since students have to their disposal several systems of explanation for this phenomenon, and therefore several conflicting positions may be held and discussed (the electrokinetic model proposes a very different solution to this exercise).
Finally, this graphical task is well structured by syntactic rules on a small number of types of elements, which allows automated analysis of students' solutions. Dyad constitution may be achieved by a computer, in a reasonable processing time (10 minutes maximum).

Successive phases of the experiment
The experiment has been carried out with 8 high school students of a same class, 3 boys and 5 girls, aged from 16 to 18 years old. It involves four main phases : three are achieved by students (alone or in dyad), one is achieved by the system. This is a classical experimental procedure : a pretest, the task, a posttest, and a technical phase, expected the shortest as possible, for the organisation of the central phase (see table 1).

Phases		Achieved by	Screens
1.	Individual problem solving	Student	1
	Expression of attitudes and explanations	Student	2a, 2b
2.	Automated solution & attitudes analysis	System	
	Dyad constitution	System	
	Generation of conflict situation text, specific to each dyad	System	
3.	Typed dialogue (CMC)	Dyad	3
4.	Individual reconstruction of the agreed solution	Student	1'
	Expression of personal attitudes and explanations	Student	2a', 2b'

Table 1 – General progression of the experiment.

Phase 1: *Individual problem solving and attitudes*
Description
On a first screen (see figure 2), each individual student must draw the energy chain that models the experimental situation, provided for each student. The experimental situation consists of a battery, a bulb, connected by two electric wires. This material is the same that the students commonly use in labwork.

On this screen, two spaces are available : one graphical window where chain elements can be placed (these boxes and arrows can be manipulated from the menu bar) and one text window, updated by the system, that describes chains in a few sentences, as fast as they are elaborated. They also have a quick access on the screen and on a separate sheet of paper to a description of the model (syntax and semantics of the chain components).

On the second screen (see figure 3), students are proposed sentences (up to ten) by which the system describes their individual solution. Each sentence is displayed in a separate text window, in a column, on the left hand side. On the right of each sentence, students successively find a local menu, from which one of five attitudes can be selected:
1. *I'm sure it's the case*. (strong adhesion)
2. *Yes, maybe*. (weak adhesion)
3. I don't know. (no commitment)
4. *Maybe not/yes*. (weak negation or denial)
5. I'm sure, it's (not) the case. (strong negation or denial)
then a text window, where subjects are invited to type explanations with respect to their attitude.

A third screen (not included in this document), in principle identical to the previous one, displays a more complex description of the solution. It does not describe components separately anymore, but rather "chunks" of the energy chain diagram, composed by two connected boxes and their interconnections, in order to collect more global attitudes and other types of explanations.

Rationale

This phase aims to help subjects to form their own opinions on the solution to the problem, by graphical problem solving (a semiotic register adapted to the problem solving task), followed by an individual reflection within language (the semiotic register adapted to discussion task). Shifting the problem into language is requested to match reasoning to the concept representation modes (Stenning & Oberlander 1995). A new phase of reflection is induced on the current solution, that may improve the rise of a critique, without introducing new concepts nor solution components. The automated description of the diagrams with sentences or groups of sentences also proposes an common way of describing the solutions, that may improve the determination of the common ground, before the discussion starts.

Phase 2: *Dyad constitution*

An automated algorithm has been implemented for dyad constitution, so that discussions may start as soon as possible after attitudes have been expressed. During the first phase, no one could know who would discuss with whom. The choice of the partners is achieved on line, on the basis of the individual solutions, in order to put together subjects, who manifested conflictual solutions, that may give rise to potentially rich argumentation. Solutions are analysed, formalised and finally compared.
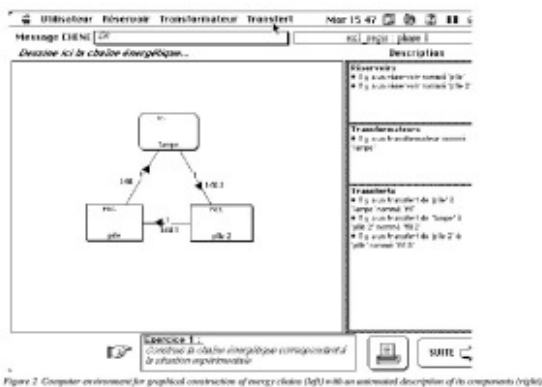

Figure 2 – Computer environment for graphical construction of energy chains (left) with an automated description of its components (right).

Three criteria have been selected in order to predict which pairs of students' solutions would lead the students who created them to commit themselves to

argumentation.

– *conceptual obstacle*: students should be put together who did not solve the problem the same way. There are three ways of describing the problem (modelling levels, see Tiberghien 1994) : a raw description of the objects involved in the situation (objects level), an electrokinetic model (using knowledge from electrical circuits) and energy modelling (the correct way, expected for this exercise). Research in physics education showed that students' description are homogeneous from the modelling point of view, and they have difficulties in changing the way that they conceive the problem. Therefore, from this conceptual obstacle one can expect strong positions and entrenched commitments. Modelling levels are estimated on the basis of the labels given to components of the chain, and the number and direction of transfers. These subcriteria are weighted by the degree of belief in the corresponding propositions, as expressed in the attitudes.

– *normative obstacle*: a chain that does not conform to rules of the model is expected to give rise to well grounded attacks from the opponent (there is a space of possible counterarguments).

– *solution correctness*: from the principle that a good solution is more convincing than a worse one, one must avoid putting together very inequal solutions, otherwise the worse solution could not compete against the better one. On the other hand, one should also avoid to put together two solutions that obtained a similar mark: they could be so close that there would not be any conflict left, that may lead not to a valuable argumentation, but rather to a negotiation

The argumentative potential of each dyad is evaluated on the basis of the previous criteria, and an "argumentative mark" is given. An optimisation algorithm investigates all possible ways of choosing four pairs in a group of eight subjects, and retains the best configurations: no pair must be too weak, most of them must be

Figure 3 – Attribution of attitudes and explanations. For each sentence formulated by the system (left column) on the basis of the graphical solution, subjects are expected to express their attitude in the local menu (in the centre column) and to explain their choice in the reserved place, on the right.

maximal. In fact, the final choice amongst candidate dyads (e.g. 5 optimal ones amongst 105 possibilities for a group of 8 students) is left to the experimenter's intuition.

Text generation for each conflict situation
Once the choice of dyads is made, one must give to each dyad specific instructions that lead to an argument. Conforming to the rules of pragma-dialectics and the modelling constraints, instructions consist of a common language description of the conflict situation and this final phrase:
"Discuss together, each of you defending your own point of view, in order to find a common solution to the exercise."

By the presentation of this text, essential elements of the common ground relating to the conflict situation are established, and positions are declared. Participants cannot visualise the opponents' diagram: they only have a partial description of it, in common language. The students also have at their disposal their own solution diagram, on a separate sheet of paper.

Phase 3: *CMC discussion of the solutions*
Once dyads have been constituted, the students sit in front of a computer, so that

partners in a given dyad are back to back. Partners share the same computer screen across the network. The connection enables each student to observe all actions of the other, including text as it is being typed.

The screen used for computer-mediated argumentation is divided in two parts (see figure 4). The upper part of the screen displays the description of the conflict situation, and the instruction phrase, described in the previous section. The lower part of the screen is dedicated to communication. Two personal spaces are displayed on both sides of a central dialogue history. Subjects communicate by the use of buttons in their personal space. Some buttons send short messages to the dialogue history : 'Yes', 'No', 'I agree', 'I don't agree'... These are shortcuts because typing takes a while ; they are also provided to stimulate their use, and so to structure a certain from of discussion. Other buttons (balloon, 'Because...', see figure 4) open a pop-up text window where free text can be typed. The students send their messages by hitting the TAB key. In this case, their message is added to the bottom of the dialogue history (bottom of screen in the middle) and their text dialogue box closes. The design and implementation of the computer-mediated communication part of this interface was based on previous research carried out within GRIC-COAST (Baker & Lund 1997).

Figure 4 CMC environment shared by the subjects of the same dyad. The upper part displays the conflict situation, whereas the lower part is dedicated to communication. On both side of the dialogue history (in the centre) subjects are provided a personal panel for the formulation of communicative acts. A free text typing window can be called by clicking on the balloon. The other buttons send key messages directly to the dialogue history.

Figure 4 – CMC environment shared by the subjects of the same dyad. The upper part displays the conflict situation, whereas the lower part is dedicated to communication. On both side of the dialogue history (in the centre) subjects are provided a personal panel for the formulation of

communicative acts. A free text
typing window can be called by
clicking on the balloon. The other
buttons send key messages directly
to the dialogue history.

The shared screen technology induces its own side effects. Subjects have to
manage turn-taking and avoid simultaneous typing (overlapping contributions
cannot be separated). Subjects do also conform to another implicit social rule,
that is not to intrude and use opponent's personal space: the shared screen
technology actually cannot tell which computer provoked events such as key
strokes and mouse clicks.

Phase 4: *Individual reconstruction of the agreed solution and attitudes*
Once students decide that the debate is closed, they call the experimenter to
disconnect the screen sharing. Subjects come back to the initial drawing
environment for energy chain elaboration (see figures 2 and 3). They are expected
to rebuild the energy chain on which they agree at the end of their discussion. As
in the first phase, their chain is analysed and descriptive propositions are
proposed by the system, on which subjects must express their own attitudes and
give explanations.
The design rationale of this phase was that the researcher would be able to
access the degree of agreement reached in the discussion, by comparing it with
the chains drawn subsequently by individual students of the same dyad. One can
also access by the explanations given to new components of the chain, and to the
reasons why proposals were accepted or not.

5. Preliminary results
The solutions collected at the end of the first phase were quite similar. Therefore
it was not easy to obtain conflictual dyads. Two out of four gave rise to short and
weak argumentation. The two others had a better discussion: their solutions had
more conceptual differences.

Corpus sample
As an illustration of the preliminary results, we present the work achieved by a
dyad, that gave an interesting discussion: Basil and Romeo (the names of the
students have been changed). Their initial solutions were quite different, as
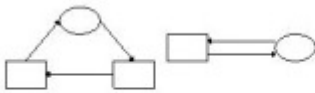shown on figure 5.

Figure 5 Basil and Romeo's individual solutions before interaction

Initial states

Basil's reasoning can be reconstructed from his attitudes and the explanations he gave. According to him, the final reservoir was different from the initial one. Therefore he introduced a second battery. Transfers are labelled "wire n". He was not sure of the third wire, but it was required to bind the two reservoirs. On his side, Romeo qualified the situation to be a "simple electrical circuit" (sic). Between the battery and the bulb he drew two transfers in opposite directions, that he called "conducting wire". All his attitudes are strongly affirmed.

CMC Discussion

The discussion between Basil and Romeo is presented below (table 2), with a preliminary dialectical analysis. This is not a transcription rather the *real content* of the students' communication, as they typed their messages on the screen (although the original was in French). Mouse moves apart, this is the *integral informative content* exchanged by Basil and Romeo. For the sake of brevity here, contributions 18 to 28 and 32 to 36 have been left out, since they have no consequences for the progression of the discussion. The average contribution duration is two minutes. Debate closed naturally (i.e. by a common decision of the participants) after 71 minutes discussion. Romeo's interventions are indented to increase the legibility of the dialogue.

Table 2 Basil and Romeo's dialogue and its dialectical analysis. Theses are in italic.

N	Interventions	Dialectical analysis
1	B : Romeo, do you receive me ?	
2	R : Yes	
3	I receive you too.	
4	What do you think of my wiring	*Thesis proposal 1 (T1)*
5	It's not very conclusive	Attack on T1
6	Why ?	Request for justifications with respect to 5
7	Because for me, there must be 2 reservoirs	Attack on T1 and *thesis proposal 2 (T2)*
8	In a circuit with one battery there is only one reservoir !	Defence of T1 et attack on T2
9	Yes, I agree, but if you read well the text, especially at the end, you'll see : the final reservoir is different from the initial one, that's the reason, why I put that.	Concession of 8. Attack on T1 and defence of T2
10	You know, now, I think you're right, but why only one transfer. If you read the text, you'll see there are two.	a) Acceptance of T2. b) Attack on thesis 3 (T1) c) *Thesis proposal 4 (T4)*
11	I never said there was only one transfer ??? For one, there are three.	Rejection of T3. *Thesis proposal 3 (T3)*
12	Where do you see these three transfers, in the stars !!!??	Attack on T3
13	Firstly, like you, I am sure that there are two and I think the third one is used for joining the two reservoirs.	reStatement of T4 : Defence of T5
14	OK?	
15	What you say is disturbing.	Attack on T5
16	Why?	ask for justification with respect to 15
17	Your argument is valid, maybe even more. So for you there are three transfers and two reservoirs. Your circuit seems right, except that in these conditions the filament in the bulb is a transfer too !	Concede 13 Acceptance of T5 + Objection
18-28	unsuccessful debate on an objection to T5 (misunderstanding on the word 'filament')	
29	Yes but I think we stopped debating. So to sum up, I think we could say there are : 2 reservoirs, 3 transfers, and 1 transformer and we have finished ?	Synthesis : thesis proposal T6 = T3+T5 ask for closure
30	Yes	Acceptation of T6 and of closure
31	We finished ?	Request for closing
37	THE END	Acceptance of closing

Table 2: Basil and Romeo's dialogue and its dialectical analysis. Theses are in italic.

Final states

Once communication was cut off, and the students asked to work again individually, Basil and Romeo each rebuilt the common solution on which they agreed at the end on the discussion. As one can see it from table 2, participants agreed on Basil's solution (circular diagram, with two reservoirs and one transformer). Their final diagrams were identical, except for the labels given to transfers. Instead of the initial "wires", Basil used the term "transfers". Romeo kept his original designation ("conducting wires"). This difference may be explained *a posteriori* by the fact that no thesis really dealt with the name to give to transfers.

The final attitudes were all strongly affirmed, with the exception of Romeo's attitude with respect to the transfer between the two reservoirs, that remained weakly positive ('Yes, maybe.'). Basil's explanations were laconic and similar to the original. On his side, Romeo gave interesting explanations concerning the new components (the "existence" of a second battery and of a transfer between the two reservoirs). He recalled the arguments by which Basil supported those propositions in the dialogue (see table 3).

Table 3 Attitudes and explanations provided by Romeo concerning the two new components appeared in his final chain, after discussion

Proposition	Attitude	Explanation	Move
There is a reservoir called 'battery 2'.	Yes, sure	Since it's written on the sheet : the final reservoir is different from the initial one.	9-19
There is a transfer from 'battery 2' to 'battery' called 'conducting wire'.	Yes, maybe.	Since there are two reservoirs, there must be a link !	13-17

Table 3: Attitudes and explanations provided by Romeo concerning the two new components appeared in his final chain, after discussion

Preliminary results

On the basis of this preliminary analysis of the corpus, one can only draw qualitative conclusions : preliminary results at least validate the fact that the experimental situation – including automatic translation of graphical solutions into a textual form, automatic solution analysis, conflict situation texts and, above all, dyad constitution – is able to favour the spontaneous production of modellable argumentative interactions between students.

The attitude expression activity was easily achieved by subjects, and allows the experimenter to collect both attitudes and explanations at the key moments of the experiment. Students systematically and carefully filled in all the explanation fields. One could notice interesting changes in the attitudes and explanations before and after the discussion phase. Some new components and therefore new attitudes arose. The corresponding explanations recalled arguments stated in the dialogue. Similarly, these arguments were visible *a posteriori* in the explanations given by the proponent before the discussion started. The attitude and explanation collection phase provides a good way to rebuild students' conceptions before and after the dialogue and to relate them to the dialogue statements.

Dyad interactions were mainly argumentative. Very few interventions preceded the proper argumentative phase, and did not involve any new content information relating to the problem-solving task. The aim of these initial interventions was to check whether the interface worked well (subjects did not have any preliminary exercise to get used to this interface). Another informal dialogue occurred at the end of the interaction as well, after the discussion had been clearly closed. In fact, subjects took a while before getting the attention of the experimenter, and their screens remained shared a few minutes more. Argumentation between students could be easily analysed in dialectical terms. Contributions provided easy access to their propositional content, since dialogue turns were well respected and students did not use many referents.

Positive conclusions may be drawn with respect to the quality of students' discussions. Although there are informal dialogue phases, these do not affect the progress of the main discussion: they can be easily put aside, for the purposes of modelling argumentation dialogue. Therefore, the collected discussion are really argumentative, spontaneously produced, and modellable by a dialectical and cognitive system.

6. Perspectives and conclusions

Success in the spontaneous production of argumentation dialogue depends essentially on the degree of commitment of students to their solutions, and on the conceptual distance between their points of view. In the corpus collected during the experiment presented in this paper, students' solutions were too similar, or too "classical", and very much constrained by the electrical model. Further experiments aim to get better argumentative dyads by giving students better information on the energy chain model, so that they understand that a quite different phenomenological description is expected. Hopefully more personal and

more diverse solutions could be drawn.

One aim is to improve the way the initial conflict is described and presented to dyads, for setting the basic information and the common ground for the discussion. More linguistic opposition markers can easily be introduced. The instruction phrase may also be improved, to encourage students to have more complex argumentative discussions, if they are for example expected to investigate all the differences between their two solutions. In fact, students estimate that the discussion task is over as soon as the main conflict (the one given in the description text) has been resolved, without taking care of the rest of their chains or leaving undecided components of the chain, like labels.

We plan to collect a second corpus, using an improved version of the experimental situation and its attendant software, with a larger group of students, which would give subjects more chance of having a better opponent.

This paper presented an experimental situation for collecting argumentative dialogues, spontaneously provoked between learners in computer mediated communication. Students' attitudes and explanations were collected just before and just after the interaction. Fundamental hypotheses have been discussed, that form the basis of the implementation of the experiment and the dyad constitution algorithm. These hypotheses take account of personal argumentative skills (conceptual and cognitive spaces), interpersonal aspects (conflicts and choice of the opponent) and technical features (production space) for structuring the dialogue interface. This experiment produced satisfactory qualitative results on a restricted group of learners. An experiment on a wider group is planned for completing the validation of this protocol and to support our main research project: cognitive modelling of argumentation dialogue.

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ISSA Proceedings 1998 – The Changing Ethos Of Physicians And Implications For Their Ability To Persuade

Physicians in the United States have enjoyed a particularly high social status during the 20th century. But increasing concern about patient autonomy and about noncompliance with prescribed regimens, as well as questions about whether doctors always act in the best interests of their patients, especially when health insurance companies are involved, have called into question the credibility and authority that physicians have enjoyed for so long. Large quantities of research about patient noncompliance have been produced in recent years (Donovan & Blake, 1992), accompanied by concerns about how patients may be persuaded to follow prescribed regimens. This concern about persuasion may be associated with changing perceptions about the character or authority of physicians in general.

Aristotle's *Rhetoric* has been read as dividing artistic proofs or interior persuaders, for which the rhetorician constructs the material, into three forms of

persuasive appeal: to reason (*logos*), to emotion (*pathos*), and to the speaker's authority and character (*ethos*). In the *Rhetoric*, Book 1, Chapter 2, Aristotle states that character may be the most effective means of persuasion that speakers possess. *Ethos* involves presenting oneself so as to be believed, and plays a significant role in the success of a presentation (Welch, 1990: 139). In the context of practitioner-patient communication, it influences patients' perceptions of their physicians and the likelihood that patients will be persuaded to follow medical instructions.

Until recently the medical profession has exercised dominant control over the markets and organisations in medicine that affect its interests, but the profession's autonomy and dominance are now in jeopardy (Starr, 1982). Healers have not always been held in high regard. Ancient Roman physicians were primarily slaves, former slaves, or foreigners, and medicine was considered a low grade occupation; in eighteenth century England, physicians struggled for the patronage of the rich; even in the United States before 1900, many doctors found it difficult to make a living and had much less influence than they have enjoyed in the 20th century (Starr, 1982, pp. 6-7). The authority of physicians in the United States may now be eroding, following increased patient autonomy and the increasing use of physicians as administrators for health insurance companies. Starr (1982) has pointed out that: "The more administrative uses the state and other institutions find for professionals, the more they may simultaneously expand and undermine their authority" as patients wonder whether their welfare really comes first (p. 12).

The health care system in the United States has been characterised as having had three important periods of development, and now entering a fourth:

The first period began in the mid-nineteenth century (1850) when the first large hospitals … began to flourish. The development of hospitals symbolised the *institutionalization of health care* for the first time in [the United States]. Before this time, health care in the United States was a loose collection of individual services functioning independently and without much relation to each other or to anything else. …

The second important historical period began around the turn of the century (1900) with the *introduction of the scientific method into medicine* in [the United States]. Before this time, medicine was not an exact science, but was instead a rather informal collection of unproved generalities and good intentions. After 1900, stimulated by the opening of the new medical school at the Johns Hopkins

University in Baltimore, medicine acquired a solid scientific base that eventually transformed it from a conscientious but poorly equipped art into a detailed and clearly defined science.

With the coming of World War II, the United States underwent a major social, political, and technological upheaval whose effect was so marked that it ended the second and signalled the beginning of the third period of health care development. The scientific advances continued unabated but now they were paralleled by a *growing interest in the social and organizational structure of health care. ...*

Since the early 1980s, the health care system in [the United States] has moved into the fourth phase of its development, an era of *limited resources, restriction of growth, and reorganization of the methods of financing and delivering care* (Torrens, 1993: 3-4).

Torrens (1993) has pointed out that, following developments in medical technology, medical students increasingly view "excellence as being reached through technical achievements and give decreasing importance to the more personal, nontechnical aspects of disease. ... The result frequently is professional performance that is excellent in technical terms and rather poor in human terms" (Torrens, 1993: 10).

At the same time that medical students and physicians have become more concerned with the technical, and less concerned with the personal, aspects of delivering health care, research about patient noncompliance has increased significantly in the last 30 years (Playle & Keeley, 1998), and studies indicate that between one-third and one-half of all patients do not follow doctors' orders and that the situation might be improved if physicians paid more attention to developing effective communication skills and building trust and credibility with patients.

Several scholars have noted that medical practitioners interpret noncompliant behaviour as a challenge to their authority. Playle and Keeley (1998) have pointed out that physicians perceive noncompliant behaviour as problematic because it contravenes professional beliefs, norms, and expectations regarding the proper roles of patients and professionals. Donovan and Blake (1992) have stated that compliance is closely tied to the dominance of medicine and that what clinicians now refer to as compliance used to be presented more overtly as physician control. Much of the research on patient noncompliance suggests that "patients are too ignorant to understand medical instructions or that they forget large

portions of what they are told" (Donovan & Blake, 1992). The assumption in much of the work on noncompliance is that is that patients have little choice with regard to complying with doctors' orders. From the point of view of physicians, noncompliance is irrational behaviour (Donovan & Blake, 1992).

The failure of physicians to persuade patients to comply with prescribed regimens has been linked to faulty doctor-patient communication. There is evidence that some patients do not comply with medical instructions because of unpleasant interactions with their doctor (Zola, 1981). Various articles have suggested that compliance could be increased by encouraging patients to ask doctors more questions (Rost, Carter, & Inui, 1989), increasing the extent to which physicians appear approachable (Mechanic, 1978), and encouraging doctors to be more empathic (Squier, 1990).

In addition to such suggestions about how medical practitioners may change their communication behaviour to become more effective, scholars have also recommended rethinking traditional views that patients should passively receive medical information from practitioners. Given that debates surrounding patient noncompliance have centred on maintaining professional power, Playle and Keeley (1998) have suggested reconceptualising the roles of patients and professionals to involve a view of patients as active participants in their own health care. And Donovan & Blake (1992) have recommended developing more open, co-operative doctor-patient relationships.

Patients, traditionally viewed as passive recipients of health care (Playle & Keeley, 1998), have become more involved in their own health care. There is now growing interest in alternative medicines and second opinions. Patient demands for information about medical treatments increased significantly in the United States in the 1970s and 80s (Donovan & Blake, 1992). Quill and Brody (1996) have pointed out that "Medical care in the United States has rapidly moved away from a paternalistic approach to patients and toward an emphasis on patient autonomy" (763). They claim that the former paternalistic approach had some benefits in that physicians struggled to make the best decision for patients and "spared patients and their families from agonising about interventions that had little chance of working" (764).

The new sense of patient autonomy is particularly evident with regard to changes in the acceptance of deceptive communication on the part of medical practitioners. The Hippocratic oath contains no mention of fabrication or of honesty, although, as Higgs (1985) has pointed out, the related "Decorum" advises physicians that telling patients the nature of their illness can cause them

to take a turn for the worse. The first mention of veracity as a principle for U.S. physicians appeared in the American Medical Association's 1980 "Principle of Ethics" which stated that physicians should deal honestly with patients and colleagues and strive to expose physicians who engage in fraud and deception (Higgs, 1985: 190).

Concealment, especially of terminal diagnoses, was common in medical practice in the United States until about a generation ago. Fitts and Ravdin (1953) reported that 32 percent of physicians who responded to their study never disclosed to a patient if that patient had cancer (57 percent usually did not tell; 28 percent usually told, and only three percent always told). Studies up to the mid-1960s showed that it was common for doctors not to inform cancer patients of their diagnosis. (e.g. Oken, 1961). Physicians were trusted to know when disclosure of a diagnosis would be harmful, and therapeutic privilege was considered to apply to situations in which practitioners withheld information from a patient if they thought that full disclosure could be detrimental to the patient (Van Den Heever, 1993).

In 1977, however, Novack et al. reported that 97 percent of physicians who responded to their study routinely disclosed cancer diagnoses. And Hebert (1994) has stated that although deception and nondisclosure are still common, doctors have become more honest in disclosing to patients in the last 30 years.

Current expectations are that physicians will share information with their patients and, in some cases, even allow patients to contribute to decisions about treatment. It is no longer the case that patients do not question medical decisions and simply trust doctors to act in the best interest of patients. In addition to growing patient autonomy, economics have intruded on efforts to provide all possible benefits because some health insurance companies refuse to pay for certain medical interventions. Although some medical scholars have suggested deceiving insurance companies so that patients may qualify for reimbursement (e.g., Cain, 1993), many patients appear to be more suspicious about doctors having greater concern for the interests of insurance companies.

Given evidence from Aristotle that credibility is one of the first considerations in persuasion, medical practitioners might be well advised to focus on their own *ethos*, on enhancing their authority and credibility with patients, as opposed to regarding noncompliance as irrational behaviour. It appears that doctors could do more to persuade patients by developing effective communication skills to help them earn their patients' trust. This can involve recognising patients as active

participants in communication interactions, acknowledging that patients' impressions of physicians' character and intentions significantly influence whether patients will do as prescribed, and trying to assure patients that their interests are of the greatest importance in doctor-patient interactions. Increasingly, it seems, patients are not merely following doctors' orders; doctors will need to make a greater effort to persuade patients to comply with prescribed regimens. As Aristotle suggested so many years ago, in addition to providing reasonable, logical evidence and possible appeals to emotion, this may involve enhancing patients' perceptions of the character of their physicians through effective communication.

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