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## Developing technology-enhanced, work-focussed learning: a Pattern Language approach

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Stephen Powell, Richard Millwood

Institute for Educational Cybernetics, University of Bolton, Deane Road, Bolton, BL3 5AB, U.K.

stephenp.powell@gmail.com, richard.millwood@core-ed.org.uk

Ian Tindal,

Anglia Ruskin University, Faculty of Education, East Road, Cambridge CB1 1PT, UK

ian.tindal@anglia.ac.uk

**Abstract:** This paper identifies issues in developing a three-year duration, work-focussed undergraduate degree programme with a model of inquiry-based learning supported through online communities of inquiry. On the course, students examine their current work-practice to identify issues and then plan, implement and evaluate an improvement strategy. Negotiated learning activities and facilitated networking environments are key to providing students with a highly personalised and relevant learning experience.

Students were surveyed and interviewed through questionnaire, telephone and face-to-face meeting. Staff were asked to produce accounts identifying major issues within their particular role, describing and evaluating steps taken to mitigate them. In both cases, transcripts were examined using interpretive phenomenological analysis and this grounded approach was used to identify key issues.

The findings show that challenges for the improvement of the learning experience included a range of issues unified by concerns regarding diversity of approach and complexity. It is proposed that this was partly due to knowledge held tacitly but unarticulated. To improve practice, a Pattern Language approach is proposed. In order to articulate values and ideas, a Pattern Language category of Online Community of Inquiry is outlined.

These patterns are framed as instructions to inform an approach to new working practices, technologies and systems local to the context in which they were found. It is suggested that this approach helps teaching staff, developers, administrators, and students working together to understand and overcome problems in their own contexts, by adapting these and other patterns.

*Keywords: work-based, inquiry-led, e-learning, action research, learning technology*

## **1 Introduction**

The four-year Ultraversity project ran between January 2003 and December 2006, it was devised to research new approaches to learning in Higher Education Institutions (HEIs) and to address the government priority for HEIs of widening participation and fair access (Higher Education Funding Council for England (HEFCE) Strategic Plan, 2005) based upon both national economic arguments as well as social justice values. The need to identify new ways for students to access higher education was given further prominence by Leitch (2006) who identified the need to increase opportunities for those in work to be skilled to graduate level and above through work-based routes. The authors would argue that to achieve this outcome, HEIs must explore approaches where technology is central to new models for learning.

The thinking behind the Ultraversity Programme design is briefly outlined. This paper is informed by the reported experiences of course staff and students on the degree programme using interpretive phenomenological analysis as a methodology. The findings show that challenges for the improvement of the learning experience included a range of issues unified by concerns regarding diversity of approach and complexity. The authors sought to develop an approach that made explicit the tacit knowledge and practices to address this issue.

A pattern language was developed to communicate the practices and processes of the online community of inquiry. Conclusions identify possible avenues for future research in both the development of patterns and their validation as a viable approach to progressing research into the use of learning technologies for self-organised learning. The methodology of interpretive phenomenological analysis is briefly explained. Findings are then presented as a Pattern Language. Conclusions identify possible avenues for future research in both the development of patterns and their validation as a viable approach to progressing research into the use of learning technologies for self-organised learning.

## **2 Ultraversity Programme Design**

In the 1990s, Ultralab developed a series of action research projects to investigate online learning including addressing a wide range of constituencies including primary & secondary school pupils, teachers, business people, head teachers and trainee medical officers. The design of these projects was informed by concepts of action research and a common thread was the involvement of participants as co-researchers. The

methodology for reporting outcomes was ethnographic and private, respecting the interests of participants whose detailed individual data was analysed and reported anonymously to the project's sponsors. The overall effect was to create extensive tacit knowledge amongst Ultralab personnel that was both consensual and coherent (Millwood & Terrell 2005). This knowledge was developed within its own online community of practice through the very medium used in the projects listed. In this way shared values, effective ideas and well-developed debate informed the development of the Ultraversity course. A post-hoc summary of the ideas and values are presented below.

### **Ultralab's tacit ideas and values**

1. People of a wide range of ages & backgrounds have the **capacity** and can build the **confidence** to operate & appropriate digital creativity tools & online communication environments
2. Online community requires **active facilitation** to develop thriving discourse and effective learning
3. Online community can operate at **large scale**
4. Participants can **co-research** (participants can share and form project goals, and undertake research)
5. The Hawthorn Effect can be used to **raise self-confidence and achievement** (naming participants as researchers, mutual respect)
6. **Delight in learning** can be achieved through combinations of appreciation, interest, zest, conviviality, recognition and dissent.
7. Online community **learning depth** arises alongside **community strength**
8. Online community can provide a context for **practitioner knowledge** to partner academic knowledge
9. Learner activity in the form of **action research** with the intention to take action for improvements

The Ultraversity project developed a model that was a fully online, three-year-duration, undergraduate, work-place degree with students using inquiry-led approaches to learning. The experience was highly personalised and collaborative in nature, with students learning together as a cohort while studying in their own work context. This supporting network encompassed learners, course staff, as well as guest experts who

joined the community for a specific purpose and time. Facilitators helped students to engage in purposeful conversations and share resources with each other. For a full discussion of this project see Millwood, Powell, and Tindal (2008).

## **3 Pattern Languages**

### ***3.1 Introduction to Pattern Languages***

The Pattern Language approach has been identified as one that enables discussion between all stakeholder groups with an interest in improving learning with technologies. The 'father' of Pattern Languages is the architect Christopher Alexander. In the 1970's he became concerned about the way in which the design process of living spaces had changed from one whereby those who live and use the buildings, streets, parks, etc. were primarily responsible for their design to one dominated by architects, town planners, and other professionals. He developed the idea of a structured template where

"Each pattern describes a problem which occurs over and over again in our environment, and then describes the core of the solution to that problem, in such a way that you can use this solution a million times over, without ever doing it the same way twice."

*(Alexander et al., 1977)*

Taken as a whole, the individual patterns describe a Pattern Language of inter-related patterns with different hierarchical relationships to each other.

The Pattern 'formula' developed by Alexander:

- a. Picture: showing archetypal example of that pattern
- b. Introductory paragraph: sets the pattern in context with other larger patterns
- c. Headline: giving the essence of the problem in 1/2 sentences
- d. Body of the problem: "describes the empirical background of the pattern, the evidence for its validity, the range of different ways the pattern can be manifested in a building, and so on."

- e. The solution: "...the heart of the pattern - which describes the field of physical and social relationships which are required to solve the stated problem, in the stated context. This solution is always stated in the form of an instruction - so that you know exactly what you need to do, to build the pattern".
- f. Diagram: "which shows the solution in the form of a diagram, with labels to indicate its main components."
- g. Related patterns: a paragraph linking to smaller patterns that complement this pattern

### ***3.2 Why a Pattern Language Approach?***

It is important to identify the relevance of pattern languages to the work we are undertaking although a detailed discussion is beyond the scope of this paper.

As observed by Alexander (1999), the element first and most enthusiastically grasped by developers and programmers is that "It allows you to write down good ideas about software design in a way that can be discussed, shared, modified, and so forth. So, it is a really useful vehicle of communication." However, there are other dimensions to a pattern. These include: a moral component; the aim of creating a coherence between things; and thirdly the generativity of the pattern - that is does it enable people who live in the spaces to be the creative force of "morally sound objects".

Patterns are contextual and intended to be adapted and applied by those who use them. Collections of patterns combine to give a pattern language and through a process of following the 'instructions' within the patterns a 'nourishing' living space can be designed.

The patterns will address human behaviours and organisational issues. In our context of online communities of inquiry, stakeholders include programme designers, technical developers, learning facilitators, student researchers, and administrators who all need to be able to engage with the implementation and adaption of the patterns.

"So, one of the efforts of the pattern language was not merely to try and identify structural features which would make the environment positive or nurturing, but also to do it in a fashion which could be in everybody's hands, so that the whole thing would effectively then generate itself."

*(Alexander, 1999)*

This pattern language should provide enough detail to be useful, but not so much that it becomes too complex for it to be understood and implemented.

### **3.3 Example Pattern Languages**

For Goodyear and McAndrew (2007) the use of Pattern Language is seen as an alternative approach "to capture knowledge from designers and share them with practitioners." This desire to find new ways of describing learning activities is fuelled by the problem of developers engaging with practitioners around the concept of Learning Design, which is an attempt to capture a formal description of learning with technologies that can then be shared and modified by different users using different tools.

From their perspective, "attempts to engage practitioners in the learning design approach have met with only partial success. This is a reflection on learning design being a developing area, but also could be an indication of more fundamental difficulties with the transfer of vocabularies and methods from an expert group to wider use." For Goodyear and McAndrew, a strength of a patterns approach is the ability to co-construct patterns collaboratively to create a pattern that "is not intended to supply a complete solution but rather to give enough guidance to support human intervention and variation in each reuse." Their patterns are categorised into tasks to be set for students, ways of organising students or roles of students and the tools required in the networked learning space to enable the interactions to occur. The categories and identified patterns indicate a top down and 'teacher led' approach.

Wilson (2008), in developing Patterns of Personal Learning Environments recognises the need for user lead generative opportunities "people construct the environment for themselves: the tools they choose, the communities they start and join, the resources they assemble, the things they write." Wilson proposes two pattern categories: patterns of personal tools and patterns of the learning networks with which such tools interact in both informal and the formal institutional context.

The e-Len project (2005) that was a large EU funded project has attempted to author design patterns. In this example, special interest groups (SIG) were established around the categories: Learning resources and LMS (9 patterns); Lifelong Learning (24 patterns); Collaborative Learning (5 patterns); and Adaptive Learning (6 patterns). In the most part, the patterns are immature, of varying quality and without a clear context for their empirical background of the problem. Arguably, this may be a result of the construction methodology around SIG that required compromise in their construction. None-the-less, they are of use to anyone wishing to understand some of the issues and opportunities that may arise in developing programmes of online learning.

In discussing the development of their pattern language for computer mediated interaction, Schuumer and Lukosch (2007) identify three distinct layers that address different user groups as an attempt to bridge the gap between users and developers. The highest level of abstraction "Community Support" are primarily aimed at end users and their behaviours, the middle level of abstraction "Groups Support" address the design of particular aspects of the human-computer interaction, and the low level abstraction "Base Technology" which addresses the tools and consequently is aimed primarily at developers. Within these layers patterns are clustered into topics and relationships with other topic clusters identified giving a comprehensive set of seven-one patterns.

Of particular relevance to this paper are the highest and middle levels as they address human behaviours and organisational issues that are of central importance to developing the Ultraversity online communities of inquiry.

## **4 Methodology**

### ***4.1 Approach***

The findings in this paper are based upon research using an adapted form of Interpretive Phenomenological Analysis (IPA). IPA was developed in the mid 1990s by Jonathan Smith (Smith 1999) and is itself a hybrid of systematic and naturalistic inquiry. In this approach, data collection and analysis goes through a number of detailed stages in order derive meaning

from the text. The approach is informed by the philosophical stance of phenomenology and focuses on how an individual makes sense of experience. Interpretation is the key concept, both by 'subject' and researcher. Smith sums it up as:

“An attempt to unravel the meanings contained in accounts through a process of interpretative engagement with the text and transcripts.” (*ibid*)

#### **4.2 Data collection**

The authors are aware of the issues around taking a top-down approach and the implications this has for validity consequently a wide range of stakeholders were consulted; the authors' experience, as practitioner researchers directing, developing and facilitating the course, was augmented by data from students and course staff. An online questionnaire presented in July 2006 to students was completed by some 65 of a potential 142 respondents in July. Follow-up semi-structured interviews of 15 students carried out in September 2006 developed a richer understanding. These interviews were conducted using Skype and WireTap Pro software for recording; the recordings were then transcribed. This data was further augmented by semi-structured interviews with 19 graduates of the programme; these were carried out at the graduation ceremony on 26 November 2006 and were recorded on video then transcribed. Except for the initial online questionnaire, in each case, the questions were designed according to IPA methodology to be open-ended and expansive in their opportunity for subjects to comment on the course freely. Course staff, including the authors of this paper, were asked to complete a semi-structured written response; of a potential 21 respondents 10 were completed.

#### **4.3 Analysis**

The authors already subscribed to the research strategy for the Ultraversity project and this directed the research assumptions. These centred on the question, 'Is our model of collaborative learning supported through communities of inquiry an effective interpretation of personalised learning?' Two assumptions that are focused on here are that we had developed an appropriate technical and organisational infrastructure for undergraduate study and that we had designed the course to enable effective integration with students' work through personalisation. The



three authors met and discussed these assumptions in order to ensure these were articulated before analysis.

Discussions were carried out using Skype as the medium for synchronous verbal discussion, Google Docs and Spreadsheets were used collaboratively to discuss and consolidate concepts, analyses and conclusions. The authors transcribed the data pasting each whole conversation into a Google spreadsheet. In this first stage analysis each author individually noted emerging themes. Second stage analysis was carried out using Skype to discuss key titles emerging from our thematic notes in the spreadsheets - such titles were characterised by the team as 'floating to the top', capturing the essence of the transcript's meaning. Our goal was to find titles that were high-level enough to allow theoretical connections, but that were still grounded within the data. Finally the titles were discussed and the authors undertook a process of developing 'super-ordinate concepts' to organise all the themes. These were then re-checked against the raw data in transcripts to ensure they were accurate and grounded.

The super-ordinate concepts allowed the authors to identify pattern titles that were then used as the basis for the construction of a high level Pattern Language.

#### **4.4 Limitations**

In undertaking this approach and employing the IPA methods, the authors were conscious of a number of limitations inherent in the approach itself and in this particular exercise as outlined below.

a) The selection of student interviewees was based on volunteer students rather than a random sample; we did not seek students who had dropped out. Some justification for this can be found in our intention to conduct an Appreciative Inquiry, looking for what works rather than uncovering failure.

“The traditional approach to change is to look for the problem, do a diagnosis, and find a solution. The primary focus is on what is wrong or broken; since we look for

problems, we find them. By paying attention to problems, we emphasize and amplify them. ...Appreciative Inquiry suggests that we look for what works in an organization. The tangible result of the inquiry process is a series of statements that describe where the organization wants to be, based on the high moments of where they have been. Because the statements are grounded in real experience and history, people know how to repeat their success.”

*(Hammond, 1998)*

b) The authors maintained a theoretical stance on the language analysed as being fair representation of 'inner states' - this view may be challenged particularly as the students were discussing issues with their tutors, and thus may have been anxious to please.

c) IPA can be critiqued in that the subjects' accounts rely on detailed experiences of participants, which in turn depend on the subjects' memory, ability to communicate and use of language. The students and staff in this study were highly competent and articulate and the authors felt that their accounts were likely to be valid for these reasons.

#### **4.5 Approach to Pattern development**

The development of the pattern language was based on both the authors experience gained in over a decade of Ultralab work and from the data gathered from staff reflecting on their recent practice working in the Ultraversity online community of inquiry. The authors were variously involved in the Ultraversity project providing perspectives from a number of roles; director of research, project director, technical development, and learning facilitators.

The methodological approaches for the construction of pattern languages are varied. Either constructed from an empirical base or invented and then tested for validity at a later date. In this case, the approach was that of a 'bricoleur', using empirical data that was interpreted by the experience of those working the Ultraversity project in different capacities as well as taking inspiration from other related pattern languages identified in section 3.3 Example Pattern Languages.

## 5 Findings

In a prior study of student experiences on the same course, Millwood, Powell and Tindal (2008) identified eleven overarching themes from an analysis of student interviews. Analysis of the data in the study based on staff interviews evidenced clear alignment with the earlier study based on student interviews. This alignment was seen both in the issues identified and the reflections on those issues. The predominant issues arose from complexity rather than from failure, i.e. the course was considered to be following an appropriate direction but systems put in place were perceived, by a significant proportion of staff and students, as too complex. There were also significant issues raised relating to the implementation of innovation in the face of institutional restrictions. Many students identified issues relating to complexity as barriers to their learning and staff as barriers to the efficacy of their teaching.

### ***5.1 Evolution in use of Virtual Learning Environments and other software frustrated pedagogical aims***

As the course evolved through the use of alternative Virtual Learning Environments (VLEs), the issue of moving from one set of rules, tools and affordances to another was embraced and celebrated but also seen as a source of great frustration for staff and students. The data indicates that as we progressed through VLEs there was some polarisation around favoured systems consequently some felt resentment and others relief when faced with change.

"I believe I am fairly technically competent, but I found it difficult to keep switching platforms, particularly with regard to resource creation and retrieval, and being clear about which tool was most appropriate to each particular purpose.....Change is always hard and seems to polarize views - so students became fierce advocates of their chosen platform and closed to the benefits of the alternative system. This is a difficult one to deal with but definitely seemed to stifle thriving communities because the change in medium seem to kill the message."

(Facilitator, 2007)

### **5.2 Developing a common pedagogy in a team teaching approach was challenging but fruitful**

From inception we acknowledged there would be a range of pedagogical approaches favoured by individual team members; we saw this as a potential strength bringing richness and diversity to the student experience. We were aware of the potential weakness as far as parity and a risk of non-parallel student experiences. A coherent team teaching approach was invoked with the intention of reducing the risks and of maximising richness. The data indicates that this approach worked well although there were issues ...

"I had to learn to teach wholly in the textual medium (I never experimented with podcasting which on reflection was short-sighted of me). I was a teacher used to relying on my personality and although this transferred into online contexts also, it was different – I had to be careful of joking or being irreverent about authority. It is easy to do that in a conversation but harder when all you say is recorded in black and white for all to see for all time."

(Facilitator, 2007)

### **5.3 The flexibility of learning asynchronously conflicts with the inflexibility demanded by fair assessment**

On the inflexibility of institutional needs:

"The Quality Assurance procedures in relation to submitting work for assessment were relatively inflexible and for many good reasons, such as the need to be sure that work submitted was done so on time and was not subsequently altered. Clearly, for students wishing to work using Web 2.0 technologies this proved difficult with work either having to be rendered into a format that could be submitted or the extra work of creating zip files of offline web site submissions"

(Facilitator, 2007)

### **5.4 Students valued 'patchwork' assessment, but this challenged markers**

On the patchwork text assessment:

"Many students found value in devising alternate genre pieces and presenting them using rich media. Presentation of sections of work as videos, magazine articles or news bulletins demands precision and required students to reduce complex situations to their key elements. The activities highlighted the value of being concise and precise and of examining situations for alternative perspectives. The issues we faced as

assessors were objectivity and equivalence; how many words is an animation worth?"  
(Facilitator, 2007)

### ***5.5 Facilitators recommend measures to increase coherence and consensus***

This is a summary of the recommendations made by facilitators from the data collected.

1. Staff induction mechanisms - clarify expected approach, ensure adequate buy-in to new approaches and ensure they are co-owned by the team.
2. Team teaching approach - negotiate agreement of pedagogical approach; leaving room for individual personality/skills to be deployed, carry out parity check through regular monitoring.
3. Put a clear system in place - define parameters of freedom and control, establish clear roles and expectations, team teaching, QA /alignment and monitoring.
4. Organise an aligned team with an adequate scope of skills and specialisms, ensure these are visible, available and effective.
5. Inspire collaboration and trust at the heart of the team to ensure viable team teaching
6. Facilitate community learning through clear and consistent modelling of behaviour, coherent and consistent pedagogy, one to many communications, many to many communications, expertise in VLE technology, protection and support of staff, systematic framework.

## **6 Conclusions**

Most dominant in the findings was the issue of diversity in staff expectations on the themes identified above in the Findings, such as induction, team teaching, assessment, facilitation of online community. The diversity in expectations was clearly also driven by complexity in our approach. Informally, the project could be accused of changing too many variables at once. Although Ultralab had established a coherent set of values and ideas for online learning, these were held tacitly by individuals and needed further clarification and most importantly, articulation. In practice such ideas also required consistent modelling by team leaders and

reference to formally articulated procedures. Argyris, Putnam & McLain Smith (1985) explained this phenomena as two different “theories of action”: espoused theory as an articulation of the values that they believe their behaviour is based on; and theory-in-use which are the values that their behaviour implies. To the individual, there is no contradiction as discovered in the research reported below. In order to articulate practice these values and ideas more clearly for subsequent development, the idea of patterns has been adopted and a Pattern Language for Online Community was developed. The patterns we propose fall into an identified category of Online Community of Inquiry. They have the specific purpose of informing the organisation of formal collaborative learning within a facilitated and structured online space with clearly defined intentions. The diagram below provides an overview of the pattern ‘Nurture Online Community’. Further detail of a selection of the patterns can be found in the appendices.

### **Nurture Online Community of Inquiry**

Deep learning arises alongside strong community

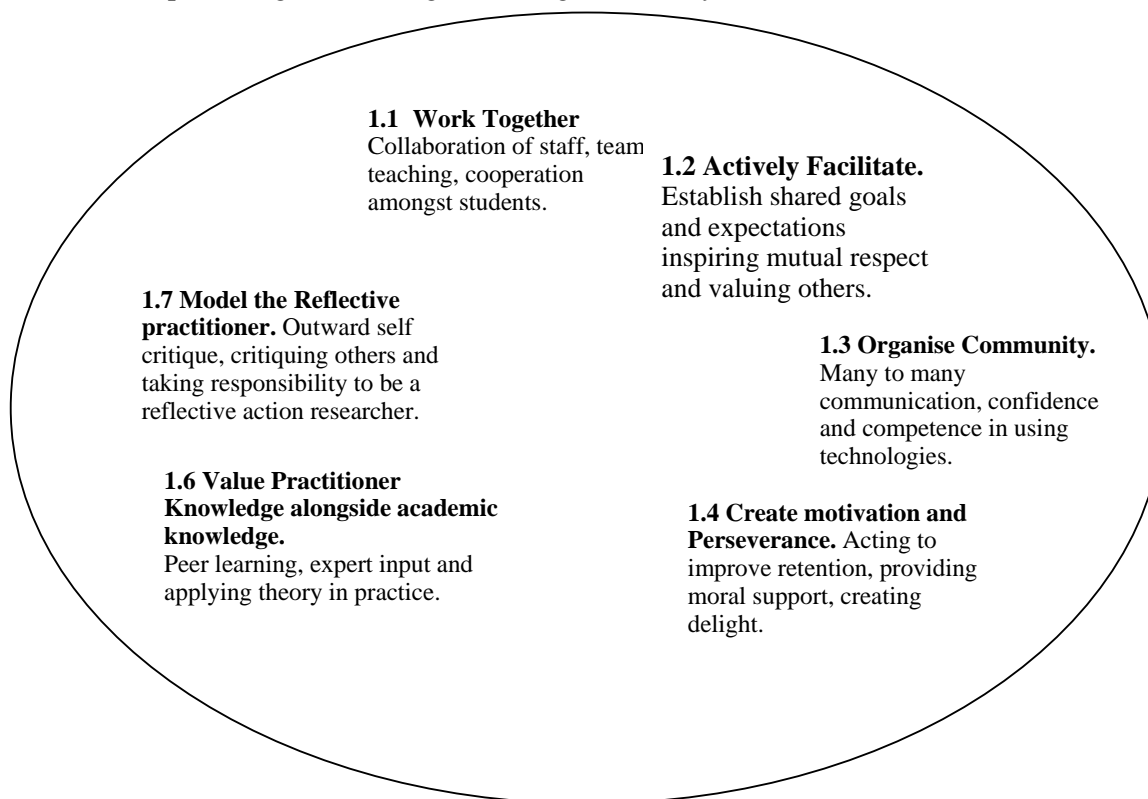


Fig. 2 Diagram of top-level patterns to Nurture Online Community of Inquiry

The first three patterns – ‘1. Nurture Online Community of Inquiry’, ‘1.1 Working Together’ and ‘1.5.1 Learning Sets’ are included below together with an overview of the set of patterns.

The next steps in this research are to refine the patterns through evaluation with the Ultraversity staff team as well as students of the online community of inquiry. The refined results should provide a clear set of practices and processes for an approach to online learning in HE. Ongoing work will be to implement the patterns in the communities to assess their effectiveness in attenuating the complexities that arose from the Ultraversity model.

## 7 Appendix 1: Patterns

	<b><i>Pattern 1. Nurture Online Community of Inquiry</i></b>
<b>a. Picture</b>	There is no picture - this an abstract organisational pattern.
<b>b. Introduction</b>	This pattern is located under the Online Communities of Inquiry category. It is the only pattern at this level.
<b>c. The Essence of the Problem</b>	Learning can be ineffective and marginal when it is individual, competitive and isolated. The challenge is to create a social and interpersonal activity of regular dialogue, reflective practice and moral support.
<b>d. The Problem in Detail</b>	Learning organisation is traditionally designed to highlight individual endeavour, define a common curriculum and ensure achievement is assessed reliably through controlled conditions. Schools, colleges and universities achieve this in face-to-face contexts by timetabling, identifying class sets of similar capability and examinations. The problem is that this does not suit all learners' learning style, contextual needs or personal circumstances. This is evidenced in the difficulties faced by learners who are not taking opportunities in statutory or further and higher education. In particular, this pattern addresses the needs and opportunities of higher education, which can address social challenge in a context-based, action-research and online environment. This pattern defines a different view, that learning should be idiosyncratic, tuned to practitioners in context, placing responsibility on learners to negotiate process, content and award to fit their needs.
<b>e. The Solution</b>	This pattern proposes to nurture online community of inquiry. Use online technology to permit rich dialogue and many-to-many discussion and also to free individuals from travel and timetables. Create community to make effective use of peers, both for moral support, cooperation and as sources of experience and expertise. Establish community and learning organisation, which facilitates the negotiation of individual inquiry, the sharing of intermediate activity and the exhibition of results.
<b>f. Diagram</b>	Refer to the diagram that relates all the patterns to this pattern see Fig 2
<b>g. Related patterns</b>	1.1 Work together 1.2 Actively Facilitate 1.3 Organise Community



1.4 Create Motivation and Perseverance

1.5 Organise learning

1.6 Value Practitioner knowledge alongside academic knowledge

1.7 Model the reflective practitioner

	<b>Pattern 1.1 Working together</b>
<b>a. Picture</b>	There is no picture - this an abstract organisational pattern.
<b>b. Introduction</b>	<p>This pattern is a sub-pattern of the Nurture Online Communities of Inquiry pattern.</p> <p>Other patterns at this level include:</p> <p>1.2 Actively Facilitate</p> <p>1.3 Organise Community</p> <p>1.4 Create Motivation and Perseverance</p> <p>1.5 Organise learning</p> <p>1.6 Value Practitioner knowledge alongside academic knowledge</p> <p>1.7 Model the reflective practitioner</p>
<b>c. The Essence of the Problem</b>	Cooperation between students and collaboration between staff is not normally achieved and is reported to be particularly difficult in online learning contexts.
<b>d. The Problem in Detail</b>	Teaching is usually organised to meet the needs of timetabling, to deliver lectures or lessons and to offer limited personal support in individual tutorials. Preparation and marking is also undertaken individually and this can be difficult. Learners are normally expected to work as individuals, but on the same content at the same time - this can lead to temptation to plagiarise and disaffection through irrelevance to individual interest. Workers in the field of online learning report cooperation and collaboration to be difficult to achieve in asynchronous remote learning.
<b>e. The Solution</b>	<p>This pattern proposes that staff should collaborate closely. This entails treating teaching acts as joint objectives that require ongoing monitoring together in a team. Such acts include admissions, planning, preparation of materials, facilitation, organising, formative assessment, and marking. Responsibility should also be placed on students to cooperate in their learning acts. These include moral support, critical dialogue, sharing resources and ideas and celebration of success.</p> <p>Learners should be required to evidence their cooperation and</p>

	participation as part of the learning outcomes of the course. Staff performance review should include specific criteria related to teamwork.
<b>f. Diagram</b>	Refer to the diagram that relates all the patterns to this pattern see Fig 2 above
<b>g. Related patterns</b>	There are no smaller patterns defined in relation to this category.

	<b>1.5.1 Learning Sets</b>
<b>a. Picture</b>	There is no picture - this is an abstract organisational pattern.
<b>b. Introduction</b>	This pattern is a sub-pattern of 1.5 Organise learning
<b>c. The Essence of the Problem</b>	High quality, constructive, critical feedback is essential for an online community of inquiry. Without challenge from different perspectives the work produced will be of a lower standard.
<b>d. The Problem in Detail</b>	There are many facets to undertaking an inquiry, and at each stage critically reflective evaluation is an essential component. Feedback from several perspectives, from community members with different expertise and experience, is the most valuable. Both giving and receiving of feedback are valuable mechanisms for developing criticality in students. Audience size and trust are factors that impact on learner's willingness to feedback. If the feedback process is to be effective critique must be given in a safe environment; one where those giving and receiving trust each other to be supportive; consequently locating the feedback in a community space with a large membership is likely to lead to selective and possibly limited engagement with the process.
<b>e. The Solution</b>	<p>Establish learning sets with 5 members. Contract the members to support each other for a defined minimum level of commitment and with a group ethos of critical friendship. This should include offering as well as receiving critically constructive feedback. This activity should initially ? be supported by someone with expertise in the process who can model the behavior required as well as explain the process and why it is valuable. Feedback should be targeted on particular aspects of the work as required by module tasks or as identified by those receiving the feedback. All feedback must have the aim of creating the maximum possible positive impact.</p> <p>In giving support:</p> <ul style="list-style-type: none"> <li>- identify strong aspects of work</li> <li>- suggest alternative approaches based on experience</li> <li>- identify inconsistencies</li> <li>- challenge unfounded assumptions</li> <li>- offer supportive critique rather than aggressive criticism</li> </ul> <p>In receiving support:</p> <p>Accept that feedback is offered in the spirit of critical friendship, it is what is said that is being criticized rather than who said it.</p>

<b>f. Diagram</b>	Refer to the diagram that relates all the patterns to this pattern see Fig XX
<b>g. Related patterns</b>	<p>1.3.1 The 'Hotseat' expert guest</p> <p>1.3.2 Asynchronous Conversations</p> <p>1.3.3 Online Identity</p> <p>1.5.2 Workplace advocate</p> <p>1.5.3 Module design</p> <p>1.5.4 Summative Assessment</p> <p>1.5.5 Awards and Recognition</p>

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