Professional reflection and visual arguments for patients: Is graphic design really a critical practice?

Professional reflection and visual arguments for patients:
Is graphic design really a critical practice?

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8584 words.

Abstract
This article attempts to frame different kinds of critical evaluations of graphic design. The basis is formed by the idea that a profession will prosper if critiques are an integral part of the activity of design.

Based on interviews with practitioners, the activities of graphic designers can be described in two diagrams. A first diagram describes a design process as 'a development of a visual argument' in which visual logic, visual rhetoric, and visual dialectics need to be integrated into an argument strategy. A second diagram shows that graphic designers undertake at least nine simultaneous activities to build these argument strategies. This description of professional practice is used as a base to formulate detailed comments about a specific designed object.

A detail of a package leaflet was analysed as an example to show different critical perspectives. The example shows that it is hard to provide a reliable critique from a single perspective. At least six different perspectives are relevant: designers, clients, the regulatory framework, the professional communities, actual users and their proxies, and society. Each of these uses its own value system, criteria, data, and approaches. The results of these different critiques can be used to motivate the development of the next generation of package leaflets.

The description of the graphic design profession, in combination with the six critical perspectives, seems to point to a possible shift in emphasis of activities of graphic designers. In addition to developing a visual argument, it also becomes necessary to make detailed analyses of the situations in which these visual arguments might be used, consider different perspectives of their use, establish performance levels, and develop narratives that integrate other value systems. Graphic design can only develop as a critical practice when graphic designers integrate the value systems of others into their processes and results.

1. Introduction: graphic design practice

Jorge Frascara – ICOGRADA president (1983-1989), and author of several books on graphic design - described in 2004 the purpose of communication design as:

> "*Every piece of communication design arises from the need to communicate a specific message, and to obtain a desired response; in other words, it comes to exist because someone wants to say something to someone else, so that this someone else does something in particular. … it is fundamentally about performance*."[1]

This seems an appropriate starting point for this article because it focuses on the three main parts of communication design:
- someone needs to communicate; someone wants to say something to someone else,
- a specific message; something,
- a desired response; do something in particular; about performance.

Questions like 'Who is the someone?', 'What is the message?', 'Who is the 'someone else'?' lead to questions like 'How do we find out if there is a desired response?' and 'Who decides what is desired?'.

[1] Jorge Frascara. Communication Design. Principles, methods, and practice. Allworth Press. 2004. Page 12.

Herbert Simon provided a more general definition of design when he stated in 1969 *'Everyone designs who devises courses of action aimed at changing existing situations into preferred ones'*.[2] This often quoted definition encompasses a far larger range of activities, but the underlying questions are similar. 'What is the existing situation?', 'Which actions might be required to change this?', 'What is the preferred situation?' and 'Who prefers this?' are questions that could all be used as starting points to discuss and analyse if a piece of communication is performing or not as part of the larger discussion if graphic design can be seen as a critical practice.

In stead of looking at the existing literature about graphic design, or trying to apply theories from outside the profession, an attempt was made to answer these questions of professional graphic design activities through interviews. The basis for the answers are provided by about 150 interviews with graphic designers conducted between 2006 and 2009 in Breda, The Netherlands.[3]

Outline

The first four parts of this article provide a basis for a critique of the visual design of a single example. Before a discussion can start, it is first necessary to clarify some terminology issues. In part 3, the activities of graphic designers are described, both as a process and as a result. In part 4, the different groups of people who would be able to provide relevant criticism are listed. These form the basis to discuss the design of an example in part 5: a detail of a patient package leaflet. Part 6 provides a brief discussion about this approach, and applies it to some ethical and educational questions.

2. Terminology

Before a description of critique and practice can start, it seems worthwhile to make a few notes on terminology. Several relevant words have several meanings. Table 1 lists some of these.

argument	a heated disagreement	a rationally organized structure to support and present an opinion
critical	a crucial part of something	questioning why things are not different' (= an analysis of the faults and merits)
design	an object or system	the activity of developing objects or systems
discipline	obeying specific rules	common knowledge and attitudes shared by a professional group
reflective	a surface that creates a mirror-image	questioning an approach during and after an activity
rhetoric	insincere language without content	the activity of effective and persuasive speaking
practice	a repetitive training activity	acting in a professional manner
professional	white collar, executive, occupation	a skillful, competent, practiced, experienced performance.

Table 1: A few examples of confusing terminology.

Any discussion using these terms need to make clear what is intended. Otherwise, a dialogue is easily misunderstand and becomes incomprehensible. Two examples might make this clear. *'Reflective practice'* might mean 'a professional who considers actions while doing them and afterwards in order to improve these actions' or it could mean 'a

[2] Herbert A. Simon. *The Sciences of the artificial.* Cambridge: MIT press. 1969. Page 55.
[3] Karel van der Waarde. '*On graphic design: Listening to the reader?*'. Research Group Visual Rhetoric. Avans Hogeschool, AKV|St. Joost. Breda, The Netherlands. 2009.

student who carefully copies a master-example (= reflection) over and over again (= practice)'. *'Critical design'* might mean 'the visual appearance of a digital election form', when the design of ballot forms is crucial for a democratic system. Or it might mean 'thinking about the benefits of adding more decorations to an object'. This article uses the righthand side meanings of table 1, and elaborates where necessary.

Furthermore, there are differences in meaning between phrases such as 'graphic design', 'communication design', 'visual communication design', specialisms like 'information design' and 'user interface design', and field descriptors such as 'user experience design' or 'service design'. Although these words might be clear in a commercial setting, they are neither accurately defined nor clearly differentiated. In this article 'graphic design' and 'visual communication design' are used as synonyms.

3. Graphic design practice: reflections and visual arguments

Graphic designers seem to do divide their activities into two patterns: the design pattern in which a visual presentation is considered, and a process pattern which encompasses all the activities and reasons that support the design pattern.

After about thirty interviews in Breda (the Netherlands) these two patterns started to emerge. Both patterns were visualised as diagrams and discussed in subsequent interviews. The diagrams were iteratively modified and discussed until new interviews would not lead to new changes. The patterns were named 'Visual argumentation' and 'professional reflections'. Both are still being investigated and tested.

3a. Visual Argumentation: what graphic designers do

The first pattern focuses on the reasoning for graphic design decisions. The interviews revealed that there are three main considerations[4]. These are considered together, and there is no hierarchical order.

1. Visual dialectics: The considerations about conversations of the client of a graphic design project – the commissioner - with their contacts. Although designers are not directly involved in these conversations, their work enables these conversations to commence and to continue. A consistent visual corporate identity, a suitable tone of voice, clarity of expression, and relevance are probably essential to have a dialogue (Gricean maxims of conversation[5]). The second time an individual (consumer, user, citizen, …) comes in contact with a client's organisation (business, agency, institution, ...), it seems beneficial to be recognized, continue a conversation in a similar tone, and relate its contents to expectations.
2. Visual rhetoric: The considerations about the single message. This relates the attributes of a client, the contents, and a specific group of people in a single designed artefact. It could be compared to 'a single speech' in which a speaker structures a monologue in such a way that listeners can consider and remember its contents.
3. Visual logic: The configuration of the visual elements. Graphic designers search for a suitable visual combination of text (typography), images (illustrations, photographs), schematic elements (colours, backgrounds, frames), and inseparable components (maps, diagrams, trademarks). This consideration of the visual elements applies to both the design of a single message, as well as the design of a longer term conversation.

[4] Karel van der Waarde. 'Designing Information about Medicine: The role of visual design.' pp 73 – 91 in: Cerne Oven, P. & Pozar, C. (Eds.) *Engelhardt, Waller, Frascara, Van der Waarde, Garrett, Schriver on Information Design.* Ljubljana: The museum of Architecture and Design. 2016.

[5] Paul Grice. 'Studies in the way of Words'. Cambridge (MA): Harvard University Press. 1989. p 27.

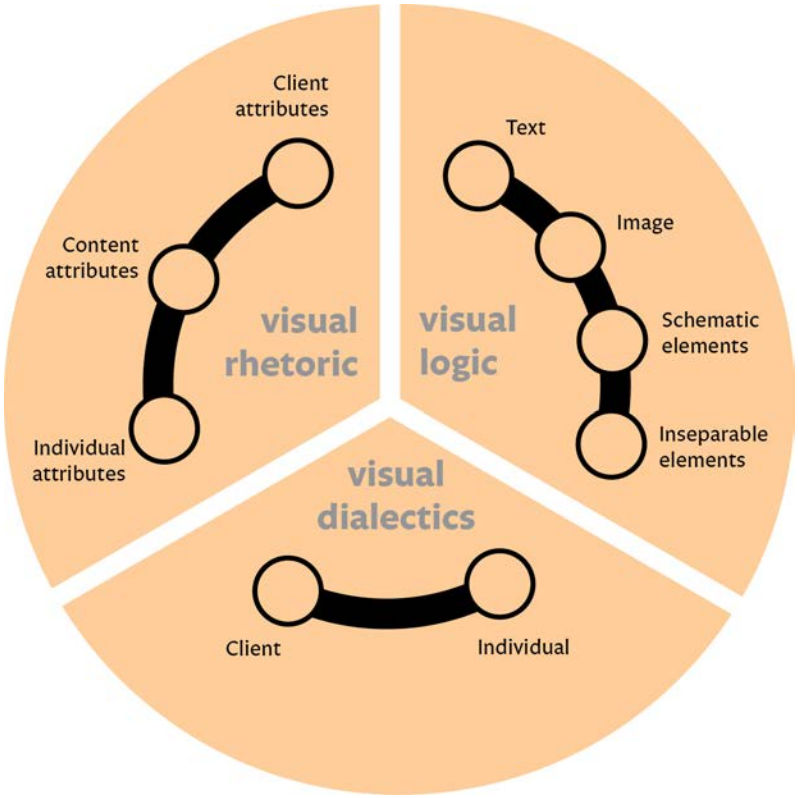


Figure 1: Visual arguments in three parts: visual rhetoric, visual logic, and visual dialectics.

Graphic designers seem to consider decisions in these three together. They apply a 'visual logic' to both 'visual rhetoric of a single artefact' and to 'visual dialectics of a longer conversation'.

This might be an fruitful description of communication design because there seem to be many overlaps and similarities between 'communication design' and 'argumentation theory'. However, it still is a theoretical framing of a commercial practice and it is likely that there are irreconcilable discrepancies too. It is still necessary to investigate these in more detail.

Furthermore, the relations and balance between rhetoric, dialectic, and logic in arguments are continuously discussed[6], and the discussion about the legitimacy of a study of 'visual arguments' is continuing too[7]. It is therefore beneficial to keep in mind that there are different views on the trichotomy of rhetoric, dialectics, and logic and the application described above might be in conflict with some of these views.

3b. Professional moves: how graphic designers do it.

The second pattern shows the activities of graphic designers. These can – probably similar to the activities of other professions – be described in a 'web of moves'. This phrase was used by Donald Schön when he described the activities of a studiomaster in architecture in his book 'The Reflective Practitioner'. In his analysis, Schön clusters the

[6] J. Anthony Blair. 'Rhetoric, Dialectic, and Logic as Related to Argument.' *Philosophy and Rhetoric.* 45 (2). pp 148 – 164. 2012.

[7] A useful review and addition was recently published by David Godden 'On the Norms of Visual Argument: A Case for Normative Non-revisionism.' *Argumentation.* 31(2). pp 395-431. June 2017. See also: Georges Roque. *Visual Argumentation. A reappraisal.* Seventh International Conference of the International Society for the Study of Argumentation (ISSA). 2010.

language of architecture of a single conversation into twelve design domains. Schön summarizes[8]:

> 'Thus the designer evaluates his moves in a threefold way: in terms of the desirability of their consequences judged in categories drawn from the normative design domains, in terms of their conformity to or violation of implications set up by earlier moves, and in terms of his appreciation of the new problems or potentials they have created.' (page 101).

The idea of a 'web of moves' was one of the starting points of the interviews of graphic designers in Breda (the Netherlands). The interviews tried to establish what kinds of domains are used in practice, and if it is possible to distinguish moves between these domains in graphic design practice. The results of the interviews indicate that there seems to be a pattern of nine of these domains. They are mentioned by most graphic designers as separate activities, but not all graphic designers have mentioned all of these during the interviews.[9]

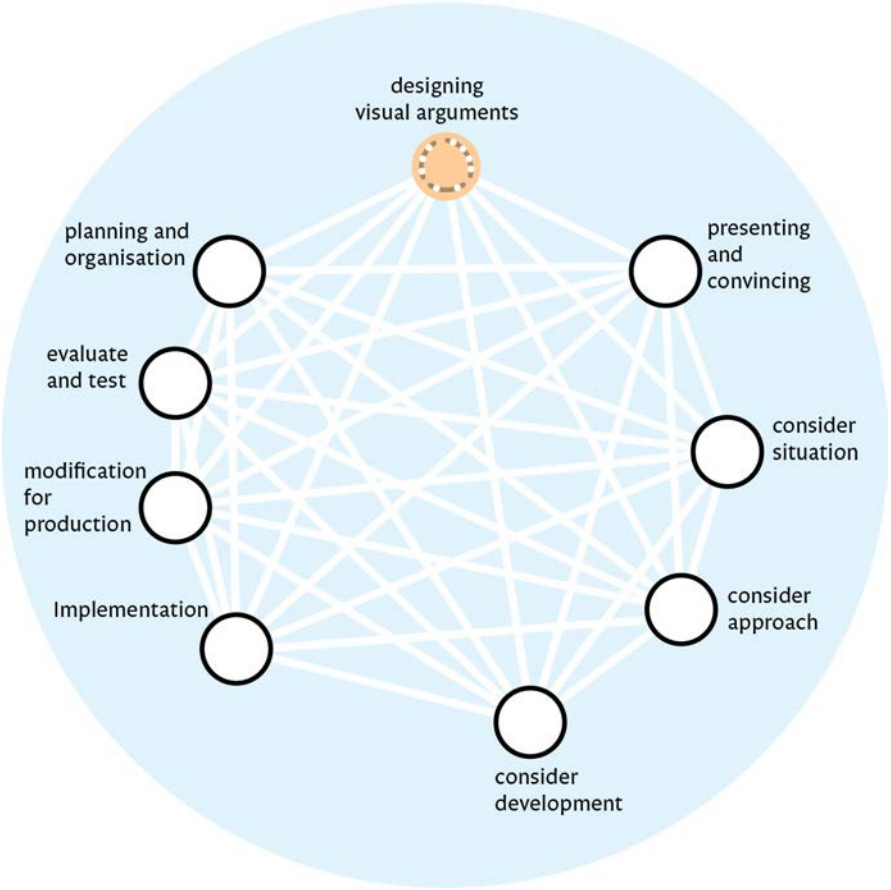


Figure 2: Web of moves: groups of activities of graphic designers.

Figure 2 shows this 'web of moves'. While working, graphic designers perform one activity, while considering the consequences of the activity on all the others. Donald Schön described this consideration as a 'frame experiment'[10] during a conversation with a situation.

[8] Donald Schön. *The reflective practitioner.* New York: Basic books. 1983. Page 95-101.
[9] Karel van der Waarde, ibid. '*Designing Information about Medicine*'. 2016. Page 83-85.
[10] Donald Schön. Ibid. Page 269.

A brief description of each of the moves would be:
- the design activity of 'Designing visual arguments' as shown in figure 1.
- planning and organisation: coordinating time, money, personnel, and processes.
- presenting and convincing: communicating about a project in writing and in speech.
- evaluation and testing: involving people to check the performance and appreciation during a design process.
- modification for production: integrating 'last minute changes' just before a design can be uploaded to servers for print or digital distribution.
- implementation. The implementation might require special attention and a strategy to make sure that a new design is accepted within an organisation.
- considering a situation: this relates to all the circumstances that affect the 'need to communicate a specific message' or 'situation that needs to be changed'.
- considering an approach: this defines the way in which a project is tackled: it determines the strategy.
- consider the development: for each project, it is necessary to consider if it fits into longer term aims and strategy of a designer and of a design company. This provides part of the individual motivation to undertake a project.

There does not seem to be a 'sequence' in which these moves are considered, nor is there a standard hierarchy of importance. It is therefore likely that the sequence and hierarchy of these moves are modified according to requirements of specific projects and personal preferences. [The size of the circles in the diagram in figure 2 and the connecting lines show an unreal situation. Both circles and lines could be varied to more accurately represent a single project.]

Both patterns might oversimplify professional practice, and they might not be applicable to all graphic designers, but they provide starting points for discussing both graphic design results as well as the process of graphic designing.

4. Criticism: six perspectives?

These two patterns can be used as a basis to critically analyse and discuss 'what' graphic designers design, and 'how' graphic designers do this. This leads to two groups of questions. Questions in the first group consider 'the visual argument of a design as an object'. In this group, results of graphic design activities can be analysed for its faults and merits based on three questions:
- is it visually logical? [Are the visual elements *correctly* structured?]
- is it visually rhetorical? [Is it a *convincing* message?]
- is it visually dialectical? [Is it *suitable* as part of a longer conversation?]

Questions in the second group are about the 'graphic design process' in relation to the nine moves that graphic designers mention when they talk about their work. In this group, the moves can be analysed to see if these have successfully been executed. These questions are related to the planning and organisation of graphic design work, such as was it on time, within budget, incorporating all stakeholders, and was it a pleasant cooperation? It is also possible to question the analysis of the situation and the chosen approach. Furthermore, it is possible to discuss the presentations (where they convincing, informative and appropriate?), the evaluation (was the method correct and the results satisfactory?), and the production & implementation activities.

It becomes now also clearer that it is unlikely that a single person would be able to answer the questions in both groups. For example, an evaluation if visual arguments are correct, convincing, and suitable would require to take at least two different perspectives. One position looks at the origin of the message, at the person who wants to communicate something. And the second position focuses on the receiver, at the person

who needs to act. It would be difficult to evaluate both views simultaneously. The questions in the second group cannot be answered by a single person either. People who are able to provide reliable feedback on the choices made in relation to the situation and approach might not be able to evaluate the planning or the implementation.

For both groups, it is therefore necessary to look in more detail at the people who could criticise the result and the process. There are at least six groups who could provide a different perspective on visual communication design. Below they are grouped and listed as 'personal pronouns':

1. **'I':** the designer (or design team). *'A design is good when my professional opinion indicates that it is good.'* Both the visual configuration (is it aesthetically pleasing as well as functional and efficient?) as well as the process ('Did it make a profit? Was it delivered on time? Did it bring in new clients? Was it enjoyable?') can be assessed.

2. **'you':** the client (commissioner/organisation). *'A design is good when it enables me to communicate with my contacts.'* And the design-activities must be within budget, on time, and performed within a pleasant cooperation.

3. **'he/she':** the regulators (legal framework, standards, regulations). *'A design is good when it complies to all the legal requirements and follows the relevant standards.'* This can be a formal approval in the form of a license or certification.

4. **'we':** the professional community (professional mores, traditions, disciplinary discourse). *'A design is good when it adheres to, and preferably pushes, the professional levels advocated by the community of a discipline.'* This is usually indicated by design awards and the publication of projects in professional magazines as a case study of 'best practice' or as an example of 'good design'.

5. **'you':** users/people (and their proxies). *'A design is good when I can use it well.' (Or: 'a design is good when my patients/my customers/my students/… can use it well.').* Indicators could be 'an increase in successful appropriate behaviour', 'pleasure', or 'a reduced number of complaints'.

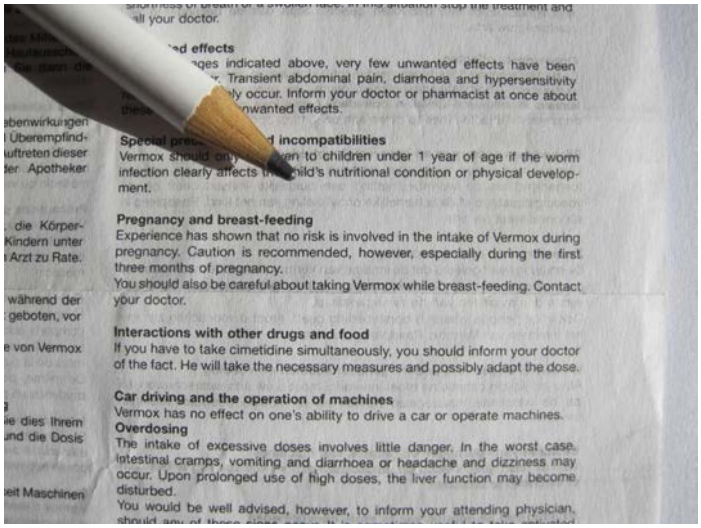
6. **'they':** society (social responsibility). *'A design is good when it enhances and improves a society in the short term and the long term. At least it should do no harm.'* Social criteria relate to things like considerations about the cultural reproduction of social relations, sustainability, public interests, and ecological dimensions.

Each of these groups applies their own criteria, experiences, values, knowledge bases, and theoretical frames. Each of these groups has their own views on what counts as evidence and what counts as a valid argument. And each of these groups can be internally divided too.

5. Example: criticising the design of information about medicines

Sections 3 and 4 describe two main ingredients for a critical review of designed objects. Section 3 presented two diagrams that provide a a description of graphic design, and section 4 gave a list of six critical perspectives. Now both these descriptions can be applied to a specific designed object.

A simple package leaflet of a medicine was selected as an example. These leaflets are included in Europe and accompany both prescription-only-medicines (POM) as well as over-the-counter (OTC) medicines. In 2015, it is estimated that at least 7.4 billion of these leaflets have been printed for the 743 million people in Europe. The purpose of these leaflets is to provide patients with the most relevant information about a medicine. The information is strictly regulated and follows a standard structure. Figure 3 shows some details of two patient package leaflets.



ll your doctor.

ed effects

ges indicated above, very few unwanted effects have been . Transient abdominal pain, diarrhoea and hypersensitivity ly occur. Inform your doctor or pharmacist at once about nwanted effects.

d incompatibilities

Vermox to children under 1 year of age if the worm infection clearly affects hild's nutritional condition or physical development.

Pregnancy and breast-feeding

Experience has shown that no risk is involved in the intake of Vermox during pregnancy. Caution is recommended, however, especially during the first three months of pregnancy.
You should also be careful about taking Vermox while breast-feeding. Contact your doctor.

Interactions with other drugs and food

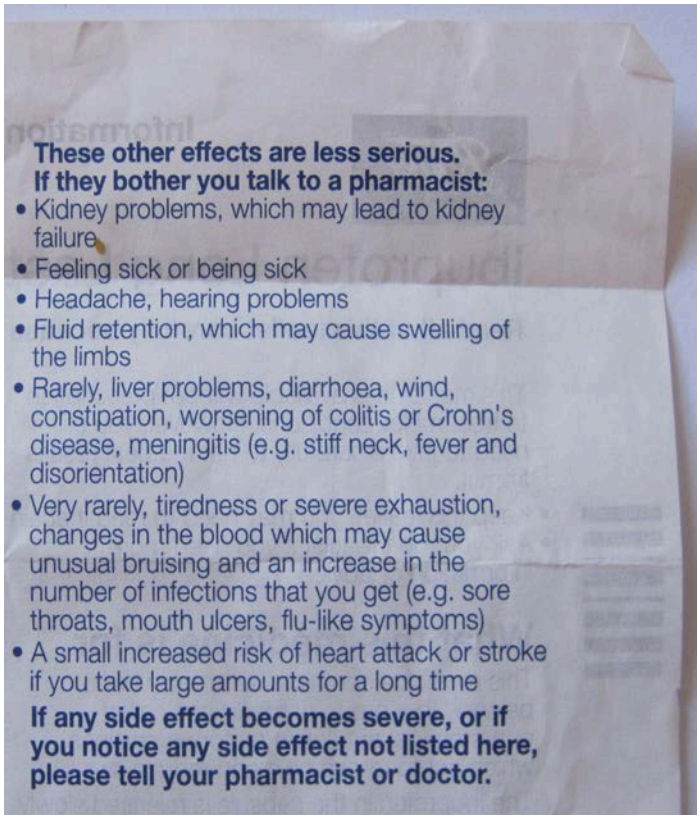
If you have to take cimetidine simultaneously, you should inform your doctor of the fact. He will take the necessary measures and possibly adapt the dose.

Car driving and the operation of machines

Vermox has no effect on one's ability to drive a car or operate machines.

Overdosing

The intake of excessive doses involves little danger. In the worst case, intestinal cramps, vomiting and diarrhoea or headache and dizziness may occur. Upon prolonged use of high doses, the liver function may become disturbed.
You would be well advised, however, to inform your attending physician.



These other effects are less serious. If they bother you talk to a pharmacist:

- Kidney problems, which may lead to kidney failure
- Feeling sick or being sick
- Headache, hearing problems
- Fluid retention, which may cause swelling of the limbs
- Rarely, liver problems, diarrhoea, wind, constipation, worsening of colitis or Crohn's disease, meningitis (e.g. stiff neck, fever and disorientation)
- Very rarely, tiredness or severe exhaustion, changes in the blood which may cause unusual bruising and an increase in the number of infections that you get (e.g. sore throats, mouth ulcers, flu-like symptoms)
- A small increased risk of heart attack or stroke if you take large amounts for a long time

If any side effect becomes severe, or if you notice any side effect not listed here, please tell your pharmacist or doctor.

Figure 3: Details of package leaflets. In most package leaflets in Europe, the typesize is (very) small, linespace is tight, and letterspacing is tight. The photographs are not modified to reduce the shine-through.

The selection of an object provides the third necessary ingredient for a review:
- a general description of graphic design. The diagrams show the actions and results that graphic designers are professionally responsible for. These provide a framework to discuss and analyse the merits and faults of both the process as well as the results.
- a general list of different perspectives who could provide comments, feedback, and critical remarks. These are the people who could criticise an object and can analyse the merits and faults from their perspective.
- a specific set of examples of a visual argument: patient leaflets. These are the objects, the actual graphic designs, that can be criticised.

The following is a description when the descriptions of sections 3 and 4 are applied to the graphic design of patient package leaflets.

1. Can these leaflets in figure 3 be seen as a good visual argument by a designer or a design team?

Comments of designers about the *visual logic* of the examples shown in figure 3 are mainly based on a comparison of the leaflets with 'traditional typographic rules', and 'aesthetic preferences'. The typography in the examples in figure 3 (small typesize, small linespaces, justified setting, narrow letter spacing, text in blue) are in conflict with these. Furthermore, the paper is very thin causing the text on the back to shine through. These factors are known to hamper comfortable reading of a text.

The visual appearance does not seem to take a *rhetorical approach* into account because the origin (a specific pharmaceutical industry), the contents (about a specific medicine), and the reader (a patient with a specific illness or need) are not modified to an optimal balance.[11] [12] The leaflets look very similar – there is hardly any corporate identity that would make its provenance clear – and they don't take the characteristics of the contents into account. This causes that package leaflets for a simple painkiller looks very similar to the leaflets for life-saving medicines for HIV or diabetes.

There does not seem to be a *visual strategy* either. The package leaflet is not part of a sequence of dialogues between the pharmaceutical industry and patients. The leaflet is not integrated in the information supply by a pharmacist or doctor.

Anecdotal reactions indicate that designers question the input of a graphic designer in these examples. The visual design does not show any evidence that a designer was involved to apply any typographical knowledge or aesthetic preferences.

Was the development process of these leaflets successful?

The design process of these package leaflets needs to follow strict guidance and templates.[13] This obligatory process separates the writing, designing, and testing from each other. This is not based on either a common way of working in the pharma-industry or on best practice. A comparison of the obligatory process with the 'web of moves', indicates that the design of the package leaflet is not based on an analysis of a situation nor does it consider a specific approach based on the needs of patients. The differences between the obligatory process and the web of moves show

[11] Kenzie A. Cameron. A practitioner's guide to persuasion: An overview of 15 selected persuasion theories, models and frameworks. *Patient Education and Counseling.* 74. pp 309 – 317. 2009.
[12] Karel van der Waarde. "Visual communication for medicines: malignant assumptions and benign design?" *Visible language.* 44(1). pp 40-69. 2010.
[13] The legislation stipulates the contents and its sequence (European Directive 2004/27/EC, article 59). The *'Guideline on the readability of the labelling and package leaflet of medicinal products for human use'* (Readability Guideline) provides some advise on the design and testing of package leaflets. The EMA-QRD template (version 10 of 09/02/2016) indicates exactly which texts must be used.

a substantial friction that needs to be resolved in order to make it possible to design more appropriate visual arguments.

2. Can these leaflets be seen as a good visual argument for a client/commissioner (or organisation)?

The package leaflet provides a pharmaceutical industry with a unique direct contact with a patient. One of the aims is to create a 'brand-awareness' to try to encourage patients to ask for the same medicine in the continuation of a treatment. In the visual logic area, the use of a logo and corporate typeface on the package leaflet are allowed by the legislation, but any other element would be seen as 'unacceptably promotional'. However, it has long been known that branding positively affects the effectiveness of medicines[14], but the relation between 'branding' and 'promotion' cannot be further explored within the current regulatory framework.

The legislation also prevents to modify the sequence or contents of information to help specific groups of patients. It is not possible to change the text according to the needs of specific patients. It is therefore very difficult to consider any aspect of visual rhetoric in these leaflets. Furthermore, the strict control on the contents makes it very hard to include these leaflets as part of a longer term conversation. The consequence is that there is very little effort put into the development of alternative information because this would be outside the current regulatory framework and therefore not be allowed. Most industries see these leaflets mainly as a regulatory requirement that requires a high investment for very little benefit.

Was the development process of these leaflets successful?

The design process of a package leaflet is complex. One of the main factors is to deliver a design on time within an available budget. Furthermore, the contents and design needs to be approved by many departments within a pharmaceutical industry such as regulatory affairs, production, medical affairs, marketing, and legal affairs. The critique of the graphic design of these leaflets will be based on the different backgrounds of these departments. Comments can be related to legal compliance, production requirements, medical needs, marketing requirements, and legal mitigation issues. It is frequently not really clear what the activities of a graphic designer – as described in the web of moves – can really add to this development process. Knowledge about how people read and understand, based on typographical conventions seems to be less relevant for the beformentioned departments.

3. Can these leaflets be seen as a good visual argument for regulators (legal framework, standards, regulations)?

The regulatory authorities check if a design conforms to the legislation, templates, and guidelines. Most of these guiding documents focus on the visual logic, and prescribe how some of the visual elements must be used. The guidelines focus mainly on text and only mention some typographical features. The use of illustrations is not regulated at all. Some of this is easy to follow and to check. The guideline suggests to 'present *text in a column format?*'. This can be checked although it is unclear what the alternative options could be. Other guidelines are more difficult to check. For example the advice to '*keep line spaces clear?*'[15] is hard to examine because it is doubtful what the intention is.

The strict sequence of the information, and the use of a template leaves little space to rhetorically relate the attributes of the client, contents and patients. It is not really possible to modify the text or design in such a way that it is within the regulations,

[14] A. Braithwaite and P. Cooper. 'Analgesic effects of branding in treatment of headaches'. *British Medical Journal.* 282. 1981. p 1576- 1578.
[15] Readability Guideline, 2009. Page 8.

and at the same time allows for a variation to help an industry to communicate with patients.

The regulatory system in Europe that prescribes the information in package leaflets does consider package leaflets as 'stand-alone' information. The leaflets are not considered to be part of a strategy, nor are they seen as part of a treatment. In the regulations, the visual rhetoric and visual dialectics are not mentioned, and they are therefore not checked.

Was the development process of these leaflets successful?

A design process is deemed successful if a leaflet has been written and designed to be '*clear and understandable, enabling the users to act appropriately*'.[16] The process of designing package leaflets is implied in the legislation, the 'Readability guideline', and the EMA/QRD-template. These documents suggest a process in which there is a sequence of writing, designing, and testing without any iteration. The process has remained the same since about 2004, and suggestions for improvements have only perfunctorily been integrated. For example, the test results of a package leaflet have not had much influence on the information in the EMA/QRD-template, nor has it had an effect on the description of the design process in the guidelines. The European Commission is aware of the severe problems in the regulatory process, and initiated a project in 2010 to 'remedy the shortcomings'. The report about this project has been published in March 2017[17], but the recommendations are unlikely to lead to any change in the regulations or guidelines soon. From a regulatory perspective, the process leaves a lot to be desired.

4. Can these leaflets be seen as a good visual argument for the professional community (professional mores)?

The perspective of the professional discipline of graphic design, that is, those that represent and promote graphic design could provide a critique of these patient leaflets based on practical research and best practice. Unfortunately, professional graphic design associations rarely get involved in publicly reviewing situations. Other professional associations, for example those representing Regulatory Affairs professionals (TOPRA, RAPS) or Medical Writing professionals, are more active in criticising the quality of package leaflets and frequently publish about this.[18]

Individual graphic designers realize that the current situation is not satisfactory and they react in their own way. Not by writing about it, but by undertaking self-initiated projects. These show that it is fairly easy to improve the quality of the design of information about medicines. A good example is a Masters project of Deborah Adler who had observed her grandparents taking medicines. Her project was taken up by Target Pharmacies in the USA under the name 'Clear Rx'.[19] Another example was developed by Periscopic in 2016 who redesigned a medicine label as part of a challenge by the New York Times Magazine.[20]

Was the development process of these leaflets successful?

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[16] Directive 2004/27/ec of the European Parliament and of the council of 31 March 2004 amending Directive 2001/83/EC on the Community code relating to medicinal products for human use. Article 63 paragraph 2.

[17] European Commission. "Report from the commission to the European parliament and the council in accordance with Article 59(4) of Directive 2001/83/EC of the European Parliament and of the Council of 6 November 2001 on the Community code relating to medicinal products for human use." 2017. (search for: "2017_03_report_smpc-pl_en")

[18] Antoinette Fage-Butler. 'Package leaflets for medication in the EU: The possibility of integrating patients' perspectives in a regulated genre?' *The European medical writers Association.* 24(4). pp 210 – 215. 2015.

[19] http://www.adlerdesign.com/project/clear-rx-medication-system/

[20] Paola Antonelli 'Look Again.' New York Times Magazine 13-11-2016. https://nyti.ms/2kcPZOz

Although it would be possible that designers refer to 'professional best practice' or to academic studies that show that the current design process of package leaflets could be improved, it has not happened until now. However, in a recent report of the European Commission (March 22, 2017[21]), the words 'information design' appear often. This suggests that the professional community of information designers is recognized by politicians and lawyers. Unfortunately, this report does not provide any indication how this could be implemented, nor how the involvement of information designers could resolve any of the regulatory issues. It is a very positive development that designers are mentioned as a professional group who could enhance the quality of package leaflets in Europe.

5. Can these leaflets be seen as a good visual argument for patients and their proxies?

Patients try to read these leaflets when they need an answer to a specific question, such as '*What is the maximum dose?*', '*Could my skin-rash be caused by this medicine?*', or '*Can I combine this with my high-bloodpressure tablets?*'. The ideal leaflet would enable patients to find relevant information quickly, to understand it, and to apply it correctly. If these activities fail, as they do at the moment, than patients ignore and discard the leaflets. The poor experience with the contents is exacerbated by the small typesize, the poor structure, the lack of informative headings, the shine-through paper, and so on. These are all related to the visual logic of leaflets and the combination of these factors make the reading of these leaflets to a intensely unpleasant activity. Patients do realize that the text and structure in leaflets is standardised and this enhances the feeling that '*these leaflets are not for us*'.

The visual rhetoric of these leaflets seems to be inappropriate for patients too. Another common comment by patients is that '*They are just there to cover their backs.'* which implies that the risk of litigation is considered to be more important for the industry than the needs of patients. In this last comment, it is clear that the visual dialogue, which aims at longer term conversations with patients, is not supported by the design of these leaflets either.

Furthermore, within a patient group who takes the same medicine and reads the same leaflet there is can be a large variation of patients. Age, experience, educational level, interest in healthcare, physical abilities (eyesight, dexterity) and mental abilities (memory, knowledge) are likely to vary and all these could influence the critical remarks about the design of a package leaflet. Just providing all patients with a single leaflet in a single format is frowned upon by patients.

The consequence of the design of these leaflets is that these leaflets do not perform nor obtain a desired response. On the contrary, the risk of errors, misunderstanding, and miscommunication increases, although it still is extraordinary difficult to relate these negative effects directly to the visual design of the information.

Fortunately, patients are supported by a larger group of both healthcare professionals (doctors, pharmacists, nurses) and carers (family, neighbours, friends). Each of these groups might comment on the design of these leaflets too. Their comments are based on personal experiences and professional opinions indicate how these leaflets fail to provide relevant information within a treatment.[22]

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[21] European Commission. "Report from the commission to the European parliament and the council in accordance with Article 59(4) of Directive 2001/83/EC of the European Parliament and of the Council of 6 November 2001 on the Community code relating to medicinal products for human use." 2017. (search for: "2017_03_report_smpc-pl_en")

[22] O.R. Herber, V. Gies, D. Schwappach, P. Thürmann, S. Wilm. *"Patient information leaflets: informing or frightening? A focus group study exploring patients' emotional reactions and subsequent behavior towards package leaflets of commonly prescribed medications in family practices."* BMC Fam Pract. Oct 2. 15:163. 2014

Was the development process of these leaflets successful?

It is highly unlikely that users/people/patients or their proxies would comment on the design process.

6. Can these leaflets be seen as a good visual argument for society?

Societal comments are based on a concern about a future, and question if medicines are used in the most effective and least harmful way. Many studies have shown that patients don't take their medicines in an optimal way, and that there are different reasons for non-adherence. The World Health Organization showed in 2003 that about 50% of patients with chronic diseases do not follow treatment recommendations.[23] If more patients would take their medicines more accurately, than that would be beneficial for patients, but it would also benefit society because of a reduction in healthcare costs. A more effective use of medicines would lead to a reduced use of more expensive treatments. This fits into a more general pattern in which patients are suggested to take a larger role in their treatments ('self-management').

Other criteria that cover 'larger societal aims' are the costs of medicines within a healthcare system[24], the role of the pharmaceutical industry[25], environmental considerations (for example the increasing amounts of antibiotics in surface water[26]), and the increasing (over)use of medicines[27]. It is unlikely that the current package leaflets are the most effective way to achieve a desired response in any of these areas because the arguments provided in package leaflets do not optimally support appropriate medicine use.

Was the development process of these leaflets successful?

The description of the existing situation and the context in which leaflets are developed and used is influenced by changes in a society. The discussion about the design process within a society influences the focus of attention. For example, media attention for a specific medicine, which is frequently triggered by discussions on social media, usually leads to a swift reaction of all involved stakeholders. Not only the industry and regulators will react, but also patient organisations and health insurance companies. All of these stakeholders will reconsider their situation and modify processes. This 'knee-jerk' reaction rarely leads to a thourough reconsideration of the balance between all involved parties in society.

The application of the six critical perspectives on the graphic design of a package leaflet shows a wide range of criteria, questions, and assumptions. These are respectively related to graphic design concerns, financial concerns, legal concerns, professional concerns, individual usability concerns, and societal concerns. However, all six seem to provide valid reactions that could be taken into account when graphic design results or graphic design activities are discussed.

Consequences for designers of package leaflets.

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[23] World Health Organization. *Adherence to long-term therapies: evidence for action*. Geneva: World Health Organisation. *2003*

[24] Michael E. Porter. *What Is Value in Health Care?* N Engl J Med. 363. pp 2477-2481. 2010.

[25] Ben Goldacre. Bad Pharma. How Medicine is Broken, and How We Can Fix it. Harper Collins UK. 2013.

[26] Yao L, Wang Y, Tong L, Deng Y, Li Y, Gan Y, Guo W, Dong C, Duan Y, Zhao K. "Occurrence and risk assessment of antibiotics in surface water and groundwater from different depths of aquifers: A case study at Jianghan Plain, central China." *Ecotoxicol Environ Saf.* 135. pp 236-242. 2017.

[27] Joan Busfield. Assessing the overuse of medicines. *Social Science & Medicine.* 131. pp 199-206. 2015.

For a graphic designer, it seems essential to take all six perspectives into account when the design of package leaflets need to be considered. Such a consideration is likely to affect both the 'visual arguments' as well as the 'web of moves'.

For example, the contents and design of package leaflets ignore to a large extent the 'visual dialectics'. The leaflets do not help to pursue a longer dialogue between patients and healthcare providers. The current design as it is shown in figure 3 is in conflict with the societal needs of an increase in self-management of patients. It might be worth developing information about medicines for chronic diseases that really enables a continuing dialogue.

The slightly paternalistic statements in the current package leaflets are add odds with the visual rhetoric section. Obligatory sentences like '*This leaflet contains important information for you'* do trigger antipathetic reactions because most patients are capable enough to decide for themselves what is important. The visual rhetoric of these leaflets might need to be changed to make sure that patients are approached as an 'equal partner'. The balance between the attributes of the contents, the client and the patients need to be re-evaluated.

The visual logic is probably the easiest to resolve. The typographical specifications (tiny typesize, poor linespacing, tight letterspacing) is fairly easy to change, but this will also mean that the length of the text needs to be reduced and re-edited.

The critical review of the visual argument suggests that several issues can be resolved by redesigning the logic, rhetoric, and dialectics of package leaflets. However, this would require an update of the legislation, guidelines, and templates too.

In the 'web of moves', more emphasis need to be placed on the investigation of the situation. A description that is based on the six different perspectives might provide data that are relevant to the values of the different groups. A detailed description of the situation based on the different perspectives would make it clear who is included, and who is excluded by the design of these leaflets.

The review of the design of package leaflet based on six perspectives shows that it is possible to provide some suggestions for the development of alternative ways to design information about medicines for patients. A more detailed further analysis would involve interviewing and testing people and experts in each of these groups.

6. Discussion

The description of the example in section 5 shows that it is possible to provide comments about the visual design of a single artefact from at least six different perspectives. Each of the perspectives bases its comments and critical views on a different 'way of thinking' that determines which criteria are seen as relevant and which information is seen as important. Each perspective seems to be based on different concepts, values, and patterns of ideas.

Figure 4 lists some of the main values on which the six perspectives base their judgements. This is just a preliminary list. It is likely that there are substantial differences within each perspective too.

	Visual argument (visible object)	**Web of moves (professional actions)**
Designer	Typographical traditions, aesthetics, experience,	Experience, training, iteration, education

	education	
Client	Recognisability, brand loyalty, customer satisfaction, trust	Design process as part of business, costs
Regulatory	Adherence to legislation and guidelines	Adherence to legislation and guidelines
Professional community	Following professional conventions, novelty	Best practice, (evidence based?), professional discourse
Patients, healthcare professionals	Experience, (relation to individual treatment), ease of use, relevance (applicability), effectiveness	User-involvement, participation.
Society	Environment, durability, sustainability, adherence to treatment	Costs and benefits, focus of attention

Figure 4: The underlying reasoning for criticising the design (both as object and as process) of package leaflets.

The different perspectives show that the existing design of package leaflets do satisfy the criteria of some groups more than others. The regulatory criteria set by legislation and standards for package leaflets seem to be the most dominant perspective. All other perspectives are subordinate, although the client – in this example the pharmaceutical industry – is a clear second because they provide the funding for the development of these package leaflets.

The perspectives of the other groups (designers, professional community, patients, and society) have substantially less influence on the design of package leaflets. The description of the different perspectives indicate that one of the issues is that these perspectives need to acknowledge each other. And that is probably the root-cause of the existing quality of the design of these leaflets. The regulators look at these leaflets from a *legal* perspective, the pharmaceutical industry from an *economic* perspective, and patients consider these leaflets from a *healthcare* perspective. These three perspectives find it hard to think about each others evidence because there are no shared common denominators. The other three groups – designers, professional communities, and society – add even more value-systems which are equally difficult to relate to the legal, economic, and healthcare perspectives.

Jorge Frascara's statement that visual communication design is fundamentally about performance is helpful, but the example in section 5 showed that there is not 'a single someone' who needs to 'say something' to 'someone else' to 'achieve a desired response'. Each of the six perspectives assigns a different meaning to each of these elements and makes a specific selection of criteria that are relevant to them. This makes the criticism of a graphic design object more complex, but certainly not impossible.

The separation of six perspectives, based on personal pronouns, show that a critique based on a single perspective that is related to a single set of values, might in most cases not provide a 'fair and balanced' or 'helpful' critique.

The separation of the perspectives that could provide a critique on the design of a simple object like a package leaflet also provides a basis to discuss the ethical and ideological considerations for designers. It is possible to consciously choose to support one or more perspectives. Every choice will be beneficial to some but might have

negative consequences for others. It is for example possible to design information about medicines to promote the qualities of a designer, and to increase the professional status through publications of illustration-rich case-studies in professional magazines. Another choice is to focus on the economical benefits for a society if specific groups of patients (for example asthma or high cholesterol) take medicines more effectively. These choices clearly have an ethical aspect: they are beneficial for some, but might harm others. Both of these fit the description of visual communication design of Jorge Frascara, but the intention and the desired responses are very different.

In order to address these choices, and to be able to motivate and provide evidence for these decisions, it seems necessary to extend the results of a graphic design process. The diagrams 1 and 2 imply that the result of a graphic design process is a visual argument that can be used in the conversations between a client and individuals. The core activity is to make a prototype that shows how information is presented. This prototype combines visual dialectics, visual rhetoric, and visual logic.

However, a prototype on its own is not completely sufficient because it does not provide a motivation how it deals with the people it excludes, nor does it motivate how the prototype will be change a situation into a prefered one and provoke desired responses. In the interviews with graphic designers, there was no mention of these different perspectives, and it seems to be assumed that the arguments designers use must be sufficient without providing convincing arguments based on reliable data. Unfortunately, as the example showed, they are not satisfactory in comparison with other value systems.

The development of a prototype needs to be integrated into at least four activities:

1. **Getting the data right, and getting the right data.**
   It is necessary to provide an accurate description of an existing situation before a prototype is developed. This involves observations, interviews, and discussions with different people. This description and data forms the basis for the discussions with the people who evaluate a prototype from other perspectives. Without such a description, it is very difficult to evaluate afterwards if a situation has changed at all, and if the new situation can be seen as 'prefered'. At the moment, there are no usable descriptions nor reliable data of situations in which package leaflets are used.
2. **Select an approach that suits the situation.**
   The description of a situation will reveal the six different perspectives, and probably some variation within these. Based on the personal interpretation of these, designers need to make a choice between the different perspectives and motivate the choice for their approach. This selection could lead to the conclusion that a single leaflet cannot fulfil the expectations of all six perspectives. It might be worthwhile to consider developing different types of artefacts to suit the different perspectives.
3. **Make a prototype of a visual argument.**
   This is an activity that is described in figure 1. Making a prototype of a visual argument is at the centre of graphic design activities, but it is essential to evaluate and test prototypes in order to establish if the desired responses are really achieved. If the prefered situation is not achieved, a new design process is required to remedy and improve a prototype. Testing package leaflets has shown that the visual arguments fails on several criteria and that it is necessary to apply different tests in different situations.[28]

[28] Measuring the quality of information in medical package leaflets: harmful or helpful? *Information Design Journal.* Volume 16, Number 3, pp. 216-228. 2008.

4. **Combine all the evidence, motivations, and decisions into a convincing story.**
   In addition to the development of a prototype, it becomes necessary to develop solid arguments which are based on reliable data, a motivated approach and a prototype. These are essential to convince the different critical perspectives, and to make sure that the desired responses (performance) are acceptable for all. And this is probably the main issue with package leaflets. There is no central aim that all perspectives agree upon that relates the existing situation, the approach, and the prototypes.

These four activities could be seen as enhanced opportunities for graphic design practice. They might need to be integrated into design education, and become part of graphic design research.

7. Concluding remarks: value of critique?

In order to provide a critique of a very mundane example of graphic design, this article suggested that it is necessary to have at least following three building blocks:

a. A description of the process and a description of the results of graphic design activities. Such descriptions are essential because they indicate which activities can be part of a critique, and also identify the activities that are outside the realm of graphic design. The description consists of two patterns – 'visual argument' and 'a web of moves'. Both are based on interviews with graphic design practitioners.
b. A description of different groups of people who could give a reliable analysis of a situation. These are six perspectives based on personal pronouns: I, you, she/he, we, you, they. Each of these groups base their views on a value system that determine the questions they ask about a situation, the criteria, and the perceived relevance of data.
c. An example of graphic design. In this article, a detail of an information leaflet for patients about medicines was used.

The example of a package leaflet shows that in this specific situation, graphic designers are not the only ones to judge the qualities of a design. There are at least five other groups who have valid reasons to critically look at the visual presentation of information about medicines. All of these groups base their comments on different values and formulate different criteria. Some of these criteria are irreconcilable: the legal criteria (legal compliance), the financial criteria (profit), and the healthcare criteria (health) cannot be easily related to eachother. The example showed that the graphic design of the package leaflets mainly aims to satisfy the criteria and assumptions of the regulators and the client. The requirements of other perspectives received much less attention. The review also showed that it would be possible to consider alternative designs if graphic designers start from value-systems of other perspectives. Comparing and bringing some parts of these often conflicing value systems together clearly remains a major challenge.

The example also shows that it might be beneficial for graphic design to put more emphasis on different parts of the 'visual argument diagram', and to put more emphasis on different parts of the 'web of moves'. Especially the 'visual dialectics' and the 'description of situations' need more attention because this will provide much needed new data to show that the development of new prototypes is necessary.

This might mean that graphic designers also should be able to find the right data (research), motivate decisions about the selected approach (justification), establish if a prototype really delivers (testing), and present coherent stories (reasoning).

Graphic design practice can only improve as a critical practice when it directly relates to value systems of other perspectives. In order to achieve the 'desired outcomes' mentioned by Jorge Frascara, or the 'preferred situation' of Herbert Simon it is essential to determine 'who decides what is desired or prefered'. This decision must be based on reliable data, a motivated choise of an approach, and a prototype that really performs in a specific situation. These three are all necessary as parts of a considered strategy to communicate about graphic design with a variety of people with different value systems.