Chapter Fourteen
The AskNRICHers' Virtual World
A Second Learning Place

Doing Mathematics in Different Places: an Exploration of Young People's Activities as they make Independent Use of a Web-Based Discussion Board

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Each chapter has been edited to enable it, as far as is feasible, to 'standalone'.

The chapter numbers and numbering of sub-headings has been left unchanged from the original Thesis.

However, each edited chapter has its own page numbering and any cross-references *within* the chapters and *between* chapters on the NRICH website use these (new) page numbers followed by specifying the page number(s) in the original Thesis chapters.

Where appropriate, references may be given to other chapters (not included on the website) within the full Thesis, either by specifying the Section or providing the Thesis page number(s).

If in a chapter reference is made to any appendices, then the relevant appendix is attached at the end of that chapter.

Each chapter has its own list of references.

[The Thesis title, abstract and acknowledgement pages together with a table of contents for these edited chapters and glossary from the Thesis are also included. The table of contents of the full Thesis appears after Chapter Fifteen].

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Without a doubt, the physical locations we call schools and classrooms will have to change; and they will become less exclusively the spaces where certain kinds of learning are possible.
[Burbules & Callister nd]

14.1 Introduction

Chapter Thirteen within the Thesis reviewed literature, with particular reference to, and consideration of the findings so far of this study, in two key areas necessary for the final characterisation of AskNRICH. It firstly set down and clarified definitions of collaboration and cooperation appropriate for use in the context of AskNRICH. Secondly it considered concepts relating to a type of 'space' that will be used in this chapter to create a robust, defensible characterisation consistent with all the preceding findings of this study.

The purpose of this chapter is firstly to present the four stages that lead to the final characterisation of AskNRICH:

i. establishing AskNRICH as a Place of Nurture and a Safe Haven Commune in which to learn

ii. considering the implications of the nature of AskNRICH for relating it to the concept of Gee's [2004, 2005] concept of an Affinity Space [AS]

iii. examining AskNRICH as revealed by the exploration against the features of an AS

iv. extending the concept of AS to define two new concepts of a Pupil Learning Place [PLP] and a Second Learning Place [SLP]

14.2 Stage One: Establishing AskNRICH as a Safe Haven Commune

Much of the content of the threads examined in this study, and reflected initially in the features within the Social and Personal theme [Table 9.6 Chapter Nine p17/Thesis p200] and later in the Social Presence Features Catalogue [Figure 11.4 Chapter Eleven p25/Thesis p264], conveys the apparent friendliness between the AskNRICHers and provides the evidence for the 'good nature' of the postings. This is perhaps an even greater achievement

given that this is an open access and not pre-posting moderated board. An apparent and important factor in making AskNRICH a place where young people enjoy doing mathematics, is the respect and politeness, i.e. consideration and the care for others that emanates from them. In many of the threads, including those in the private posting area, the desire of one student to keep another on board, to *continue to study mathematics*, by taking time to write a sympathetic and encouraging post provides further evidence for the existence of 'kindred spirits'. In other words, the AskNRICHers' general practices can be interpreted as AskNRICH providing a pleasant environment, *a Place of Nurture*. Whereas, within a (group-working) classroom situation the definition of cooperation and collaboration needs to be something more than "working together in a tolerant and compatible manner" [Littleton and Mercer 2010: 272], for the situation of AskNRICH this appears sufficient. The collection of the four qualities: cooperation, collaboration, consideration and care will hereafter be referred to as the 4Cs. Since these four qualities are diffused through the features reported in the findings of previous chapters, they thus may be viewed as lying at the heart of AskNRICH, a situation conveyed by placing them at the centre of the pentagonal diagram of Figure 12.2 as shown in Figure 14.1 below. In summary, AskNRICHers are *cooperating* in acceptance of, and keeping to, the posting protocols, showing *consideration* and *care* towards all others as they *collaborate* on aiding like-minded peers to pursue their interest in mathematics.

The harmonious world where the 4Cs predominate, automatically engenders a feeling of 'pleasantness' as exemplified by the quotation first presented in Section 8.4.2:

> *I love the way everybody [in AskNRICH] is so friendly, and not*
> *obnoxious when you post the most obvious of questions, which you see the*
> *answer to the minute you post it.*　　　*[Web-Survey Female Upper School]*

AskNRICH was described above as providing *a Place of Nurture* and by assimilating the 4Cs, this can be further developed to describe AskNRICH as:

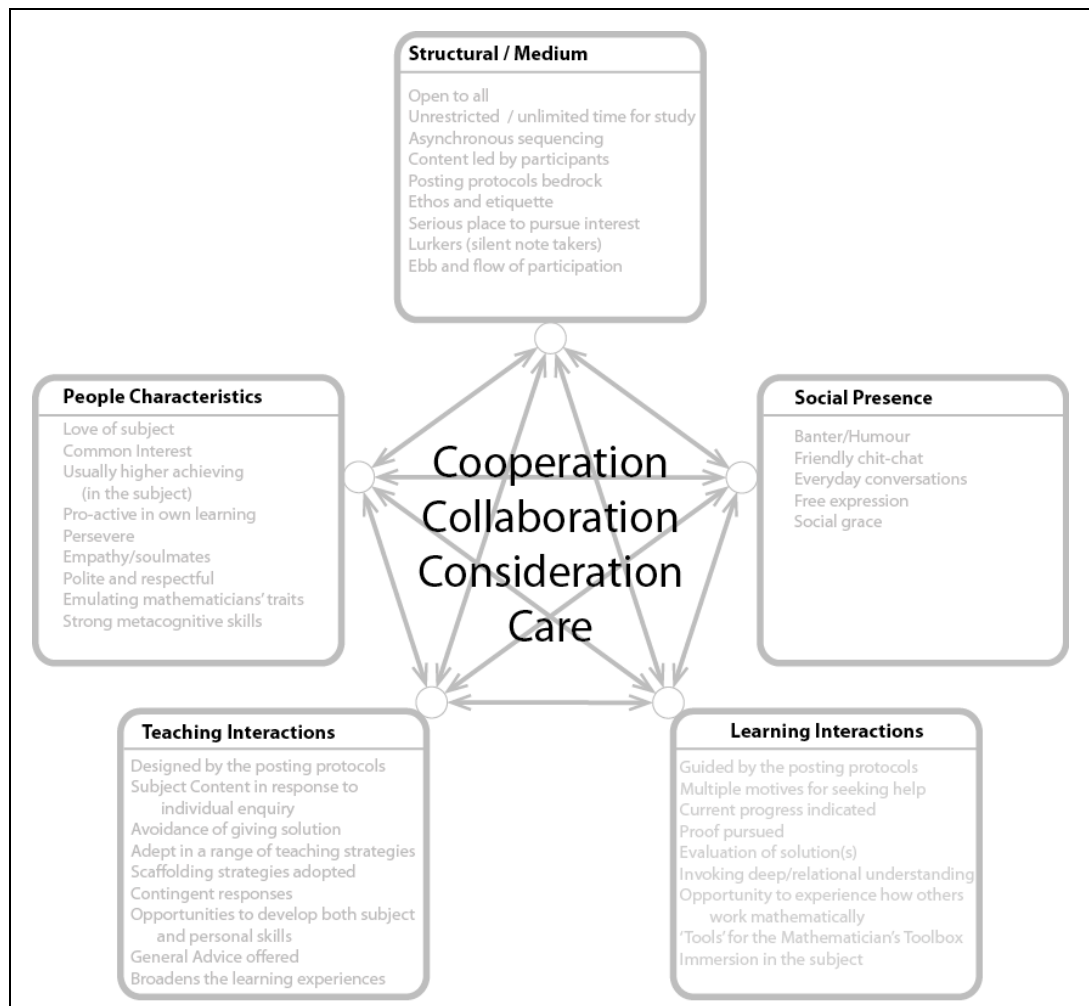> *a safe haven commune in which to learn*

Figure 14.1 4Cs at the heart of AskNRICH

In order to ensure the correct meaning of this is accurately conveyed a short explanation of the choice of words/terminology is included here. In earlier chapters of the thesis [notably Chapters One and Thirteen] I have stated why it is inappropriate to label AskNRICH as a Community of X. However I have chosen to use the word 'commune'. The meanings of commune and community overlap, but they are not synonymous. One reason for using commune is that it does not bring unwanted connotations, especially 'permanent membership', whereas community does. Furthermore, commune has aspects of its meaning that I do particularly want to emphasise in relation to AskNRICH: shared, communal and location (space). Moreover, the dictionary definition[1] contains the word 'settlement'. An associated word could be 'encampment' as it would also bring nuances of a transitory nature, which would be appropriate for the fluctuating and dynamic participation in

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[1] As in Concise Oxford Dictionary meaning1 (b): a communal settlement especially for the pursuit of shared interests [Eighth edition 1991:229].

AskNRICH referred to in Chapter Eight [p8/Thesis p172]. The addition of the words 'safe haven' brings associations with the idea of a friendly and safe location[2].

The most prolific/sustained users of AskNRICH are often those who are high, or in some cases exceptionally high, attainers in the subject. The stereotypical view of such people, reinforced somewhat by the media, is usually of being 'odd' or 'nerdish', finding it difficult to make social conversation and be 'normal'. Some can find it hard to feel accepted by other members of their school class which exacerbates the situation [Beardon, Jared & Way 1999; Freeman 2001; Frieman & Sriraman 2008: 115].

Indeed, it is hard to imagine a stronger evidential example for the idea of a safe haven than the following comment:

> *I certainly find in an offline setting (i.e. school) it is harder to ask a question than to answer one, as I get mocked and jeered at for asking questions. But online, I feel more confident in asking a question, as usually, I won't be victimised because of it.*   *[anonymous AskNRICHer]*

A web-board set up such as AskNRICH allows each individual to contribute anonymously, without being subjected to either any prejudice or any of the indications, either to or from the person posting the message, that a social face-to-face meeting could convey. This parallels Gee's first facet of an Affinity Space where common purpose is primary [Gee 2005: 225], but it is of extreme importance here for those young people who can feel vulnerable, 'sticking out' from the norm. This anonymity helps to create the empathetic atmosphere that allows AskNRICHers to flourish, and in turn AskNRICH itself.

14. 3 & 14.4 Stages Two and Three: The Nature of AskNRICH

[For the NRICH website presentation these two sections of the thesis have been abbreviated and combined, omitting the detailed exposition of the concept of Affinity Spaces [Gee 2004, 2005] [see Thesis pp277-282] and the degree of correspondence of the features of AskNRICH with those of Affinity Spaces [see Thesis pp287-293]].

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[2] The word Oasis also came to mind as in meaning 2: an area or period of calm in the midst of turbulence [ibid: 816], although any reference to turbulence is probably inappropriate!

Table 14.1 below lists four of the five properties of AskNRICH [see Table 1.1 Chapter One p5/Thesis p26] outlining the Special Nature of AskNRICH, and relating the consequences of these properties to the concept of Affinity Spaces [ASs]. The fifth property, that AskNRICH is used by many who are of school age, has not been included here since age is not a factor that needs to be considered in this aspect of the study [see p7 below/Thesis p294]. The final row of Table 14.1 lists three further consequences that relate to the medium itself and thus are not necessarily exclusive to AskNRICH. The twelve stated individual consequences are based on either recognised facts about AskNRICH or findings already reported in previous chapters.

Special Nature of AskNRICH	Consequences that have implications for relating AskNRICH to the concept of Affinity Spaces [Gee 2004: 85-87]
participants belong voluntarily	(i) there is fluid participation – a choice to come & stay or go; some who go return later (ii) there are complex reasons for posting: from hope for a quick fix for homework (that is quickly dispelled when it is clear this will not be met) through to a more common and predominant sustained self-learning of a subject that holds interests; common interests provide some participants with an altruism in supporting others of kindred spirit Hence there is a possible common purpose, but definitely an individual need and each participant decides on their own role(s) (asking and/or giving help)
it is not part of any fixed syllabus, curriculum or subject course, primarily used only at home	(iii) although content may be driven by need to perform well in terms of public examination systems or competition style questions (such questions can but not exclusively be directly related) this is at one level removed (at least) from tying the content to any examination assessment (i.e. AskNRICH is insulated from delivering to assessment systems) (iv) quality/quantity of postings have no assessment purpose attached to them, as participation is predominantly an out-of-school activity pursued for pleasure (even though such 'pleasure' can be relevant to 'school based' examination type questions)
topics are only raised if they are of importance to the individual making the initial post	(v) content totally determined by participants and thus there is no teaching course design (vi) there is little variation in threads' patterns – essentially the start is by someone asking for help, receiving help by one or more others, and messages continue until originator successfully solves their problem to bring conclusion
there is no teacher/lecturer led element	(vii) content totally controlled by participants (viii) no student/teacher power relationship (ix) each participant has essentially equal status in choosing to post
In addition, there are three further implications (though these could be present in other CMCs)	
Medium of AskNRICH	(x) posting protocols very strictly adhered to, more often peer moderated than by 'official' moderator (xi) the anonymity of the web-board is treated with respect by participants who cannot make direct personal contacts via AskNRICH that other social networking sites might allow (xii) the web-board is the object that enables the activities of participants. The activities of participants then themselves become enablers for other participants

Table 14.1 The Special Nature of AskNRICH and its Implications in the Further Stages of Characterisation

Gee's exemplar of an AS [2004, 2005] is based on knowledge gained in pursuit of what would be generally thought of as a 'pure' hobby; the real-time computer game '*Age of Mythology*'. AskNRICH was set up to allow school pupils the means to develop their own mathematical knowledge through independent, personal learning. Mathematics is a traditional education subject, taught at school and university, even if the AskNRICHers, as indicated in Chapter One, view doing it as a hobby! As argued earlier in this chapter, in AskNRICH learning takes place with, and is delivered by, the 4Cs: cooperation, collaboration, consideration and care. Equally the 4Cs give, and also result from, a feeling of affinity/empathy with other participants; there is thus a sense of harmony. Indeed, whilst AskNRICH is a space where knowledge can be created, to different degrees for different forms, the more self-sufficient, self-confining aspects locate it as a place that hosts a nebulous group of people that has learning, aided by good teaching, at its core. Such learning occurs as a result of other participants' pedagogical skills that they offer in the pursuit of an existing mutual and individual interest. Thus AskNRICHers not only partake of their learning within the virtual world but also in their own physical location, generally at home, alone.

These arguments led me to make a characterisation of AskNRICH as a **Second Learning Place [SLP]** that is itself a special example of a **Pupil Learning Place [PLP]**.

14.5 Stage Four: Defining a Pupil Learning Place and a Second Learning Place

In the following sub-sections, the first defines the more generic construct of a Pupil Learning Place, the second gives a definition of a Second Learning Place. Finally, the choice of the word **Second** for the specialisation of PLP as SLP is explained.

14.5.1 Pupil Learning Place

I first coined the term "*Pupil Learning Place*" [Jared 2004: 66] as a result of conducting the first two evaluation studies of the NRICH website in the late 1990s [Jared 1997, 1998] and considering the potential of being able to undertake NRICH type problems at home and/or at school. The concept of different "*sites of learning*" [Jared 2005: 135] has now evolved in this thesis into two different *learning places*. Others had clearly envisioned something

similar as exemplified in this chapter's opening quotation from Burbules and Callister [nd]. Such a phenomenon had only recently been made possible by the development of the Internet. Originally I viewed 'pupils' as young people who attended school aged 5 to 18 being taught a curriculum subject. Access to the Internet not only removes restrictions of a physical classroom [Bentley 1998, Furlong, Furlong, Facer & Sutherland 2000] it also removes the age limit. 'Pupils' can be of all ages. When considering the findings from the exploration of AskNRICH, the word 'pupil' becomes even more appropriate to encompass people of all ages for not only does the dictionary definition of pupil as a "person who is taught by another" [Hawkins 1989] fit well, but the word 'pupil' has been used for centuries for 'learned' apprenticeship schemes e.g. barristers in law firms 'take on' pupils. Hence I propose Pupil Learning Place as a generic term, for *any* place where *learning* occurs with the *aid of teaching* amongst people of *any* age. So for example schools, universities, training placements, 'evening' classes would all come under this umbrella term.

14.5.2 Second Learning Place

As implied earlier in Sections 14.2 & 14.3 and presented in detail in the corresponding sections in the Thesis [pp287-293], an SLP draws on the features of Gee's AS [2004, 2005]. [The Thesis also presents a more detailed three-way comparison of PLP, SLP and AS, the presentation below only considers PLPs and SLPs].

Table 14.3 lists a set of underlying characteristics stating the perceived degree of presence of each in terms of a three valued system: 'always', 'not always' and 'not/never' within a PLP and SLP.

Characteristics	Pupil Learning Place	Second Learning Place (AskNRICH)
Curriculum Subject	Not Always	Always
Physical Classroom	Not Always	Never
Peer Led	Not Always	Always
Affinity between members	Not Always	Always
Presence of 4Cs (Safe Haven)	Not Always	Always

Table 14.3 Presence of Characteristics in Pupil and Second Learning Places

This Table shows that all of the features possessed by an SLP are also possessed by a PLP (though a PLP can contain more features that an SLP). The 4Cs of cooperation, collaboration [delivered with] consideration and care, may or may not be present in any particular PLP but definitely are present in an SLP; making it the safe haven commune in which to learn.

The choice of the word Second in SLP was made for a variety of reasons. As discussed above, AskNRICH participants not only partake of their learning within the virtual world where others are 'present' to help but also on their own in a physical location alone i.e. to paraphrase Zuckerman [2003: 186] "together and alone". Participants in this study are doing mathematics (as the thesis title suggests) in (two) different places, in reality that of school and home. Posting times reveal that participation in AskNRICH is mainly out of school-time and thus it seems fair to assume that such participation generally takes place at home. Both locations are thus, from the definition above, pupil learning places; each one neither first nor second (main or subsidiary). However in terms of compulsory schooling where the vast majority of the UK population of school age attends a school, culturally AskNRICH can be considered as the second location. Furthermore AskNRICH is an additional (second) mathematical resource to the texts used and teaching help available in school mathematics. In the light of evidence [including e.g. **Peter** in Chapter Ten] that the AskNRICHers are frequently working on mathematics by themselves as they have already completed the syllabus level considered appropriate for their school year, whether AskNRICH is actually their second or first source of learning could be debatable. Nonetheless the term 'second' is used to encompass the meanings of additional and/or alternative.

Moreover, as Figure 14.1 depicts, inside the pentagon are the 4C words, collaborative, cooperation [delivered with] consideration and care. These 'warm and friendly' words are part of a list that, in an ideal world, one would work hard to have inside a loving family home. So, to push a metaphor to extremes, calling AskNRICH a safe haven makes it become a 'second' home for many of its users.

A Second Learning Place is therefore being defined as a specific pupil learning place, different to the cultural norm, where people pursue a common interest *in an academic*

curriculum subject in a **c**ollaborative, **c**ooperative environment showing **c**onsideration and **c**are for others with participants either aiding the pursuit, being aided in the pursuit or doing both.

14.6 Conclusions

This chapter has presented two new concepts developed from the findings from the preceding and earlier chapters in four stages, finally resulting in the achievement of the overarching research goal of this thesis of characterising AskNRICH. The first is that of a Pupil Learning Place, a generic term to refer to *any* place where learning occurs, not necessarily in a school curriculum subject, with the aid of teaching amongst people who are not necessarily of a specific age. By considering the activities and actions within AskNRICH that are a result of, and result in, being delivered with cooperation, collaboration, consideration and care, the definition of Second Learning Place (a subset of a Pupil Learning Place) has been given to embrace the empathy and harmonisation that these key qualities present; a safe haven commune in which to learn.

[For presentation on the NRICH website, the next and final chapter outlines the Thesis' claims to knowledge [detailed in Thesis Chapter Fifteen]].

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