Note: This paper was presented at the workshop *Putting it All Together: Pattern Languages for Interaction Design* at CHI'97 in Atlanta, Georgia. It describes preliminary ideas which I am still working on.

Towards a Pattern Vocabulary for Dissemination Techniques

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Abstract: This paper is concerned with project EPCOS (Effective Projectwork in Computer Science) and its associated dissemination activity. Full details of project EPCOS can be found on the WWW EPCOS. It endeavours to identify and systemize the "patterns" underlying all dissemination activity so they may be transferred to other projects. To anchor the ideas in the concrete, they are illustrated with with examples from EPCOS.

Introduction

This paper is concerned with project EPCOS (Effective Projectwork in Computer Science) and its associated dissemination activity. Full details of project EPCOS can be found on the WWW EPCOS. The ideas explored in this paper owe an enormous debt to two volumes, *The timeless way of building*(1) and *A Pattern Language* (2). These works describe the impact of implicit ideas, or patterns, which inform the construction of architectural artefacts. In these works Alexander makes these patterns explicit and presents them in a structured fashion which makes them accessible and transferable to other physical locations and situations. Alexander discovered sufficient architectural patterns to create a whole language. In this much smaller endeavour there are fewer patterns, much too few to be graced with the title "language"; however this paper adopts two of his fundamental precepts in the construction of this pattern vocabulary of dissemination techniques: "the use of patterns" and "delineating the language".

On the use of patterns Alexander says:

> This language, like English, can be a medium for prose, or a medium for poetry. The difference between prose and poetry is not that different languages are used, but that the same language is used, differently. In an ordinary English sentence, each word has one meaning, and the sentence too, has one simple meaning. In a poem, the meaning is far more dense. Each word carries several meanings; and the sentence as a whole carries an enormous density of interlocking meanings, which together illuminate the whole (2, p.xli)

In this same way, this paper posits that dissemination activities will be richer and more successful if they are planned to be dense with the patterns which underlie and inform the activity. These patterns are not spatial in the way of architectural patterns, nor syntactic in the way of linguistic patterns; rather they depend upon patterns of human behaviours and interaction.

In delineating the language Alexander says:

> the elements of this language are entities called patterns. Each pattern describes a problem which occurs over and over again ... and then describes the core of the solution to that problem(2, p.x)

this structure has been followed here. "Dissemination" can take place in a formal or informal arena. Informally, one might chat with a neighbour, gossip with a colleague, pass on a tip, have a discussion or relate a narrative. This paper will not address activity in the informal arena. Nevertheless, it is important to recognise that many of the mechanisms used in informal exchange are often modelled within the formal arena, by simple virtue of their familiarity. The patterns identified herein result from intended activity, the conscious promulgation of specific information which the originator takes to be useful to a specific, intended audience. There are many factors which are involved in any dissemination activity and many patterns which underlie and guide its success - or failure. Five implicit underlying patterns have been identified. These will be described here in the abstract and discussed with specific reference to, and examples from, project EPCOS. The five patterns address five fundamental problems:

- The problem of definition: the pattern of objectives
- The problem of audience: the pattern of spheres
- The problem of transmission: the pattern of levels
- The problem of bearer: the pattern of types
- The problem of temporal location: the pattern of method

The Pattern of Objectives

This first pattern arises from the problem of definition. Simply making materials available is not dissemination; before casting material to the winds it is necessary to decide the desired objectives of the activity. There are three sub-patterns of dissemination objective: disseminating awareness, so that other interested parties can involve themselves at an early stage; disseminating knowledge to a level where the rationale and methodologies used can be understood, extracted and adapted to local conditions and disseminating the use of the results to change practice.

With regard to project EPCOS, we will disseminate awareness of the project in the first phase through regular reports on the WWW and by holding workshops which will be concerned with gathering inputs and will be geographically distributed to allow maximum attendance. We will disseminate knowledge of the project through the materials collected and the distribution of the analysis of the materials and recommendations arising from that analysis. Dissemination of use is the most difficult area. Quality in teaching and learning is neither generated nor encouraged by prescription and it is consequently difficult to require the adoption of new methods or techniques. Equally, this is the hardest area in which to discover the effectiveness of dissemination efforts as feedback is frequently patchy, and largely concerned with complaint, not plaudit. Consequently, in project EPCOS we would assist this process by offering "partnerships" between any HE institution wishing to change practice and the original consortium partner institution which most closely matches the changes identified and requested. A condition of this "partnership" would be evaluation and feedback mechanisms.

The Pattern of Spheres

This second pattern arises from the problem of audience. The metaphoric root of this pattern is with the performing arts and can be most readily appreciated in that context. There is a distinct audience for performances of opera. If one is putting on an opera one wants, most whole-heartedly, to target and engage that audience. Effort spent on targeting an audience of heavy metal rock would be effort wasted. However, the problem of audience is not simply one of interest or taste. It is also one of number, and different audiences are best addressed within the pattern of their own sphere. Spheres of communication can be said to form a continuum from the most local to the most global; three points have been identified on this continuum as being typical of certain sorts of exchange and therefore valuable as paradigms. These are: intimate, public and that of networks.

The intimate sphere pattern is typified by using the one-to-one or one-to few Level pattern (see below) and is therefore frequently mediated by other influence - that of friendship or other previous acquaintance between the end-parties. Within project EPCOS we have already relied heavily on this; with 10 partners within the consortium we have had a considerable quantity of separate personal contact to draw on. The Public Sphere Pattern can be conceived of as the obverse of the personal in that it is typified by using the one-to-many Level pattern (see below) and there being no connection between the parties other than this dissemination exchange.

The network sphere pattern lies somewhere between the two. For the purposes of this paper, "networks" are taken to mean "communities of relevance". A relevant community (3) might be geographic (for a local newspaper) or professional (for the ACM) or linked by an interest. Membership of a network of interest might, for any given individual, be temporary (for example, an evening class in Art) or permanent (a religious affiliation, perhaps). An individual may be a member of many communities of relevance at any given time and may use the internal channels associated with these communities for dissemination. These networks can often be intersected by the activity of individuals. For example: my friend Mr Smith, who is a member of a professional network disseminates a piece of information from that network to me and I, in turn, pass it on to my network of interest. Much academic dissemination takes place on the WWW, but this does not mean it is in the public sphere, rather the Web is the bearer of dissemination between communities of relevance.

The Pattern of Levels

This pattern is an easy one to perceive - so easy, that it is (together with the bearer pattern) frequently mistaken for the whole effort of dissemination. The pattern of levels is a response to the problem of transmission, and it is often easy to locate the problem of transmission in isolation from all the other patterns. "We'll publish it on the WWW" or "We'll talk at conferences" are, perhaps, the most common responses to the question "How will you disseminate your activity?". This pattern has four obvious constituents: one-to-one, one-to-few, one-to-many, many-to-many.

The one-to-one and one-to-few patterns are clearly related to interactions within the intimate sphere. They rely on personal contacts and personality for their transmission and their message will most clearly be heard if transmitted from a friend or trusted colleague. The one-to-many pattern is most easily characterised by the traditional activities of giving seminars publishing papers and giving conference presentations, although the acceptability of the various methods will, of course, change with discipline. The few-to-few and few-to-many constituent patterns map to the human activities of subscribing and contributing to mailing lists, research group collaboration and participation in activities of a network of relevance.

The Pattern of Types

As has been suggested above, the pattern of types is strongly linked with the pattern of Levels although it is constituted in response to a different problem; the problem of bearer. The problem of bearer can be framed as "Which medium is appropriate?". There are five constituents of the pattern of types: speech, instant text (e-mail, some letters and memos), considered text (articles, academic papers), public text (newspapers), broadcast text (TV).

Each of these types can be associated closely with a sphere and level. For instance, for project EPCOS it would be inappropriate to disseminate awareness of a workshop using a one-to-many level (for instance the WWW) in the intimate sphere (to talk with an equal) using the type of considered text (with the formality associated with a conference) making for an uneasy alienation of the content of the message and its audience. Nevertheless, apparently mis-matching these patterns can add power to the content: politicians, for example, make great use of patterns in this way, utilising the a one-to-one level (to talk with an equal) in the intimate sphere (using patterns associated with friendship) with the type of broadcast text (a TV programme) in the "fireside chat" party political broadcast.

The Pattern of Method

This pattern is delineated by the problem of temporal location. This problem is clear, although not immediately obvious. Any (and every) dissemination activity is associated with an event located in time. More often than not, with the cessation of the event it is not desirable that the knowledge of it cease too. Even if the research, motivation, momentum (and funding) have ceased, we desire the results to continue to be disseminated. It is an axiom of academic life that we build upon a foundation of a previous body of learning; the fundamental skills of the trade - citation and bibliographic reference - are daily reminders of this tenet. Frequently, however, dissemination activity ends with its generative event.

There are three sub-patterns associated with the pattern of method: active, serendipitous and passive.

- The active method is encapsulated within any intended dissemination act. The act may be informed by the other major patterns, but it is conceived of and executed as a deliberate instance. It may have a purposeful objective, a defined audience, a recognised method of transmission and a specified bearer. It is to be hoped that it will be successful, but when it has been executed, it is finished and it is time to iterate the process. Within project EPCOS there will be at least eight such dissemination activities allied to the workshops. We will disseminate awareness (and knowledge) of them as accurately as possible, but when the workshop has passed, we too will pass onto the next.

- The serendipitous method, as its name implies, cannot be regulated, it can only be encouraged: the propitious ground can be prepared, but the crop cannot be guaranteed. Nevertheless it is a surprisingly frequent phenomenon, so frequent that it has been given many names. In the intimate sphere Michael Goldstein(4) characterises it well:

  "... the serendipitous dynamic of bumping into people in the elevator, having lunch with a colleague and scribbling a new idea on a napkin (ah, to have a penny for every napkin so abused), meeting over the coffee wagon or walking into the next office with an epiphany. Or to meet with one’s investment banker over the latest public offering ... there is a level of organisation (even on the anarchic Web) that is the reverse of serendipity. The creative portion of the human mind seems to defy working on a schedule. An idea stimulates another idea, which may be totally unrelated to the first."

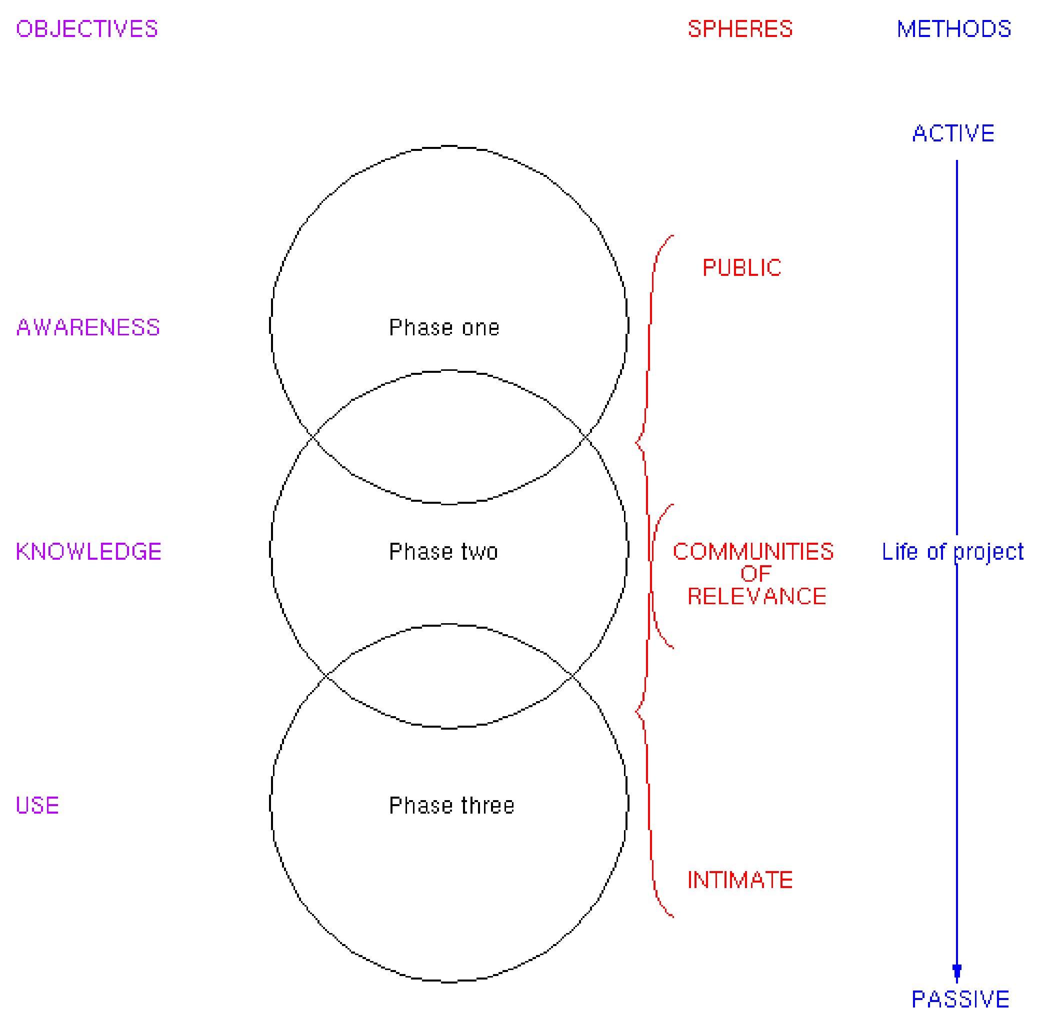
In the public sphere, it has several names; the zeitgeist, morphic resonance, memes. All of these names are seemingly based on the idea that chance is the major controlling factor.The serendipitous method is the product of success of dissemination if another party picks up your activity; it is a product of your alertness to the pattern if you pick up on someone else's. It is, however, inevitably temporally located. It is in the definition of the zeitgeist that all events must be coeval.

- The passive method, despite its name, expects an audience. However, the audience is not immediate, it does not signal its imperative presence which must be addressed. The audience of the passive method is of the future. To utilise this method is to undertake the obverse of searching techniques. At the start of an enterprise, the academic way is to see who has been there before, to search the databases, catalogues and literature that should contain references to relevant activity. The passive method of dissemination ensures that those references are there to be found by the diligent (or desultory) researcher.

Throughout the lifetime of project EPCOS we will strive for success in serendiptious method. However, more intentionally we will move from active to passive method. This is not a negative approach, rather one which will maximize our penetration. Part of the passive phase will involve preparing work for publication, and this will engage the active dissemination on the part of the publisher, thus linking and enhancing the patterns.

Conclusions

These patterns can be combined to make a rich whole. Figure one (below) shows how these will be combined throughout the life project EPCOS. However, this is just one possible combination. It is to be hoped that this paper has identified patterns which deal with "a problem which occurs over and over again ... and then describes the core of the solution to that problem" sufficiently to make them accessible and transferable to other activities and for other projects to use with success.



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