Social software supported children's education out of school: Informality and Transition of learning

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ABSTRACT

This thesis is motivated to harness UK children's enthusiasm and energy on using social software to connect with each other. The overarching research aim of this thesis is to investigate how social software can cultivate children aged 11 – 14 as a community of learners out of school, in order to support their education. Two key issues: informality of out-of-school learning and transitions of learning practices across home and school, are identified as research challenges. Community of Practice is proposed as the theoretical construct to open up and provide useful coverage to respond to these two challenges. In five case studies, various methodologies are utilised to investigate the actual uses that children make of social software as well as to explore the networked dynamics within a community that mediate the fate of technology

First, UK children's use of a nationwide homework message board in two subjects: Maths and English is investigated. Findings suggest that seeking for help is the prevailing concern expressed by the children, when they confront their private study out of school. A strong emotional tone is evoked in the board, which sustains children's co-participation as a community. Second, whether and how an online whiteboard can support children's GCSE Maths exam revision with a teacher during out-of-school hours is explored. Findings shed light on the difficulty in nurturing a community of learners through social software and .the role of a teacher's online presence out of school. The third study explores how a group of students and a teacher are cultivated as a learning community across classroom (physical) and a social networking site (virtual). Findings suggest that the informality of socio-emotional chat, content production and identity construction helps to identify the non-academic dimension of being a learner within a community. In order to cultivate a learning community, it is suggested that children should be supported to form a community that will function better in the class rather than just being put into continuous tuition hours with extra teacher support out of school. Findings also discover the benefit to access a teacher via multiple communication channels. Furthermore, in an attempt to illuminate the underlying networked dynamics in a social software-supported community, Chinese children using a homework message board is investigated. Findings suggest that the specific emotional tone revealed in the UK message board is related to the UK children's particular perspectives in learning and

knowledge. Finally, interviews with two cultural groups of children: English and Chinese are conducted, in which the children mapped their in-school and out-of-school activities and their personal preferences of technologies. Findings suggest that the fate of a supportive technology must be judged with a firm grasp of the learning culture that it is implemented.

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Chapter 1: Introduction

This chapter introduces the overarching research aim of this doctoral research, which is *to investigate how social software can cultivate children aged 11 – 14 as a community of learners out of school, in order to support their education*. It firstly identifies the UK government's expectations for social software to support learning in informal settings, by reviewing its Information Communication Technology (ICT) policies. It secondly illustrates children's enthusiasm and energy on using the social software out of school. This indicates an opportunity in transforming children's out-of-school learning experience through social software and bridging the discontinuity of school and home for learning.

Chapter 2: Literature Review

This chapter aims to clarify the overarching research aim of this thesis and to propose sub-research challenges by bringing together a range of theoretical perspectives and empirical findings. Definitions of the term 'community' lead to two approaches to view children. By viewing children collectively, their communal ways of living within home and digital media culture are reviewed. Moreover, complexities of learning in such contexts are unpacked, in terms of 'informality of learning' and 'transitions of learning practices across contexts'. By viewing children as a community whose life is in association with each other, how social software can support the connectedness to foster the social aspects of learning is reviewed. Community of Practice as one ideal realisation of networked learning is discussed to open up and provide useful coverage, regarding the issues of 'informality of learning' and 'transitions of learning practices'. After clarifying the overarching research aim, two sub-research challenges are proposed:

(1) *Whether and how does the informality influence the cultivation of children as a community of learners through social software out of school?*

(2) *How to support children collaboratively engage in the transitions of learning practices across home and school through social software?*

How the five case studies described in Chapter 3 – 7 feed into the sub-research challenges is also explained.

Chapter 3: UK children's uses of a homework message board

This chapter presents an investigation into the UK children's use of a nationwide; freely accessible homework message board. In the message board, academic topics are discussed by the children outside of the academic context. The main aim of this study is to reveal how children aged 11 – 14 spontaneously communicated their learning concerns with each other in a message board, when they confronted private study out of school. Two comparable subjects, Maths and English, were explored. Three research questions were proposed:

Q1: *What are the prevailing concerns expressed and pursued by the children in the message board, when they confronted private study out of school?*

Q2: *How do discussion patterns and contents vary in the two different subject boards: Maths and English?*

Q3: *To what extent do the message boards support genuinely evolving discussions?*

416 messages (175 threads) were collected in the Maths board and 893 messages (175 threads) were collected in the English board. A content analysis, both quantitative and qualitative, was conducted.

First, this study found that spontaneous help seeking was the prevailing concern expressed in the message board. The large amount of help-seeking requests indicated that children were confident and comfortable to communicate their personal learning concerns through a message board out of school. Moreover, these help-seeking intentions were associated with a variety of social and affective factors. Hence, help seeking is regarded as a social transaction that takes place within an interpersonal relationship. Consequently, the contextual information and the socio-emotional exchanges relating to the help-seeking requests allowed children to develop their interpersonal relationships. However, the requests gained a very low reply rate in both boards. This low reply rate queried children's capability to provide help. The replies made by the children showed very little evidence of the co-construction of knowledge within ZPD. Given that spontaneous help seeking was the prevailing concern, a teacher's presence may satisfy their needs. Chapter 4 thus explores how a Maths teacher facilitated this kind of spontaneous help seeking intention through an online whiteboard.

Second, this study found that more than half of the thread topics did not receive any replies, and nearly 90% of the user identities only showed once within three

months. Due to the pre-moderation embedded in the message board design, a message usually waited more than a week, before it appeared in the board. There was also evidence showing that children complained about the delay.

Third, the study found that children in the Maths board were anxious to receive replies and normally focused on the procedure and accuracy of replies. They were likely to post a question from their homework and to request instant, agreed and reliable replies. English discussion threads required clear references to every contribution, because the children normally talked about their personal experiences or opinions on a topic.

Finally, the findings were discussed in a community of practice lens. It was found that a potential learning community emerged in the message boards. A significant proportion of help-seeking threads in both boards revealed that there was a shared concern among the children. And the interpersonal relationship developed through social exchanges cultivated a sense of togetherness. By participating in the activity of collaborative knowing, children explored shared values and practices together. However, from a community of practice perspective, the expertise and the boundary of the practices was not able to be defined in this group of children.

Chapter 4: GCSE Maths revision with a teacher on an online whiteboard

From a community of practice perspective, Chapter 3 found that there was a lack of central expertise amongst the children. In this study, maths teachers were involved to facilitate children's help seeking requests before their GCSE maths exam. Chapter 3 also found that children required instant and reliable replies, and some replies would be better illustrated by drawing. An online whiteboard with a chat therefore was implemented. The online setting involving a maths teacher implemented in Chapter 4 is more formal than the setting in Chapter 3. And a teacher's online presence out of school was supposed to facilitate children to engage in the transitions of learning practices across school and home. Three research questions were proposed:

Q1: *How does the online whiteboard structure the interactions between teacher and children across the virtual space (online) and the physical space (home)?*
Q2: *How do children regulate the teacher's online presence and help provision?*

Q3: *What role does a teacher play to facilitate children's help seeking intentions on an online interactive whiteboard?*

84 minutes of the online interaction between the teachers and children were captured through screen recording software. A video analysis was conducted to describe four different cases.

First, this study found that the teachers took a didactic approach to reply to children's help seeking requests. So she dominated the use of the whiteboard and only interacted with the children in the chat space. Children's domestic spaces were also regarded as a learning space by the teacher, so she instructed children to use the compass and calculator at home. The teachers' teaching experience in school was valuable, because they needed to envision what the children were capable of doing with the compass and calculators at home.

Second, this study found that there were no socio-emotional grounding conversations which were identified in Chapter 3. Children spent most of time in silently observing the teacher's actions on the whiteboard. When they were individually engaged with the teacher online, they were less active to take any actions.

Third, this study found that the teacher needed to provide more personal relevant help to the children, when considering the level of explicitness of help provision.

Finally, the findings were discussed in a community of practice lens. Only a limited amount of data was collected. This study unexpectedly failed to attract children's participation. The failure indicated that a technology, which can support interactions with a teacher, is not a warrant for designing or nurturing a community of practice. This failure also highlighted the importance of interpersonal relationships. In order to support children's help seeking, the Community of Practice metaphor for online design would be more applicable in an existing community, where interpersonal relationships are already established.

Chapter 5: A Mandarin learning group on a social networking site

From a community of practice perspective, Chapter 4 found that although teachers can be regarded as a central expertise to provide help, they were not a warrant for designing or nurturing a community. Help seeking and provision were approached as social transitions that take place within an interpersonal

relationship. Therefore, The Community of Practice metaphor for online design is more applicable in an existing community, where personal relationships are already established. In this study, how a social networking site was used out of school by a class of Mandarin learners with their teacher was explored. Different from Chapter 3 and 4, Chapter 5 investigated how a group of self-motivated learners interacted with a teacher around an extracurricular subject. Hence, children's participation might be more informal in different ways. Three research questions were proposed:

Q1: *Do a social networking site cultivate and sustain a community of learners out of school across time?*

Q2: *How do the children construct their identities and sense of community?*

Q3: *What role does a teacher play to facilitate children's activities across contexts?*

From a multi-method approach, three methods were used to collect data over 12 weeks, including tracking users' online behaviours by web analytics, a sequential observation and a focus group discussion. A quantitative content analysis was conducted to reveal the varying patterns of participation over time. Furthermore, a social network analysis was conducted separately with the use of the 'public forum' and the use of the 'personal comment walls'. Based on the structures of the two network diagrams, learners were categorised into four types and each type was analysed as a different case.

First, this study found that students' participation on the social networking site was sustained by their personal interests, their classroom activities, their interpersonal relationships build in school and the teacher's online presence out of school. Three types of contributions were captured: learners' discussions on the forum about Mandarin and Chinese culture; students' social exchanges on the comment walls; and students' identity articulation and exploration on their photo albums, blogs, music lists, and video lists.

Second, this study found that a diversity of the students' purposes for participation and a variety of participation patterns were supported on the social networking site. Hence, an online space which supports a diversity of needs that cultivated the feeling of independence and togetherness was more sustainable than an online space which continued online tuition out of school.

Third, this study captured a transition from a teacher at school to an online community member. The diversity of children's needs required the teacher's openness to build different types of relationship with the learners. Additionally, the different relationships were constructed through multiple communication channels afforded by the social networking site.

Finally, the findings were discussed in a community of practice lens. Students expressed a diversity of interests. By doing so, they may externalise their potential expertise in the community. They were engaged with a process of collaborative knowing which generated atmosphere of togetherness. Within the atmosphere of togetherness, development of the interpersonal relationships was the emphasis. Additionally, instead of playing as a central expertise, the teacher played multiple roles in valuing the diverse interests and in helping the learners to identify their own expertise in the community.

Chapter 6: Chinese children's uses of a homework message board

This chapter presents an investigation into Chinese children's use of a freely-accessible peer-to-peer message board – out-of-school and in their everyday life. This message board is comparable to the UK homework message board investigated in Chapter 3. This comparison aims to reveal how informality of learning and transitions of learning practices across contexts were shaped in a broader socio-cultural context, and consequently to illuminate the underlying organisation of a group of learners with social software. Three research questions were proposed:

Q1: *What are the prevailing concerns of the Chinese children in this age group, when they confront private study out of school?*

Q2: *How often do the Chinese children use their homework message board and how did the discussion evolve over time in two different discipline-based boards: Maths and Chinese?*

Q3: *What were the contextual factors that actively shaped the children's experience?*

The methodology used in this study is identical to the one used in Chapter 3. 885 exchanges in the Maths board and 735 exchanges in the Chinese board were collected and analysed.

First, this study found that help-seeking was also the prevailing concern of the Chinese children. But more than 80% of the help seeking requests were made by asking specific questions in both the Chinese (language) board and the Maths

board. More than 90% of threads got replies. However, there were much fewer social exchanges in the Chinese boards than the UK boards. Interactions between Chinese children were highly information-oriented, and a large proportion of the information-oriented messages were copy-and-pasted contents on both message boards.

Second, this study found that point awarding system embedded in the message board assigned roles to the Chinese children as point giver and point gainer. This mechanism prohibited children from engaging in social exchanges. Hence, the Chinese message board is transformed to be a formal online setting situated in an out-of-school context.

Third, this study found that Chinese children on average offered many more points to a Maths discussion reply than to a Chinese discussion reply. When asking concrete maths questions, they tended to give their own answer, but when questioning about abstract topics, they tended to refer to reliable sources without explaining their own understanding. Therefore, similar to the UK children, they wanted instant and more reliable replies in the Maths board.

Finally, the findings were discussed in a community of practice lens. The co-participation in a Community of Practice is supposed to be organised and systemic. The Chinese homework message board put efforts in shaping children's participation to be systematic and organised by reinforcing a universal value of participation (i.e. the point awarding scheme) However, it was found that the point-awarding system embedded in the message board transformed the message board into a formal setting. This formality limited the opportunity for the Chinese children to open up a dialogic space in which they can generate reflection, thought and understanding.

Chapter 7: Interviews with children

The aim of this chapter is twofold. First, it aims to contextualise the observations made in Chapter 3 – 6. Second it aims to further explore the tensions and dynamics which have been lightly revealed through the contrast between British and Chinese children's uses of homework message boards.

Semi-structured interviews were taken with 14 British children and 18 Chinese children. A thematic analysis was conducted to reveal how the children prioritised

their out-of-school activities and to map out key elements of out-of-school context that mediated the children's out-of-school use of social software.

First, this study found that the British children and the Chinese children welcomed and experienced different degrees of informality of their out-of-school learning. And the degree of informality experienced out of school was associated with children's commitment to education. Their commitment to education was influenced by the intensity of their school timetable, the competitive atmosphere generated by the assessment and the range of choices school provided to the children. The UK children prefer to relate their success in education to their personal future career goals, whereas the Chinese children prefer to relate their success in education to their success in exams amongst their peers. Therefore, comparing to the UK children, the Chinese children were likely to value the formal learning practice, instead of the informal one.

Second, this study found that the British children and the Chinese children's different attitudes to informal learning influenced their use of technologies out of school. It was found that the UK children valued a broader range of learning experience and its related issues, when using computer. However, the Chinese children hold a more constrained view about what types of learning can be supported through computers.

Finally, the findings were discussed in a community of practice lens. In a community of practice, the learners should be fully engaged in the process of creating, refining, communicating and using knowledge (Wenger, 1998b). To enable children to create, refine, communicate and use knowledge as a member of community of practice out of school, they should learn to appreciate a broader range of learning practices. And the comparison between the Chinese children and the UK children showed that how the school assessed their learning performance played an important role in their attitudes to informal learning experiences.

Chapter 8: Discussion and conclusions

This chapter discusses the findings and look ahead to the future. It first discusses the core contributions arise from this thesis in response to the two sub-research challenges proposed in the end of Chapter 2. In response to the *informality* issue, it is discussed that the informality of out-of-school learning influenced the cultivation of children as a community of learners through social software in three

ways. First, informality encourages the emotional and social connectedness between children, which thus binds children together out of school. Second, informality harmonises the varying forms of participation out of school and encourages children to value the diversity of participation. Third, informality transforms the role of teacher and online tutoring and requires teachers to be open and flexible to respond to children. In response to the *transition* issue, the thesis proposes two suggestions to support children collaboratively experience the transitions out of school. First, to achieve successful transition, the implementation of social software should open up and deepen a dialogic space between children, and the dialogic space should be resourced with children's communal ways of living and learning. Second, children should be encouraged to value a wider range of learning practices and make connections between the school-based ones and out-of-school ones.

It then reflects on the methodological issues arise from the thesis, in terms of its strengths and limitations. The multi-method approach is evaluated and reflected.

In the end, this chapter proposes the implications of this thesis.

Chapter 1

INTRODUCTION

***Chapter 1 overview**:*

Social software simply means the software that supports group interaction, such as instant messengers and blogs. Nowadays, use of social software is an integral part in many children's lives and makes a social impact on their daily lives. UK government holds strong beliefs that the internet will play a major role in transforming UK children's learning experiences out of school. Against this background, the overarching aim of this thesis is proposed, that is, to investigate how social software can cultivate children aged 11 – 14 as a community of learners out of school, in order to support their education. The organisation of this thesis is described in the end.

Nowadays, the increasing integration of social software in our children's daily lives seems unstoppable. In the UK, there are debates on whether mobile phones, mp3 players and Facebook are distractions and should be banned in school or not (e.g., Hartnell-Young, 2008). Out of the school wall, teenage children's experience of social networking sites, mobile phones, emails and instant messengers is almost ubiquitous (Crook & Harrison, 2008). But very few UK children are using them with a high level of sophistication (Clark et al., 2009).

Therefore, this thesis is motivated to harness UK children's enthusiasm and energy on using social software to connect with each other. The overarching research aim of this thesis is to investigate how social software can cultivate children aged 11 – 14 as a community of learners out of school, in order to support their education.

This chapter first considers the UK government's expectation for out-of-school learning with ICT in Section 1.1. It then goes on to describe how social software plays a role in children's life out of school and its potentials to transform their out-of-school learning in Section 1.2. Section 1.3 describes the organisation of the thesis.

1.1 Government expectation for out-of-school learning with technology

As stated by Somekh (2000), UK government policy has promoted using computers to support learning since about 1980. The white paper "Excellence in Schools" (DfEE, 1997) fosters a realisation that education matters to everyone and the importance of out-of-school learning to improve education standards.

The white paper also realises the role of ICT as a support for learning. In 1998 the government publishes another paper called "The Learning Age", in which they proposed their plans for developing a new "culture of learning" in the UK. In detail, they describe an important role that home-based learning is expected to play in the promotion of lifelong learning. It foresees the increasing role of ICT, especially the internet, in encouraging children to take part in more general learning experiences which arose in the out-of-school context.

In 1998, Becta (British Education and Technology Agency) is established to 'ensure the effective and innovative use of technology throughout learning[1]'. The recently refreshed strategy 'Harnessing Technology: Next Generation Learning' (Becta, 2008), sets out the system-wide role for technology over the next six years. One of the five high-level outcomes sought by the strategy is 'engaged and empowered learners'. This outcome stresses that 'learners able to access technology and the skills and support to use it to best effect inside and outside formal learning'. Another high-level outcome is 'improved personalised learning experiences' This outcome focuses on 'technology enabling improvements to learning and teaching, and tailoring of learning to suit the needs of learners'. Motivated by these expected outcomes, this thesis sets out to look at whether UK children's enthusiasm and energy in using social software can encourage their networked learning outside school. Additionally, if the networked learning emerges, this thesis can further explore how the social software can be supportive to children's different needs.

1.2 UK children's relationship with social software out of school

With the significant increase in children's access to the Internet (Ofcom, 2008) and the UK government's strong belief that technology will play a major role in transforming UK children's learning experiences (DfES, 2002; 2005), UK children are living in media-rich homes and their relationships with media are changing rapidly. Studies of the media-saturated family identify an important change: namely that in public spaces, such as the living room, has given way to what Livingstone (1999, 2002) call "bedroom culture": that is, one that provides media-rich, personalised opportunities for safe and entertaining identity expression and peer-focused relationship exploration (Livingstone, 2002).

[1] http://about.becta.org.uk/display.cfm?page=1616

Children's online experiences which are characterised as self-initiated, inventive, and spontaneous (Hsi, 2007) lead them to be more competent and confident users of those media. More recent studies (e.g., Green and Hannon 2007; Skaar, 2008) investigate young people's use of social software in their daily life and question how learning is transformed by these participatory digital technologies and how the associated new skills should be approached. Beyond this, a research which tends to map UK young people's Web 2.0 activities in their daily life in and out of school (Clark et al, 2008) suggests that less activity using technology occurs in school settings, both in terms of quantity and variety, however very few young people are using these technologies with a high level of sophistication outside of the school context. The gap between the in-school and out-of-school experience is characterised by the authors as a sense of 'digital dissonance' occurs around learners' experience of Web 2.0 activity in and out of school. Against this background, this thesis develops its interests in understanding how social software can be used out of school to bridge the gap between the in-school and out-of-school experience. Driven by the different sources of interests, the overarching aim of this thesis is proposed, that is, to investigate how social software can cultivate children aged 11 – 14 as a community of learners out of school, in order to support their education. Section 1.3 illustrates the organisation of this thesis.

1.3 Organisation of the thesis

This thesis has eight chapters. Chapter 2 will clarify the overarching research aim of this thesis and to propose sub-research challenges by bringing together a range of theoretical perspectives and empirical findings. Chapter 3 will investigate UK children's use of a nationwide homework message board. Chapter 4 will explore whether and how an online whiteboard supported UK children's Maths exam revision with a teacher after school. Chapter 5 will present a study on how a Mandarin learning class with their school teacher used a social networking site out of school. Chapter 6 will investigate Chinese children's use of a nationwide homework message board, in order to make a contrast with Chapter 3. Chapter 7 will look at the contextual forces which may shape UK children's out-of-school learning with social software, by interviewing two cultural groups of children: British and Chinese. This thesis will close with a general discussion in Chapter 8.

Table 1.1: Showing the basic properties of each case study in Chapter 3 – 7

Chapter	Settings	Methods	findings
3	**Age**: 11-14 **345** user identities in the Maths board and **416** user identities in the English board **Subject**: Maths and English (curriculum core subjects) **Social software**: Message board	Content analysis (1319 messages)	Spontaneous help seeking was the prevailing concern expressed in the message boards. The help-seeking intentions were associated with a variety of social and affective factors. Help seeking is regarded as a social transaction that takes place within an interpersonal relationship. Consequently, the contextual information and the socio-emotional exchanges relating to the help-seeking requests allowed them to develop their interpersonal relationships. More than half of the thread topics did not receive any replies, and nearly 90% of the user identities only showed once within three months. Due to the pre-moderation embedded in the message board design, a message usually waited more than a week, before it appeared in the board. In the Maths board children were anxious to receive replies and normally focused on the procedure and accuracy of replies. They were likely to post a question from their homework and to request instant, agreed and reliable replies. English discussion threads required clear references to every contribution, because the children normally talked about their personal experiences or opinions on a topic. A potential learning community emerged in the message boards. A significant proportion of help-seeking threads in both boards indicated a shared concern among the children. And the interpersonal relationship developed through social exchanges cultivated a sense of togetherness. By participating in the activity of collaborative knowing, children explored shared values and practices together. However, from a community of practice perspective, the expertise and the boundary of the practices was not able to be defined in this group of children.
4	**Age**: 13-14	Video	The teachers took a didactic approach to reply to the children's help seeking requests. No

	4 student users and **2** teachers **Subject**: Maths (curriculum core subjects) **Social software**: Online whiteboard	analysis (84 minutes of video)	socio-emotional grounding conversations were found, although it was identified in Chapter 3. Children spent most of time in silently observing the teacher's actions on the whiteboard. When they were individually engaged with the teacher online, they were less active to take actions. A teacher needed to provide more personal relevant help to the children, when considering the level of explicitness of help provision. Only a limited amount of data was collected. This study unexpectedly failed to attract children's participation. The failure indicated that a technology, which can support interactions with a teacher, is not a warrant for designing or nurturing a community of practice. This failure also highlighted the importance of interpersonal relationships. In order to support children's help seeking, the Community of Practice metaphor for online design would be more applicable in an existing community, where interpersonal relationships are already established.
5	**Age**: 14 **7** student users and **1** teacher **Subject**: Mandarin (Extracurricular subject) **Social software**: Social networking site	Content analysis Social network analysis Case study	Children's participation on the social networking site was sustained by their personal interests, their classroom activities, their interpersonal relationships build in school and the teacher's online presence out of school. Three types of contributions were captured: discussions on the forum about Mandarin and Chinese culture; social exchanges on the comment walls; and identity articulation and exploration on their photo albums, blogs, music lists, and video lists. A diversity of the children's purposes for participation and a variety of participation patterns and intensity were supported on the social networking site. Hence, an online space which supports a diversity of needs that cultivated the feeling of independence and togetherness was more sustainable than an online space which continued online tuition out of school. A transition from a teacher at school to an online community member. The diversity of students' needs required the teacher's openness to build different types of relationship with the learners. Additionally, the different relationships were constructed via multiple

			communication channels afforded on the social networking site. Students expressed a diversity of interests. By doing so, they may externalise their potential expertise in the community. They were engaged with a process of collaborative knowing which generated atmosphere of togetherness. Within the atmosphere of togetherness, development of the personal relationship was the emphasis.
6	**Age**: 11 – 15 (Chinese) **341** user identities in the Maths board and **334** user identities in the Chinese board **Subject**: Maths and Chinese (curriculum core subjects) **Social software**: Message board	Content analysis (1620 messages)	Help-seeking was also the prevailing concern of the Chinese children. But more than 80% of the help seeking requests were made by asking specific questions in both Chinese (language) board and Maths board. More than 90% of threads got replies. However, there were much fewer social exchanges in the Chinese boards than the UK boards. Interactions between Chinese children were highly information-oriented, and a large proportion of the information-oriented messages were copy-and-pasted contents on both message boards. The point awarding system embedded in the message board assigned roles to the Chinese children as point giver and point gainer. This mechanism prohibited children from engaging in social exchanges. Hence, the Chinese message board is transformed to be a formal online setting situated in an out-of-school context. The Chinese children on average offered many more points to a Maths discussion reply than to a Chinese discussion reply. When asking concrete maths questions, they tended to give their own answer, but when questioning about abstract topics, they tended to refer to reliable sources without explaining their own understanding. Therefore, similar to the UK children, they wanted instant and more reliable replies in the Maths board. The co-participation in a Community of Practice is supposed to be organised and systemic. The Chinese homework message board put efforts in structuring the participation to be systematic and organised by reinforcing a universal value of participation (i.e. the point awarding scheme) However, doing so limited the opportunity for the Chinese children to

			open up a dialogic space in which they can generate reflection, thought and understanding.
7	**Age**: 14 **14** British children and **18** Chinese children **Subject**: N/A **Social Software**: N/A	Semi-structured Interviews Thematic analysis (516 minutes of audio file)	The British children and Chinese children welcomed and experienced different degrees of informality of their out-of-school learning. And the degree of informality is associated with children's commitment to education. Their commitment to education is influenced by the intensity of their school timetable, the competitive atmosphere generated by the assessment and the range of choices school provided to the children. The UK children prefer to relate their success in education to their personal future career goals, whereas the Chinese children prefer to relate their success in education to their success in exams amongst their peers. Therefore, comparing to the UK children, the Chinese children were likely to value the formal learning practice, instead of the informal one. The British children and Chinese children's different attitudes to informal learning influenced their use of technologies out of school. It was found that the UK children valued a broader range of learning experience and its related issues, when using computer. However, the Chinese children hold a more constrained view about what types of learning can be supported through computers. In a community of practice, the learners should be fully engaged in the process of creating, refining, communicating and using knowledge (Wenger, 1998b). To enable children to create, refine, communicate and use knowledge as a member of community of practice out of school, they should learn to appreciate a broader range of learning practices. And the comparison between the Chinese children and the UK children showed that how the school assess their learning performance played an important role in their attitudes to informal learning experiences.

Chapter 2

LITERATURE REVIEW

Chapter 2 overview:

The overarching research aim of this thesis is to investigate how social software can cultivate children as a community of learners out of school, in order to support their education. Definitions of the term 'community' lead to two approaches to view children. By viewing children collectively, their communal ways of living within home and digital media culture are reviewed. Moreover, complexities of learning in such contexts are unpacked. By viewing children as a community whose life is in association with each others, how social software can support the connectedness to foster social aspects of learning is reviewed. Community of Practice as one ideal realisation of networked learning is discussed to open up and provide useful coverage. After clarifying the overarching research aim through literature review, two sub-research challenges are proposed with explanations of how they are explored in the five case studies presented in Chapter 3 to 7.

The overarching research aim of this thesis is proposed in Chapter 1, that is, to investigate how social software can cultivate children aged 11 – 14 as a community of learners out of school, in order to support their education. This chapter brings together a range of theoretical perspectives and empirical findings to clarify this research aim. Section 2.1 explains two meanings of the term 'community' and justifies how they inspire us to view children collectively as a community distinct in a larger society and to view children as a community, whose life is in association with others through social software. Viewing children collectively as a community, Section 2.2 describes children's communal ways of living in domestic contexts, and Section 2.3 describes children's communal ways of living in digital media culture. Building upon Section 2.2–2.3; Section 2.4 unpacks complexities of such communal learning, in terms of informality of out-of-school learning in Section 2.4.1 and the transitions of learning practices across home and school in Section 2.4.2. Section 2.5 addresses that social software can play an important role in fostering children as a community whose life is in association with each other, as a realisation of networked learning. Section 2.6 proposes that Community of Practice as one ideal realisation of

networked learning can open up and provide useful coverage in response to the complexities of out-of-school learning demonstrated in Section 2.4. Section 2.7 discusses the benefits and limitations of designing for a Community of Practice through technologies. After clarifying the overarching research aim through the literature review, two sub-research challenges are proposed in Section 2.8, with explanations of how they are explored in the five case studies presented in Chapter 3 to 7.

2.1 Two different approaches to children as a community

This section seeks ways to approach children as a "community" in out-of-school contexts. The term 'community' now is very difficult to define precisely; its usage has become so pervasive in our everyday language. According to the definitions in Oxford English Dictionary, meanings of the word are discussed. The definitions in Table 2.1 point to approach children collectively as a unique whole and approach children as socially connected and coherent. Section 2.1.1 and 2.1.2 separately justify the two approaches.

Table 2.1 Definition of community

"community"
I. A body of people or things viewed ***collectively***.
3. a. A body of people leading a ***communal*** life according to a religious rule; a religious society, a monastic body
3.b. A body of people practising communal living (esp. with shared ownership of property) on ideological or political grounds; More generally: a commune
5.b. A group of people who share the same interests, pursuits, or occupation, esp. when distinct from those of the society in which they live.
II. A shared or common quality or state.
9. a. ***Life in association with others***; the social state. Freq. as in community.
9. b. Social cohesion; mutual support and affinity such as is derived from living

in a community.

11. The fact of having a quality or qualities in common; shared character, similarity; identity; unity.

Oxford English Dictionary Online [dictionary.oed.com]

2.1.1 Children viewed collectively

As shown in Table 2.1, 'community' is defined as a body of people viewed collectively. And the reason for a group of people being viewed collectively is that they lead a communal life and practise communal living, which is distinct within a larger society. Children are one kind of community in this sense. For example, in a broader socio-cultural context, children practise communal living in school, with shared National Curriculums and educational infrastructures and also practise communal living out of school with homework and expectations projected from the society and culture. Therefore, in order to understand children as a community collectively, their communal living and learning practice out of school are reviewed.

Ecology refers to the immediate environments within which activity is supported — the artefacts, the technologies, and the spaces for acting (Crook, 2000). The out-of-school contexts are viewed as two overlapped '*spaces for acting*': home as a physical space and the digital media culture as a virtual space. Section 2.2 describes how home context shapes children's communal living out of school. Section 2.3 describes children's communal ways of living through social software in digital media culture. Building on Section 2.2–2.3; Section 2.4 unpacks the complexities of the communal learning in such contexts, including informality of out-of-school learning in Section 2.4.1 and the transitions of learning practices across home and school in Section 2.4.2.

2.1.2 Children in association with others

As shown in Table 2.1, 'community' is also defined as a body of people whose life is in association with others. Different from the first definition, this one focuses on the social cohesion, mutual support and affinity among a group of people. This meaning highlights that children can be cultivated as a community of learners who are willing

to share their experience and explore their common quality together. It also underlines that children should be engaged in activities of communicating, exchanging and sharing. Internet and a wide range of social software can play a supportive role in these activities out of school. Therefore, Section 2.5 discusses that social software can play an important role in addressing social aspects of learning by fostering children as a community whose life is in association with each other. Section 2.6 proposes that Community of Practice as one ideal realisation of networked learning can open up and provide useful coverage, in response to the complexities of out-of-school learning proposed in Section 2.4

2.2 Communal living at home

This section discusses home as '*a physical space*' for learning and considers children's communal living in home. Bronfenbrenner (1988) posits that humans are constantly interacting with their environments by shaping and being shaped by them. Compared to school, home is a more private space for children. Home is viewed as two layers of spaces: a 'physical space' and a 'rhetorical space' (Morley, 2000). As a physical space, home is rigidly divided into functional areas, which provide concrete objects for people to negotiate about space, power and control. Hill and Tisdall (1997 in Livingstone 2002, p.120) observe that 'adults seek to impose or negotiate rules and limits, adjusted over time, aimed at reconciling children's freedom and security'. On the other hand, as a rhetorical space, Franklin (1989) describes home as a sphere of autonomy and control which restores to people a sense of identity, attachment and belonging (Franklin 1989 in Morley, 2000, p.25). Likewise, Putnam (1990) captures the meaning of home with terms such as 'privacy, security, family, intimacy, comfort and control' (Putnam 1990 in Morley, 2000, p.24). In addition, government plans, associated with improving market economies, encourage home to be more comfortable and modern through technology. With the introduction of new technology and media, home is becoming a place for the whole family to relax and entertain. Cunningham (1995 in Livingstone 2002, p.120) observes a 'shift from a life focused on the street to one focused on the home'.

In particular, many children live in media-rich homes (Livingstone, 2002). Echoing Cunningham (1995)'s argument, Livingstone (2002) observes a seeming decline of

children's life in the street, in after-school facilities, and in public leisure facilities. This shift is not only due to the introduction of new technologies and media, but also due to parents' fears about children's safety in the risky outside world. Hill and Tisdall (1997 in Livingstone 2002b, p.123) comment 'our fears about children's crime in public places exemplify society's requirements for an "indoors child"'. When comparing parental perspectives and children's perspectives, Livingstone (2002) identifies that parents focus more on the dangers of going out, while children are likely to stress the absence of public activities and facilities in their neighbourhood. With all the changes discussed above, studies of the media-saturated family further discover an important change, namely that in the public spaces of a home, such as the living room, television has given way to what Livingstone (1999, 2002) call "bedroom culture", which provides media-rich, personalised opportunities for safe and entertaining identity expression and peer-focused relationship exploration (Livingstone, 2002). The media-rich bedroom describes around one-quarter of children and young people's bedrooms in the UK (Livingstone, 2002). Steele and Brown (1994 in Livingstone 2002, p.155) describe teenage 'bedroom culture' as the place where media and identities intersect through the bricolage of identity-work objects on display in young people's rooms, while seeing adolescents' rooms as 'mediating devices' by which they express who they are and who they want to be – a safe, private space in which they can experiment with possible selves. Livingstone (2002) further identifies the trend that the media-rich bedroom increasingly becomes the focus of peer activities through the Internet and mobile phones, and brings the outside world indoors. All these findings highlight the role of social media in the changing home context. Children's communal living in digital media culture will be further explained in Section 2.3.

Beyond the leisure aspect, home is also emphasised as a space for education. The government, in publications such as the Green Paper 'The Learning Age' (1998) and the Home Office document 'Supporting Families' (1998), has increasingly sought to harness 'parental power'; and commercial companies have increasingly come to regard the home as the 'new frontier' in the sale of educational goods and services (Buckingham & Scanlon, 2003). In turn, parents are likely to perceive education as an

area of intense and growing competition, and their educational role as parents is not only seen as a source of pleasure and togetherness, but also as one of conflict, inadequacy and guilt (Buckingham & Scanlon, 2003, p.162). In respect of education, home can be a place of anxiety and conflict.

This section explains how children's communal living in home is influenced by the digital technologies, parental involvement and government expectations at home. Section 2.3 reviews children's communal living in digital media culture.

2.3 Communal living in digital media culture

This section reviews children's digital media culture as '*the virtual space for acting*' and their communal living in the space. Because this thesis focuses on social software, compare to home, the digital media culture is the central space where children are situated.

This generation of teenage children have been regarded as youthful 'Cyberkids' (Facer & Furlong, 2001) or 'the digital generation' (Papert, 1996). However, these terms are critiqued due to their technological determinism (Buckingham, 2006). Buckingham (2006) considers children to be playing an active role in relation to technology and its social changes, by arguing the concept of 'self-socialisation' and 'reverse socialisation'. 'Socialisation is something that young people work to achieve for themselves, among the peer group' (Fromme, Kommer, Mansel & Treumann, 1999 in Buckingham, 2006, p.3), and 'reverse socialisation identifies the possibility that young people may socialise their parents to adapt to social change, not least around technology' (Hoikkala, 2004). Adopting the concept of 'extensibility' from Janelle (1973), Holloway and Valentine (2003, p.127) describe the web as one such technology, enabling children to extend the scope of their sensory access and knowledge acquisition beyond the boundaries of the place where they live. In the UK, 79 per cent of 7–16-year-olds have internet access at home, 77 per cent have visited a social networking site, 59 per cent have their own profile and 51 per cent currently use a social networking site (ChildWise, 2009). This figure indicates that the Internet is used as a communication tool by children, over and above its educational and entertainment prospects.

2.3.1 Children's changing social life through the Internet

Holloway and Valentine (2003) explore 5–16-year-old children's use of online identities, communities and their sense of their place in the world in their project 'Cyberkids'. They argue that the Internet not only enables young people to make those who are physically distant present, but also offers opportunities to bring those who are socially distant closer. They highlight the importance of online communication in children's social life. Children's online activities clearly demonstrate that their worlds of meaning are simultaneously global and local. They are global in terms of their interconnections with the worldwide youth culture, but these youth cultures are also interpreted through the lens of social relations, and as such are re-made in the process (Holloway & Valentine 2000; 2001).

Furthermore, the relationship between children's physical presence and social presence online is researched (Gumpert & Drucker, 1998; Gergen, 2002). Gergen (2002) argues that being '*in touch*' and '*always on*' allows children to be physically present in the home or school yet psychologically absent, engaged in the dynamic interplay of their social networks rather than in family dynamics. Clark (2005) names them 'the constant contact generation'.

2.3.2 Children's identities constructed through the Internet

Online communication is also celebrated as a disembodied form of communication that enables participants to escape from the limitations of their bodies and to connect with others mind-to-mind (Stone, 1992; Heim, 1991).

The anonymity afforded by the Internet allows children to experiment with multiple identities. Boyd and Heer (2006, p.1) describe online identity by saying that 'mediated conversations require individuals to write themselves into being'. Therefore, the Internet also offers children and young people the online opportunity for self-presentation and identity exploration. Livingstone (2009) notices that children's online communication is not driven by technologies. On the contrary, their successive adoption of email, chat rooms, text messaging and social networking is driven by their strong desire to connect with peers anywhere, any time.

Furthermore, children's intensive use of the Internet has drawn attention to their transformed social lives. Children use the opportunity of private spaces online to experiment with new identities, to seek confidential advice on personal matters, to eavesdrop on the interactions of others, to meet people from far-off places and most of all, to engage in uninterrupted, unobserved immersion in peer communication (Livingstone, 2009).

2.3.3 Transforming learning in children's media culture

In the United Kingdom, the term ICT is used in all policy and curriculum documents relating to digital media in education (Sefton-Green, 2008). As Sefton-Green notes, 'ICT' is the name given to computers and the Internet, which is usually found in discourses of a more explicitly educational nature than the cultural uses of digital media (which relate to more commercial media culture). Although Section 2.2 introduced how digital media may be associated with educational benefits at home, it mainly focused on the 'ICT' use of digital media. Beyond this 'ICT' use, it is also important to explore how learning is potentially transformed in commercial media culture, when learning is not the stated primary aim of digital media culture (Sefton-Green, 2008). A media culture includes the creation and distribution of sound, film, image and print, and with the digital age, these modalities are now more and more often juxtaposed, blended, and hybridised as digital spaces such as web pages and blogs (Hull & Kenny, 2008, p.73). Sefton-Green (2008) further argues that participation in the evolving media culture offers children and young people a different kind of agency, which in turn allows them access to different kinds of learning.

As noted by Hull and Kenny (2008), in addition to protecting youth from media by inoculating them with critical media literacy, we might well turn over more control of media production to young people. Hull and Kenny observe that young people are claiming new digital media and developing their own products, genres, and distribution networks. Their production of media would transform the nature and forms of their knowledge. Social software, such as social networking sites, is also a potential means for children to construct narratives of self, family and community. Moreover, the constructed narratives – stories about whom we have been in the past

and who we want to become in the future – can play a critical role in the construction of identities (Ochs & Capps, 2001).

This section together with Section 2.2 considers children's communal living and learning in home and digital media culture. Complexities of such communal living and learning are unpacked in next Section.

2.4 Complexities of out-of-school learning: Informality and Transition

Section 2.2 – 2.3 reveals how children's communal livings are shaped and transformed by their home contexts and digital media culture. In order to understand how learning is configured by children, this section unpacks the complexities of such communal living, especially learning. Section 2.4.1 unpacks the complexity of out-of-school learning in terms of its informality. Section 2.4.2 unpacks the complexity of school-related learning performed out of school, in terms of transitions of learning practices across contexts.

2.4.1 Informality of out-of-school learning

With the identification of educational influences in the home, Buckingham and Scanlon (2003) argue for a broader view of learning. Sefton-Green (2004) also argues that it is important to acknowledge the wider 'ecology' of learning, not just that taking place in formal settings. There is a series of debates about formal learning, informal learning and non-formal learning (e.g. Colley, Hodkinson & Malcolm, 2003; Hager & Halliday, 2006). Formal learning and informal learning as competing paradigms are differentiated in terms of two theoretical dimensions: the process of learning and the nature of knowledge in different types of locations (Colley, Hodkinson & Malcolm, 2003). Regardless of the physical setting in which learning occurs, Scribner and Cole (1973) identify the characteristics of informal learning and formal learning as follows.

The three distinctive features of informal learning are:

- person-orientated, in that expectations of performance are based on who a person is instead of what he/she has accomplished;
- fosters traditionalism, which means that the elders are accorded the highest group status;

- involves fusing the emotional and intellectual domains.

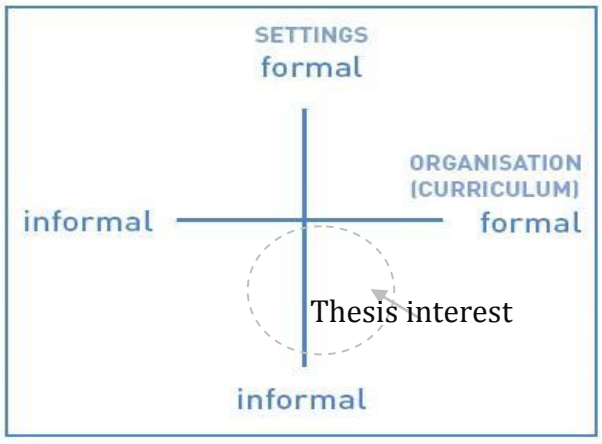
The three characteristics of formal learning are:

- the presence of universalistic values, criteria, and standards of performance;
- language as the dominant medium of teaching and learning;
- teaching and learning occur out of context, with mathematical symbol manipulation a paradigm case.

Furthermore, because this thesis considers home as an ecology for learning, Sefton-Green's (2004) framework for learning and location is adopted. He proposes that both formal learning and informal learning can take place in an informal setting. Informal out-of-school learning can include children's leisure activities, which are viewed as learning outside the realm of valued educational experiences; whereas formal out-of-school learning can include those experiences organised specifically to support formal educational achievements but accessed in informal settings, such as schoolwork that continues at home (Sefton-Green, 2004). It should be acknowledged that it is impossible to draw hard lines between learning experiences.

This thesis is interested in the blurred area between formal learning and informal learning outside of school, where children informally engage with their school-related learning outside of school.

Figure 2.1: Informal – Formal setting/organisation (Sefton-Green, 2004)



As early as 1999, McGivney (1999, p.1) argues that 'it is difficult to make a clear distinction between formal and informal learning as there is often a crossover

between the two'. Likewise, Colley, Hodkinson and Malcolm (2003) stress that there are no discrete categories of informal learning, formal learning and non-formal learning, and they advocate that 'informality' and 'formality' are attributes presented in all forms of learning.

Besides Sefton-Green (2004)'s two dimensions of informality; four dimensions of informality are proposed by Colley, Hodkinson and Malcolm (2003). This four dimensional framework helps further unpack the complexities of out-of-school learning. They are 'learning location/setting', 'learning process(s)', 'learning purpose(s)', and 'the nature of content being learned'. Each dimension can explain a different degree of informality. Even within one dimension, both formality and informality can be involved. For example, when a child is located in a virtual learning environment at home, the digital setting is formal and the physical location is informal. Moreover, the informality of each dimension interacts with each other. For example, a child learns paper cutting from her Chinese classmate during lesson break in school. Through this process, she also learns the concept of symmetry of different shapes. In this example, the child goes through an informal process with an informal purpose in a formal setting and what she learns is both formal and informal. Furthermore, Section 2.2 describes how home is emphasised as a space for education and Section 2.3 describes how learning is transformed by digital media culture. Both of them indicate that informality of learning can be configured at different levels.

This section unpacks the complexity of out-of-school learning in terms of informality. In the next section, in order to understand how children conduct school-related learning out of school, transitions of learning practices across contexts are discussed.

2.4.2 Transitions of learning practices across contexts

This section considers children performing school-related learning out of school as transitions of learning practices across contexts. Transitions of learning practices considered in this thesis is approached more in terms of decoupling the subject learned at school from the particular constraints of classroom and school, and freshly re-situating it out of classroom.

Brown, Collins and Duguid's seminal article 'Situated cognition and the culture of learning' (1989) argues that 'knowledge is situated, being in part a product of the activity, context and the culture in which it is developed and used.' Therefore, learning should be considered as situated by the activity in which it takes place. Each experience and the environment of which that experience is part, becomes part of the meaning of that experience (Duffy & Jonassen, 1992). When school-related learning is performed through social software out of school, meaningfulness of such learning to children should be re-constructed in the out-of-school contexts. On the other hand, school-based learning and out-of-school learning are very different from each other. Drotner (2007) puts forward the idea that learning in school is less open-ended, less dialogic and team-based, whereas out-of-school learning is more procedural, contextual and problem-based. Hence, if learning and practice is situated, children do spontaneously change the way they learn across school and home. For example, when children do their mathematics homework, they are situated in a more private and free environment where the standards and values dictated by the school can possibly be challenged, whereas their work is examined by the schooled criteria. As such, this 'decoupling and re-situating' process may challenge the notion of knowledge as situated purely in its authentic activity, context and culture, and may require exploring how knowledge and learning practices can be transferred between activities, contexts and cultures. Likewise, Bereiter (1997) criticises the weakness of situatedness as problems of transfer, saying 'as learning proceeds it tends to become less and less generalisable to other situations…advanced stages of situated learning may, in fact, begin to yield negative transfer.' As stated in previous section, learning out of school can have varying degrees of informality. The varying degrees of informality may correlate to the advantage of knowledge transfer and transitions of learning practices across contexts

Additionally, to what extent the standards and values dictated by the school are challenged out of the school context depends on the societal situation, such as the norms and structures of the society. As argued by Illeris (2007, p.97), situatedness always has a dual nature: the *immediate situation* that the learners find themselves in, e.g. at school or a leisure-time activity, and the *general societal situation* in the widest possible

sense. As Illeris (2007) explains, naturally people are involved in interaction with their material surroundings all the time, but the nature of this interaction is always transmitted socially and societally. Therefore, this thesis will consider learning as an interaction between individuals and the environment in the broadest sense, and will define the environment at a social interactional level as well as a more general societal level.

This section reveals the complexities of out-of-school learning. The following sections move to discuss the second approach to children as a community of learners whose life is in association with each other. It gives a fuller description of social software and justifies its educational potentials in supporting a community of learners.

2.5 A community of learners through social software

This section discusses that social software can play an important role in fostering children as a community whose life is in association with each other. Section 2.5.1 defines the term 'social software' and reveals its educational potentials. Section 2.5.2 discusses that networked learning can be an idealised version of what could happen when social software does empower learners out of school.

2.5.1 Social software and its educational potentials

Tom Coates (2005), a blogger and Yahoo! employee in his blog describes social software as 'software which supports, extends, or derives added value from human social behaviour — message boards, music taste-sharing, photo sharing, instant messaging, mailing lists, social networking'. This statement reveals the wide spectrum of social software. Although social software was first termed as such in 2002, some of it, such as message boards and mailing lists, has been around for more than two decades. The most popular services are discussion fora (e.g. the BBC message board), social networking sites (e.g. Facebook and Bebo), and instant messenger (e.g., MSN Messenger) (Luckin et al., 2008). Some social software is well known to educators and researchers, such as weblogs, wikis and social bookmarking. As the most central social software, this thesis is interested in text-based social software, such as message boards and social networking sites. Some of the key attributes of social software in

relation to education are summarised by Owen, Grant, Sayers and Facer (2006) as follows. Social software:

- enables communication between many people;
- provides gathering and sharing resources;
- delivers collaborative collecting and indexing of information;
- allows syndication and assists personalisation of priorities;
- has new tools for knowledge aggregation and creation of new knowledge;
- delivers to many platforms as is appropriate to the creator, recipient and context.

These potential benefits of social software to education indicate that social software could support children's knowledge sharing outside of school by improving information flow and productivity. Through such knowledge sharing, children can be collaborative and develop their own communities.

This section reviews the generic educational potentials of social software. Section 2.5.2 puts forwards that networked learning can be regarded as an idealised version of what could happen when social software really empowers learners out of school.

2.5.2 Networked learning through social software

This section suggests that networked learning can be regarded as an idealised version of what could happen when social software really empowers children out of school.

> '*Networked learning is learning in which communications and information technology is used to promote connections: between one learner and other learners, between learners and tutors; between a learning community and its learning resources.*' (Goodyear, 2002, p.56)

Goodyear's networked learning notion, which promotes 'connections', matches well with the thesis second approach to children as a community, whose life is in association with each other. Nowadays, children are increasingly sharing, discussing, and negotiating knowledge through web 2.0 technologies out of school (Luckin et al, 2009), therefore stressing the social nature of learning. It allows children to engage with each other and their group culture, and enables its users to interact through enculturation (Cole, 1996; Markus & Kitayama, 1991). Brown and Duguid (2000,

p.140) argue that 'looking at learning as a demand-driven, identity forming, social act, it is possible to see how learning binds people together' through social networking and team working. It is assumed that social software can support the social dimension of learning. Moreover, Section 2.2 and 2.3 have discussed the bedroom culture and children's media rich homes. Likewise, Crook (2002) describes undergraduate dormitories equipped with networked computers as 'learning nests'. This 'learning nest' metaphor suggests that children's out-of-school learning with social software can be viewed as situations of networked learning.

The notion of networked learning goes beyond the impact of the technology alone. Castells (1996, p.468) argues that the networking form of social organisation has existed in other times and spaces, and the technology paradigm provides the material basis for its expansion through the existing network structure. His statement argues for the social shaping of technology, rather than the technology determination. Hence, the social interactions between children through social software are not only facilitated by the technology, the technology is also shaped by the evolving social interactions and the underlying social forms.

This section focuses on explaining how social software and networked learning can empower children as a community of learners whose life is in association with each other. Section 2.6 proposes Community of Practice as one ideal realisation of networked learning in children's out-of-school contexts. It particularly justifies how community of practice can flexibly address different degrees of informality and can promote transitions of learning practices across contexts.

2.6 An approach to social aspects of learning: Community of Practice

From the first approach to view children collectively as a community, this chapter has described children's communal living out of school and unpacked the complexities of their out-of-school learning. From the second approach to view children as a community whose life is in association with each other, the previous section justifies how social software strengthens the social bonds among children as a notion of networked learning. This section goes forward to review the learning in communities and then propose Community of Practice as an ideal realisation of networked

learning in children's out of school contexts, which not only can be embedded in children's existed communal living, but also can flexibly address the varying degrees of informality and can encourage children to engage in transitions of the learning practices collaboratively.

2.6.1 Learning in Communities

After considering children's communal living and learning in out-of-school contexts, this section characterises social aspects of learning in communities. Communities are characterised as informal groups that emerge from spontaneous interactions between personas as they talk, joke and associate with each other (Huczynski & Buchanan, 2001). Within communities, people have certain goals to learn and participate for themselves, but associate with each other as a group in order to help each other out. Membership of a community is voluntary and people stay a member as long as they share the community's interests. Different from a work organisation, a community not only offers its member a sense of belonging, but also freedom and flexibility. This thesis focuses on cultivating children as communities of learners in an out-of-school context. One approach of communities of learners developed by Brown and Campione (1994) is a pedagogical framework that is designed to advance the distributed expertise and cognitive diversity. From this approach, the authors aim to support overlapping zones of proximal development that stimulates growth through mutual appropriation and negotiated meaning. The participants are apprentice learners, learning how to think and reason in a variety of domains (Brown, 1997). Whereas, another approach of communities of learners developed by Rogoff, Matusov and White (1996) is a pedagogical model that is designed to advance children's active involvement, as opposed to an adult-run model. This theoretical perspective regards learning as transformation of participation. Nonetheless, children are self-initiated, inventive, and spontaneous learners out of school (Hsi, 2007). Their participations in a community should be driven by their own learning agenda and a shared interest. Compare to the two approaches, Community of Practice, as a theoretical construct are more ideal to address children as self-directed learners in a community out of school. Next section thus proposes Community of Practice as an ideal realisation of networked learning in children's out of school contexts.

2.6.2 Definition of Community of Practice

This section justifies CoP as the core theoretical construct to understand networked learning. The idea of community and practice has become a main point of reference in networked learning (Brown & Duguid, 2000, in Steeple & Jones, 2002, p.8). The social dimension of learning is tied to community and practice, and creates meaning and identity (Illeris, 2007). Communities of practices can be viewed as nodes in a network, or as subsets of people that are part of wider networks of practice (Brown & Duguid, 2000, in Steeple & Jones, 2002, p8). This statement offers a structure to approach the connections within a network.

In 1991, a new model of social learning is put forward by Jean Lave and Etienne Wenger. They use a socio-constructive approach to study people's daily work, unconscious and conscious behaviour, and people's relationships in various social contexts (workplace, school, home, or public places). And, importantly, they rethink learning in the context of social relationships and propose that learning involves a process of engagement in a 'community of practice'. A community of practice defines itself along three dimensions (Wenger, 1998a):

- What it is about: its joint enterprise as understood and continually renegotiated by its members;
- How it functions: mutual engagement that binds members together into a social entity
- What capability it has produced: the shared repertoire of communal resources that members have developed overtime

In order to grasp the knowledge and skills, which are situated in the social situations, members at the boundaries of a community will move toward the central socio-cultural practice of the community. According to Wenger (1998a), the learning potential within a community of practice is in two ways: '*through the knowledge they develop at their core and through interactions at their boundaries*'. So, it is important to notice that in order to enhance learning, not everyone in a community of practice should have equal status. In order to clarify the unequal status, Lave and Wenger (1991) propose that participation in a culture of practice can be observed firstly as 'legitimate

peripheral participation' (p.110). Wenger (1998b) explains that communities of practice are able to "preserve the tacit aspects of knowledge that formal systems cannot capture" (p.3), because they are "fully engaged in the process of creating, refining, communicating, and using knowledge" (p.1). With regards to the 'tacit aspects of knowledge', a community of practice perspective posits a particular account of knowledge. It criticises the attempts to reduce knowledge to information which can be stored, retrieved and distributed, and it challenges the attempts to reject tacit knowledge as no more than uncodified explicit knowledge (Duguid, 2005). Nonetheless, Duguid (2005) keeps arguing that in the CoP perspective, knowledge is limited by both its 'epistemic entailment' and 'ethical commitment'. In the epistemic aspect, he questions 'what knowledge people can/cannot meaningfully share?', whereas in the ethical aspect, he suspects 'whether people will/will not want to share?' These two issues are relevant to Crook (2001)'s argument that it is necessary to understand more fully the social dynamics of networked communities, especially when the 'publication' of learners' work is involved and interpersonal processes are complicated. With definition of Community of Practice, Section 2.6.3 and 2.6.4 separately discusses how Community of Practice can be one ideal realisation of networked learning, in response to informality of out-of school learning and transitions of learning practices across home and school.

2.6.3 Informality embedded in the participation in a community of practice

This section, from a Community of Practice viewpoint, considers how children's co-participation interplays with the varying degrees of informality of learning out of school. Lave and Wenger (1991) put learning into 'situations of co-participation', as they believe learning is no longer seen as an individual cognitive process, but rather takes place in several kinds of social engagements. Crook (2000) also argues that it is necessary to understand more fully the social dynamics of networked communities, especially when the 'publication' of learners' work is involved and interpersonal processes are complicated. Furthermore, the co-participation in a Community of Practice is supposed to be organised and systemic. According to Wenger (1998a), the learning potential within a community of practice is in two ways: '*through the knowledge they develop at their core and through interactions at their boundaries*'. He (1998b) states that

members of Community of Practice are "fully engaged in the process of creating, refining, communicating, and using knowledge" (p.1). Nonetheless, in the out-of-school context, children's co-participation is situated in informal settings and is personal goal orientated and self-paced. To unpack the complexity of such learning, different dimensions of the informality are illustrated in Section 2.4.2, such as the learning process, learning outcome and learning location. We assume that the informality influences the way of co-participation and is embedded in the 'social engagement' and 'social dynamics'. Therefore, informality might offer one approach to illuminating the so called 'social arrangement' and 'social dynamics' of networked communities emerged in the out-of-school context. With this understanding, how the co-participation is cultivated to be organised and systemic might be achieved.

2.6.4 Experience transitions across contexts through an activity of collaborative knowing

This section, from a Community of Practice viewpoint, discusses that the 'decoupling-and-resituating' process can be performed by networked children through an activity so called 'collaboratively knowing' (Crook, 2001).

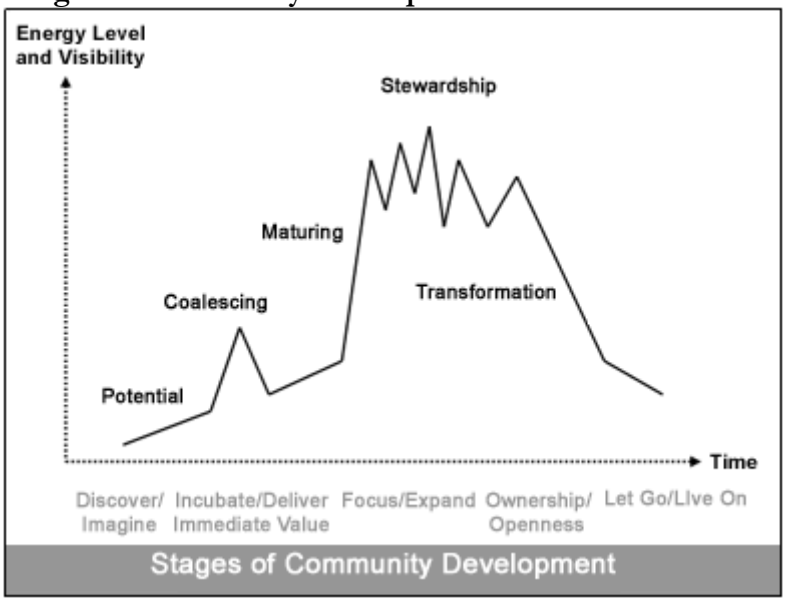
When discussing the participation metaphor, Sfard (1998) points out that when Lave and Wenger talk about learning as a legitimate peripheral participation, they do not mention the term either 'knowledge' or 'concept', whereas these titles have been replaced with the noun "knowing". In order to clarify 'knowing' as an activity, Crook (2001) puts forward a cultural-psychological view of knowledge, which frames knowledge as 'mediated; participatory, distributed and socially guided'. His knowledge-knowing translation is justified by Ryle (1949)'s famous distinction between 'knowing what' and 'knowing how'. People 'learn how by practices' (Ryle, 1949, p.41). Moreover, Crook (2001) argues that 'the goal in supporting a learner is to suggest the integrity of the complete system-to-be-learned, rather than reducing it to components from bottom-up position. This emphasis leads the thesis to concentrate on children's activities of knowing through co-participation, instead of acquisition of knowledge.

In the context of this doctoral research, children were connected to experience the transitions together. From a community of practice perspective, their co-participation through social software allows them to experience the transitions as an activity of collaborative knowing. For example, when a group of children are connected to confront their private learning out of school, they may explore the shared issues emerged from their individual school experience together. Drotner (2008) also advances that social software, as one type of media may intensify and exploit this process. He argues that if learning is socially situated and integrated into everyday interaction, media may be defined as meaning-making technologies. More specifically, media may intensify meaning-making practices as forms of action, participation, collaboration and reflectivity across time and place.

2.7 Design for a Community of Practice

This section considers how the concept of Community of Practice can guide and limit the design and development of the social software-based communities. Figure 2.2 explains the stages of community development across time (Wenger, McDermott & Snyder, 2002).

Figure 2.2: Stages of Community Development



- Potential stage: CoPs continually evolve, but typically they start as loose networks that hold the potential of becoming more connected. During this initial stage a

community must define its domain and its focus and make sure that the topic scope is broad enough to bring in new people and new ideas.

- Coalescing Stage: Generating energy in the community is imperative so that members build connections and coalesce into a community. During this stage, the domain issue becomes one of generating energy about the topic(s) and the mutual value of sharing both tacit and explicit knowledge in that domain.

- Maturing Stage: Once formed, the community membership and knowledge base grow through sharing knowledge and experience. When mature, communities go through cycles of high and low activity. During this stage the community's relationship among other domains and the total organization is defined.

- Stewardship Stage: During this stage communities face the main issue of sustaining momentum through the natural shifts in its practice, members, technology and relationship to the organization. It continuously addresses its function in terms of relevance and strategic direction. The community must be vigilant in keeping the "tone and intellectual focus of the community lively and engaging" by introducing new topics, controversial speakers, joint meetings, or vendor and supplier sessions on new technologies.

- Transformation Stage: Transformation occurs when a community comes to a natural or unnatural end because of "changing markets, organizational structures, and/or technology renders the domain irrelevant. The community may find greater value in merging with another CoP or splitting.

On the other hand, Schwen and Hara (2003) examine four case studies of technology-based community developments guided by the CoP concept and caution against the 'tendency to romanticise the community of practice construct and especially online communities'. First, they stress that little is known about the early life circle of communities of practice, and communities of practice cannot be legislated into existence. So the CoP concept is not a warrant for designing or nurturing a community of practice. Second, they argue that the design of knowing should not be sacrificed for design of knowledge, whereas the two epistemologies

require different social support that is difficult to coordinate appropriately. Third, they are also concerned with the epistemic entailment and the ethical commitment, in which they discuss about 'motivated members' and 'unwilling subjects'. All their arguments conclude that community of practice is not likely to be forced, although it is emerging; and designers should be aware of the characteristics of existing communities in order to nurture them. However, they give very little insight on how to cultivate a community of practice to emerge and come to existence, and whether the cultivation is possible or not.

Moreover, from a cultural psychological view, Crook (2001) makes suggestions on the design of technologies to support community building. He argues that the focus of the design should shift from software itself, and towards the circumstances of its actual use. Additionally, technologies should be mobilised to enrich the social context in which learners' activities are organised.

Both Schwen and Hara (2003)'s warning and Crook (2001)'s suggestion advance that we should not take the emergence of a community of practice for granted and in order to nurture one, the characteristics and structures of a broader context should be considered.

2.8 Key research challenges

This chapter has developed a literature review to unpack the research aim of this thesis, that is, to investigate how social software can cultivate children aged 11 – 14 as a community of learners out of school, in order to support their education. This section proposes two sub-research challenges, with explanations of how they are explored in the five case studies described in this thesis.

Whether and how does the informality influence the cultivation of children as a community of learners through social software out of school?

This thesis is interested in how social software can be associated with 'educational' benefits when it is used out of school. More specifically, it considers how children's informal use of social software can be oriented to support or supplement school based learning and to broaden the opportunities to learn at children's own time and

pace. As discussed in Section 2.4, the blended 'formality' and 'informality' are embedded in out of school learning. Moreover, in Section 2.6, from a Community of Practice perspective, it is discussed that the informality can be accommodated through the interpersonal relationships developed within a community. Therefore, the first research challenge is cautiously questioned about the 'informality' issue, that is, "whether and how does the informality of out-of-school learning influence the cultivation of children as a community of learners through social software out of school?"

The case study in Chapter 3 investigates how the UK children talked about their school-related learning concerns in a freely accessible nationwide message board out of school. It reveals how academic topics were discussed online by children outside of the academic context. The case study in Chapter 4 describes how a teacher provided help for children's Maths exam revision, which was captured as one of children's prevailing concerns in Chapter 3. Additionally, the online setting involving a Maths teacher in Chapter 4 was more formal than the setting in Chapter 3. Furthermore, different from Chapter 3 and 4 focusing on curriculum core subjects, Chapter 5 describes a case study which investigated how a group of self-motivated learners interacted with a teacher around an extracurricular subject (Mandarin) in and out of school. The Mandarin subject was assumed to naturally open up more informal interactions. Also, in order to facilitate the informal interactions, a social networking site was used by the children and teacher after school. To summarise, Chapter 3 – 5 together open up the different levels of informality involved in children's use of social software for learning out of school. By capturing children's participation patterns and contents, these three case studies might reveal how the informality of out-of-school learning influences the cultivation of children as a community of learners through social software.

In order to further clarify how the informality influenced children's online participation as a group, Chapter 3 and Chapter 6 made a comparison between two different cultural groups of children using a similar type of social software. Chapter 6 describes how the Chinese children use a freely accessible nationwide message board out of school. This thesis goes further to understand the informality issue in a

broader context. An interview study was conducted with UK children and Chinese children. By inviting children to map the relationships between their activities across contexts, Chapter 7 reveals how the informality is influenced by different contextual factors, such as the school assessment and time tables.

How to support children collaboratively engage in the transitions of learning practices across home and school through social software?

This thesis is interested in how children pursue their school-related learning as a community of learners out of school. Section 2.4 highlights that one challenge to such learning is the transitions of learning practices across school and home. Section 2.6 further addresses that from a Community of Practice approach, in order to experience the transitions together through social software, children should be engaged in an activity of collaborative knowing.

In Chapter 3 – 5 that separately investigated UK children's activities on different social software, both qualitative and quantitative content analysis, social network analysis and video analysis were conducted to capture the patterns and qualities of UK children participation over time. Chapter 3 conducted a content analysis to reveal how children communicated their school-related learning concerns with each other, when they confronted their private learning out of school. Chapter 4 conducted a video analysis to capture how a Maths teacher supported the children to solve maths problems out of school. This study thus explores how a teacher can facilitate a group of children to experience the transitions of learning practices through social software. Chapter 5 adopted a multi-method approach to capture the children's learning concerns, the process of the collaborative knowing over time and also children's interpretation of this process. These three case studies complemented to each other in order to not only capture children's various concerns relating to the transitions, but also to reveal the process of collaborative knowing with a teacher.

Furthermore, because the transitions of the learning practices are relating to discontinuities between school and home for learning, Chapter 6 and Chapter 7 aim to further capture how the discontinuity emerges in the UK. Chapter 6 reveals how

Chinese children differently communicated their school-related learning concerns with each other. Based on Chapter 6, Chapter 7 reveals how and why the out-of-school learning practices are valued differently by the UK children and the Chinese children. This comparison might help us to further understand what the contextual factors shaped the discontinuity of school and home for learning in the UK.

Chapter 3

UK CHILDREN'S USE OF A HOMEWORK MESSAGE BOARD

Chapter 3 overview:

UK children's spontaneous use of Maths and English homework message boards is investigated. These are open-access, study support forums that were widely accessed and well-regarded by teachers and students in the UK. 416 messages were collected on the Maths board and 893 messages were collected on the English board. Sustained engagement was rare. Around 90% of user identities contributed only once. Nearly two thirds of threads on both boards did not get any reply. Sequential observation and content analysis were used to identify themes emerging in the discussion. Results revealed that although children came to the boards mainly for seeking help and asking questions, discussions around different curriculum subjects (Maths and English) were structured differently. Because of children's limited skills in asking questions, the boards had limited value for learning conversations. However, sharing emotional reactions to study and examination may still have made the resource a useful one.

3.1 Introduction

This chapter will be concerned with how 11- to 14-year-old British children spontaneously express and collaboratively pursue their out-of-school learning needs when using asynchronous communication media designed to support such learning. A position will be developed through sequential observation of children's use of homework message boards. The position serves two main purposes: to understand how such asynchronous communication media works for the UK children in an out-of-school context and secondly to capture children's emerging community process of learning, when mediated through the Internet. This chapter will therefore describe various patterns of the message board usages and discuss how the patterns may be shaped by the design of technology and the out-of-school context.

Previous research into the use of message boards have focused on the outcome of online discussion in an educational setting (e.g., Thomas, 2002), on sustaining and enhancing collaborative learning (e.g., Hsi & Hoadley, 1997; Weinberger & Fischer,

2006), or on the social knowledge construction in a message board (e.g., Aviv, 2000). However, the study presented in the current chapter considers children's use of message boards in an authentic out-of-school context, which is allowed to stretch across the learning, entertaining and socialising of these children. This study aims to not only reveal whether and how learning emerges in message boards out of school, but also to explore the culture of interaction generated by the UK children within this out-of-school resource, which helps to reveal in what culture children as a community of learners are situated. Before embarking on the description of the methods and findings of the current study, the authentic context of the UK message board will be illustrated in Section 3.1.1, and previous research in networked learning through message boards will be reviewed in Section 3.1.2.

3.1.1 Onion Street: the BBC homework message board

The bbc.co.uk website is UK's most-visited digital destination; it is used widely by both adult and child users. Its school section provides children and young people from 4 to 16+ years old with many kinds of information and activities including multimedia learning activities, study and revision tips, online assessments, message boards and so on. These online learning resources are usually used and recommended by schoolteachers when they help students to revise, especially before exams. Because these resources are freely accessible through the Internet, they support children's learning both at school and at home. 'Onion Street', in the school section, is an online asynchronous communication system, which is linked closely to other BBC learning resources. It is a popular online space where UK children can get advice on schoolwork and get support on personal issues out of school. They can also share ideas and develop friendships with other children of the same age. In this sense, Onion Street can potentially support children's authentic networked learning — out of school and in their daily lives. The following will explain how the message board is organised and used.

3.1.1.1 How to interact on the boards

User requirements and registration: to register and use the onion street message board, users must be sixteen years of age or under. There are 4 steps to complete the registration:

1. create a username that needs to be unique.
2. set a password
3. type in date of birth, which is required to be a real one and if the birthday shows the user is older than 16, the user cannot proceed in the registration any further. Even though setting age limit clearly shows the designers' concern for preventing adults from joining the message boards, the registration system cannot detect a fake or wrongly typed birth date.
4. type in an email address. In this step, the user has to input an email address that has not ever been used to register with the message board in the past. In other words, one email address is associated with only one username

After all these 4 steps, users need to log into the registered email account to activate the online identity. Even though the registration is a compulsory process to join the message board, the message board contents are still visible to the audience without usernames. So it should be assumed that putting up the child user's personal information is not safe.

Navigation and participation: All the message boards are topic-centred. The message board topics are grouped into two categories: *general topics* and *subject topics*. Fourteen message boards are under the *subject topics* section. Figure 3.1 displays how the 14 message boards are presented. Users can click on any topic to enter the board. All the topics are relevant to the National Curriculum, such as Your school, and Crime and Punishment.

Figure 3.1: List of topic-centred message boards

There are 25 discussion threads[2] on each page of the message board, and users can navigate through pages by clicking on the page numbers at the top or the bottom of each page as shown in Figure 3.2. Threads are listed sequentially from the most recently replied to the earliest replied. From each message board page, users can find:

- a green button to start a brand new discussion thread
- the total number of the discussion threads in the message board
- the title of each discussion thread
- the first sentence of the starting message in each thread
- the number of replies in each thread
- the username who started the discussion
- how long the latest reply has been added to the discussion thread.

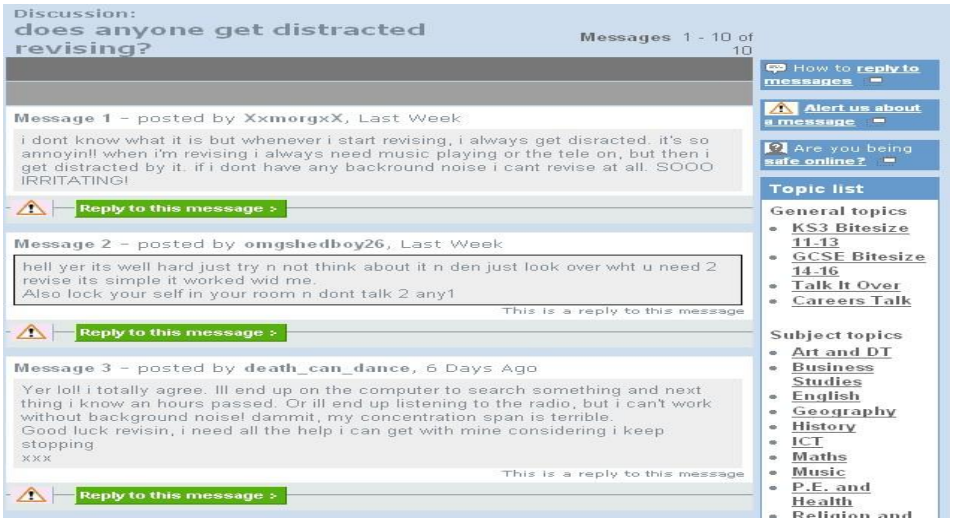
Figure 3.2: The display of message board thread topics

Clicking on the green button will lead the user to a new webpage requiring the user to type in a message to start a new discussion thread. The message is supposed to have a title that can be omitted and content that is required.

[2] 'Thread' normally means a string of consecutive message postings to a newsgroup, mailing list or Internet forum. In this thesis, thread also means a posting that only entails one starting message without any responding message from others. We would call that 'unsuccessful thread'.

To browse a particular discussion thread, users can click on either of the two clickable items: the title of each discussion thread and the time length which indicates how long the latest reply has been added to the discussion thread. The title leads users to the first message of the thread and the time length leads users to the latest reply of the thread. Figure 3.3 shows how the messages within one discussion thread are displayed.

Figure 3.3: Display of a discussion thread



From this page, users can find:

- the title of the discussion thread
- the number of messages in the discussion thread
- the username of each message that can be clicked on and it links to a page showing all of the user's message entries in this message board and her/his user ID
- when each message was posted
- a clickable green label under each message can open a link from which the user can type in a reply to the message. In the type-in link, a user does not need to type in the message to which he/she intends to reply, because the message being replied to will be automatically quoted in the reply.
- a clickable warning signal that enables users to complain about any breaches of house rules by the displayed message.
- navigation links to other message boards, help, house rules and so on.

3.1.1.2 The moderation rules

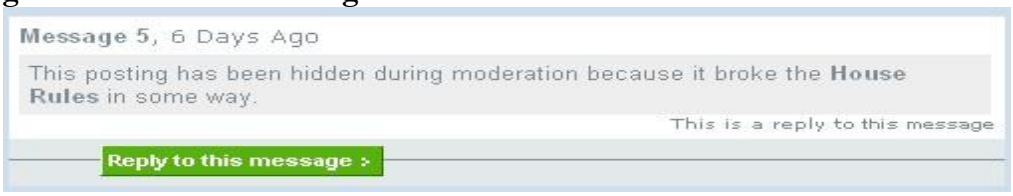
In order to protect the child users' online privacy and safety and to make sure the discussion focuses on the topic, house rules are designed to govern all the message boards. Users can refer to the house rules at any page of the message boards. And all the message boards are pre-moderated according to the house rules

Messages that have not gone through the pre-moderation procedure will be displayed as a queued message (shown in Figure 3.4). In a queued message, the time when this message was posted is the only visible information on the webpage.

Figure 3.4: A queued message

Once users reply to a message, it normally takes more than 24 hours before the pre-moderation completes. In addition, if a message breaches the house rules, it will be displayed as a hidden message as shown in Figure 3.5. Similar to a queued message, the posting date is the only visible information on the webpage.

Figure 3.5: A hidden message



One common feature of these two kinds of messages is that both of them have a green label under the message. As queued or hidden messages, they are not meant to receive replies. The motive for this design is assumed to be that this repeatedly displayed green label would help users to join discussions more conveniently. But it also makes the webpage looks inconsecutive and chaotic. Besides the pre-moderation, users can also moderate all the displayed messages by making a complaint. They can click on the warning sign of a displayed message to complain about its content as

shown in Figure 3.6. But when users complain about a message, they cannot type in any particular reason for their complaints. They can only send a complaint record to the moderator.

Figure 3.6: A displayed message

This section has introduced the features of the UK homework message board. In the next section, previous research about learning through message boards will be discussed.

3.1.2 Networked learning through message boards

With the greater use of the Internet by young people (Livingstone, 2005); teenagers make up a considerable number of active users in message boards. A message board is a handy and low cost online asynchronous communication medium that is popular among people asking questions and sharing information online. Children can participate in open-access and large scale message boards out of school (e.g., Yahoo Answer, BBC message boards, etc.). Every day, an enormous amount of expertise and knowledge is shared in these public message boards. The message boards like Yahoo Answer[3] support a large and diverse question-and-answer community which is not only a medium for knowledge sharing, but a place to seek advice, gather opinions, and satisfy one's curiosity about things that may not have a single best answer (Adamic, Zhang, Bakshy & Ackerman, 2008). The BBC Onion Street message boards are similar to this kind of worldwide, freely accessible message board, but particularly aim at children's school-related learning. According to Kou and Zhang (2003), people's interaction patterns in message boards are heavily influenced by their

[3] Yahoo Answer URL: http://uk.answers.yahoo.com/

personal interest spaces. Hence, studying children's use of message boards will also reveal their personal learning interests out of school.

Besides the public message board used in informal settings, message boards are also an essential feature of Virtual Learning Environments implemented at schools and universities, such as Blackboard (Blackboard, 2009). Next to email, message board is the most commonly used tool in this formal education context. It plays an important role in student learning. Message boards are also viewed as a tool for promoting a 'conversational model' of learning (Laurillard, 1993). Researchers believe that asynchronous, non-hierarchical and reciprocal online discussions increase student participation and collaborative thinking (Ruburg, Moore & Taylor, 1996). Collaborative learning refers to learning situations in which a group of learners work jointly to understand subject matter (Bruffee, 1999). A variety of theoretical frameworks have revealed a positive relationship between students' online discussion and learning. Online discussions can cultivate a knowledge-building community or higher levels of agency among students (Scardamalia & Bereiter, 1991; Scardamalia et al., 1994). Through online discussion including negotiation and argumentation, students may come to a shared understanding (Jeong & Chi, 1997). Additionally, discussing different perspectives of an issue can be an indicator of new meaning construction (Heller & Kearsley, 1995; Moore & Taylor, 1996). Moreover, online discussions have proved effective in enhancing learning by engaging students with an academic discourse and with the social construction of knowledge (Warschauer, 1997; Dehler & Parras-Hernandez, 1998). All these educational features of online discussion indicate a potential that UK children can benefit from participating in the BBC homework message board out of school.

With all these inspirations, this study will particularly investigate how a message board can support children's learning informally out of school. The next section will raise and justify the research questions for this study.

3.1.3 Research questions

According to the research objectives described at the beginning of the introduction, three research questions are proposed in this study.

Q1: *What are the prevailing concerns expressed by the children in this age group on the message boards, when they confront private study out of school?*

The BBC message boards provide children with a space to talk with others who have shared similar school experiences. Hence, the contents in the boards will reflect children's real concerns and interests from their daily school and out-of-school experiences.

Q2: *How do the discussion patterns and contents of the two different subject boards (Maths and English), reveal the different forms of community building?*

Maths and English are two different subjects. It is assumed that this comparison will therefore allow considerations of how the curricular disciplines shape different forms of community building. In terms of interacting with the message board, this research question will seek answers about how the asynchronous and threaded nature of discussion afforded by the message board shapes children's discussion in the two different disciplines. In terms of interacting through the message board, this research question will look into how the interactions among children through message boards vary in the two different subjects.

Q3: *To what extent do the message boards support genuinely an evolving quality of discussions?*

Although a message board offers potential educational benefits to enhance learning in various ways, there are many ways that a message board can fail to promote learning or sustain participation. Therefore, it is necessary to question whether or not the online discussion and participation are developed and sustained in the BBC message boards. It is also equally necessary to explore whether/how the message boards accommodate or promote children's contribution.

In order to answer Q1and Q2, messages in the maths board and the English board were collected and a content analysis was completed. In order to answer Q3, descriptive statistics about how the users had updated the message board contents were performed. In the following section, the method and procedure will be described in more detail.

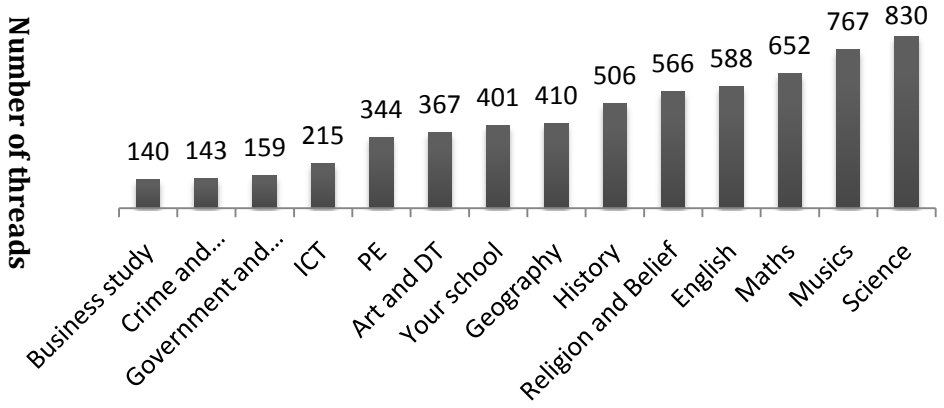
3.2 Methodology

This section will present a more detailed description of the data collection procedure and the characteristics of the data in Section 3.2.1 to 3.2.3. Also, ethical issues relating to the data collection from public message boards will be explained in Section 3.2.4. The analytic methodology adopted in this study will be justified in Section 3.2.5 and the analysis procedure will be explained in Section 3.2.6.

3.2.1 Online context of the Maths board and the English board

According to Merriam (2001), researchers need to select a sample from which the most can be learnt. This section will justify why the Maths board and the English board were selected. As described in Section 3.1, this study aims to investigate two different subject message boards. All the topics of the BBC message boards are concerned with school-related and curriculum-based learning. Therefore, before finally choosing the Maths board and the English board, all the fourteen topic message boards were considered and explored. An overall understanding of the 14 message boards was gained. Figure 3.7 shows the total number of threads in each topic message board by May 4th, 2006[4].

Figure 3.7: The number of threads in different topic boards



Examination of Figure 3.7 suggests that the three core curriculum subjects; Science, Maths, and English, are among the top four most popular subject message boards. Another message board in the top four is Music, which is advocated to be a '*take a*

[4] Most of the SATs exams in 2006 are taken in the first week of May (May 5th, 2006)

break' message board by the designers of the message boards. Also, Music is part of children's leisure life and it structures many kinds of social events around children, such as music band practices. In order to investigate the dynamics of children's learning interactions supported by the message boards, I decided to collect data from two boards; the Maths board and the English board, which are popularly visited and distinctive to each other.

3.2.2 Participants and procedure of data collection

It was assumed that there would be an increase in discussion about learning issues amongst the UK children before their national exams. For this reason, data was collected from the Maths board and the English board on May 4th, 2006. The threads in the message boards are listed in sequence from the most recently replied to the earliest replied. There are 175 threads collected respectively from the first seven pages of each board. Table 3.1 summarises the collected data from the two message boards.

Table 3.1: Summary of the collected data

Title	Maths board	English board
Age range of children	11-14	11-14
Number of usernames	345	416
Number of threads	175	175
Number of messages	416	893
Time range	10/09/2005 – 04/05/2006	17/09/2005 – 04/05/2006

Section 3.2.3 will explain the sub-categories of the data which are embedded in the raw data sets.

3.2.3 Characteristics of the data

The UK homework message boards provide the following categories of data:

- Username: It is chosen by the children, when they register to use the boards.
- The time when a message is posted: When a message is posted, its posting time will be shown, no matter whether it is under pre-moderation or not.
- Number of replies: How many replies are contributed to a thread initiation.
- Content of a message: The content of a message does not include the cited content which is automatically put up by the message board.
- Message status: If a message is under pre-moderation, it is labelled as a pre-moderation message. If a message breaks the house rules, it is labelled as a hidden message.

These sub-categories of data were identified and transferred into Nvivo for analysis.

3.2.4 Ethical issues

When working with children, it is important to ensure that an ethical stance is taken towards research and the collection of data. Contents of the BBC message boards are accessible for the public audience. When I tried to register in the BBC Onion Street message boards, my birth date was required. When I typed in my birth date, the system refused to continue my online registration, due to my age. Hence, I withdrew my registration. This indicates that the message boards try to prevent adults from interacting with children online. I did not register and interact with the children online. Also, in order to secure the children online, the message board moderators hide all the personal information revealed by children. For example, in one message a child put his/her email address, after pre-moderation the message is shown as '*you can email me <personal information deleted>*'. Therefore, all the data collected is released by the BBC after their moderation. Additionally, the children were only represented by their usernames without any extra personal information in the study. Hence, it was decided that no consent needs to be sought from either the BBC or the participants.

3.2.5 Data analysis

This section will justify the adopted analysis method and explain the procedure.

3.2.5.1 Content analysis

A substantial amount of research in Computer Mediated Communication (CMC) and Computer Supported Collaborative Learning (CSCL) has used content analysis as a technique to analyse transcripts of online discussion (De Wever, Schellens, Valcke & Van Keer, 2006). Many researchers use content analysis to gain an in-depth understanding of the online discussion, in order to reveal convincing evidence about the learning and the knowledge construction (e.g., Rosé et al., 2008; Weinberger & Fischer, 2006, Henri, 1992). Both quantitative view and qualitative view are used in content analysis. In quantitative approach, the data is coded, and frequencies and percentages are used for comparison and statistical testing, whereas in qualitative view, the data is coded to infer trends or a specific phenomenon (Strijbos, Martens, Prins & Jochems, 2006). Both quantitative and qualitative views were used in this study, in order to gain a holistic understanding. However, different theoretical bases and the operational translation of the theory lead to different sets of coding schemes. In Wever et al's paper (2006), fourteen content analysis schemes are compared and reviewed. All of them developed in CSCL and CMC are based on formal educational contexts, in order to look at different aspects of learning; cognitive and social. In contrast, in this study, the message boards are informally used out of school. A broad spectrum of issues could be revealed in the message boards. Responding to the research question which is to investigate the children's prevailing concerns out of school, it is essential to capture the variety of issues and their meanings to the children. Because coding categories which are derived deductively or adopted from existing schemes might eliminate some interesting issues, an inductive approach to developing the coding scheme from the data was used in this study. The procedure carried out in the analysis will be described in the subsequent section.

3.2.5.2 Analysis procedure

The analysis consists of four phases:

Phase 1: In order to identify the density of the participation and the density of the contents in message boards, quantitative analysis, especially descriptive statistics, was taken to explore the data of the usernames, the number of replies, posting time of messages, message status, thread length and message length.

Phase 2: In order to capture the children's prevailing concerns in message boards, the 350 thread initiation messages from both boards were analysed in Nvivo. The coding schemes will be fully explained in the next section.

Phase 3: In order to understand how children's concerns were pursued and developed through online discussion across time, the reply messages from both boards were analysed in Nvivo. The coding schemes will be fully explained in the next section.

Phase 4: In order to verify the reliability of the coding, another PhD student was asked to code 30% of the data according to the code scheme. Based on 30% of all the messages coded by the two researchers, Cohen's Kappa was calculated. Reliability of categorical coding scheme is typically evaluated using Kappa statistics (Cohen, 1960), which measures the amount of agreement there is between two codes of the same data, controlling for agreement by chance.

Section 3.2 has described the methodology used in the current study. Next section will now discuss the findings.

3.3 Results

This section will be divided into two main parts. The first will present the findings related to the 'traffic' of boards by quantitative content analysis. That is the density of the message board contents, the density of the users' participation and the influence of the pre-moderation in Section 3.3.1 to Section 3.3.3. The second part will discuss the characteristics of the board discussions identified by qualitative content analysis in Section 3.3.4.

3.3.1 Density of contents

In order to describe how a discussion thread is developed and sustained in a message board, one basic measure is the density of contents in the message board. There are two levels of density. The first is to measure how many messages a discussion thread has. The second is to measure how many words a message comprises of. This measure explores how much effort is made by a user to post a message and how much time a user will need to read a message. This section will give descriptive statistics of thread length and message length.

Maths board: the average thread length is 3 messages (SD= 5.71). However, among the 175 threads there are 119 thread initiations (68%) that have no reply. In other words; only 56 thread topics receive replies.

Figure 3.8: Distribution of replies to threads in the Maths board

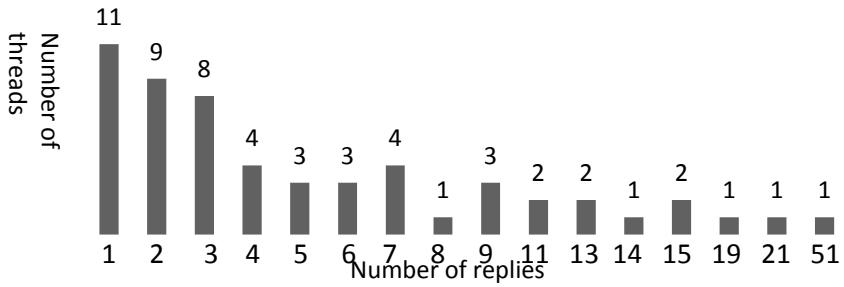


Figure 3.8 shows the distribution of the replies of these 56 threads. The average message length in the Maths board is 44.52 words and the mode is 36.9 words.

English board: the average thread length is 5.4 messages (SD= 16.59). Among the 175 threads in the English board, 97 thread initiations (55.4%) have no reply and only 78 thread topics have received replies. Figure 3.9 shows the distribution of the replies of these 78 threads.

Figure 3.9: Distribution of replies to threads in the English board

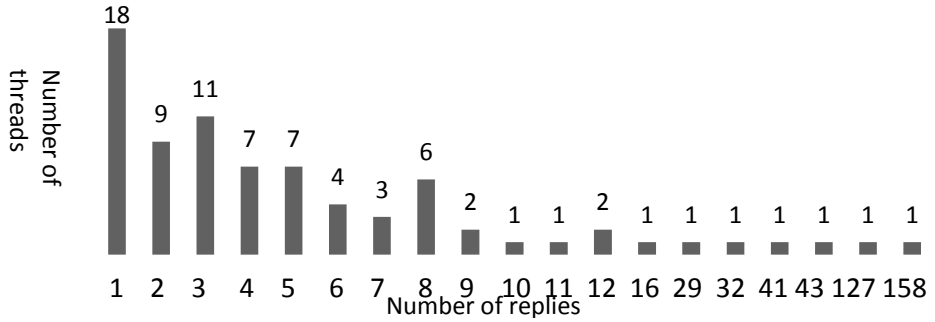


Table 3.2 shows that on average English threads have more replies than Math threads, and messages in the English board are usually longer than those in the Maths board. When measured by the average number of days between two messages in a thread, both boards evolved at a very slow pace. However, if a thread's opening message and its first reply message are ignored, the average interval between two messages is significantly reduced to 1.03 day/message in the Maths board and 1.45 day/message in the English board. This Matthew Effect indicates that children are more willing to participate in the more active discussion threads.

Table 3.2: Density of Contents in both boards

	Maths board	English board
Average thread length	3.0 messages SD=5.71 t=7.04*[5]	5.4 messages SD=16.59 t=4.12*
Average message length	44.52 words SD=44.25 t=20.98*	66.00 words SD=81.26 t =22.58*
Percentage of threads with replies	32.0%	44.6%
Average Number of days to have a new message added to the board	2.23 day/message	3.47 day/message

3.3.2 Density of users' participation

Sustained user participation may encourage deep discussion in the message board. Density of participation is to measure to what extent user participation is sustained in the message board. Table 3.3 illustrates the participants' distribution in the message boards within nearly eight months.

Table 3.3: Density of Participation

	Maths board	English board
The number of participated identities	345 user identities	416 user identities
The number of user identities who only participate once	262 user identities	298 user identities
The average number of messages contributed by the child users	1.44 messages	1.87 messages

In the Maths board, less than one quarter of the total user identities (24.05%) posted more than one messages on the board. Only 29 (8%) user identities came back to the board again which means they entered the board on different days. 54 user identities posted more than one message on the same day. In summary, more than 90% of the

[5] * $p<0.05$

user identities came to the board once and did not return and contribute any more. In the English board, more than a quarter of the total user identities (28.37%) posted more than one messages. And only 54 user identities posted message on different days. Therefore, similar to the Maths board, nearly 90% of the users came once and never returned to contribute again in the English board.

3.3.3 How pre-moderation influenced the dynamics of the board

The density of the participation in section 3.3.2 has shown that sustained long-term participation is not obvious. In the long run, very few users have constructed their online identities by making various contributions. This section will explore whether the pre-moderation mechanism embedded in the boards' design influences the development of online discussions. As illustrated in section 3.1.2.2, when a new message is posted in the boards, it is shown as '*The posting is currently queued for moderation and will be visible as soon as a member of our Moderation Team has approved it*'. In the Maths board, all the queued messages are listed in the first page. There were in total 25 discussion threads and 193 messages in the first page. Among the 193 messages in the first page, there were 61 queued messages and 15 hidden messages shown as '*This posting has been hidden during moderation because it broke the House Rules in some way.*' This means that nearly 39.4% of the contents in the first page were invisible to the users when they navigated through the board's most populated page. Similarly, in the English board, all the queued messages are also accumulated in the first page. At that time, out of the 292 messages, 70 queued messages were queued and 14 messages were hidden in the first page. This means that nearly 28.8% of the contents in the first page of the English board were not accessible to the users. Figure 3.10 and Figure 3.11 separately show how long these queued messages had to wait.

A message might wait for more than a week before it appeared in the Maths board. And slightly shorter, the queuing time in the English board might be several days. The long period of queuing time can potentially delay and discourage children's participation. This may partly explain why the message boards failed to sustain the children participations.

Figure 3.10: How long the queued Maths messages have been waiting

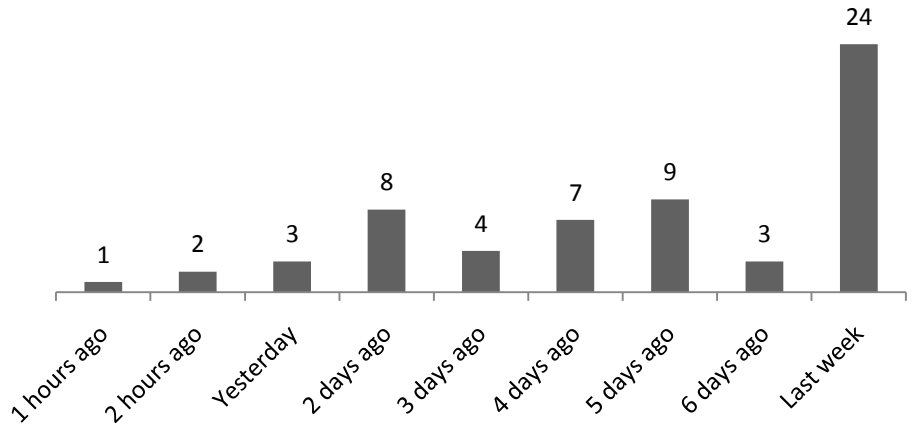
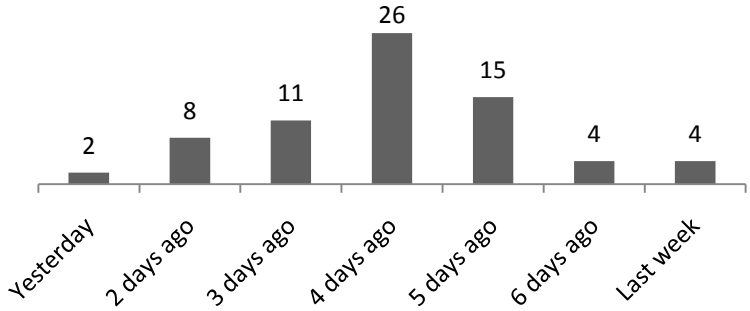


Figure 3.11: How long the queued English messages have been waiting



In summary, 68% of the Maths threads and 55.4% of the English threads did not receive reply and 90% of user identities appeared only once and did not return. Both the participation and discussion in the boards were not sustained in a long term. Additionally, most of the messages queued for pre-moderation waited for several days. Pre-moderation was very likely to delay the development of discussion and to discourage children's participation. Although Sections 3.3.1-3.3.3 have shown the limitation of the message boards to sustained children' participation and discussion, Section 3.3.4 and 3.3.5 will further explore the characteristics of discussions in the boards and capture whether and how learning emerges in the message board.

3.3.4 Characteristics of discussion in the Maths board

In order to capture the children's prevailing concerns and how the discussions evolved in the Maths board, characteristics of discussions in the board were analysed. As mentioned in Section 3.3.1, 68% of the discussion topics in the Maths board did

not have any replies. Therefore, a two-step analysis was conducted: first, categorising the learning concerns presented in the discussion topics (the starting message in a thread) and second, understanding how the learning concerns are addressed in reply messages. In the second step of the analysis, the discussion threads with replies were anatomised. The threads' initial messages were categorised into five themes: "General help-seeking", "Topic help-seeking", "Questioning", "Offering help", and "Social chat". These themes were identified according to the purpose and topic of the initial message and they were exclusive to each other. Table 3.4 illustrates the coding scheme. Examination of Table 3.4 suggests that all the learning discussions, which account for 82.1% of the whole dataset, were about help seeking and offering. However, only 32% of the discussion threads received replies, thus most of children' help-seeking intentions and needs were not responded. Furthermore, in order to explore how children contribute to discussions, reply messages are categorised as shown in Table 3.5.

Table 3.4: First post in the Maths board[6]

Main Theme		Code explanation and Illustrative messages	Proportion of corpus
L E A R N	General help-seeking	State needs to receive help in maths without clarifying any specific maths topic E.g.: *I am in year 10 and I am really bad at maths, the biggest problem is that I have exams in a month. What can I do?*	32.9%
	Topic help-seeking	State needs to receive help on a specific maths topic without asking a particular question. E.g.: *i need help with fractions but it ent come up on the board so im sendin another 1… anways this is what i need help with… multiplyin and addin together fractions… im goin a bit write back if you know the answers*	24.5%

[6] Based on 30% sample of all the messages coded by the two researchers, a Cohen's Kappa of 0.93 was established.

I N G	Question -ing	Have a complete maths question written in the message E.g.: *I have homework I dnt get it1! OK, this is what I have to do….* *Add 1+1=2 2+2=4 and you do that all d way 2 1000. what is the most simple way to do that?*	19.7%
	Offering help	Intend to offer help nonspecific to any certain topic. Any kind of help seeking can be proposed. E.g.: *Need Eny Help Tell ME And I'll Help*	3.5%
S O C I A L	Social chat	Look for social chats instead of any particular replies about maths E.g.: *my head is killing me I have done so much revision*	17.9%

As Haythornthwaite and Wellman (1998) point out, the exchange of information is fundamentally a social interaction rather than a mere instance of goal-oriented information retrieval or interaction with an information system. Also, numerous other studies show the online availability of emotional support, companionship and advice in addition to information (e.g. Rheingol 1993; Sproull & Faraj, 1995 in Wellman & Gulia, 1999: 173). There were 82.1% of discussion topics about help-seeking in the Maths board. The replies were firstly divided into two types: information-oriented exchange and socio-emotional exchange.

Under the 'information-oriented' category, the replies were divided into two types: one directly discussed the Maths subject matter and the other one exchanged strategic or instrumental information about the topic without discussing the Maths subject matter. Whereas, the meaning of 'socio-emotional' is in line with what is proposed by Computer Mediated Communication (CMC) researchers. Jaffe, Lee, Huang and Oshagan (1995) states that CMC users tend to express affective and socio-emotional information through informal codes. They (1995) explain that these codes may include intentional misspelling, lexical surrogates for vocal segregates, grammatical markers, strategic capitalization, and visual arrangements of text characters into

"emoticons." However these descriptions focus on the styles of the language. The analysis performed in this study looks beyond the language style, but more focus on the content. Walther (1992) states the socio-emotional information can form impressions about the personality of communication partners. Therefore, the categorisation of the socio-emotional exchange was made according to its socio-emotional intention to communicate.

Section 3.3.4.1 – 3.3.4.5 will explain each type of discussion topic and how the topics are discussed.

Table 3.5: Categories of the reply messages in the Maths board[7]

Category		**Code explanation and Illustrative messages**
Information Oriented exchange	On-topic about Maths subject matter	A specific reply to the concrete information need about Maths subject matter E.g.: *Could you give a little more information? Is it just going up 1+1=2, 2+2=4, 3+3=6 or is it 1+1=2, 2+2=4, 4+4=8?*
	On-topic about strategic and instrumental information	A general informative reply relating to ongoing topics and interests. It provides strategic or instrumental information without discussing about a specific Maths subject. E.g.: *If this is for statistics coursework then the quality of the diagram won't matter much, ther lukin for good english here not maths!*
Socio-Emotional exchange		A reply to socio-emotionally discuss the topic E.g.: *hiya, i know how u feel. I got mine on Tuesday next week and i'm feeling a bit pukey just thinkin about it. I donno about wattado.*

[7] Based on the sample messages coded by the two researchers that account for 30% of the total messages, a Cohen's Kappa of 0.82 was calculated.

3.3.4.1 General help-seeking

Nearly one third of posts were 'general help-seeking'. Previous research has differentiated between help seeking that indicates overdependence and help seeking that is 'instrumental' for learning (Ames, 1983). Instrumental help seeking is defined as a positive strategy for self-regulated learning (Nelson-Le Gall & Resnick, 1998). It is demonstrated that when children monitor their academic performance, show awareness of difficulty and express the wherewithal and self-determination to solve the difficulty by requesting assistance from other individual (Newman, 2000). Adopting this definition, we can find that the 'General help-seeking' threads did not include the children's explanation of the difficulties and the requested assistance, so they were not appropriate instrumental help seeking But they were also not help seeking that indicates overdependence. They were general help-seeking intentions, which could possibly lead to instrumental help seeking. Furthermore, help seeking behaviours are social transactions (Newman, 1998). The socialisation afforded by the technology indicates that with the help seeking intentions, potential learning exchanges could emerge. However, more than 75% of 'general help-seeking' threads failed to receive reply.

The success of help seeking is related to children's attitude and feelings to help-seeking (Newman, 2000).So, children's motives to post 'general help' threads were analysed. To some extent, the motives may reveal the children's attitudes and feelings to their help-seeking behaviours, and further may shed light on why more than 75% of the general help-seeking intentions did not receive replies. Three major concerns were expressed:

Time pressure from exam (58%): Children explicitly referred to the time pressure due to exams. They often mentioned '*exams are coming up*', '*exams in next week*' or even '*HELP ive got a maths exam in an hour'*.

Feelings about learning and achievement (36%): Children made explicit reference to emotions generated during study, e.g. the children feel depressed with their maths achievement saying '*I hate the subject and I cant do it*'.

School and peer evaluation (25%): children expressed their difficult experiences at school, such as '*my class are all going to fail*' or '*the new teacher doesn't care about teaching us*'.

The three motives were all academic-related, which indicated children's positive and comfortable to express their help-seeking intentions in the Maths board. On the other hand, the motives revealed children's needs to receive instant replies. However, because there was no specific maths topic raised, it was hard to attract sub-groups with shared interests to contribute their expertise. Additionally, the pre-moderation delays the synchronicity of communication and discourages the children to contribute.

Next, how children reply to the 'general help-seeking' intentions were explored:

Information-oriented: strategic and instrumental information (46%): In 'general help-seeking' threads, there were 4 replies asking the thread owners to further specify their needs, e.g. '*lol you wanna be more specific*'. But the thread owners did not reply to the requests. So, no 'general help-seeking' threads generated a specific topic. Without a specific topic, children replied by reflecting on their own learning experience and made a wide range of suggestions. These may shed light on understanding the learning advices that children internalised. All the advice was about '*you should do what I do*' and '*that is what I can provide you*', which demonstrated a general sense of community among the children who intend to share attitude and the ways of doing and living.

In terms of sharing attitudes, children talked about how to approach their achievement at school, for example '*the thing is that teachers make it out to be such a huge deal what set you get put in but really it doesn't mean anything!*'. Whereas, in terms of sharing ways of doing, a wide range of suggestions were made regarding lifestyles, access to resources, and teacher's role. For example, a lifestyle suggestion reads '*donot stay all night revising because sleep is very necessary. Eat good and healthy food donot drink coffee before going to answer your exams, because coffee contains caffeine which makes you feel nervous*'. Another resource suggestion reads *'u can also come here (this website) and do some revision exercise and play some educational games.*' When talking about the role of the teacher, one suggestion reads '*aask ur teacher to photocopie for u past papers*'. The replies indicated that learning

maths as a common practice was experienced by everyone. The children tried to improve their experience with maths, by not only sharing their study tips (e.g., making colourful notes), but also sharing their lifestyles (e.g., sleep more and don't drink coffee). Implicitly there was a sense of community constructed by the children. The children were willing to help others and were satisfied with sharing experiences and knowledge. This sense of community was developed upon their similar experiences at school and cultivated through the emotional exchanges associated with help-seeking intentions.

Socio-emotional exchanges (54%): There were also replies which did not respond to the general help-seeking intentions, but respond to the anxiety and depression associated with the help-seeking intentions. In these replies, the children mainly focus on expressing their own feelings. This type of exchange can be short and simple as a '☺'. Or they can be longer and subtler as '*Tell me about it! Don't ya just sit there with your book open and find yourself wandering into the t.v room and amazingly, it's on! What can we do but follow this path that is blatantly set out for us? lol. I have the same problem though, seriously. I can revise for about 5 minutes before being bored out of my MIND! What is it now? 3 days til sats? Good luck everyone!!!*' The words and phrases such as '*bored*', '*hate*', '*worried*', '*relax*' and '*calm down*' appeared frequently. Instead of making positive suggestions, the children encouraged and reassured each other. These exchanges turned negative feelings such as 'worry' and 'stress' into more normal and acceptable feelings by emphasising the togetherness. These negative feelings would be frustrating to the children, if they do not talk with each other.

3.3.4.2 Topic help-seeking

Topic help-seeking, as another type of frequently posted thread, requires assistance with a specified difficulty. The two major motives to initiate 'topic help' threads are:

Time pressure from exam (36%): Children express an urgent need to get help by a deadline, such as '*can anyone do trigonometry coz I av sats 2morrow'*.

Homework and coursework completion (23%): Children propose a help seeking topic from their homework and coursework, such as *'im in yr 10 nd needs help on my coursewrk with the number stairs. Fanxs'*.

There are also thread initiations which did not express a motive to get help. But all the topics are within the school curriculum. Although there are specific Maths topics in the threads, the reply rate does not increase significantly from 'general help-seeking'. Among the total 41 'topic help' threads, only 13 topics received replies. Geometry topics received a limited number of replies. This indicates a need for a multimodal communication tool to support Maths discussion.

There are three types of reply in 'topic help-seeking' treads:

Information-oriented exchange on Maths subject (62%): This type of reply straightforwardly discusses specific Maths subjects with different degrees of sophistication and formality. In Section 3.3.6, linguistic aspect of the communication is further discussed.

Information-oriented: strategic and instrumental information (27%): This type of reply discusses the topics by exchanging strategic and instrumental information, rather than providing a direct answer to the topic, e.g., '*If this is for statistics coursework then the quality of the diagram won't matter much, ther lukin for good english here not maths!*' This again highlights that Maths discussion is not only about Maths subjects or matters, but also about the practice and its related context. This type of exchange supports the children as a community to reflect on their experience with maths learning and exams together.

Another type of informative exchange asks the thread owner to further specify his/her topic, such as '*hey I was doin dat 2day* tell *me wta u need help wit*'. None of this type of exchange receives further elaboration from the thread owners. This may very much be due to the delay of the updates and pre-moderation in the board. For example, a child complaine:'*'sorry,more or less reposted this, the whole pre-moderated thing makes it hard to tell what's already been posted'.*

Socio-emotional exchange (11%): There are also a few socio-emotional exchanges such as '*hey u ok, look calm dwn i kno how u feel, i ave ma sats comin up and im not very gd at maths*'

3.3.4.3 Questioning

'Questioning' threads specify the requested assistance more clearly and the thread owners are more likely to update their requests afterwards. By contrast, in 'questioning' threads, children are less likely to express their stress from exams and other contextual information. So, the motives to most questioning threads are not revealed.

There are more direct answers to the questions, including procedural and conceptual knowledge. However, the reply rate (40%) is still not high. The scaffolding metaphor (Wood, Bruner & Ross, 1976) has been proposed to describe the process by which a more expert partner assists a less skilled one, in order to bridge the gap between independent ability and collaborative capability within Zone of Proximal Development (ZPD) (Vygotsky, 1978). Therefore, in order to reply a questioning thread, there is a need for the expertise to bridge the gap. Therefore, one reason for the low reply rate may be the age difference. The board is targeting at age group from 11 to 14 years old. Most users perhaps came to the boards with their personal interests and with limited patience. The relatively older users might not want to spend time answering simple questions posted by the younger users without any rewards. On the other hand, the younger users might not be capable of solving the older users' questions. Additionally, because the boards did not provide editing tools to format maths answers, the users had to spend extra time explaining their messages due to less readable math formulas e.g. when a child tried to write a quadratic equation, she/he said '*when you are multiplying powers e.g. x^4 [yeh i mean x to the power of 4 dont let that symbol confuse its just how im trying to represnt them on here]*' The extra effort can be a challenge for children to continue their contribution.

There are two types of replies in the 'questioning' threads:

Information-oriented exchanges on Maths subjects (65%): Forty-nine per cent of the replies in 'questioning' threads are straightforward procedural answers with varying degrees of explanation. Among the total 21 answers, 15 are correct and 6 are wrong. For example, in a thread asking a question as '*basically it's 1+1=2 2+2=4 3+3=6 and you do that all the way to 1000: 999+999=1998 what is the most simple way of doing this. so instead of doing like this: 1+1=2 2+2=4 If you could please help*', one correct answer used

trial and error method and another correct answer used deduction to solve the question. The variety of the answers reveals the need to bridge the gap within ZPD. The wrong answers are also procedural, such as:

'0.6 divided by 0.2;

0.6 <-- move it one to the right, making it 6.

0.2 <-- move it one to the right making it 2.

6/2 = 3 now compensate by moving it back one to the left.

3.0 --> 0.3

VIOLA!!!'

There are only six wrong answers and their explicit procedures indicate an opportunity for other children to pursue correct solutions. But, none of them were picked up by other children later on. This implies a constraint to the value of a child-only message board. For example, a thread asked a decimal question and one reply talked about the personal tips about decimal multiplication, instead of answering the decimal question.

Socio-emotional exchange (35%): This type of reply does not answer the question or discuss the maths subject, but exchanges context-related information, such as their feelings and experience around the question, e.g., '*OMG!!! I had exactly the same question as u!!!! Soz can't do it either! Reali worried coz i'm doin the 6-8 paper 2!!!!*' This type of reply leads the discussions to a broad spectrum of issues. For example, they talked about in which year students should be able to answer the question; whether it is a simple question; and why it ought to be understood. This may generate a shared understanding amongst children that a contribution can be valuable in different ways.

3.3.4.4 Offering help

Only five threads express the intention to provide open and unsolicited help, and four got replies. Nevertheless, none of them is sustained by the actual help the thread owner promised. This type of topic sounds rather random without indication of the thread owners' expertise and proficiency on the subject, for example, '*Need Eny Help Tell ME And I'll Help*'. However, these randomly initiated threads did not discourage help-seeking replies. For example, one 'offer help' thread received 51 replies as the longest Maths. It was not sustained by the interaction between the thread owner and

the repliers; rather sustained by the repliers' constant needs for help. Within the 51 replies[8], 33 messages discuss about specific Maths questions. Three Maths topics (*outlier; scale factor; and angles*) and two specific Maths questions were elaborated by the repliers, which led to multi-threaded conversations in a single thread. Meanwhile, eight help-seeking messages in the thread did not receive further replies. Ten messages were socio-emotional exchanges in which the repliers raised suspicions about how a Year 8 student can do Year 11 Maths, e.g., '*wat joka an yh u say ur the best but u year 8 I mean u ent gna no that much. U ent even leart half of it lol just giv up now b4 ppl start tryin 2 cinfuze u*'. This reveals the children's suspicious and challenging attitude to each other. This attitude can direct the children to deeper discussion and develop closer relationships.

3.3.4.5 Social chat

Most threads (71%) received no reply in this category. These replies are more like 'dip-in' chats that do not expect serious attention from others; either the thread owner might not pay further attention to the thread. Tension during the exam period was also the main reason for children to post random social messages, such as *'why maths is everything?'* or '*should I do coursework first or I should be revising?*' These socio-emotional replies in the treads allow children to better know their online peers. For example, in the thread of '*why maths is everything'*, the replies reveal how children understood Maths in their life. The discussion would have helped the children to co-construct their attitudes to Maths learning.

To summarise, more than 80% of the threads in the Maths board address UK children's needs for help and advice on their maths work closely linked to the learning progress they make at school. Exchanges in the Maths board reveal the strong help-seeking intention before exams. About one third of threads clearly expressed the time pressure from exams. The time pressure urges them to ask others for help or simply to seek social chats with peers who might be in the same situation. Because the discussion development is delayed by the pre-moderation process, children are not well inspired to contribute to the discussion. When they pursued

[8] Within 51 messages, there is one hidden message.

their Maths learning out of school, the socio-emotional exchanges revealed that Maths was not only discussed as a subject, it was shared as daily experiences, practices and goals among the children. They showed their understanding of Maths subject matter, and their understanding of each other. In this sense, children may not necessarily perceive this board as a reliable learning environment, but rather as a place to release their stress about the exams and to talk about their school life. They enjoyed the togetherness and connectedness in the board.

3.3.5 Characteristics of discussion in the English board

The aim of this section is to capture the characteristics of the UK children's out-of-school online discussion about their English learning, in order to capture the children prevailing concerns and how the discussion evolved in the English board. Similar to the Maths board, the threads in the English board are also categorised into 'General help-seeking', 'Topic help-seeking' 'Questioning' 'Offering help' and 'social chat'. In addition, a new type of thread is identified in which children discuss about extracurricular reading. Comparing to the Maths board, the English board has less 'general help-seeking' threads and more 'social chat' threads. The social chat style discussion is concerned with a wide range of topics. The coding scheme is explained in Table 3.6. Discussion about each category is given in Section 3.3.5.1 - 3.3.5.6.

Table 3.6: First post in the English board

Main Theme[9]		Code explanation and Illustrative messages	Proportion of corpus
LEARNING	General help-seeking	State needs to receive help in English without clarifying any specific English topic E.g. *has ne1 got ne tips 4 me 2 get a grade c in english gcse...its tha highest i kan get as i am doin foundation paper!...i rly need this grade 2 get in2 college...nd even wen ive tried my best in previous tests i stil fail..plz help x*	13.3%

[9] Based on 30% sample of all the messages coded by the two researchers, a Cohen's Kappa of 0.90 was established.

DISCUSSION	Topic help-seeking	State needs to receive help on a specific English topic without asking a particular question. E.g. *i have my end of year eight exams coming up next week and for english i have to write a speech on a given topic. I was wandering if anyone has nay tips on writing a good speech because I find them quite boring.*	35.7%
	Question-ing	Have a complete question about English subject written in the message E.g. *Does anybody know how and why does Shakespeare establish a violent atmosphere in Act 1 Scene 1?* *Please help coz it has to be in by 2moro!*	19.4%
	Offering help	Offer his/her personal advice and help on a topic E.g. *want help with macbeth, im the person to ask*	0.6%
	Extra-curricula reading	Invite discussion about reading, including comprehension, interpretation and recommendation of personal readings. E.g. *What is everyone's favourite book? (sorry if this question has already been asked!!)* *I think mine has to be the harry potter series, I know that doesent count as a single 'book' but I cant possibly choose one! I also love 'the lion the witch and the wardrobe' as that is an all time classic, it has an amazing plot and is beautifully written. I also like thriller writers, Stephen King is great as is Val McDermid.* *Please comment* *Sarah smiley*	6.7%
SOCIAL	Social chat	Look for social chats instead of any particular replies about English subjects. E.g. *How many people actually like Shakespeare and why do English teachers insist on reading his plays? So far I've had to do Romeo and Juliet (surprise), Macbeth, Julius Caesar, and I forgot what else. Isn't it about time we've moved onto something new?*	23%

More than half of the threads in the English board (55.4%) did not have any reply. In order to explore how the threads are sustained the reply messages were coded according to the coding scheme in Table 3.7. This coding scheme is very similar to the one used for the Maths board dataset.

Table 3.7: Categories of the reply messages in the English board

Category[10]	Code explanation and Illustrative messages
Information Oriented exchange	To deliver on-topic knowledge or strategic and instrument information about the topic E.g.: *to write a piece of descriptive writing it is really easy. Just describe in detail and your own words how football players are so famous and describe different tackles that they do with the footballs and how they manage to score goals etc... Hope this helps u a bit*
Socio-emotional exchange	A reply to socio-emotionally discuss the topic E.g.: *No, you're not the only geek, I'm an English nerd too!*

3.3.5.1 General help-seeking

A small amount of threads (13.3%) expressed the general help-seeking intentions about English. No more than one third of 'general help' threads received replies. Similar as in the maths board, most of the threads were posted due to the exam pressure and time tension, e.g., '*I got them 2moz nd I'm worried sick!!!* In line with the pattern found in the Maths board, children tended to show their negative feelings about revision in the English board's messages, e.g. *'worried' 'bored' or 'desperate'*. In terms of responses, there is an obvious difference between threads seeking help due to SAT and GCSE, which are two different exam contexts.

In a thread to seek help with SATs, there are 28 replies and six of them are information-oriented and the other twenty-two are socio-emotional exchanges. In the information-oriented exchanges, the respondents gave instrumental and strategic information, such as *'go to bed early'*; *'go through your notes'* or *'remember a few key lines'*. However, in the socio-emotional replies, the respondents tend to use their own

[10] Based on 30% sample of all the messages coded by the two researchers, a Cohen's Kappa of 0.86 was established.

experiences to prove that SAT is *'easy'* and it is important to have a *'positive attitude'* or *'calm down and concentrate'*. In a thread to seek help with GCSE, the thread owner showed his/her determination to achieve a good result, for example, by saying '*I rly need this grade 2 get in2 college*'. And all the replies are information-oriented with strategic and instrumental information, e.g., '*Make sure you go through the entire bullet points provided in that order. Make sure you structure your essays well with a clear structure of intro, main bit, then conclusion with linked paragraphs. If u really can't think of anything to put then just waffle… You have to always use paragraphs and quotes to get atleast a C*'. Another thread to seek help with GCSE was made by the thread owner who was doing one year early GCSE. This thread attracted respondents who had or would do GCSE one year early, and through the socio-emotional exchange. A sub-group of the same interests are attracted and closely interacted. Therefore, a sense of togetherness and an encouraging atmosphere emerged in the thread, e.g. '*I am doing my exam 1 year early as wel and yes I am worrying about it but just think, if you do bad on it, you get take it again in year 11. I think this is good dat u can do dat! So good luck 2 u! and I hope I get a good mark! lol!*'.

These three examples may indicate that different exam structures generate different types of discussion. When facing SATs, children tend to reassure each other that the exam is easy or not serious. However, when facing GCSEs, the children tend to discuss their strategies to take the exams and their discussions help to build a strong sense of community.

3.3.5.2 Topic help-seeking

More than one third of the English board's threads are seeking help with a specific topic The proposed topics include from the general ones such as '*where do I get comprehensions from*' to the more specific ones such as '*I need to write a piece of Descriptive Writing on Football. Can somebody please help me??*' Comparing to the Maths topics, these English topics are more specific with more context-related information. Only 35.8% of the 'topic help' threads received replies. Within the limited number of replies, there are 2 types of messages identified.

Information-oriented exchange (90%): Most of the replies deliver on-topic information or topic-related strategic and instrumental information. For example, a

thread in which a child expressed his/her problem in spelling words, received a variety of replies from suggestion such as to '*go through them with your parents*',to recommendations on strategies such as '*to sound it out*', and to reassurance such as '*mY friend spells psychic sykick but you can still see what she means – spellings silly*'. When a respondent was trying to teach the thread owner to split word into syllables, he/she gave an example: '*onamatapea: ona-mata-pea'*. The next respondent followed up by saying '*i think onomatapiea has more syllables than that. on-o-mata-peaia??*' This may indicate that the children are attentive to solving problems together and a group of children who share similar personal issues are gathered to help and support.

However, there are also a few messages asking the thread owner to further explain their needs, e.g. '*Just explain what you need help with and I'll put it in notes for you.*' In one thread the thread owner replied back, but it was too late to receive reply as he/she said '*well I no im ritin this to late but im sure im gonna get it bk coz I did rubbish but I fink its jst me teacher nyways.*'. Therefore, actually no thread owner got further help by updating his or her threads. This may indicate that the asynchronous communication media together with the pre-moderation diminished the opportunity for children to develop their discussion.

Socio-emotional exchange (10%): A small number of messages were made to exchange feelings and personal background such as '*which year are you in?*' or '*don't worry. you are not the only one.*'

3.3.5.3 Questioning

Nearly one fifth of the threads in the English board ask specific questions. The questions are normally copied from coursework or assigned by teacher, instead of genuine questions raised by the children, such as '*OMG does ny1 no ow Shakespeare uses language to capture the audience?*' There are some also threads made up with children's genuine queries such as '*what would be the best way to start of an explanation*'. Only very few of the questioning threads (32%) received replies, but the replies were highly information-oriented (81.2%).

For example, a thread owner said that '*i have 2 do an essay on "why does Macbeth murder Duncan?" for my coursework and i havn't got a clue how to start it off*.' The respondents offered help in different ways: one summarised the story and explained how the witches played a major part in why Macbeth murdered King Duncan; another respondent explained the possible structure of the essay, i.e. '*Why don't u start it off with a summary of the story (a SHORT ONE!!) and start a new paragraph with something like: Macbeth decides to kill Duncan because*…..' The information-oriented exchanges made by the children are very helpful and valuable to their learning, although there are not many of them.

3.3.5.4 Offering help

There is only one thread in the English board offering help, simply saying '*want help with macbeth, im the person to as*k'. This thread had no reply. Compared to the Maths board, this may indicate that help offering and seeking is not a major interaction pattern in the English board. Instead, to some extent, the children are looking for discussion more than help.

3.3.5.5 Extracurricular reading

This type of thread is initiated to discuss children's comprehension, reflection and recommendation of popular books. These discussions are not directly inspired by English learning at school, but are stimulated by children's interests in reading. The children open threads to discuss the top 10 books in their favourite book list and to debate which book is better between <Harry Potter> and <Lord of Rings>. There are two threads with more than a hundred replies. In general, 90% of 'Extracurricular reading' threads got replies. The children were enthusiastic about constantly recommending the books they like and justifying their choices, e.g. '*Anything by an American author called Jodi Picoult. She writes books on really tough topics like suicide, organ donation, murder, abduction. Recommended for mature readers - they are easy style but the content is not to be taken lightly. Recommendations - my sisters keeper, plain truth, the pact*'

In these threads, the children are gathered together as online reading groups to recommend books and exchange information. Although the reading lists are irrelevant to their school learning, the children actively participate in and sustain the

discussions in a long term. Compared to the 'General help' or 'Questioning' threads, these threads were updated frequently and they occupied the first page of the discussion board which might have conveyed a message to the other board users that this board was used by a active group of children and constantly gained attention from the children

3.3.5.6 Social chat

A variety of topics are identified in 'social chat' threads. Unlike the Maths board, which did not contain much social discussion other than Maths-centred social chat, the English board contained a variety of topics put up by the children. In the previous five categories, there are distinct needs identified. However, in the social chat threads, children are looking for social interactions for different purposes. So they are chat-style discussions, rather than aiming for help and information.

Talk about their attitudes to English (50%): In these threads, the children do not want to get help with their English learning, but they discuss their feelings towards English learning, and question why they learn English and what they should learn. For example, '*How many people actually like Shakespeare and why do English teachers insist on reading his plays? So far I've had to do Romeo and Juliet (surprise), Macbeth, Julius Caesar, and I forgot what else. Isn't it about time we've moved onto something new?*' When replying these topics, children expressed their feelings, reflected on their learning experience and explored the value of English as a subject and a knowledge field together, such as '*Shakespeare it one of history's greatest writers so it makes sense to study him even if it does become a bit tedious. But I think schools should invole more modern writers like J.K. Rowling etc.'* In these discussions, English is not only an exam subject as it is in 'topic help' and 'questioning' threads. It is a knowledge field children experience at and out of school. So children's feeling towards English is not only shaped by the exam pressure, but also influenced by their out-of-school experience.

Talk about teacher (17%): When children reflect on their learning at school, they tend to talk about their evaluation of the teacher. '*Talk to your teacher*' is a common advice that the children give to each other in 'topic help' threads. The social chat threads in which the children talk about their teachers show that the role of teacher is usually

discussed among the children, when they evaluate their learning. For example, '*omg im sooo poo at english but my bloody teacher thinks im a b grade ill be bloody lucky if i get a d e grade. y do teachers thuink they kno it all they very often dont. who else has this problem let me kno then we can jus dis english andd everything that it stands for*'. In the message above, the child was looking for others who share the problem. This may indicate that the children regard the message board as a space where they can meet people alike and enjoy belongingness and togetherness.

Talk about personal interests (30%): 'Reading discussion' threads have already shown how children expand their reading interests together. In the 'social chat' threads, the children also posted the love poem they composed and the story plots they planned to write in their first novel. Although these activities are irrelevant to the school learning, this still indicates a variety of interests relating to English learning. These threads attract children's personal interests and broaden the range of topics.

Make a chain story collaboratively (3%): There is even a thread named '*calling wannabe writers*' in which the children made a chain story collaboratively.

The wide range of social chat topics demonstrated above show how children relate their English learning to an online activity, a daily practice and a relationship and feeling. All these reveal that discussing English learning is a multi-dimensional activity involving different needs (e.g., General help-seeking, Topic help-seeking, and Questioning) and different contextual aspects (e.g., feeling, experience, and relationship).

3.3.6 Some linguistic aspects of children's online discussion

All the examples listed above are transcribed exactly. They involve two types of language: well articulated and abbreviated i.e., '*anyone=n1*'; '*tomorrow=2moro'* and *'you = y* or *u'*. But there is no evidence to show that the abbreviated language is misleading. It is found that the well articulated messages in the English board are more than them in the Maths board. And when the children posted information-oriented exchange, they tended to write well articulated texts, whereas when they post socio-emotional exchange, they tended to use abbreviated language. In the starting message

of a thread, they tended to use abbreviated language, by contrast when they made replies they tended to be well articulated. Hence, besides that abbreviated text messaging is a part of teenage culture, the evidence listed above may indicate that when discussing about learning, children tend to use well-articulated text to show their confidence and attract attention.

3.4 Discussion

This chapter has investigated the UK children's interactions in nationwide message boards out of school. Section 3.4.1 – 3.4.3 discuss the findings in response to the three research questions. Section 3.4.4 considers the findings corresponding to the thesis overarching research aim.

3.4.1 Spontaneous help seeking as the prevailing concern

This section responds to research question (Q1): *What the prevailing concerns of the children in this age group are, when they confront private study out of school.*

According to the qualitative content analysis, three types of help-seeking thread are posted by the children in both subject boards. Being nationwide and freely accessible, the message boards are used by the children to make spontaneous help seeking requests with different degrees of explicitness (General help-seeking; Topic help-seeking and Questioning). In terms of explicitness, it means the requests have a more specific topic and a more complete description of the request. Less help-seeking threads are made in the English board than in the Maths board; however the requests in the English board are more explicitly expressed than the ones in the Maths board. More than 60% requests in the two boards do not receive any reply.

The low reply rate queries children's capability to ask questions properly. In the existing help-seeking literature, there are numerous studies understanding children's personal characteristics (for example, personal attitudes, goals, awareness and perception of ability) in a classroom setting with teacher and classmates (Nelson-Le Gall, 1985; Shell & Eisenberg, 1992). The study described in this chapter explores the help-seeking mechanism in a virtual space with anonymous online peers. Although the study does not track the individual users' help seeking behaviours, the large

amount of help-seeking requests indicates that the children are confident and comfortable to put up their help-seeking requests in this virtual space out of school. More importantly, these help-seeking intentions are associated with a variety of social and affective factors, when the children made requests online. From this perspective, the study focuses on understanding help seeking as a social transaction that takes place within an interpersonal relationship (Newman, 1998). The context information relating to the help-seeking requests and the socio-emotional exchanges made by the children allow children to develop their interpersonal relationships. This finding highlights the necessity for children to develop interpersonal relationship with each other, which would be a prerequisite for successful help exchanges.

The low reply rate also queries children's capability to answer questions. In the 'General help-seeking' threads, there is no specific topic elaborated through discussion. In the 'Topic help-seeking' threads, there is no interaction between repliers, thus the discussion does not lead to a higher level of explicitness on the topics. In the 'Questioning' threads, there are 6 wrong answers out of the 21 answers and the wrong answers do not lead to any discussion that gives a correct answer. In the end, in order to understand the children's question answering, the concept of ZPD (Vygotsky, 1978) serves as a theoretical basis for understanding peer collaboration and tutoring.

"An essential feature of learning is that it creates the Zone of Proximal Development; that is, learning awakens a variety of internal developmental processes that are able to operate only when the child is interacting with people in his environment and in cooperation with his peers. Once these processes are internalised, they become part of the child's independent developmental achievement." (p.90)

The replies made by the children show very little evidence of the co-construction of ZPD. Furthermore, a concept associated with ZPD is the 'scaffolding' metaphor (Bruner, 1978). This theoretical construct serves as a theoretical basis to study tutoring in ZPD, which involves a variety of issues such as individual differences, prior knowledge and learning models. A successful question answering requires a coordination of all these issues. Given that spontaneous help seeking is the prevailing

concern of children, a teacher's presence may satisfy their needs. The study described in Chapter 4 thus explores how a Maths teacher facilitates this kind of spontaneous help seeking online.

3.4.2 Children's participation patterns and the message board mediation

This section responds to the research question (Q2): *To what extent do the message boards support genuinely evolving discussions.*

According to the quantitative content analysis, the threads in the English board are generally longer than the ones in the Maths board. The total volume of users' participation in the English board is significantly higher than that in the Maths board. Nonetheless, the quality of the conversations is not improved as much by the denser participation and discussion in the English board, compared to the Maths one. In both message boards, more than half of the thread topics do not receive any replies; especially nearly 70 per cent of the threads in the Maths board do not receive a reply. The investigation of how pre-moderation mediates the message boards reveals that a message can wait for more than a week before it shows up in the thread. There is also evidence showing that children complain about the delay. On the other hand, the 'General help-seeking' threads have shown how '*worried*' and '*desperate*' children feel when they post their messages: the 'Topic help-seeking' and 'Questioning' threads show that children need specific and instant replies. Under pre-moderation, all the children's worries and anxiety are delayed. It is difficult to sustain children's participation and develop their topics. In turn, nearly 90% of the user identities have only shown once within three months. As competent users of mobile phones and commercial text chat system that support instant replies, The users may easily lose their patience in trying to follow discussions by waiting for one or two days. With those constraints, the users finally make compromises with the regulation of the board. They post more social messages to release their stress and sooth personal concerns, but fewer learning messages that require more effort to gain valuable feedback. How to engage the children with learning conversations out of school is discussed in Chapter 4.

3.4.3 Different subjects animate the message boards differently

This section responds to the research question (Q3): *How discussion patterns and contents vary in two different discipline-based boards: Maths and English.*

According to the qualitative content analysis, the children in the Maths board were anxious to receive replies and normally focused on procedure and accuracy in replies. They were likely to post a question from their homework and to request instant, agreed and reliable replies. Also, their Maths discussion was constrained by the text format of the message boards, which do not support formula editing and diagram drawing. The children's needs identified above are further considered in Chapter 4, by providing them with multimodal communication media.

However, English discussion threads require clear references to every contribution or quotes, because the children normally talk about their personal experiences or opinions on a topic. They tend to use well-articulated language to communicate in the English board. They not only use their messages to exchange information, but also use the messages to show whom they are. They tend to build an active identity through their messages. Therefore, online identity construction is desired by the children in the English board. The identity construction in a learning community is further explored in Chapter 5.

3.4.4 The emergence of a potential learning community online

This section discusses how the findings in this study respond to the thesis overarching aim: *investigate how social software can cultivate children aged 11 – 14 as a community of learners out of school, in order to support their education*.

Through the content analysis, it can be found that children regard the message boards as a space where they can express their needs for help with their school-related learning queries. All the help-seeking requests are related to children's intentions to improve their exam results and to complete their homework and coursework. Especially, a significant proportion of help-seeking threads in both boards reveal that there is a prevailing tendency for the children to use the virtual space in order to express concerns with their performance at school. These shared

concerns shape the way children interact through the message boards. Their concerns with in-school learning change their out-of-school life. Evidence on how the children exchange Maths exam revision tips proves that in order to learn Maths more efficiently and achieve better results in exams, the children discuss how to live in a better life style out of school. These shared concerns play a role in cultivating a sense of community among the children.

The online discussion is intensive although Maths is a school subject in the National Curriculum. This indicates that the children's discussion about their Maths-related daily practices inspires the children to explore shared values and practices together, and to generate an atmosphere of togetherness which may in turn cultivate the trust and understanding among the children. The trust and understanding then may support the children to learn collaboratively. How to cultivate a community of learners out of school is further explored in Chapter 5.

The social exchanges have suggested how children's personal interests and concerns may bond them together as an out-of-school learning community, which also supports their at-school learning. In the English board, the children share their favourite books, write stories collaboratively, and discuss the value of 'English' as a knowledge domain rather than a school subject. Sub-groups of children may be gathered in these different topics. All these interactions allow the children not only to exchange information, but to share value and attitude. They may co-construct a culture to learn different subjects. Because they actively participate in the activity of knowing, they may become more confident and creative to learn.

Furthermore, evidence on how the children exchange English exam revision tips has shown that different exam systems (SAT and GCSE) stimulate different types of discussion about learning. Both evidences indicate that children's learning discussions are influenced by their personal learning goals, either a targeted exam result or a college entrance. The contextual forces, which may mediate the children's experiences of social software, are further considered in Chapter 6 and Chapter 7.

In summary, in response to the overarching research aim, this study suggests that the sense of community emerged in the message boards should be further understood. They are comfortable and active to participate in the activity of knowing. Hence, they share their daily life experience and communicate with each other about the values of their practices, in order to achieve better in school. Additionally, although a potential community is emerging in the nationwide message boards, work still needs to be done if this is to be turned into a truly engaging resource for young learners to return to. This study thus suggests exploring further how to harness this sense of community to support children achieve better in school and in their education.

This chapter shows that children's use of social software for out-of-school learning is a complex activity. In the following Chapter, how to engaging children with a teacher out of school is explored.

Chapter 4

GCSE MATHS REVISION WITH A TEACHER THROUGH AN ONLINE WHITEBOARD

Chapter 4 overview:

Few Year 9 students were attracted to use an online whiteboard in order to seek helps from a Maths teacher before their GCSE exams. The online whiteboard was implemented to facilitate text and graphic collaboration. The interaction was video recorded. The teacher took a didactic approach to reply to the children's help seeking requests. No socio-emotional exchanges were made. When the children were individually engaged with the teacher, they were less active to take any actions. This study unexpectedly failed to attract children's participation. This failure indicated that a technology, which can support interactions with a teacher, is not a warrant for designing or nurturing a community of practice.

4.1 Introduction

Chapter 3 has investigated two subject message boards: Maths and English, which are used out of school nationwide. Findings in Chapter 3 have identified spontaneous help seeking as children's prevailing concern revealed in the message boards, when they confront their personal learning out of school. The socio-emotional exchanges highlight the value of interpersonal relationships amongst children which may be a pre-requisite for the successful help exchanges. However, limited evidence for the co-construction within ZPD was seen in the Maths board. This indicates the need for a Maths teacher to facilitate children's spontaneous help seeking out of school. Moreover, findings from the Maths board data have demonstrated that exam stress is one of the main motives associated with the help-seeking intentions. This finding underlines the need for the media to be more responsive to children's changing requests for immediate replies. Hence, this chapter presents an exploratory study on children's GCSE Maths revision with a teacher through a multimedia whiteboard out of school. Synchronicity afforded by the communication media is supposed to provide instant help with Maths learning. Also, a Maths teacher is involved in order to provide reliable and constructive replies to the children.

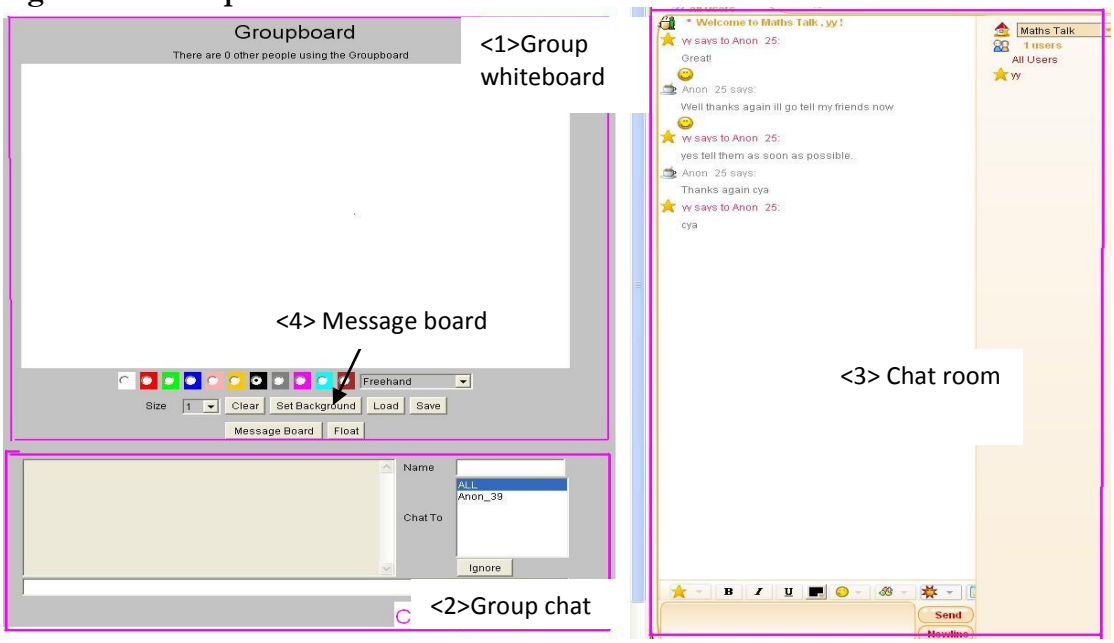
Section 4.1.1 describes the settings of the multimedia whiteboard. Section 4.1.2 reviews previous research about how a multimedia whiteboard can support Maths learning. Section 4.1.3 reviews previous research about the children's help provision online. In the end, Section 4.1.4 proposes the research questions.

4.1.1 The online whiteboard

This section introduces the features and interface of the online whiteboard. Figure 4.1 gives a snapshot of the system. The online whiteboard consists of four sub-spaces as below:

1. A public whiteboard
2. A chat space under whiteboard
3. A chat room in the right
4. A group message board

Figure 4.1: A snapshot of the online whiteboard



The group chat is associated with the group board. There are two chat spaces provided to users. Content of the group chat is presumably interrelated with the drawing on the group whiteboard. However, the chat room may offer a social space for all the users and viewers. Also, there is a message board which can persistently preserve the children's learning content.

4.1.2 Collaborative learning through an online whiteboard

An online whiteboard with a text chat is one of the fundamental features embedded in online conferencing environments. Dillenbourg and Traum (2006) find that online whiteboards are primarily used to represent the state of problem solving and shared memory and chat is supposedly used for grounding information created on the whiteboard. Their finding indicates that whiteboard and chat can be viewed as a dual space of problem and content, which is a prominent characteristic of collaborative learning (Barron, 2003, p.310). Online whiteboards together with other types of communication media, such as voice recording or text chat, have also been implemented and studied as a support for Maths[11] learning (e.g., Huang, Chen, & Hsu, 2006; Stahl, 2006; Stahl, Wee & Looi, 2008). As Stahl (2006) stated, in order to support Maths discussions in a collaborative community, a shared online whiteboard is needed for drawing geometric figures and for persistently displaying notes. Stahl (2006) further argues that it is important to use whiteboard and text chat as shared cognitive tools, and that group referencing between chat and drawing is crucial for supporting group alignment, intentionality and cognition among a group of learners. On the other hand, Huang, Chen and Hsu (2006) investigate how an online whiteboard with a voice recording tool can be used by the teachers and students within a school context. As they claimed, the purpose of using multimedia whiteboards is two-folded: to make it much easier for students to collaboratively solve math problems and to enable teachers to efficiently give comments and advice to students. Their study suggests that uses of online whiteboards can improve students' problem solving and conceptual understanding processes. In contrast, the study described in this chapter is conducted with a teacher and students who are strangers to each other in an out-of-school context. In order to understand the appropriateness of the online whiteboard to support help seeking in Maths, this study also explores how the online whiteboard structured the interactions between the teacher and children.

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[11] Virtual Math Team project on Maths Forum:
http://vmt.mathforum.org/vmt/teachers/orientation.html

4.1.3 Online help provision from a teacher

Section 3.4.1 has discussed children's help seeking intentions being their prevailing concern out of school. And, previous research which studies the role of the learner and their help-seeking behaviours has been reviewed. In order to understand how a Maths teacher provides help through the online whiteboard, this section reviews the literature on help provision from a human tutor.

Contingent tutoring (Wood 2001) serves as a theoretical basis to understand help provision. The key principle is that the help given by the tutor must be contingent upon the learners' needs (Aleven, Stahl, Schworm, Fischer & Wallace 2003). It is described by Wood and Wood (1999) as:

> "*When a learner has been set or is trying to achieve a goal and seems to be 'in trouble', then the contingent (human) tutor immediately offers help. If the learner does not seem to understand that help and remains 'in trouble', then more explicit instruction immediately follows. After about three cues of increasing levels of explicitness the tutor will provide the answer or physically demonstrate the next step in the task.*"

This concept is adopted in the design of different computer-based tutoring environments including Ecolab[12] (Luckin & Du Boulay, 1999) and EXPLAIN[13] (Wood, Shadbolt; Reichgelt, Wood & Paskiewitcz, 1992). These environments aim to specific tasks and topics in formal settings. In contrast, the study described in this chapter investigates how a teacher responds to a variety of requests and topics in Maths. In order to communicate with the teacher, these requests are brought up by the children from their physical learning contexts to this virtual communication space. The requests are more related to the children's personal preferences, rather than being framed by a shared problem-solving task or topic. It was expected that the children and the teacher would interact immediately and intuitively, with limited understanding of explicitness. Hence, another approach is to understand help

[12] The Ecolab is an environment into which the child can place different organisms and with which she can explore the relationships which exist between them
[13] EXPLAIN: Experiment in Planning and INstruction

provision as a format of teaching that respond to an individual student's requests for help in the classroom (Aleven, Stahl, Schworm, Fischer & Wallace 2003). Doyle (1986) has summarised the complexity of the classroom for teaching as '*multidimensionality*', '*simultaneity*', '*immediacy*', '*unpredictability*', '*publicness*' and '*history*'. And in the classroom, the problems teachers deal with are often complex and ambiguous, and teachers must use their expert knowledge to analyse and interpret them and make judgements and decisions as they formulate a course of action intended to help students (Calderhead, 1995). It can be assumed that in a virtual space out of school, help provision can be more challenging for the teacher. Therefore this study seeks to explore the role of the teacher, when anonymous children interact with her to pursue their personal learning concerns.

4.1.4 Research questions

According to the research objectives described at the beginning of the introduction, three research questions are proposed in this study.

Q1: *How does the online whiteboard structure the interactions between teacher and children across the virtual space (online) and the physical space (home)?*

Section 4.1.2 has reviewed previous research which exploits the educational potential of an online whiteboard for Maths problem solving. In Chapter 3, exchanges in the Maths board highlight children's needs to get instant and multimodal reply messages. This research question thus investigates whether the synchronicity and multimodality afforded by the whiteboard support and sustain the Maths discussion between a teacher and a number of children.

Q2: *How do children regulate the teacher's online presence and help provision?*

The multimedia whiteboard provides a space where children and a teacher can synchronously interact out of school. Being spontaneous help seekers, children need to actively approach to the teacher and regulate the teacher's help provision. This research question helps revealing the children's perspectives and preferences in their online help-seeking activities.

Q3: *What role does a teacher play to facilitate children's help seeking intentions?*

The overarching research aim of this thesis is investigate how social software can cultivate children aged 11 – 14 as a community of learners out of school, in order to support their education. Chapter 3 has identified the potential benefits of involving a teacher to help the teacher out of school. This research question explores how a teacher can fit into children's out of school learning through an online whiteboard.

In order to answer Q1, how the interactive moves between the teacher and children in different spaces are analysed. In order to answer Q2 and Q3, the conversations between the teacher and children are analysed. In the following section, the method and procedure is described.

4.2 Methodology

This section firstly justifies the necessity to recruit participants on a voluntary basis and how it was conducted in Section 4.2.1. Section 4.2.2 explains how the online whiteboard was implemented and the method and procedure of data collection.

4.2.1 Participant recruitment

This thesis studies learning in out-of-school contexts, where children enjoy more self-paced learning. Therefore, it is important when examining children's use of social software, this study should allow them being engaged as freely as possible. Additionally, with the intention of constructing coherence with engagement in the BBC message board, it was decided that all the children involved in the study should access and use the online whiteboard for their own learning queries on a voluntary basis out of school. Three recruitment steps were taken:

Step1: Three maths teachers were recruited. Because the multimedia whiteboard was implemented to support children's GCSE Maths exam revision, the availability of the three maths teachers was scheduled during the exam revision period, from 28/05/2006 to 03/06/2006. Details are shown in Appendix 1.

Step2: One hundred and twenty advertisement cards in Size A6 were distributed to 4 local schools' Year 10 students from 23/05/2006. Sixty cards were delivered by two Maths teachers to their Year 10 students.

Step3: During the scheduled time slots between 28/05/2006 and 03/06/2006, the Maths teachers and I logged in the multimedia whiteboard and ready for responding to the children.

The recruitment process ensures that all the children used the multimedia whiteboard for their own needs.

4.2.2 Implementation of the online whiteboard

Section 4.1.1 has described the settings of the online whiteboard. This section particularly describes how it was implemented. The online whiteboard was hosted on the Nottingham University server. However, the university could only provide digital IP address to the whiteboard and the IP address is hard to advertise and remember. So, a welcoming page of the environment was hosted with a normal URL: http://cometo/mathstalk. In order to run the multimedia whiteboard, it was necessary to have the Java software installed on the computer. Within the welcoming page, there were links to the login page, to the explanation of the research project, to the user guidelines, and to the java download page.

4.2.3 Participants and procedure of data collection

The online board was opened between 28/05/2006 and 03/06/2006 for 22 hours, with a teacher's online presence. Video becomes the standard recording medium for studies of interaction practice (Jordan & Henderson, 1995). So, with consideration of the research questions, the major method used to collect data is screen capturing through CamStudio, which recorded the whole process of interactions on the teacher's computer monitor. In addition to this, the logs of the online actions including text contents in the chat space and the message board are exported from the server. Complimentary to the video data, these data record a detailed and comprehensive log of text-based interactions. During the seven days of data collection, only four child identities appeared on the online whiteboard and three of them interacted with the teacher. Table 4.1 summarises the collected data.

Table 4.1: Summary of the collected data

Title	Characteristics
Age range of children	13-14
Time range	12:15 – 12:42 on 1st, June, 2006 17:43- 18:23 on 3rd June 2006 18:34 - 18:51 on 3rd June 2006
Number of usernames	4
Length of video data	84 minutes

Examination of Table 4.1 indicates that the exploratory study did not collect enough data in response to the raised research questions. The limited results are presented in Section 4.3.

4.2.4 Video analysis

The data collected in this study are video recordings of the interactions between the teacher and children. The interactions are viewed as a process of interactional and shared meaning making in CSCL (Stahl, Koschmann & Suthers, 2006) They states that analysis of meaning making seeks to discover what people are doing in moment-to-moment interaction and the ethnomethodological tradition is more suitable for descriptive case analysis. Furthermore, Koschmann, Stahl and Zemel (2006) stress that ethnomethodologically-informed video analytic research is able to systematically and rigorously study practice in authentic settings. Interactive and shared meaning making as a practice across time, actors and spaces involves considerable complexity. A variety of analytical frameworks thus are developed in previous research. For example, in order to understand interactive process, Suthers, Dwyer, Medina and Vatrapu (2007) propose a framework to analyse media coordination between personal and social realm and the online sequential structure. However, in this study, limited data is collected at three different periods of time regarding to different children. So, from an ethnomethodological perspective, the following section reports the findings in three descriptive cases.

4.3 Results

The results are reported in three descriptive cases in Section 4.3.1 – 4.3.3. Section 4.3.1 and 4.3.2 reveal how the teacher instructed a child to solve Maths problems across virtual spaces and domestic spaces. Section 4.3.3 reveals how two children synchronously regulated the teacher's help and how the online whiteboard coordinated with their interactions.

4.3.1 Case1: A child and a teacher approach to each other as strangers

Interaction duration: 12:15 – 12:42 on 1st, June, 2006

Participants: Becca & a Maths teacher

Becca logged in and greeted with the teacher in the chat room. After the greeting, she asked questions about '*sohcahtoa*', which is the abbreviation of trigonometric functions. Then, without asking Becca to explain more about her sohcahtoa request, the teacher straightforwardly asked Becca to look at the whiteboard. Becca replied in 'group chat' saying that '*yeah, I am looking at the board.*' The teacher started to demonstrate how to work out the trigonometric function by drawing a right triangle. The teacher told the researcher afterwards that this demonstration has been done several times when she was with her students in classroom. In other words, when the teacher is involved with children's school-related learning out of school, she preferred to continue her classroom teaching practice in this virtual space out of school. This evidence may shed some light on understanding the 'decoupling and re-situating' process described in Section 2.2.3. Not only children transfer across school and home, but also teachers have to transfer across contexts. Hence, when a teacher encounters a child asking a school-related question in this type of out-of-school context, she is challenged to balance how relevant her instructions are to the children's personal and contextualised learning. This may indicate that the degree of personal relevance is also an issue to be considered in terms of out-of-school help provision.

During the demonstration, Becca's status was idle. This online silence made the teacher ask whether Becca was still online. Becca immediately replied saying that '*oh yeh, sorry'*. It needs to be pointed out that Becca is the first child who came in the virtual space and the teacher is a stranger to her. So she would feel safer and more

comfortable, when she observed the teacher silently. This evidence proves that although the whiteboard can facilitate highly interactive turn takings, it does not ensure the child and the teacher being interactive.

After that, the teacher asked whether Becca had any other questions, Becca asked a trigonometry question by typing in 'group chat'. The teacher then cleared the whiteboard and demonstrated the procedure of solution. In order to work out the question with the teacher, Becca was asked to use her calculator and tables of numbers at home. It is worth noting that the teacher presumed that Becca could access to a calculator and tables of numbers at home without asking. This presumption should due to the shared understanding she constructed with her students at school. She is skillful to mediate Becca's practice at home. This smooth mediation may also due to the shared understanding she gained with her students at school.

In the end, Becca reported her result in group chat. The teacher confirmed that her result was correct and asked if she had any other questions. Becca said no and left.

4.3.2 Case2: Solving problems across virtual and physical spaces

Interaction duration: 17:43 – 18:23 on 3rd June 2006
Participants: Anon25[14] & a Maths teacher

During the 40 minutes interaction, Anon25 asked two questions: how to draw an angle bisector, and how to draw an isosceles triangle. Compared to Becca's question, these two questions require a more visual demonstration of the procedural solution. However, the teacher did not use the whiteboard very much.

She mainly instructed Anon25 in the chat room and Anon25 was guided to work with his/her compass step by step at home. Anon25 reported whether he/she followed the teacher's instruction step by step. Although the whiteboard can facilitate highly interactive turn takings, the teacher and the child did not construct a highly

14, Anon25 is a default user ID assigned by the system

interactive process. The online interactions were only taken when they necessarily support the child to complete the task at home. Moreover, the evidence highlights the need for the teacher to envision children's practice at home. Envisioning is one of key teaching strategies in classroom. It becomes more important in this virtual space, when the child worked with physical artefacts distantly. However, although the teacher dominated both the drawing space and chat space, the child worked with paper and compass at home. Similar to Becca's uses of a calculator and tables, the uses of compass are also mediated smoothly be the teacher.

In the synchronous interactive process, the teacher had to wait for Anon25's feedback online and gave further instruction till she had received Anon25's reply. This evidence reveals that when the teacher instructs the child distantly, turn-taking is important to ensure that the child followed her instructions. Although there was only one child, it can be supposed that to maintain turn taking would be difficult, when there is more than one child.

4.3.3 Case3: Flash participation from two children

Interaction duration: 18:34 – 18:51 on 3rd June 2006

Participants: Anon31, Anon32 [15]& a Maths teacher

Anon31 logged and greeted with the teacher. Then, he/she asked a question about how to work out *'the circumference of a circle'*. After this, he/she lost the connection to the server. Forty seconds later, Anon31 logged in again and started scribbling on the whiteboard. Anon31 scribbled with different colour pens and brushes. It is worth mentioning that Anon31 is the first child who tried the whiteboard. Due to the lost of connection, he/she missed the teacher's message about the circumference of a circle. In order to stop scribbling, the teacher cleared the whiteboard and asked what she could help with. Anon31. He/she then changed to ask about *'fraction'*. When the teacher was writing a fraction in the whiteboard, Anon31 changed his/her mind and wrote '*can you help me with decimal first?*' in the chat room. Then the teacher cleared the whiteboard and wrote a question on converting decimal to percentage. Anon31 kept

[15] Anon31 and Anon32 are default user IDs assigned by the system

silent for 24 seconds and said '……. *What?*' The teacher further encouraged him/her to make an answer. Anon31 then said '*can I write on the board?*' The teacher said '*yes*'. Anon31 wrote his/her answer which is not correct. The teacher asked Anon31 to work again. Anon31 asked how to clear his/her answer on the whiteboard. Then, Anon31 started trying out the functions of the whiteboard and scribbling again. At this moment, Anon32 logged in. Because the teacher was caught attention by Anon31, Anon32 did not speak to the teacher and logged in for 19 seconds and logged out. On the other side, Anon31 was still scribbling on the board. The teacher asked him to stop. He/she cleared the whiteboard and said he/she would write the question on the whiteboard. It took Anon31 forty seconds to write a question and the teacher was waiting during that time. After the question was written, the teacher started to write the solution step by step, and suddenly the whiteboard content was cleared by Annon31, and Anon31 logged out immediately.

First, this descriptive case shows that Anon31 is more interactive to the teacher and the whiteboard than Becca and Anon25. Nonetheless, he/she expressed many interests, which involves circumference of a circle, fraction, decimal, the technology functions and maybe the presence of a teacher. Therefore, he/she tried out all of them and turned out to be a more interactive user. However, in the end, none of his/her maths questions were solved with the teacher and the accident that he/she cleared the teacher's drawing made him/her suddenly disappear. This finding underlines the amount of complexity when children initiate help-seeking behaviours in this virtual setting. The amount of complexity might involve how they prioritise different help requests; how they perceive the control and power to use different functions of the technology; and how they approach their relationship with an online teacher. Although they tend to be interactive, the complexity of the context hinders the successful help seeking.

Second, this descriptive case shows that Anon32 disappeared after 19 seconds of silent observation. During the19 seconds, the teacher was not attentive to him/her. This evidence may indicate the difficulty for the teacher to synchronously sustain multiple conversations with different learners in this virtual setting and may further question the appropriateness of the technology.

4.4 Discussion

Section 4.3 has discussed the emerging issues relating to using an online whiteboard to support children's Maths exam revision with a teacher out of school in three descriptive cases. This section discusses the findings in response to the research questions in Section 4.4.1 – 4.4.3, and in response to the thesis overarching aim in Section 4.4.4.

4.4.1 Interact across virtual and physical spaces

This section responds to research question (Q1): *How does the online whiteboard structure the interactions between teacher and children across the virtual space (online) and the physical space (home)?*

Becca and Anon25's cases in Section 4.3.1 and 4.3.2 show that both children did not use the online whiteboard, during the online interactive process. They were asked to use pen, paper, compass, calculator and tables of numbers at home following the teacher's instructions. Doing so requires the teacher's ability to envision what the children are doing at home and according to the teacher, this 'envisioning' ability is gained through her teaching experience in classroom. The teacher and children only interacted with each other in the chat space when it is necessary to sustain the children's work at home. Therefore, different from using as a dual space of problem and content (Barron, 2003, p.310), the chat space was used as a space of instruction in which the teacher guides the children to work out the problem with physical artefacts at home; whereas the whiteboard space was used as a space to provide graphic information that is complementary to the instructions. Moreover, the teacher's didactic approach set a clear separating line between the children's learning space and the teacher's teaching space. This 'separating line' may cause that children do not feel they have the control and power to use the online whiteboard freely. Anon31's case in Section 4.3.3 leads to further discussion on the control and power issue in the following section.

4.4.2 Complexity of online help seeking

This section responds to research question (Q2): *How children regulate the teacher's online presence and help provision.*

As discussed in Chapter 3, help seeking is regarded as one type of self-regulated learning behaviour (Nelson-Le Gall & Resnick, 1998), and personal relationship between the teacher and children is an important prerequisite for successful help seeking. In this study, the teacher and children encountered each other anonymously in this virtual space at the first time. Hence, they needed to know each other and started to build up personal relationships. However, there was no socio-emotional grounding conversation like the ones children made in the BBC message boards. Both Becca and Anon25 spent time in silently observing the teacher. They intended to ask specific questions and aimed to understand how to solve the problem step by step. This indicates that although children prefer more interactive and two-way communication, when they were individually engaged with the teacher online, they were less active to take actions. Additionally, the teacher's online presence may re-mediate the setting of the online space and the atmosphere of togetherness.

Beyond that, Anon31's case in Section 4.3.3 reveals a considerable amount of complexity that the child faced when he/she expressed help-seeking intentions. As self-regulated learners, children need to know how to prioritise their help-seeking requests. As new comers to the virtual space, they need to know how to perceive different affordances of the technology and use them appropriately. As strangers to the teacher in the virtual space, they need to try out the ways they can interact with the teacher. All these issues may partly explain why this study only collected limited amount of data.

4.4.3 Envision and provide personal relevant help

This section responds to research question (Q3): *What role a teacher plays to facilitate children's help seeking intentions*

Both Becca and Anon25's cases reveal that children's practice is not constrained in the virtual space. Instead, they worked mainly with the physical artefacts at home. Therefore, when the teacher instructs the children, she needs to envision not only children's conceptual understanding but also their practice at home. This strategy is developed and matured through the teacher's classroom teaching practice. It may also indicate the benefit to involve a teacher in children's out-of-school learning, because

a teacher, who knows how students' learning is situated in school, may help children carry on their school-related learning out of school.

On the other hand, in association with the complexity of online help seeking discussed in Section 4.4.2, Doyle (1986) has summarised the complexity of the classroom for teaching as '*multidimensionality*', '*simultaneity*', '*immediacy*', '*unpredictability*', '*publicness*' and '*history*'. Doyle's argument may also indicates the complexity of this virtual space for help provision. Furthermore, with the consideration of the children's help seeking, a teacher needs to provide more personal relevant help to the children in this type of out-of-school context. Wood and Wood (1999) advance the importance to provide help with different levels of explicitness within ZPD. In line with that, the situatedness of children's practice at home in this study may also indicate that the level of explicitness needs to be considered with the level of personal relevance within children's context.

4.4.4 Initiate a community of practice?

This section discusses how the findings in this study respond to the thesis overarching aim: *investigate how social software can cultivate children aged 11 – 14 as a community of learners out of school, in order to support their education*.

Previous three sections have discussed the findings according to the limited data. In fact, this study has unexpectedly failed to attract children, after the participant recruitment procedure described in Section 4.2.1. Corresponding to the thesis overarching aim, the failure to attract participants is worth further consideration. According to the previous research discussed in Section 4.1.2, the online whiteboard seemed to be a promising tool to support maths problem solving. As indicated by the findings in Chapter 3, online presence of a teacher is supposed to be more valuable and attractive during the exam revision period. However, only four IDs appeared online within the seven days, after 120 invitation cards were sent to schools. First, it might indicate how difficult it is to engage children with their school-related learning through extra teacher support beyond their school day. Second, a more arguable reason is in line with Schwen and Hara (2003). The limited participation indicates that a technology, which can support interaction and a teacher, which can act as an expert

in a community of practice is not a warrant for designing or nurturing a community of practice. Last not least, the limited participation may also indicate that in order to support children's help seeking, the Community of Practice metaphor for online design is more applicable in an existing community, where personal relationships are already established. Hence, Chapter 5 explores how an existing community of Mandarin learners in school use a social networking site out of school.

Chapter 5

A MANDARIN LEARNING GROUP ON A SOCIAL NETWORKING SITE

Chapter 5 overview:

A group of Mandarin learners I taught in school used an online social networking site for 12 weeks out of school. Web Analytics was implemented to track learners' online behaviours. The SNS sustained the communities' participation across time. The intensity of participation shows that classroom learning stimulated out-of-school online participation to a high level. However, the duration of participation indicates learners intended to frequently check the online site through pure observation without deeper participation. Furthermore, social network analysis was conducted separately with public forum and personal comment walls. Based on the structures of the two network diagrams, learners were categorised into four types and each type was analysed as a different case. This analysis reveals that an online space which supports a diversity of needs and cultivates the feeling of belonging and togetherness outside of school is more sustainable than an online space, which continues online tuition outside of school. Also, informality embedded in community building encourages learners to make contact with underlying academic themes and extend the community's shared interests. Moreover, the diversity of the learners' needs and intentions led to the multiple roles that I played on the site. The focus group discussion reveals that the use of SNS makes learners feel they are special and creative, comparing to their peers in school.

5.1 Introduction

In the discussion of Chapter 4, the challenges and difficulties involved in initiating a community of practice are identified and the motivation to explore how technologies support an existing community is proposed. This chapter explores how a social networking site was used by a class of children out of school, in order to support their classroom Mandarin learning. The interests of Mandarin were firstly inspired within school, perhaps not exactly within the National Curriculum. The interests also continuously expanded through their interactions on a social networking site out of school. Social networking sites allow individuals to present themselves, articulate their social networks and establish or maintain connections with others (Ellison, Steinfield & Lampe, 2007). Chapter 4 has also identified the need for the teacher to provide

personal relevant help and information to the children. Therefore, the role of the teacher in children's out-of-school learning is further explored in this chapter. Furthermore, the social networking site described in this chapter is empowered with a variety of functions to store and present its user-created contents. Chapter 3 has revealed children's intentions to construct active personal identities by putting up socio-emotional messages. The social networking site thus affords social networking and identity construction in a variety of ways. This chapter further investigates this issue, when children are networked out of school.

Before presenting the methodology, Section 5.1.1 illustrates the background of UK children's Mandarin learning and the research context of the Mandarin learners featured in this study. In Section 5.1.2, a 'learning community' approach is explained. In Section 5.1.3, previous research on two types of technology designed to sustain learning communities is discussed. In Section 5.1.4, the decision to implement a social networking site is justified, and the setting of the social networking site is described in detail. Section 5.1.5 proposes the research questions and explains how the questions lead to the chosen methods.

5.1.1 An afterschool Mandarin club

In 1999, the Higher Education Funding Council for England (HEFCE) concluded that the UK was lagging behind other European countries in expanding Chinese studies. According to the Sunday Times (2007), there are 300 state schools already teaching Mandarin and there would be much more private schools teaching Mandarin. The National Centre for Languages (CILT) also reported that between 400 and 500 secondary schools in England were offering Mandarin Chinese. However, the GCSE Mandarin results revealed that the examinations were seen as 'geared towards "native speakers" and were not an appropriate qualification for those starting the language from scratch' (CILT, 2007). Revealed by the Times' interviews with UK children and parents in 2007, many UK children who are non-native speakers would not view Mandarin as an appropriate GCSE subject. Furthermore, Macaro (2008) proposes that there is a decline in modern language learning in England, and this decline has been evident since the early 1990s. All the above evidence indicates that there is a strong need to support the UK children to learn Mandarin with more enjoyment and

motivation. Within this background, the school featured in this study started its afterschool Mandarin club in 2006.

The children featured in this study are Year 10 students from a state school in the East Midlands. They took afterschool Mandarin lessons every Tuesday and Thursday in a Mandarin club during term time. The Mandarin club was run by their school, which had taken part in a national cultural exchange project together with a Chinese school. In order to support and sustain its students' interest in Mandarin and Chinese culture, the school opened a series of afterschool Mandarin lessons for its students from Year 10 to Year 12. The Year 12 students who grasped an intermediate level of Mandarin could apply for a summer trip to China under the school arrangement. I started to teach these three year groups in November 2007, after observing the lessons being taught by another Mandarin teacher for five months.

Through direct observation and talks with the school headmaster, who strongly supported the Mandarin club, three features of the afterschool learning club were identified. First, participation in the Mandarin lessons was on a voluntary basis. The attendance rate varied significantly, owing to students' personal reasons (e.g., a football match and a dentist visit). Second, the classroom learning was purely motivated by the students' personal interests rather than any exams or school requirements. Although the lessons were planned beforehand, unexpected questions and interests frequently came up during the lessons. Giving the students enough time to express their instantaneous interests was essential to sustain a good attendance rate, even when the interests were unrelated to the Mandarin learning or the lesson plans. Third, although the teacher chose a textbook to structure her teaching plan, the teaching and learning were not restricted by the National Curriculum. More than half of the students did not have a textbook. Hence, the teaching and learning were designed to be flexible. Due to these three features, I decided to implement a social networking site to achieve three goals. The first is to improve the classroom learning attendance. Uses of the social networking site aimed to supplement to the classroom learning would give an opportunity to the students who missed one or two lessons to carry on classroom participation. The second goal is to support every student in pursuing their personal interests across home and school. An out-of-school

interaction with a teacher would give the students an opportunity to get instant and personalised help. The final goal is to sustain a community of interests. Building a social network of Mandarin learners would allow them to share their interests and support each other.

5.1.2 Define a 'learning communities' approach

In order to understand networked learning, Community of Practice as a theoretical construct has been discussed in Chapter 2. Under the CoP notion, a 'learning communities' approach to education is developed (Collins, 2006, p.54). This approach highlights the value of initiating students into a knowledge creating culture and connecting students' work with civilization-wide knowledge building (Scardamalia & Bereiter, 2006, pp.97–98). Therefore, in a learning community, the goal is to advance the community-wide knowledge and in doing so to support the growth of individual knowledge (Scardamalia & Bereiter, 1994; Collins, 2006, p.55). Four characteristics of a learning community are defined (Bielaczyc & Collins, 1999 in Collins, 2006, p.54):

1) Diversity of expertise among its members, who are valued for their contributions and given support to develop
2) A shared objective of continually advancing the collective knowledge and skills
3) An emphasis on learning how to learn
4) Mechanisms for sharing what is learned.

These four characteristics are considered and discussed in this chapter, in order to examine whether the social networking site sustained the Mandarin learners as a learning community out of school.

5.1.3 Sustain a learning community online

According to the social theories of learning, educational researchers have explored the technology design in order to sustain a learning community online. In development of CSILE (Computer-supported Intentional Learning Environment), Scardamalia and Bereiter (1994) have recognised the inventive and sophisticated

nature of students' knowledge construction with new technologies (Cohen, 1995; Scardamalia & Bereiter, 1992; Scardamalia, Bereiter, McLean, Swallow, & Woodruff, 1989). In CSILE, students collaboratively construct a community database of knowledge. A knowledge building approach based on CSILE emphasises the collective nature of knowledge and the public artefact construction (Scardamalia, 2002). Regarding the educational ideas for knowledge building discourse, CSILE has aimed to break down the 'wall' of school by '*resisting discourse frameworks workable only in schools*' and to yield a learning culture in which students take more responsibilities '*for speaking and answering to a broader audience'* (Scardamilia & Bereiter, 1991, 1994). These educational ideas also inspire the implementation of a social networking site in this study. However, CSILE has structured students' discussion and invited social interactions by flagging ideas such as '*My theory for now is*…' or '*What I need to know now is* …' CSILE has been successfully used by American elementary school students. By contrast, an out-of-school community of teenagers would prefer unstructured and open-ended social and learning interactions.

Another powerful technology to support learning communities is WIKI. A wiki is a collaborative web site of which the contents can be edited by users anonymously (Chao, 2007). In essence, a wiki is a simplification of the process of creating HTML web pages in combination with a system that records each individual change that occurs over time, so that at any time a page can be forced to revert to any of its previous states. The earliest documented use of wiki in education is called CoWeb, a variation of Ward Cunningham's original WikiWiki Web. Wikis in particular actively involve learners in their own construction of knowledge (Boulos, Maramba, & Wheeler, 2006). They have been used to complement, enhance, and add new collaborative dimensions to the classroom. More specifically, Wiki enhances peer interaction and group work, and facilitates sharing and distributing knowledge and expertise among a community of learners (Lipponen, 2002). Wikis can also serve as a knowledge platform for a community of practice where members of the community can share their knowledge with the group, put up interesting pieces of information, work together, discuss issues, etc. (Schaffert, et al., 2006). Wikis are characterized by some of the elements fundamental to a successful community of practice, including a

virtual presence, a variety of interactions, easy participation, valuable content, connections to a broader subject field, personal and community identity and interaction, democratic participation, and evolution over time (Schwartz, Clark, Cossarin, & Rudolph, 2004 in Parker & Chao, 2007).

However, participation of Wiki users is transparent and editable to each other in a social space. When considering teenagers' learning preferences, even though they may enjoy the togetherness created in the social space, privacy and ownership are two sensitive issues for them to deal with. Wiki is not able to consider these two issues as good as a social networking site in this Mandarin learning context. In terms of privacy, it is shown that teenagers are likely to engage with two different discourses: one is co-constructed by the community and another is the discourse that the teenager him/herself prefers. In this study, the co-constructed discourse may be more influenced by the school, and the personal discourse may be relatively less influenced by the school. On the other hand, the ownership that teenagers prefer will be expressed by their involvement and enjoyment as a community member, when other members recognise and refer to their contributions. For this group of learners, whose learning is strongly driven by personal interests, the clear ownership of contribution will encourage them to participate online.

In summary, this section has reviewed research of two particular types of technology to support learning communities. CSILE underlines the benefit of transforming a classroom into a knowledge-building community in a broader context. Wiki, as a type of new and powerful web 2.0 technology/social software, highlights how the social nature of the technology supports a learning community. Moreover, it is also noted that for teenagers, an online social space that encourages unstructured, self-organised and open-ended communication may be desirable. Privacy and ownership of user-created contents should be subtly considered. Therefore, a social networking site is implemented in this study. Social networking sites are popular among UK children and young people. Bebo has three million users in the UK and most of them are below 25. The following section puts forward my ambition as a teacher to support the Mandarin learners across school and home, and describes functions of the implemented social networking site.

5.1.4 Setting of the social networking site

A social networking site called RawMandarin was implemented on the Ning Site on April 29th, 2008, after I had taught the Year 10 Mandarin class for five months. As stated on the Facebook website, "*Facebook helps you connect and share with people in your life.*" Whereas, by contrast, as stated on the Ning website, "*Ning lets you create and join new social networks for your interests and passions.*" Hence, it could be found that Facebook [16] focuses on connecting individual users through various networks, whereas the Ning Site[17] aims at the construction of social networks and building bonds between users around shared interests. In this sense, the active unit of the Ning site is 'social network', instead of 'social individual'. More than 80 per cent of the research participants in this study use Facebook. They are involved in a variety of networks on the Facebook, for different interests, for example religion and movies. Most of them had more than tens of Facebook friends. Given that Facebook focuses on featuring 'social individuals', it is assumed that the networks they joined and the friends they made on Facebook would be distracting, if the Mandarin community was also hosted there. By contrast, the Ning site that focuses on featuring 'social network' may build a demarcated boundary for the Mandarin community than Facebook. To some extent, this online 'boundary' would ensure the students' e-safety and help them to concentrate on Mandarin. Therefore, as a teacher, I chose the Ning site over Facebook. Table 5.1 explains the essential features of the Ning Site. As illustrated in Table 5.1, RawMandarin users can interact at two different layers of spaces: public page and personal page. Users' information and contributions are accumulated on the public page and are filtered to different users' personal pages according to the ownership of the information and individual customisation. For example, a 'Forum' on the public page lists all the discussion topics posted by the community. However, on the personal page, the topics started by the page owner are automatically listed. Figure 5.1 shows the layout of the features on the public page.

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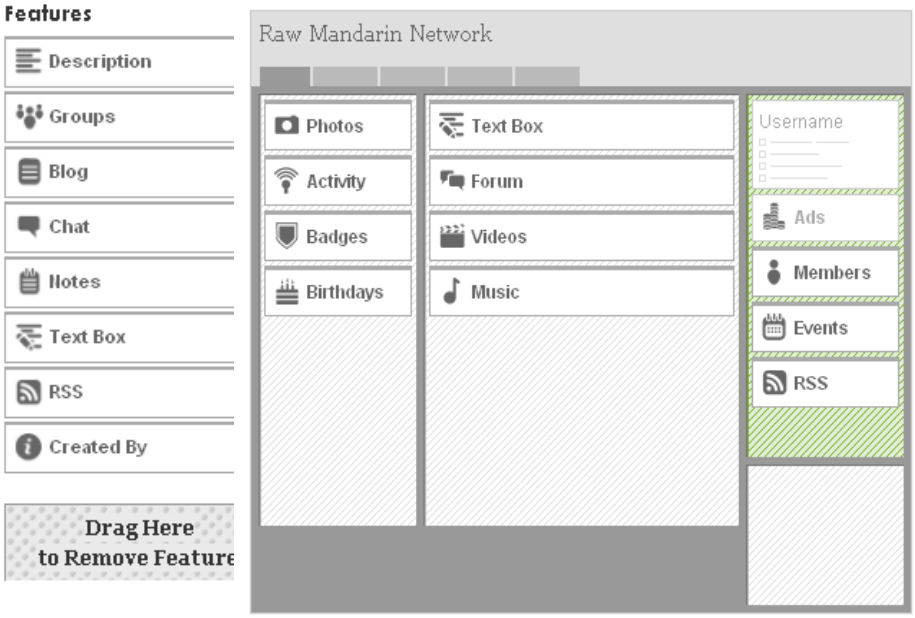
[16] Facebook's URL: http://www.facebook.com
[17] Ning's URL: http://www.ning.com.

Table 5.1: Features of the public page and personal page

Features	Public page	Personal page
Forum	Discussions contributed by all the network members.	Forum feeds: all the discussions started by the page owner
Photo	All the photo albums uploaded by all the network members.	Personally customised photo display
Video	Videos sourced from YouTube or other video sites by all the network members	Video feeds: all the videos contributed by the page owner
Music	Music posted by the network members	Personal customised music player
Members	A thumbnail view of all the member icons. Clicking on the icon leads to the member's personal page	A thumbnail view of all the member icons. Clicking on the icon leads to the member's personal page
Latest activity	A real-time dynamic activity feed of everything happening across the network.	A real-time dynamic activity feed of everything that the page owner has done.
Events	Organise events and keep track of who is attending	N/A
profile	N/A	A customised self- introduction
Blog	N/A	A personal blog
Comment wall	N/A	A social chat comment wall

Figure 5.1: Layout of the RawMandarin features on the public page



5.1.5 Research questions

According to the research objectives described at the beginning to the introduction, three research questions are proposed in this study.

Q1: *Does a social networking site cultivate and sustain a learning community out of school across time?*

The RawMandarin site was implemented to support learning in classroom and their learning interests pursue out of school. Therefore, although the Mandarin group is not defined as a community of practice, this research question explores whether the group's participation is sustained online across time, from a 'learning communities' approach. In order to answer Q1, the quality of the students' contribution needs to be captured across time and the contents need to be qualitatively analysed.

Q2: *Whether and how do the students construct their identities and sense of community?*

Different from the study in Chapter 3, this study only recruits seven students and I have a closer relationship with all the students for a year. A point of interests in this study thus is to understand how the students construct their identities and sense of community at an individual level. In order to answer Q2, individual user's participation over time will be tracked and their reflection on the social network experience will be obtained.

Q3: *What role does a teacher play to facilitate students' activities?*

I taught these students in and out of school. A social networking site, as a new technology to support out-of-school learning, offers challenges and opportunities to me. Hence, this research question explores what role I played to facilitate students' activities online. In order to answer Q3, the teacher's contributions to the site were studied with consideration of my classroom teaching.

In order to answer the three research questions, it is necessary to record to all the activities and behaviours of the users on the site from the very beginning when the site was opened. It is also necessary to make field notes about my own activities in the classroom and online. Section 5.2 explains the research methods in detail.

5.2 Methodology

Section 5.1 introduces the research context including the background of the research participants and the theoretical approach. This section of the current study aims to gather data from the Mandarin learning community with details regarding their interactions on the social networking site.

5.2.1 Participants and time range

Seven Year 10 students were recruited. Four of them are boys and three of them are girls. This group was a more active group than the Year 11 and Year 12 ones. As they had less exam pressure from GCSEs, they put relatively more energy and time into Mandarin learning. I started to teach them from November 2007, and to use the RawMandarin site from April 29th, 2008. I taught them till July 10th, 2008. The online activities lasted for a longer time period into March 2009. The time period that the data covers is twelve weeks (April 29th - July 15th, 2008).

5.2.2 A multi-method approach

Hakkinen et al. (2003, p4) build a rationale for a multi-method approach in CSCL settings, saying that 'methods should be developed not only for capturing the processes and outcomes of learning, but also for capturing experienced effects and individual interpretations of participation in CSCL settings.' Therefore, in order to reach a more holistic and complimentary understanding of the activities on this site

across time, a multi-method research approach is used. This section justifies the three methods used and describe how data were collected.

5.2.2.1 Tracking users' online behaviours: Google Analytics

One of the research questions in this study aims to understand how the Mandarin groups' online participation evolved over time. Web Analytics therefore was used to track visitors' online behaviour over time. According to the Web Analytics Association (2006), "Web Analytics is the measurement, collection, analysis and reporting of Internet data for the purposes of understanding and optimizing Web usage." Web Analytics benefits the study in two ways. First, the statistics helped me to understand students' ongoing learning process. Because I could review the statistics when I moderated the online activities, I was able to design and carry out better activities in a time more suitable for the students. In addition, statistics about how long students stayed on the site helped me to decide how deeply I should talk about their online activities in the classroom. Second, Web Analytics helped to collect the real time user data for analysis. Being a free service easy to install, Google Analytics was used in this study. Usually to install Google Analytics, a tracking code needs to be embedded in each webpage of the website. It is important to ensure that the insertion is done in a precise way. However, Ning designs a special feature called 'Analytics' to incorporate any JavaScript or HTML code from web analytic software. It automatically adds the html code to each webpage of the social networking site.

Tracking on the social networking site started several days before the site was open to the students. Although the Google Analytic reports typically have a two-hour delay, statistics about the students were reliable. Google Analytics allows its user to select the time range of the data and to export the results in PDF and XML format. In order to analyse the statistics, only the data during term time was selected.

5.2.2.2 Sequential observation

Statistical reports offered by Google Analytics were regularly checked, in turn, they improved the teaching in and out of school. Besides, sequential observations were made to track changes of the online contents generated by users. The observation is a two-step process involving data recording and managing.

1. Webpage capturing and field notes: RawMandarin's public page was captured by screen capturing software once a week, when the students used the site during term time. In addition to this, if a change was not captured by the software, a note was taken to document the change, such as a user changed his profile picture.
2. Online contents managing: when the students' uses of RawMandarin were nearly finished, online contents were collected and sorted. Text-based contents on blogs, forum, and personal comment walls were recorded in different word documents. Date, time, and usernames were transferred into files. Contents of pictures, music and videos were recorded in files by categories, such as usernames, date, time and the number of views.

After these two steps, the text data were imported into Nvivo for content analysis: quantitative and qualitative.

5.2.2.3 Focus group discussion

The aim of the focus group discussion is to gain the students' firsthand reflection on their uses of RawMandarin as a community emerging within the school. The effective period of RawMandarin use was nearly three months. In the last Mandarin lesson, a focus group discussion was conducted with seven students. The following outline questions were asked as shown in Table 5.2.

Table 5.2: Focus group discussion questions with Mandarin students

Inspiring questions	Possible discussions
Have you ever used website like Ning site? (if everyone says no, give them specific examples, Facebook, Bebo) What do you think is the difference between a Ning site and the others?	Discussing patterns of use on social networking site for learning and for fun.
How closely linked are our classroom learning to our Ning activities? How much do you think you have	Discussing how school activity and online activity played a role in the development of this learning

participated in Ning activities?	community on RawMandarin Discussing how they managed their own participation.
Do you think that everyone is involved? Have you learnt from each other on the Ning site? Do you think you know each other better in Ning site?	Discussing the relationships which were built on RawMandarin site.
What kind of role do you think the teacher has played on the Ning site?	Discussing their learning experience on RawMandarin with a teacher

Section 5.2 has explained the methodologies used in the current study. The next section will discuss the findings.

5.3 Results

This section is divided into five sections. Section 5.3.1 describes the activities organised by the teacher in the classroom and on the RawMandarin site. This briefly reveals the relationships between the classroom activities and the out-of-school online activities. It alsohelps understand the tracking data and the online content. Section 5.3.2 discusses the data gathered from the logging tool (Google Analytics). In response to research question 1 and 3, Section 5.3.2 considers the pattern of participation and the pattern of navigation. It also identifies the critical changes in the participation pattern by examining the variation of the online participation over 12 weeks. The next four sections are concerned with how the site was used by the students and teacher for social and learning interactions and how the online activities influenced the classroom learning.

5.3.1 Teacher's classroom activities and online activities

Before presenting and interpreting the logging statistics and the group-created contents, this section provides a more comprehensive description about how the Mandarin learning was structured and supported by me from the RawMandarin site's

inception. Table 5.3 provides more comprehensive description of the classroom activities.

Table 5.3: Description of the classroom activities

Week No.	Classroom Activity
1	*Session 1:* Introduce the family culture and custom in China and teach how to introduce family members in Mandarin *Session 2:* teachhow to use '这' （this）,'那' （that）, 有 （have, has） in Mandarin
2	*Session 1:* Introduce Chinese calligraphy and practice writing the Chinese characters, which they learnt before. *Session 2:* Teachhow to count numbers and how to describe 大 (big) and 小 (small) in Mandarin
3	*Session 1:* Teach how to describe a house layout in Mandarin, such as how to say '厨房' （kitchen）in Mandarin. *Session 2:* Practice how to introduce family members and house layout to a new friend in Mandarin, practice writing the Chinese characters.
4	Work experience week
5	Half term break
6	*Session 1:* Introduce the traditional and popular Chinese cuisine and teach how to order breakfast in Mandarin. Review the Chinese characters learnt in the discussion. *Session 2:* Revise how to count and write numbers in Chinese. Teach how to write the Chinese characters of 牛奶 (milk) and so on.
7	*Session 1:* Introduce a list of suggestions for a foreigner to travel in China. And discuss how to plan a trip in China. Review the Chinese characters learnt in the discussion. *Session 2:* Teach how to buy fruits in the market, such as 苹果 （apple） in Mandarin
8	*Session 1:* Introduce the Chinese's food market and discuss what can be eaten

	in China. Revise the Chinese characters when they are occurred in the discussion. *Session 2:* Learn how to order 海鲜 (sea food), 牛肉 (beef), 猪肉 (pork) in a Chinese restaurant
9	The teacher was away this week.
10	*Session 1:* Practice how to describe a family picture to friends, how to order a dinner in a Chinese restaurant, and play cards in Mandarin to practice how to count numbers in Mandarin. *Session 2:* Introduce the Chinese Secondary school culture and learn how to describe a school time table
11	*Session 1:* Introduce the Chinese Secondary school culture and settings of a school, such as '图书馆' (library). *Session 2:* A focus group discussion described in Section 5.2.2.3.
12	1st week of summer holiday

Table 5.4 provides a more comprehensive description of the teacher's online interactions with the students in each week. The students' participation in the RawMandarin site was purely on a voluntary basis. I never forced them to participate online. I only announced to the students that there was a social networking site available for them and I am accessible online. The students were free to choose to join or not. In addition, it is worth mentioning that the classroom activities (shown in Table 5.3) partly followed the structure of the textbook, but the online activities organised by the teacher (shown in Table 5.4) did not relate to the classroom activities and the text book. When the online ctivities were designed, the students' performance and achievement in the classroom were considered. On the other hand, whenever I referred to the online activities in the classroom, in order to involve all the students, I used the classroom whiteboard to present the online activity content to the whole class and introduced the activity again. In the focus group discussion, all the students recalled that they were happy and comfortable to join the RawMandarin site. Hence, it is safe to say that the students were not pressed to participate online and their participation was spontaneous.

Table 5.4: Descriptions of the online activities

Week No.	Teacher's actions on the RawMandarin site
1	*Action on Public forum: 1. Start 3 discussion topics: '*Join the discussion: Why mandarin?*'; '*Your Favourite Chinese Character!!!*' and '*Chinese Advertisement PosterS Guess Activity!!!*' 2. Reply to the students *Action on Photo album: Upload the pictures, which have been shown in the classroom. *Action on Comment wall: Interact with the students
2	*Action on Public forum: 1. Start 1 discussion topic: '*2nd round poster guess*' 2. Reply to the students *Action on personal blog: add 1 blog post '*Multilingual people are more educated?*' *Action on Photo album: Upload the pictures, which have been shown in the classroom. *Action on Videos: Upload a pop Chinese music MTV and a Pinyin flash *Action on comment wall: Interact with the students
3	*Action on Public forum: 1. Start 4 discussion topics: '*3rd round poster guess*'; '*Who u can talk with in Mandarin*'; '*The 2008 Olympic mascots*' and '*Calling for decipher*' 2. Reply to the students *Action on Videos: Upload 1 video '*The Chinese 'notorious' TV commercial*' *Action on comment wall: Interact with the students
4	Work experience week *Action on Public forum: 1. Start 2 discussion topic: '*The time when my mum was young in China*' and '*everyone joins!!!It is time for Mandarin'* 2. Reply to the students

	*Action on Videos: Upload a 'Happy birthday' video to Student S who has her birthday in Week 4 *Action on comment wall: Interact with the students
5	Half term break *Action on Public forum: Reply to the students *Action on comment wall: Interact with the students
6	*Action on Public forum: 1. Start 2 discussion topics: '*How is the charity work going?*' and '*more fun in our class*' 2. Reply to the students *Action on personal blog: Add 1 blog post: '*my chinglish :PPP*' *Action on Videos: Upload 1 video '*A response to Battle Royale: An unhappy scene in a Chinese Secondary school*' *Action on comment wall: Interact with the students
7	*Action on Public forum: 1. Start 2 discussion topic: '*Recommend a blog written by a BBC journalist based in China*' and '*What we can do with GroupScribble in our class*?' 2. Reply to the students *Action on Videos: Upload 1 video '*Yao ming*' *Action on comment wall: Interact with the students
8	*Action on Public forum: 1. Start 1 discussion topics: '*Group meeting before the end of the term*' 2. Reply to the students *Action on personal blog: Add 1 blog post: '*Rawmandarin site*' *Action on Event: Set up a reminder for the Week 8 Group Scribble activity in the classroom *Action on comment wall: Interact with the students
9	The teacher was away this week *Action on personal blog: Add 1 blog post: '*Greeting from Netherland*' *Action on comment wall: Interact with the students
10	*Action on Public forum:

	1. Start 3 discussion topics: '*Let you know what you KNOW*'; '*Let me know what you know!*' and '*Chinese Calendar*' 2. Reply to the students *Action on comment wall: Interact with the students
11	*Action on the Public forum 1. Start 1 discussion topic: '*Recommend 'Kungfu panda''* 2. Reply to the students *Action on Event: Set up a reminder for the Week 11's focus group discussion *Action on comment wall: Interact with the students
12	1st week of summer holiday *Action on the Public forum: 1. Start 1 discussion topic: 'A quick update' 2. Reply to the students *Action on comment wall: Interact with the students

5.3.2 Uses of RawMandarin

This section identifies how the RawMandarin site was visited and navigated. It describes how the intensity of participation varied over the 12 weeks in Section 5.3.2.1 and how deeply the participation and navigation were made on the site in Section 5.3.2.2.

5.3.2.1 Critical changes over the twelve weeks

During the 12 weeks, RawMandarin as a digital destination was visited 781 times and, on average 1.32 times per day per person. The site's pages were viewed 5886 times, and on average 7.5 pages per visit. Intensity of participation varied at different degrees owing to a broad spectrum of issues. This section thus identifies the critical changes in participation intensity over the time period. This may shed light on the issues related to the participation/lack of participation and enjoyment. The number of visits and page views within 12 weeks is presented in Figure 5.2 and Figure 5.3. The students were becoming occupied with their exams towards the term end. And, because the summer term ended in week 11, the number of visits in Week 12 represented how the site was visited in the holidays. As described in Section 5.1.1, the

social networking site was implemented to support self-driven learning, which might be inspired by their classroom activities. Therefore, the online activities were not constrained by the classroom learning. Because the site was introduced to the class on Tuesday (April 29th 2008), the numbers shown in Figure 5.2 and Figure 5.3 were calculated between every Tuesday and the following Monday. The dotted lines represent the changing trend of the visits if the weeks without Mandarin lessons are ignored.

Figure 5.2: Number of visits within twelve weeks

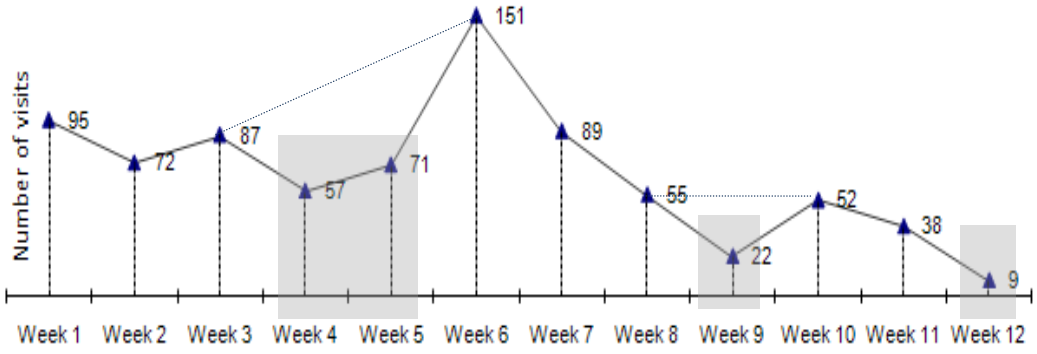
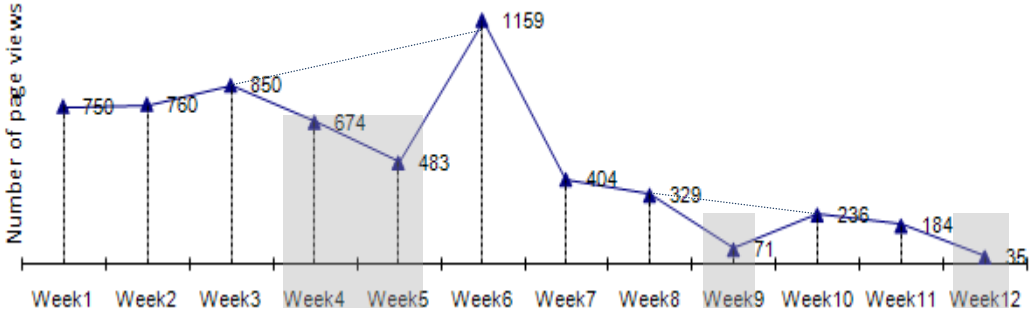


Figure 5.3: Number of page views within twelve weeks



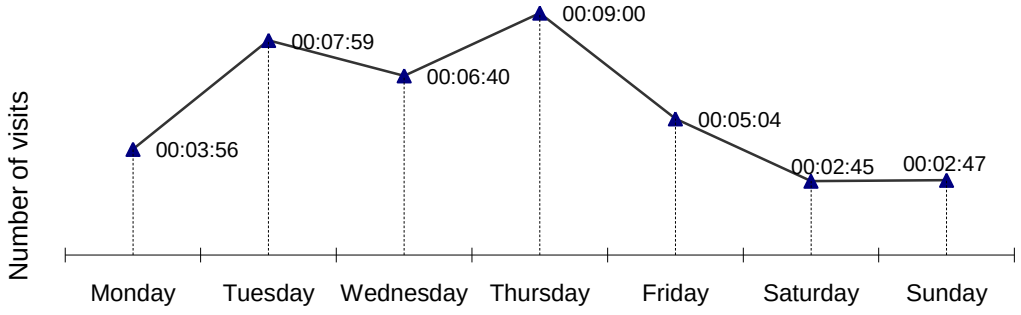
Examination of the above two figures suggests that the participation during the first six weeks was increasing if the half term break and the work experience week were excluded. On the other hand, participation was declining in the last 3 weeks of the term due to the term-end exams. The increasing trend in the first six weeks indicates that the students gradually got used to visiting the social networking site and allowed the site to be incorporated into their daily lives by visiting it every one or two days. On the contrary, the declining trend emerging at the end of the term may suggest that

participation in the site was mainly motivated by students' individual learning interests and the exam preparation took higher priority to their individual extra-curriculum learning. However, in general, the ups and downs of the participation intensity cannot fully indicate whether the students were losing their interests or were developing a regular visiting habit, without a further investigation in the quality of the students' contribution. Therefore, in Section 5.3.3 and 5.3.4, the critical changes of the participation intensity and the quality of the participation will be discussed in detail.

5.3.2.2 How much time users spend on the site

The average time that a user spent on the site per visit was 8 minutes 32 seconds and the median was 5 minutes 21 seconds. The distribution of the time length is shown in Figure 5.5. Findings in the previous section have indicated that the students accessed the site more frequently during weekdays than weekends and the classroom learning stimulated the out-of-school online participation to the highest level on every Thursday. In order to relate the site usage to the classroom learning further, Figure 5.4 depicts the average time a user spent on the site per visit per day during a week.

Figure 5.4: How much time per visit was spent during a week



Due to the classroom learning commitments and more activities initiated by the teacher on the site during weekdays, the users generally spent more time on the site during weekdays, especially on the Mandarin lesson days as shown in Figure 5.4.

Figure 5.5: Length of visit on the site

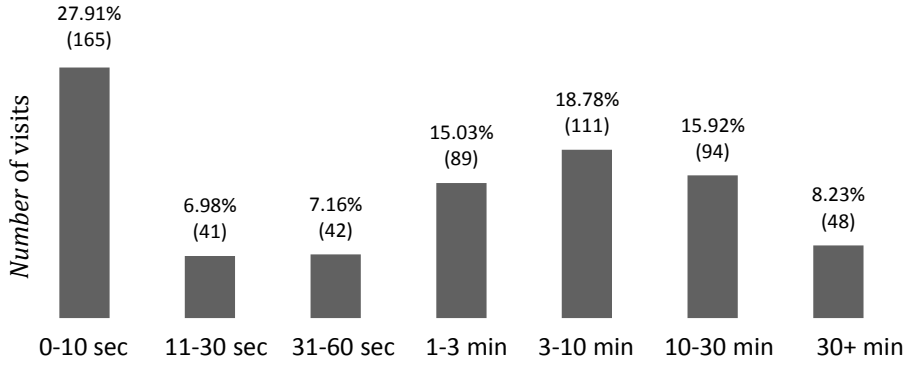


Figure 5.5 demonstrates the overall distribution of the visit duration. It shows that more than one quarter of the visits took less than 10 seconds, which would not be enough for the user to make one contribution. But it would be enough for them to check the 'Last Activity' feed to see if anything had changed on the site. In general, 42.05% of the visits took less than one. Furthermore, the average number of contributions made by the group per day was 3.24 activities, such as commenting on the photos and uploading music. And the average number of visits made by the group per day was 10.56 times. These statistics indicate that during most of the visits, the children just browsed the site to check whether there was an update and then quit from the site. However, the frequent checks may indicate the students' intentions to participate in the online activities through observation. Mayes, Dineen, McKendree and Lee (2002, p.225) put forward that 'underpinning the idea of vicarious learning is an assumption that learners not only can learn by observing other learners, but will actively want to do so'. These regular observations made by the students may indicate the potential of the RawMandarin site in supporting vicarious learning. This potential is further examined in Section 5.3.5, when different individual students are analysed.

In summary, the social networking site sustained the community's participation especially during the weekdays. In addition, the exploration of page views and visit duration has revealed that the classroom learning not only promoted more out-of-school visits on the site but also encouraged deeper navigation.

5.3.3 Coexistence: Learning network and Social network

Previous section reports the statistics on how online participation varied over term time and non-term time within 12 weeks, and how it was related to the users' classroom lessons. This section discusses the structures of emerging networks on the RawMandarin site, by investigating uses of two most used social spaces: public Forum and personal Comment Walls.

5.3.3.1 Learning network

As listed in Table 5.4, the teacher used 'forum' most to communicate with the students about Mandarin learning and Chinese culture. There were 30 topics discussed within the 12 weeks. The teacher started 22 (73%) out of the total 30 online discussion topics, but only contributed 46 (20%) out of the total 226 reply messages to sustain the community discussion.

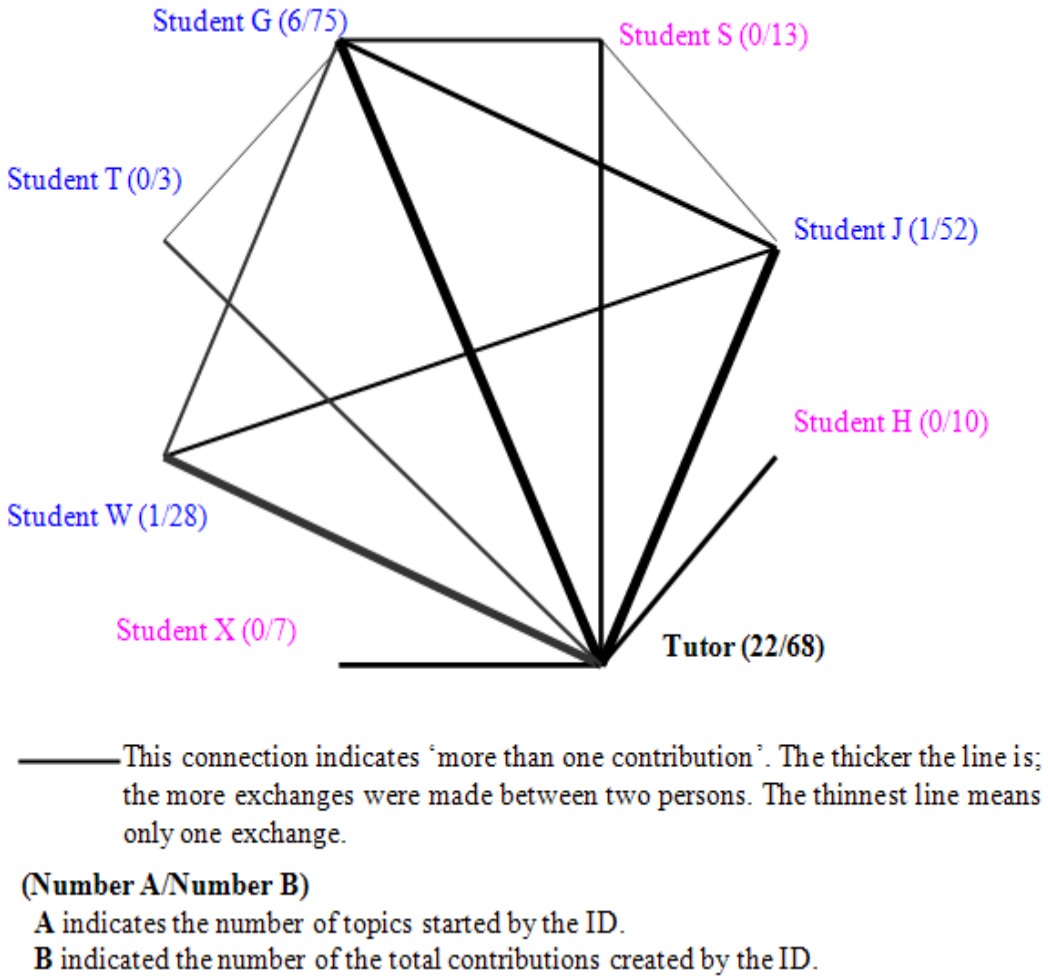
The 22 topics initiated by the teacher fall into four categories:

1. Reminder of school activities (5, 22.7%): The teacher posted temporary plans for the coming lesson, and welcomed students' own ideas, for example, '*I heard from MM that you have done a great job for helping the people who suffered the earthquake in China. Thanks!!!!! I will come and join you tomorrow as well. This means we will not have our session with GroupScribbles tomorrow. But we will still do group work. Tell me what you think to make the activity better.*'
2. Learning tasks (6, 27.3%): The teacher posted a task and welcomed the students to share their answers on the network site, for example, '*Hi, when I saw Jack mentioned 'expiry date' in the class, I got the idea that we can use Chinese advertisement posters to learn Chinese characters. The poster images carry most information and would help you to make a guess about the meaning of the Characters. The posters would also help us understand modern China and culture. Start from the easy thing: guess what the two posters advertised?*'
3. Continue the classroom discussion (5, 22.7%): The teacher supported students' personal queries made in the classroom, for example, '*In the end of the class today, Hannah asked me a very good question: ' Can I speak Mandarin to HongKongnese?' The answer to this should be important to all of you, because it will help you to use Mandarin more widely and properly….*'
4. Expanding students' views (6, 27.3%): The teacher posted useful and relevant

resources, which might broaden students' understanding, for example, '*Recommend a blog written by a BBC journalist who is based in China.*'

The remaining eight topics started by the students reflected the students' personal interests. The students were likely to post topics about their daily life and concerns, such as a discussion about *a hot TV show called 'EUROVISION'* or *their work experience week*. They did not put up any topics related to their classroom learning or text books.

Figure 5.6: Structure of learning network on the public forum



In order to further explore how different members of the group contributed to these topics, Figure 5.6 presents a learning network diagram according to the interactions on the 'forum'. It shows that all the students were bonded with the teacher. The number of replies shows that the tutor is not the one who contributed the most to the discussions and the students contributed to the online discussions at different

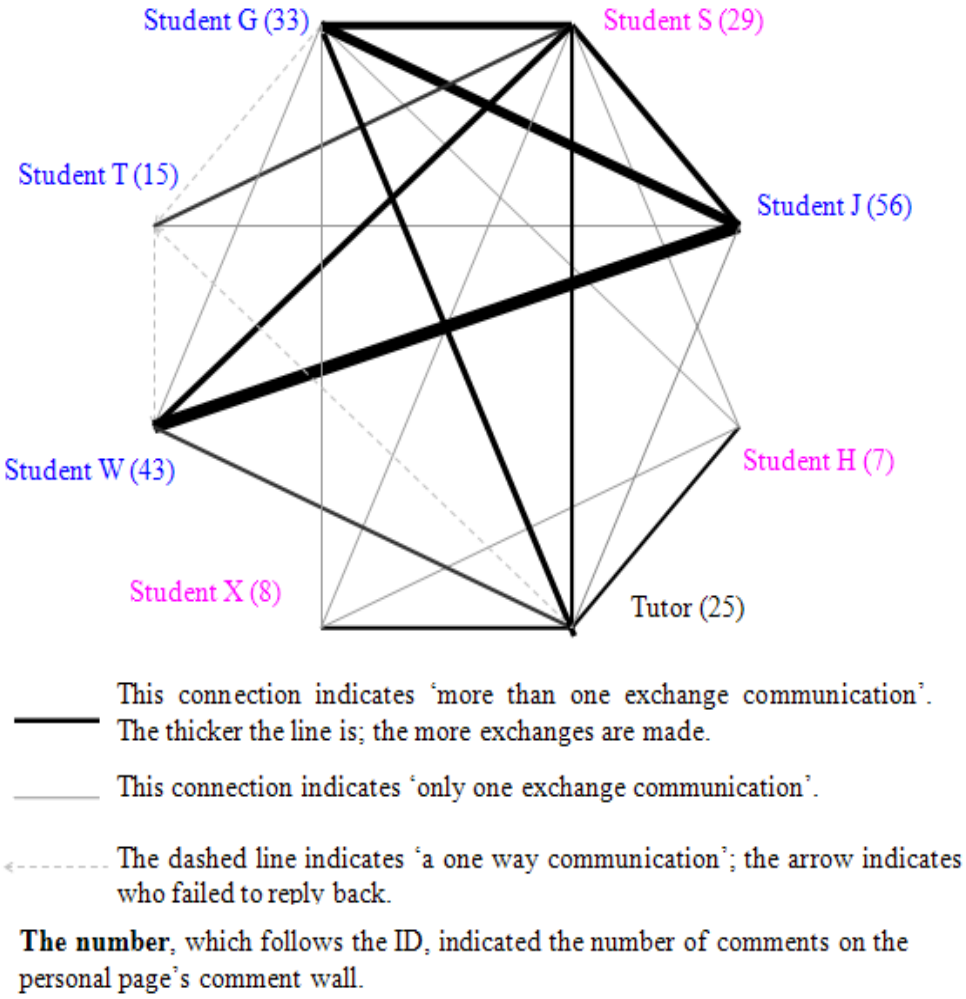
levels. Along with the logging statistics in Section 5.3.2.1, the network built on the public forum may indicate that the students are well engaged with the discussion and the teacher-initiated activities, but the diagram also shows that there was a lack of discussion topics initiated by the students and, to some extent, a lack of interaction between the students. This might due to various reasons. For example, it might suggest that the students lacked confidence to initiate discussion, when the teacher appeared on the forum. Or, they did not want to expose themselves to teasing. This issue is explored in Section 5.3.5 that the teacher and different students are discussed case by case, in terms of their participation trajectory.

5.3.3.2 Social network

The personal comment walls encourage one-to-one conversations, although the conversations are visible to all other members. The contents on the comment wall are normally the owner's instant messages, such as '*hi, if you have msn on your lappy then add me :P'* or even a short message such as '*Yah!*'. There were 208 comments created within 11 weeks. Within the 208 messages, the contents were not all related to Mandarin learning and Chinese culture. There were more socio-emotional exchanges between the students. Although the students did not use the comment wall to pursue their group interests, commenting on each other's personal page helps evolve the contents on the site and make the site an active space.

Figure 5.7 displays the social network diagram that emerged through students' use of their comment walls. It is worth noticing that there was a strong bond built between Student W and Student J. Actually, they were close friends at school and in their exchanges, they kept posting pictures of sea creatures on each other's comment wall. Their interactions may indicate the potential of 'comment wall' to support sub-groups within the community.

Figure 5.7 Structure of social network on the comment walls



Compared to Figure 5.6, the social network is more connected, although there are three users (Student T, Student H and Student X) who appear to be less active in using the comment wall. Additionally, the teacher is no longer the only person who is fully connected to all other members. Student G, Student S and Student J seem to have built a closer bond with each other. How the students and teacher interacted on the comment wall is further explored in Section 5.3.5, that the teacher and different students are discussed case by case, in terms of their participation trajectory.

5.3.4 Featuring online identity

Besides public forum and personal comment walls, how the site features, such as photo album, video and blog, were used are discussed in this section. How the users interact with the tools would influence how they view each other. In a social network,

people feature their social identities not only by interacting with each other through 'forum' and 'comment wall', but also through interacting with the tools such as 'photo album', 'video', 'music' and 'blog'. Table 5.5 summarises how much the different features are used by the students.

Table 5.5: How much the features are used by the seven students

Feature	Number of users	Number of items
Photo	6	18
Video	4	13
Blog	4	12
Music	1	61

Among the 18 pictures, four are about Chinese culture, seven are users' personal pictures with friends and seven pictures just reflect users' personal interest or humour. The 13 videos uploaded are irrelevant to Mandarin learning or Chinese culture, and they are all about the students' personal interests or their favourite pictures or videos The students gave their personal comments on the videos, such as '*the dancing is AMAZING and sooooo much better than the others. "I'm down with the ACDC!" hahahaha*'. All the blog contents are also irrelevant to Mandarin learning, but usually a very short paragraph about their feelings, such as '*Very bored so decided to try teh blog*'. All the 61 music songs are English pop music and uploaded by one user.

Examination of Table 5.5 suggests that these features were not heavily used and almost all the contents were irrelevant to Mandarin learning or Chinese culture. Instead, these features were used to feature the students' online identity and to communicate to others about their personal tastes and feelings. Furthermore, during the focus group discussion, the students recalled that they did recognise each others' online contributions, such as "*Student G is on the Internet all the time. So he is quite active in RawMandarin.*", or *"I saw the funny picture uploaded by you (Student X)."*

In summary, besides the construction of learning network and social network, the users also featured their identities through other tools. Although these individual

identities might be irrelevant to their Mandarin learning and the group interests, it helps the students to make sense of the time and work they spent on the social networking site and to understand the people they met online and in the classroom.

5.3.5 Trajectories of individual participation over time

Section 5.3.3 and 5.3.4 have demonstrated the 'geography' of the site by identifying how the students and the tutor were connected in different networks. However, when describing how the 'geography of the RawMandarin site' took shape over time, the network diagrams in Figure 5.6 and 5.7 seem to be oversimplified. Section 5.3.4 has demonstrated how different features of the RawMandarin site were used by the students to feature their identities. Nonetheless, once logged in the site, the students were embedded in the ecology of social networking features/tools, such as forum, comment wall, or photo album. The students can enjoy the freedom of choosing multiple features to achieve a single purpose. For example, when communicating an idea, they can use a forum, a personal blog and a video all together. Hence, investigating each individual feature separately may not provide a reliable understanding about how the social networking site was used by different individuals.

Therefore, in order to form a picture as complete as possible about how the site's geography was co-constructed by the users' distinct participations across time, Section 5.3.5 discusses five types of users' participation trajectory on the site over time. By doing so, different data sources were considered integrally. The five types of users were identified by reviewing the critical events listed in Figure 5.2 (Number of visits across 12 weeks) and by examining the strong and weak relationships between users shown in Figure 5.6 (Social network diagram) and Figure 5.7 (Learning network diagram). In summary, the eight users are divided into five types of users:

Type I: Student T: active to invisible

Type II: Student G and S: Confident and sociable, self interest driven

Type III: Student J and W: Mandarin discussion driven

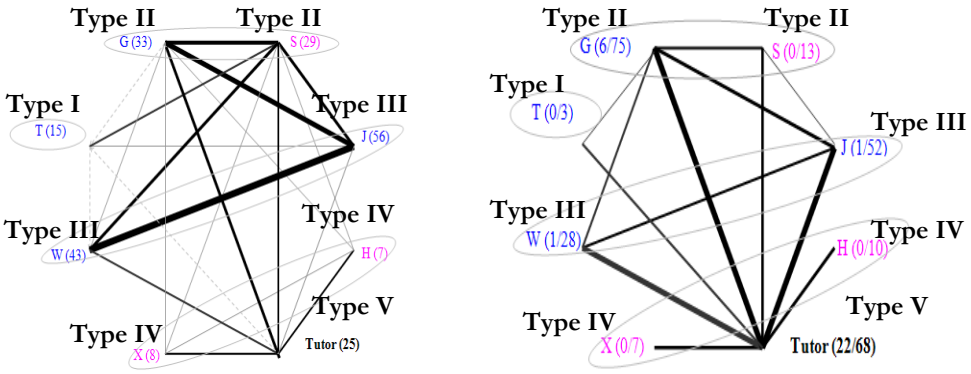
Type IV: Student H and X: Tutor centred

Type V: Teacher

The combined Figure 5.9 compares the structure of network diagrams and shows

how the users are grouped.

Figure 5.8: how the users are grouped within networks



5.3.5.1 Type I: active to invisible

The network diagrams in Figure 5.8 show that Student T barely contributed, although he attended every Mandarin lesson at school. Student T only appeared in the first two weeks after the social networking site was opened. His case appeared to show how a student changed from an active user to an invisible user.

His first a few actions on the site indicate that he might become an active user in a long term. He joined the site, and participated in two discussion topics on the public page in the first day. He teased his friends on his comment wall. And, he is the first person, who uploaded a picture of himself in real life. All of these evidences show that he was comfortable and interested in using the site. Additionally, unlike other users, he revealed his personal interests and identity at an earlier stage. When most of other students used their own names as their nicknames on the site, he used a British poet and playwright's name as his online ID. His profile also indicated that he liked playing with language very much, from Internet slangs to British literature. For example he defined his personal image as 'me getting pwned[18]' and said he liked to 'OVERPRONOUNCE almost EVERYthing!' By contrast, other students hardly introduced anything about themselves in their profiles at that time. His specific profile did not attract much attention from others. In fact, according to the focus group discussion, he commented that he did not know other students very well

[18] Used primarily in the Internet gaming culture to taunt an opponent who has just been soundly defeated e.g., "You just got pwned!" (Peckham, 2007).

before he joined the Mandarin club. In one session, the whole class also talked about who knew whom before and who were in the same class. It turned to be that he did not meet with others a lot outside the Mandarin class. So there was not any close relationship with others shown on the comment wall of his personal page.

But when examining his activities in the learning network and in the social network, he showed his clear preference for the personal comment wall. He only replied to the first three discussion threads on the forum within the first three days after the social networking site was started. He used 'forum' more like a public place to announce that he had joined the site and to greet with others. This may indicate that he was not interested in the Mandarin discussions on the public page. Even in the classroom, when the class addressed the topics emerging from online discussion, he showed a more sit-back attitude to the classroom discussion. But a presence on his personal comment wall lasted for more than 2 weeks. On the comment wall he showed his desire to interact with others**.** And his final trace on the RawMandarin site was what he commented to his own comment wall saying "*Hello Jake, this is jake, how are you jake!!!!! (*_*)Hi everybody* ^_^" After this, he disappeared from the RawMandarin site, and even deleted the picture of himself.

In the focus group discussion, he was further asked why he withdrew his participation in the early stage. He said '*the webpage is clashed several times when I open it, because Student G's music uploading. The whole webpage is like Student J's mp3 player. But I will definitely log in tonight*'. This may indicate the need for the teacher to avoid the over-personalisation of the public space by active users.

Interpretation of this case may contribute to the understanding about how to sustain the participation in three respects.

1. A relationship built up at school encourages more online social interactions.
2. A relationship built at school could support Student T to present his online identity more effectively, which will help the student to continue his/her contribution.

3. Compared with the desire to socially interact with the community, shared and joint interests are the driving powers to sustain the online contribution. The social network activity on the site alone was not enough to sustain Student T's participation, if he was not interested in discussing the learning topics with others.

5.3.5.2 Type II: confident and sociable, self interests driven

Examination of social network diagram in Figure 5.8 suggests that this type of user interacted with everyone of the community. They visited the site regularly and consistently. They were very active in posting messages on the personal pages, but they were not very active in replying to the teachers' discussion topics on the public page.

Student G is a boy who spent most of his time online and accepted what his classmates described him as an Internet addict in the focus group discussion. He was helpful in the classroom and on the RawMandarin Site. According to the tracking data, within the 12 weeks, Student G's personal page was among the top three most visited. The quantity of the comments he got also indicates his popularity online. More notably, Student G was the first student to join the site. He posted the first thread on the forum; the first song on the music list; the first video on the video collection; and was the first student to write a blog post. But his contributions were not centred on Mandarin learning; rather they were driven by his own interests. He did not join the teacher's discussion topics as much as student J and W. But he started his own discussion topics such as '*TRANSLATEATHON !' "to see who can find the coolest sounding or most useless word to use in mandarnin and English*" which seem to be a good example showing what a creative student can achieve. These examples are linked to the purpose of the site and yet were not following a curriculum or a formal direction. Besides this, he also posted discussion topics about his own interests, such as *'EUROVISION' "lol yay its eurovision ! go go go finland again ! Teräsbetoni !*", which turned to be a hot topic that nearly all the students joined the discussion. The comparison between the structures of the two networks points out that there were fewer interactions between students on the public 'Forum' than on the comment walls. However, when they were discussing their favourite *'Asian movie'* or *'Eurovision'*,

most interactions between students on the Forum were taken under student G's discussion topics, rather than the teacher's topics. If different topics as 'joint enterprise' on the forum created different communities of practices, users would have different statuses in different communities of practices. This would also question what practice and expertise mean in a community of practice.

Additionally, as discussed in Chapter 2, 'motivated member' and 'unwilling subject' are two important issues in order to cultivate a community of practice. The students were more active in responding to each other in student G's discussion threads than in the teacher's discussion thread. By contrast, when the teacher occupied the centre of the community expertise, the students were less interactive towards each other. This may question the role of the teacher in a community of practice when the students are pursuing their personal interests in an out-of-school context.

Student G also used his blog as a log of his game playing by putting down short phrases or sentences to describe his WoW[19] playing. For example, '*Gaara got revived :) and deidara diddnt die :)*' and used his favourite Japanese cartoon as his personal page background. His participation on the site was mainly driven by his personal interests. He told me in the focus group discussion that the Mandarin club was the community where he could talk about Asian horror movies. His enthusiasm and his efforts on the site broadened the group's interests to Asian movies and Japanese cartoons, although he hardly participated in the teacher's discussion, which was the preparation for the classroom learning. This shows that informality embedded in community building can make contact with the underlying academic themes such as Asian culture.

Interpretation of Student G's participation contributed to the understanding of how to develop and stimulate the learning community in three ways.

1. Student G's enthusiasm for using every feature of the RawMandarin site, talking to every member of the community, and logging in frequently not

[19] World of Warcraft, often referred to as WoW, is a massively multiplayer online role-playing game (MMORPG) by Blizzard Entertainment.

only helped him to pursue his personal interests, but also helped to seed the Mandarin community online.

2. Personal interests, which were shared with an appropriate group, stimulated the group's participation and improved the lifecycle of the students' community of practice.
3. In the Mandarin community, the teacher was inevitably perceived as an expert of the community by the students, when they tried to move from the periphery to the centre of the community of practice. However, Student T's case shows that the expertise-centred community to some degrees constrained the interaction between the students in the out-of-school context, whereas Student G's exploratory action could broaden the community's joint interest and re-activate the whole community. The re-activation can energise every community member to reflect on their own learning. It is necessary to notice that Student G's exploratory actions were more likely to be cultivated in an informal setting, e.g., the out-of-school social network context than in a formal setting e.g., the classroom context.

5.3.5.3 Type III: Mandarin discussion driven

Student J and Student W are close friends at school. In the focus group discussion, they said that they both were interested in history and politics and participated in a nationwide online forum about those topics together. Unlike student G who revealed his various personal interests, student J showed his strong interests in Mandarin learning and Chinese culture. He also mentioned that he is interested in learning Mandarin, because his uncle lives in Hong Kong. He and Student W were the most active members to contribute to the teacher's discussion topics, especially the topics relating to the Chinese culture and custom. The contributions by student J and W demonstrated how they could explain their own thought processes and learn through conversations by replying to the teacher's blog post and discussion topics. For example, the following narrative represents how they discussed about 'Chinglish[20]'.

[20] Chinglish, at the most fundamental level, is bad English printed or spoken by Chinese people.

Student J: *Excellent, chinglish is amazing. It also shows just how irrational the English language can be, it would probably be easier if we just started using the Chinese method.*

Student W: *Good point, Jack, but that would require the WHOLE English language to be changed, and It's the 3rd most common language in the world, so lots of people won't be happy with that and some people won't be able to learn it, such as foreign students trying to learn it, or some Amerikkkans, Ozzies or Brits.*

Student J: *But that is why it WILL change, as it becomes the global language it will begin to change for convenience. Languages always evolve as a reflection of society as the English language base becomes global it will be changed by and for people who are trying to reconcile it with their native language for convenience.*

The above extract shows that they expanded their discussion from how to pronounce Chinese characters to their attitudes towards language and functions of language. Student J did not interact with other students besides Student W on his comment wall. But he was still a popular member online and in the classroom, because of his active contribution to the Mandarin learning discussion. His participation on the site continued into non-term time, when I stopped teaching them Mandarin. He wrote on my comment wall saying '*Hi Yang! Hope you're ok :) I found that discussion where you posted photos from 70s China really interesting and i wondered what you're views about Chairman Mao and the revolution are?*' This may indicate that he regarded the RawMandarin site and the teacher as a reliable place to talk about his personal interests.

Interpretation of Student J's case highlights how the social networking site with a teacher can benefit vicarious learners. With a strong interest in Chinese culture and Mandarin, they stimulated their conversations in different online spaces by replying to the teacher's forum posts and blog posts. They actively engaged the teacher in their discussions and used the teacher as a reliable resource to provide them with constructive feedbacks for their personal interest exploration. Different from Student G, whose personal interests exploration might touch the underlying academic themes and broaden the community interests, Student J regularly followed the teacher's online activities and spotted the potential issues within the teacher's contributions

that match his own interests. Hence, their personal interest exploration revealed the potential academic themes that should be explored deeper in the classroom and online.

5.3.5.4 Type IV: Tutor centred

Student H was a bright and serious girl in the Mandarin class. She was very responsive to the teacher and made notes carefully. Like Student T, she also did not know other students in the Mandarin class very well. So she normally sat with Student X on the other side of classroom. She joined the RawMandarin Site later than other students. She forgot her password once and rejoined again. She was not an active user on the site. Like in the classroom, she did not regularly chat with other students on the site, except for greeting with others at the beginning. But she did comment on the teacher's wall and apologised when she did not attend the Mandarin lesson. She also did not participate in the teacher's discussion topics very much. But her performance in the classroom indicates that she did pay attention to the topics put forward by the teacher. She was quiet on the social networking site. In the focus group discussion, she reflected that she did not know what to do online. But after I stopped teaching the Mandarin lessons, she added me to her social network on Facebook, and dropped a few friendly messages occasionally.

Interpretation of this student's case addressed how to improve the potential of the social network for learning in two points:

1. The social relationship built at school affected children's interaction on the social networking site. A closer relationship might lead to easier participation and learning conversations.
2. Student H's participation on the RawMandarin site mainly aimed to satisfy the teacher's needs. Her activities on the site were mostly associated to the teacher. She normally left messages on the teacher's comment wall, in order to explaining why she did not attend some lessons. Therefore, it was more necessary for the teacher to support students to find other motives to participate on the social networking site.

5.3.5.5 Teacher: bridging learning in and out of school

As their Mandarin teacher, I intentionally avoided constraining the online activities within the school learning topics. Instead, I tried to capture their learning interests in the classroom and expanded them on the social networking site. For example, in the classroom, Student J asked me a Chinese character that he saw in a Chinese advertisement poster at a local Chinese store. This inspired me to organise a series of Chinese advertisement poster quizzes in the online forum. Another example is that Student T brought a book about Chinglish in the classroom, and the whole class circulated and read it during the break. So I wrote a blog post on how I and my friends as Chinese thought about Chinglish and how I personally experienced the difference between two languages. These two examples also reveal how I mediate the two spaces: public forum and personal blog. The forum was mainly used as a public space where I talked about Mandarin learning topics and provided relevant information. However, the blog was purposefully used as a space where I talked about my personal feelings, attitudes and experiences in language learning as a Mandarin expert. Students' replies in the teacher's blog posts show how they started to reflect on their attitude towards language and experience of language learning. All these emotion- and attitude-sharing and information exchanges on the social networking site have been shown benefiting the classroom learning. For example, before the Chinglish blog post was made, the Chinglish textbook was only circulated by the students. After the online discussion, Student W started to bring in new pieces of Chinglish expressions he found elsewhere and asked the meaning of the Chinese characters involved. Also, some Chinglish expressions were made due to the Chinese-specific grammar structure. The Chinglish expressions put forward by the students served as a good example to understand how to compose Chinese sentences. This indicates that when the community constructed a shared attitude towards a subject, they could identify its value and start to learn from it better in the classroom. This case reveals how the RawMandarin site provides multiple communication channels between a teacher and students, and how the different layers of communication benefit the classroom learning.

5.3.6 Students' reflection

This section summarises the students' reflection on their use of the RawMandarin site. All the students used Facebook or Bebo before they used the RawMandarin site. When coming to how they used them differently, Student G said '*They both peer orientated, but Ning is more Mandarin.*' Student H added '*yeh it is part of social…but because you are there, it is also got a focus*'. This indicates that the teacher's online presence influenced the way children behave on the social networking site. In addition, Student J said '*I think on RawMandarin, you know everyone very much and your discussion can go into detail*'. Therefore, generally, their Mandarin learning played an important role in influencing the way they interact on the site. When they were asked about how they thought their online activities were related to their classroom learning, all of them agreed that '*certainly there is a link between them*' and said '*it help you consolidate your knowledge out of school*'. Student W added that '*I liked our online activities, it is easier to organise and people can put their bit in different times.*' They all agreed that the use of the RawMandarin site gave them a sense of community, like they were *'VIP users'* to learn Mandarin. This indicates that the students recognised a positive link between their classroom learning and their online activities.

5.4 Discussion

This chapter investigates a group of Mandarin learners in a social networking site out of school. Section 5.4.1 – 5.4.3 discuss the findings in response to the three research questions. Section 5.4.4 considers the findings corresponding to the thesis overarching research aim.

5.4.1 Sustainability of the online participation

This section responds to research question (Q1): *Does a social networking site cultivate and sustain a community of interests out of school across time?*

It is found that there is no dramatic decline of the participation and the RawMandarin site sustains the online engagement during term time. Most of the students developed a regular interest in the online activities. Figure 5.9 summarises the features that are identified to stimulate and sustain the online participation. The students' interests in Mandarin learning and Chinese culture stimulated their classroom activities and online activities. Meanwhile, as shown by the logging

statistics, the classroom activities stimulated online participation. The content analysis reveals that the teacher constantly posted discussion topics on the forum, which attracted the students' contribution. The teacher's consistent input supported the students' self-interest exploration, which in turn benefited the classroom learning. In addition, findings in Section 5.3.5 has shown that the social relationships built at school are further developed on the RawMandarin site. When the students were connected at two layers: real and virtual, the multiple features in the virtual environment enabled them to express their identities more visibly to the rest.

On the other hand, one aim for implementing the RawMandarin site is to reduce dropouts in the classroom and to improve classroom inclusion. However, student T and H's cases suggest that the social bond built at school also constrains the learning potential for some students online. Therefore, it was vital that the online social networking should involve the members who are not closely connected to the rest of the community in the classroom, rather than further exclude them.

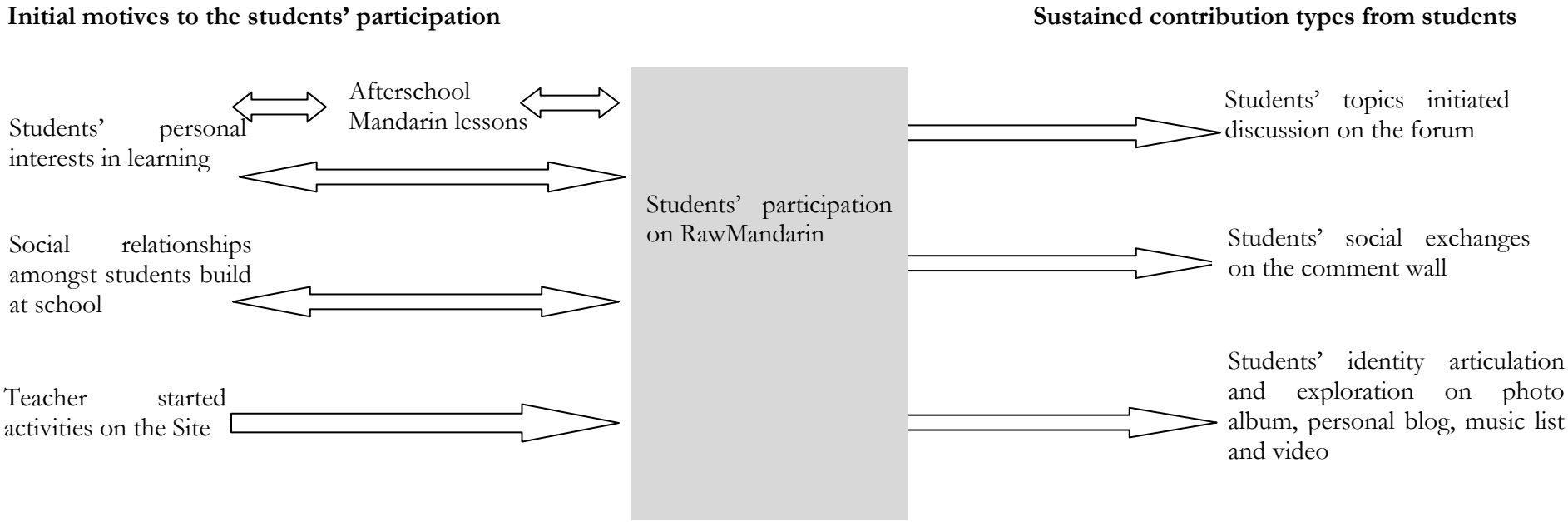
Figure 5.9 further demonstrates the three types of sustained participation. The results in Section 5.3.3 have shown that the students constantly replied to the topic posted by the teacher and put up their own discussion topics as well. Additionally, the results have shown the difference in the participation patterns between the teacher-initiated discussion and the students-initiated discussion. The teacher's topics were assumed to be the community's core interests, whereas the students' topics seem to be spontaneous and inventive, which shifted the boundary of the community's core interests. In consequence, the students' topics encouraged more interactions between students, whereas the teachers' topics lead to more responses towards the teacher. This may indicate that although the teacher's constant inputs sustained the students' participations, the student-initiated discussions can satisfy the students' individual needs and also broaden the joint enterprise of the community.

Additionally the students were more active on the comment walls than on the public forum. For example, although student T and H disappeared from the forum, they still interacted with the group for a period of time on the comment walls. Their social exchanges on the comment wall are not related the community's interest, but rather

are purely social chats to check whether the other members were on the site with them and able to respond to them. This sense of 'togetherness' generated on the comment walls, to some extent, implies that the students were involved in a fresh and active community. McMillan and Chavis (1986, p.9) define community as "*a feeling that members have of belonging, a feeling that members matter to one another and to the group, and a shared faith that members' needs will be met through their commitment to be together*". The feeling of togetherness is an essential feature of a community. The use of the comment wall cultivates the sense of the community. It can be argued that the feeling of togetherness ensured the sustained participation not only in the comment walls, but also in the forum, and so on.

Comparison between the network diagram on the forum and the network diagram on the comment wall reinforces this statement. Hare and Davis (1994) propose a categorisation of interaction within a community as either 'task-driven' or 'socio-emotional-driven' in origin. There were more task-driven interactions on the public forum, partly due to the teacher's inputs. The comment walls though provided a space for the students to make socio-emotional interactions. And the socio-emotional interaction on the RawMandarin site was largely self-generated. On the comment walls, besides the socio-emotional interactions, sharing an interest within a sub group was also significant. The sub-group (e.g., Student J and W) used their comment walls to exchange information that was only meaningful to them. Hence, the interactions on the comment wall not only generate an atmosphere of togetherness for the whole community, but also support the development of sub-groups within the community.

Figure 5.9: Overview of how the community were sustained on the social networking site



Besides the exchanges on the comment wall, the updates on personal blog, photo album, video and music also sustain the 'togetherness' atmosphere online. The contents on these multiple features were far beyond the community's interests. They were casual and informal to reflect what the students were involved in at that moment. So the contents revealed the diversity of the activities that the community members were engaged with at different times. These temporary and impulsive updates about the students not only reinforce the togetherness, but also allow the students to gain more understanding about the people they talked with in the classroom. The diversity of the contents may also broaden the shared interests and offer learning opportunities to the students and teacher. According to Culter (1995, p.326): "*the more one discloses personal information, the more others will reciprocate, and the more individuals know about each other, the more likely they are establish trust, seek support and thus find satisfaction*". Thus spontaneous and inventive disclosure of personal information through these user-created content features on RawMandarin can strengthen the classroom community.

5.4.2 Diversity and inclusion online

This section responds to the research question (Q2): *How do the students construct their identities and sense of community?*

There were seven students in this community. Everyone participated in the RawMandarin site differently. The diversity of participation is explored through case studies. Section 5.3.5 has revealed a variety of the students' purposes of participation and a variety of participation patterns and intensity. It is worth noting that although the teacher's input stimulated the students' participation, the students' individual participation trajectories over time have shown that their focus was not on the teacher's inputs. Student T lost his interest in the site and deleted his disclosure online when he could not identify a sub-group to share his personal interests. Student H intended to build a friendly relationship with the teacher by interacting with her on the comment wall, rather than consistently replying to the teacher's topics. Student G put his efforts in expressing and discussing his own topics and featuring his own identity through all the features. His enthusiasm and comfort in using all the features

activated the whole community online. It acts as a necessary 'seed' to cultivate the whole community out of school.

Student J actively replied to the teacher, in terms of Mandarin learning and Chinese culture. But his replies also revealed that the teacher's topics matched his real concern. Therefore, Student J was more likely to actively guide the teacher to support his personal interest exploration, rather than passively respond to the teacher. All the differences among the students highlight that the RawMandarin site provides a sustainable site where a diversity of contributions and intentions are facilitated and satisfied. It may be further assumed that this diversity could only be cultivated and sustained when the teacher did not dominate and strictly regulate the online space out of school. For the more disengaged students, just the informality alone may help keep them on board. Chapter 4 has shown the difficulty in recruiting and engaging students with classroom-type of online learning out of the school context and it has also shown how difficult it was when a teacher tried to satisfy a group of students' different learning needs simultaneously out of school. Therefore, an online space which supports a diversity of needs and cultivates the feeling of independence and togetherness out of school is more sustainable than an online space, which continued online tuition out of school.

5.4.3 Teacher's role out of school

This section responds to the research question (Q3): *What role does a teacher play to facilitate students' activities?*

'Teacher' is defined as '*a one whose function is to give instruction, esp. in a school*' in Oxford English Dictionary. So it is exploratory to define the role of a teacher in the students' out-of-school life. In this study, the teacher acted more like a member of the online community, although she taught the class at school. There was a transition from a teacher at school to an online community member. The diversity of the students' needs and intentions reveals different types of relationship between the students and teacher. It has been shown that the students interacted with the teacher through multiple communication channels. Also, I intentionally used different communication channels for different purposes. I used the public forum to reflect on the classroom learning, to organise online activities and to facilitate students to pursue their

individual learning; used the personal blog to express my personal feelings, attitudes and experience towards language learning in general; and used the comment wall to catch up with all the students socially. This led to multiple roles I played on the site. In the public forum, I played a role more like an expert of the subject and an organiser and facilitator. In my blogs and photo albums, I was more like a cultural role model, which shows how abstract knowledge the students learnt can be embedded into their daily life context. In the comment wall, I acted as a social member of the group.

Besides the online roles, I also naturally bridged the students' learning in and out of school. The Chinglish discussion reveals that socio-emotional exchanges on the social networking site played an important role in improving the classroom learning. This may further indicate that the teacher should focus on supporting the students as an out-of-school community that functions better in the classroom, rather than continue the school tuition out of school.

5.4.4 A 'learning communities' approach to support education out of school

This section discusses how the findings in this study respond to the thesis overarching aim: *investigate how social software can cultivate children aged 11 – 14 as a community of learners out of school, in order to support their education.*

This chapter has explored how a group of Mandarin learners interacted through an online social networking site out of school, when their school teacher was accessible. Fundamentally, the aim of this study echoes the thesis overarching aim. Besides the literature review on Community of Practice in Chapter 2, a 'learning communities' approach has been introduced in the beginning of the current chapter. In response to the thesis overarching aim, this section discusses the 'learning communities' approach, in terms of supporting children's education through social software out of school. Four characteristics of a learning community (Bielaczyc & Collins, 1999) illustrated in Section 5.1.2 are further discussed below.

1) *Diversity of expertise among its members, who are valued for their contributions and given support to develop*

It is shown that the RawMandarin site sustained the development of an existing community of learners and the diversity of contributions featured the online site an active and attractive space. However, it is unclear to define what the expertise is among the students; while it is safe to say the students expressed a diversity of interests. By doing so, the students may externalise their potential expertise. The externalisation helps the students know who within the community has relevant expertise to address any problem. In contrast, although little evidence has been found that the students approached each other for problem solving, they are engaged with each other through informal and social chats. The atmosphere of togetherness cultivated their confidence in exchanging expertise. On the other hand, the teacher played a supportive role in valuing the interests and in helping the students to identify their own expertise.

2) *A shared objective of continually advancing the collective knowledge and skills*

The sustained participation is an essential pre-requisite for the students continually advancing the collective knowledge and skills. However, in Chapter 2, the notion of learning as participation tends to replace knowledge with knowing. Therefore, in this study, it is unclear about what the collective knowledge is and the relationship between individual knowledge and collective knowledge. However, the process of knowing together is captured in this study. And the sustained participation may indicate that the group share an objective of continually experiencing the process of knowing together.

3) *An emphasis on learning how to learn*

The teacher played as a role model by writing blogs. These blogs give the students an opportunity to reflect how to learn Mandarin and envisage how to use the language as a native speaker. This piece of evidence indicates that the teacher played a role in inspiring the students to think and learn how to learn. Furthermore, the visiting patterns identified in Section 5.3.2.2 indicate the potential of vicarious learning. By observing the dialogues between the teacher and other students, the observer student may not only learn Mandarin, but also learn how to learn Mandarin. Fowler and Mayes (1999) propose that vicarious

learning environment should be designed around recognition of the importance of personal identification with others. This vicarious learning approach takes the notion of a '*learning relationship*' as central, rather than a community of practice (Mayes, Dineen, McKendree & Lee, 2002). Hence, in order to design a learning community the emphasis on learning how to learn may be constrained by the notion of 'Community of Practice'.

4) *Mechanisms for sharing what is learned.*

In the social networking site, what is learnt is presented and discussed at different communal spaces, such as forum, blog, photo and video. Hence, the mechanisms for sharing is embedded and scripted by the design of the social networking site. However, it is worth noting that the technology is implemented to support an existing community of learners. Hence, the mechanisms for sharing are not only dependent on the technology, but also associated with the social structures of the whole system.

Chapter 6

CHINESE CHILDREN'S USE OF A HOMEWORK MESSAGE BOARD

Chapter 6 overview:
This chapter presents an investigation into Chinese children's use of a freely-accessible peer-to-peer forum – out-of-school and in their everyday life. This forum is comparable to the UK homework message boards investigated in Chapter 3. 885 exchanges from Maths forum and 735 exchanges from Chinese forum were collected and analysed. It is found that in order to pursue the learning concerns together, interactions are highly information-oriented, and a large proportion of the information-oriented messages are copy-and-pasted contents on both forums. This kind of information exchange limited the opportunity for children to open up a dialogic space in which children can generate reflection, thought and understanding, guided towards a curriculum topic. It is also suggested that when designing technology for out-of-school learning, their school-based practices should also be considered. The importance to consider children's school-based practices leads to an interview study to compare how UK and Chinese children map their out-of-school activities around their school-based learning in Chapter 7.

6.1 Introduction

The aim of this study is not to further explore the issue of informality and transitions of learning practices in a broader context. A comparison between two cultural groups of children, British and Chinese, is made in this chapter. They are similar in many aspects: similar technology designs; two similar age groups; and the same purpose. Chapter 3 has investigated how UK children naturally used a nation-wide homework message board to discuss two subjects: Maths and English. When the children carried out online discussions on their school subjects, they not only talked about the subject matters but also chatted about how the learning of the subjects shaped their daily lives and at the same time how their daily lives were structured around school learning. Meanwhile, Chapter 5 has described how the atmosphere of 'togetherness' on the RawMandarin site was created through social interactions and identity constructions that may not fully anchor around Mandarin learning. But these activities sustain the development of the learning group out of school and cultivate a learning relationship in the way that students' joint activities in the classroom would

be better conducted. Practices are contextually embedded (Cole, 1996). The previous chapters also have highlighted the importance of the socio-cultural learning context, when the UK children construct the meaning of their learning experience together, for example, who has learnt, how/when/where to learn and how they feel about the learning. Therefore, the UK children's use of social software should be understood as 'cultural' ─ that is─ their actions were incorporated into well established ways of living and schooling. Finding a strong cultural context to the UK example might make the cultural elements more visible. In the current chapter, Chinese children's use of a homework message board was particularly investigated. Biggs (1996) describes Chinese students as 'docile', which means 'teachable' in his original sense. This feature of the Chinese students makes them significantly different from their western counterparts. Chinese children, unlike UK children, experience differently with tasks, knowledge, creativity and teacher in the classroom (Jin & Cortazzi 1998, p.756), and they have different motives to learn (Watkins & Biggs 1996, p.273). The significant difference may make the underlying dynamics of UK children's networked communities visible.

This chapter focuses on a nationwide Chinese homework message board which has been developed by a popular commercial online school in China. Before explaining the design of the Chinese homework message board, Chinese children's out-of-school learning market is reviewed in Section 6.1.1, and the background of the message board is introduced in Section 6.1.2.

6.1.1 Out-of-school learning services in China

In order to understand how a message board is used out of school in China, it is necessary to acknowledge how technology-based out-of-school learning is regarded in China. With three decades of economic boom, China has witnessed a dramatic increase in educational investment from the government. Meanwhile, thanks to the old Chinese tradition, parents in China have invested consistently and persistently in their children's supplementary education, with the aim of supporting their children make the best achievement in school. Parents and children choose out-of-school

learning services to improve weak subjects and to perfect strong subjects. According to a survey report published in April 2009 in the *Liao Shen Evening News*[21], 40% of Year 9 students in Liao Ning province spent more than RMB 1000 per month, 42% of them spent RMB 800-1000 per month and 18% of them spent less than RMB 800 per month on such services. Very few of the students spent less than RMB 500 a month. It is noteworthy that the monthly living allowance to the lowest income households in Liao Ning province is only RMB 380 per person at 2009. The expenditure numbers published in the newspaper covered a child's food, drink, transport, clothes, books etc. in a family. All the parents in the survey reported that tuition fees on the child's supplementary education accounted for the biggest proportion in their family budget. The actual difference between the monthly expense on a child having supplementary education and a child without it is RMB 500 or more. This may demonstrate Chinese parents' determination to invest in their children's education. This may also indicate a prosperous market for Chinese children's out-of-school learning. A number of studies have investigated children's out-of-school learning experiences in China from qualitative perspectives. Those existing studies are more concerned with children's homework accomplishment (e.g., Wei, 1994; Liu, 2004), out-of-school literacy (e.g., Tong, 1989; Chen, 2008) and sports activities (e.g., Shen, 1998; Xiang, 2005). There is currently no literature discussing about the available out-of-school learning services for children in order to understand children's individual experience.

In general, there are two major categories of out-of-school learning services in China. One aims to support children in pursuing their own personal interests that are irrelevant to curriculum or school subjects, such as calligraphy and dancing. The other one is curriculum-based supplementary learning, such as Maths and Physics courses. This chapter concentrates on the latter: children's supplementary education out of school. There are generally three main types of supplementary education services on the market. The most popular one is to join an afterschool learning club which charges RMB 30-50 per person per session. In the club, a qualified teacher

[21] It is a provincial daily newspaper and has a circulation of 826000 daily at that time.

teaches a group of students in a classroom during out-of-school hours. The second is to learn from a personal tutor who may charge about RMB 20-100 per hour. The tutor could be a qualified schoolteacher making extra money afterschool, but typically, a university student would take the role to give one-to-one instructions and help in person. The last but not least is to join an online school for distance education. Its annual tuition fee varies from RMB 300 up to 1000.

Among these three types of out-of-school learning, distance education is the most economical learning service. Internet-based distance education therefore appears to become the most promising low-cost practice satisfying China's fast-growing education demands. In fact, since 2000, the Chinese government has showed its ambition to capitalize on the potential of information technology for educational development and poverty alleviation. The Ministry of Education has claimed that within five to ten years starting from 2001, distance education would be encouraged among primary and middle school students. With the help of ICT, China's fundamental education has moved forward in big steps.

6.1.2 Origin of '网校' (Chinese online school)

Section 6.1.1 has demonstrated China's ever-growing demand for out-of-school learning services and the existing commercial practices serving the demand. This section discusses a distance education service provided to secondary school students in China. The Chinese message board studied in this chapter is part of this service, but it is freely accessible.

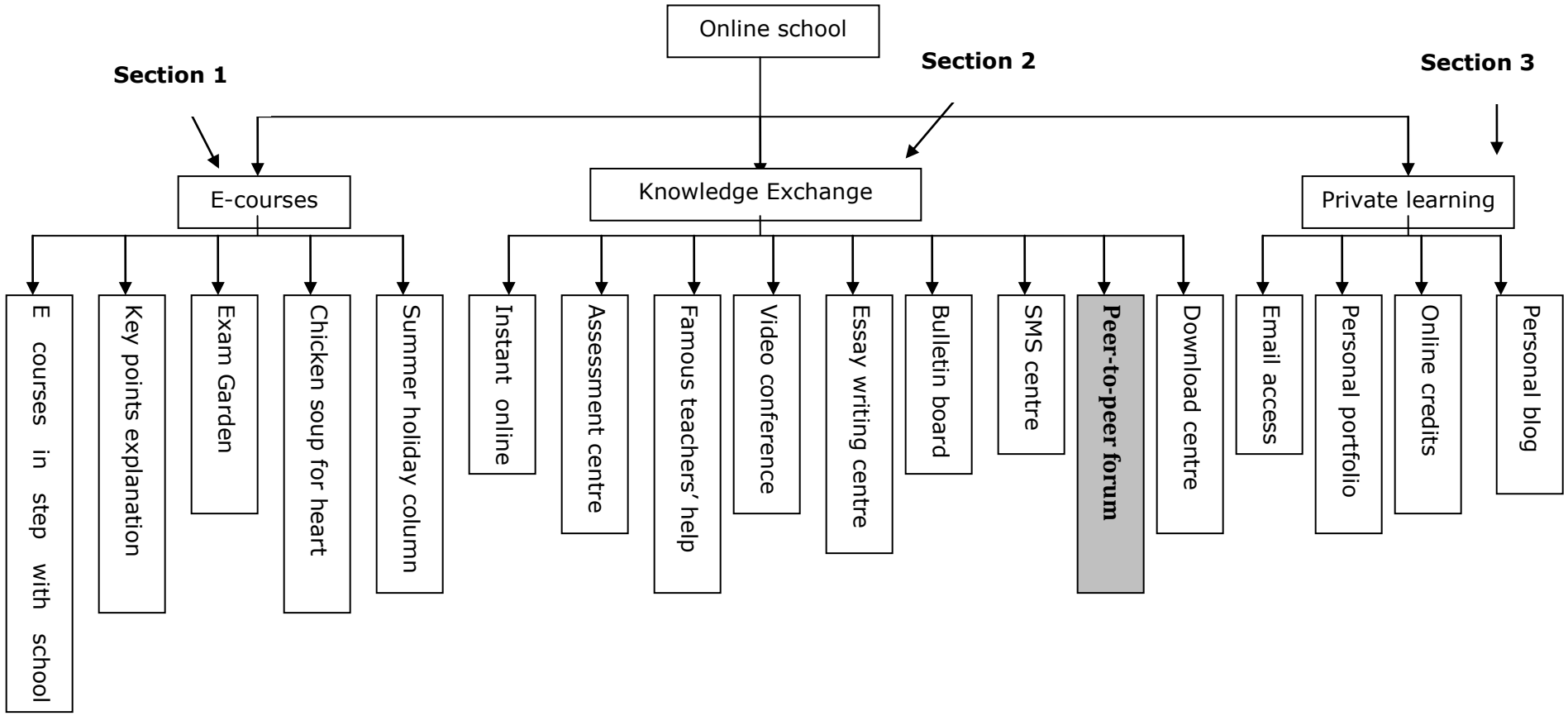
'网校' [Wang Xiao] means 'online school' in most Chinese academic publications. With rapidly changing technologies, Chinese scholars have debated whether 'Wang Xiao' is the right name to express the practice's real meaning. In general, the debate swirls around the Chinese word's two-folded meanings. First, it means the online educational organisation that could eventually replace the real school. The second meaning, which represents the mainstream point of view, is an online organisation that provides Internet-based supplementary education to Primary and Secondary school students. The purpose of this organisation is to support students' school-based learning and exam revision out of school.

In 1996, the first online school was established in Beijing, which mainly provided teaching videos and resources for downloading. In the summer of 2003, more and more children in Beijing registered with online schools and accepted the new model of learning in response to health concerns over outburst of SARS (Severe Acute Respiratory Syndrome) in China. In 2005, most online schools started providing online synchronous and asynchronous communication services between students and teachers, with an emphasis on supporting personal learning through the online communication media. This is the rite of passage in the development of Chinese online schools. In 2007, there were a total of 516 registered online schools targeting at different areas and different age groups. Nearly two hundred online schools targeted at Primary and Secondary school students. From around 70,000 secondary schools, there were more than 600,000 registered online school users. Especially in Beijing, there were more than 30 online schools and nearly 120,000 registered users. Not surprisingly, online school as a commercial out-of-school learning service in China is better accepted in the capital city.

All online schools in China are profit-driven. Most of them are founded under cooperation normally between a well-known secondary school and a private company (Huang[22], 2006). The private company is responsible for governing and managing the online services, while the school is only responsible for providing teaching materials, such as textbooks, work sheets, teaching strategies and most importantly schoolteachers' online interactions with registered users. In general, the private company also looks after financial and technical issues. The online school sells services to local agents who actually advertise the services to schools, recruit the students, provide customer services and collect registration fees. Figure 6.1 shows the infrastructure of services provided by one of the most popular online schools. The first section of the online school is a set of e-courses, which provide curriculum-based online lessons to the users from a teacher. These courses follow the curriculum at every stage that the students are supposed to study for. In this sense, these e-courses are developed at the same and synchronized paces with the school learning.

[22] Huang Xiangwei is the Head Master of the online school studied in this chapter.

Figure 6.1: Infrastructure of a Chinese online school



The second part of the online school is a knowledge exchange session, which provides digital resources and various communication media to the children. This section provides optional pathways for children, so that they may choose relevant information and means to develop their personal learning. The third section is to record students' individual online learning trajectory and provide the children with online spaces such as blogs and email account.

Access to the services is not free of charge, except the peer-to-peer forum. Because it does not involve any teacher, the message board is free for children to access. Children do not need to pay for a user identity from the online school; all they need is to register an identity from the message board to communicate with each other. The organiser of the online school may view the freely accessible message board as an advertisement to attract potential customers. The following section explains the features of the message board in more details.

6.1. 3 Design of the Chinese homework message board

There are some differences between the designs of the Chinese and UK message boards. First, Chinese users can gain or lose rewarding points when participating in the board. Second, the Chinese board allows its users to upload pictures and Microsoft Word documents together with the posted message. Third, the Chinese board automatically updates thread's status to show how much discussion is developed in the thread according to users' feedbacks. These features are described in Section 6.1.3.1—6.1.3.3.

6.1.3.1 Point rewarding scheme

In the message board, user identities are recognised by usernames. Once a new identity is registered, it will be allocated 500 virtual points. Every time the identity logs in, 25 points will be rewarded. With the points, the user can offer a bounty of points for a satisfactory answer to his or her initiated thread. If the thread owner gets a satisfactory reply, he/she needs to mark the reply and gives the bounty points to the contributor. Hence, users gain and distribute points by making and getting satisfactory replies. The offered points cannot exceed 10% of the total points the thread owner has. By limiting the amount of points one question can reward, the

message board allows its user to ask more questions and prevent unnecessary biddings from users who own large amount of points. Table 6.1 and 6.2 respectively show all the rules about the points. Examination of Table 6.1 and 6.2 suggests that the points rewarding system not only encourages children to participate more actively, but also helps the board moderator to monitor and curb children's undesirable behaviours. For example, a user can gain points by making a successful complaint against an undesired behaviour.

Table 6.1 How to earn virtual points in the board

Methods to earn points	Value of points
Register	500 points
Regular log-in	25points/day
Reply	10points/ reply
Vote for the reply	5 points/vote, no more than 50 points/day
Rewarding for post questions	When a questioning process ends, the user who owns the thread with 50 replies get 25 points; 100 points for threads with 200 or more replies
Giving the satisfied reply	If a reply is marked as satisfactory, the users who have voted for it will get 25 points.
Voting for the satisfied reply	If a reply is marked as satisfied, the users who voted for it before will get 25 points.
A complaint to a user or message is accepted	The user who launches the complaint will get 25 points.

Table 6.2: How to lose virtual points in the board

Methods to lose points	Value of points
Set a bounty of points	Lose the value of points

Do not mark the status of the thread within 15 days	Lose 100 points
Withdraw a thread after replies are added	Lose 100 points and all the points to be rewarded for that thread
Tag the question in the wrong category	Lose 50 points
Get a complaint which is accepted by the moderator	Lose50 points

The virtual points helped the message board system to label its username's status. Table 6.3 illustrated how the user status is defined.

Table 6.3: Hierarchical system of user status

Level of status	**Points the user owns**
Newbie	0-2500
Junior Alumnus/alumna	2500-9999
Subject representative	10000-24999
study commissar	25000-99999
Study director	100000-249999
Study president	2500000+

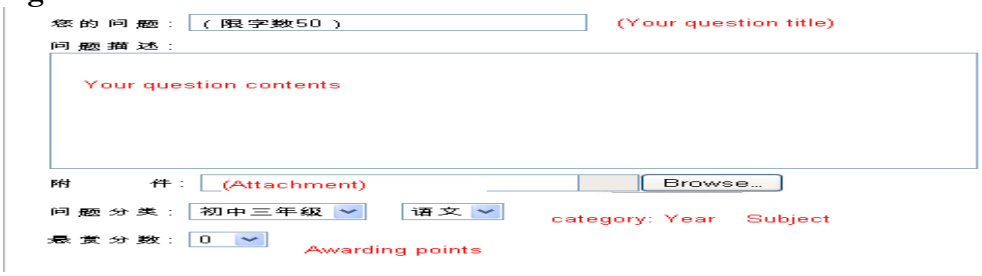
Most of the titles listed in Table 6.3 are also used in real schools, especially such as subject representative and study commissar. In Chinese schools, the subject representative is more like an assistant to the subject teacher. They are responsible for sending messages to the class on behalf of the teacher and collecting homework. The study commissar is a role model of the class in terms of learning. The hierarchical structure of the users' online status indicates to the users that a higher status user may be better at the subject and more willing to help others online. Their

online participation is measured by the virtual points and labelled by their online status.

6.1.3.2 How to interact in the boards

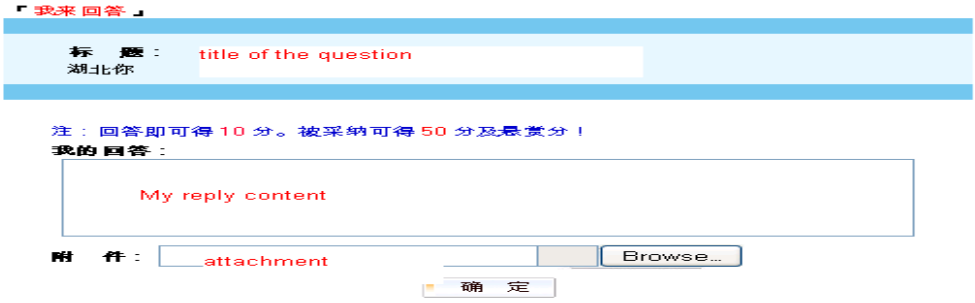
How to start a thread: On the top of the homepage, where all the questions in different academic years and subjects are listed, there is a questioning button. By clicking on the button, the user can open a new page as shown in Figure 6.2

Figure 6.2: how a thread is started



How to answer a question: It is similar to the UK board. But attachment is also allowed in a reply message as shown in Figure 6.3.

Figure 6.3: How a reply message is posted

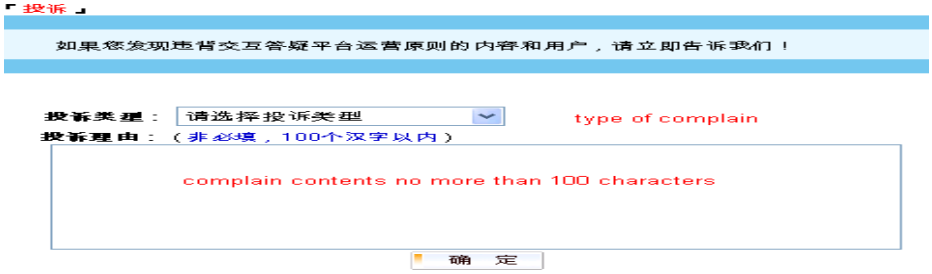


How to complain: There are 12 types of complaints a user can choose to make:

- Irrelevant contents to the board theme
- Irrelevant replies to the question
- Self asking and answering
- Including pornography
- Attacking nation security
- Online-bullying
- Attacking the system by repeatedly posting the same contents

- Copying other people's reply
- The thread owner intentionally marks the wrong answer as satisfactory
- Asking other people to write essay for him/herself
- Wrong categorisation

Figure 6.4: How to complain an unpleasant behaviour in the Chinese board



6.1.3.3 Status of threads

These four types of statuses are defined according to the feedback from the thread owner:

- In solving process: when a thread is posted and no reply is marked as satisfactory in 15 days, it will be marked as 'In solving process' and it welcomes users to reply and vote for replies.
- No satisfactory answer: If no reply is marked as satisfactory within 15 days, the thread owner can mark this thread as 'No satisfactory answer' and no further replies are allowed to be added.
- Expired without settlement: Within 15 days, if the thread owner does not give any feedback to the thread, the thread will be marked as 'Expired and unsolved'.
- Solved with a satisfactory answer: Within 15 days, if a satisfactory answer is marked by the thread owner, the thread will be marked as 'solved with a satisfactory answer', and no further replies are allowed to be added.

Examination of these statuses indicates that whether/how a thread owner updates the thread plays an important role in the development of the discussion. It also indicates that the thread owner's satisfaction takes higher priority over the discussion participants'.

6.1.4 Research questions

According to the research objectives described at the beginning of the introduction, three research questions are proposed in this study.

Q1: *What are the prevailing concerns of the children in this age group, when they confront private study out of school?*

This question has been proposed and answered in Chapter 3. To further explore the answers to this question, it is helpful to understand how the Chinese children talked about their school-related concerns and enquiries when using message board. It is also helpful to identify and understand the emerging online learning culture among the Chinese children.

Q2: *How often do the Chinese children use their homework message board and how did the discussion evolve over time in two different discipline-based boards: Maths and Chinese?*

This question has also been pursued in Chapter 3. Although both the UK and the Chinese board serve the same purpose, they are slightly different in design. By answering this research question, the study drills into the participation patterns and shows how the boards support the evolvement of discussions.

Q3: *What were the contextual factors that actively shaped the children's experience?*

This research question serves the purpose to reveal the underlying organisations. Especially, pursuing the research question may help understand what factors may mediate the development of the out-of-school learning community in the UK message board.

A similar methodology to the one in Chapter 3 is conducted. In the following section, the research method and procedure are described in more detail.

6.2 Methodology

The aim of this part of study was to gather data from the Chinese homework message boards and to make sure the data were comparable to the UK homework message board, Onion Street. It was decided to choose two subject message boards,

'Maths' and 'Chinese', from the Chinese boards as the counterparts of 'Maths' board and 'English' board from the UK boards. Chinese children learn English as a second language. As secondary school students, they concentrated on vocabulary and sentence compositions, rather than writing essays and reading comprehension. Therefore a Chinese subject board, instead of an English subject board was chosen to compare with the UK boards. Specific details of the data are discussed next.

6.2.1 Participants and procedure of data collection

Because data from the UK message boards were collected one month before the UK SAT exams, the data from the Chinese homework message boards were collected one month before Chinese children's finals and senior high school entrance exam. These data were collected on 7, Mar 2008. Therefore to make sure all the collected threads were "completed" (i.e., impossible to get further contributions), one month before the final exams of the summer term at 2007 was chosen as the time point to collect data. There were 735 discussion messages collected from seventy-five threads of Chinese board and 885 discussion messages collected from seventy-five threads of Maths board. Table 6.4 lists the data collected from the Chinese board and the UK board.

Table 6.4: Summary of the collected data

Title	Chinese message board		UK message board	
	Maths	**Chinese**	**Maths**	**English**
Age range	11-15	11-15	11-14	11-14
No. of usernames	341	334	345	416
No. of threads	75	75	175	175
No. of messages	885	735	416	893
Time range	12/11/2006-1/6/2007	18/12/ 2006-1/6/2007	10/9/2005-4/5/2006	17/9/2005-4/5/2006

Section 6.2.2 will explain the sub-categories of the data which are embedded in the raw data sets.

6.2.2 Characteristics of data

This section summarises the data categories of the Chinese board and the UK board in Table 6.5. The sub-categories of data were identified and transferred into Nvivo for analysis.

Table 6.5: Data categories in the Chinese board and the UK board

Data Categories	Chinese board	UK board
Username: it is chosen by the children, when they register to use the boards	√	√
User status: The board system automatically calculates the user's status according to the virtual points he/she owns.	√	X
The exact time a message is posted	√	√
Number of replies: How many replies were contributed to a thread	√	√
Number of reads: How many times the thread has been opened.	√	X
Value of award points: How many points is offered in each thread	√	X
Content of a message	√	√
Message status: If a message is under pre-moderation, it is labelled as a pre-moderation message. If a message breaks the house rules, it is labelled as a hidden message.	X	√
Thread status: The status assigned by the board system according to the feedback from the thread owner:	√	X

6.2.3 Ethical issues

When working with children, it is important to ensure that an ethical stance is taken towards research and the collection of data. Contents of the Chinese message boards of the online school are accessible for the public audience, when they are registered users. However, the message board did not prevent adults from the registration. So I

registered by providing my email address, my home address, and my contact number in China. It is worth noting that the home address and contact number are normally not requested, when people register with a freely accessible discussion board in China. Once I was registered, I can access to the contents of the board. But I did not interact with the children online. Also, all the data collected from the Chinese board is released by the online school after their moderation. Additionally, In the data set, there is no personal information collected. The children were only represented by their usernames without any personal information in the study. Hence, it was decided that no consent needs to be sought from either the online school or the participants.

6.2.4 Data analysis

Section 3.2.5 has justified the adopted content analysis method. In this study, the same method was adopted. This section will explain the procedure. The analysis consists of four phases:

Phase 1: in order to quantitatively analyse the participation pattern, 'Usernames' 'Time& Date' 'Award points' 'Number of reads' and 'Number of replies' were analysed. In order to measure the quantity of contents the users contributed; 'word count' function of Microsoft Word was used to calculate the number of Chinese characters in each message. Statistical analysis of the contents and messages was then carried out.

Phase 2: In order to capture the children's prevailing concerns, the 150 thread initiation messages were analysed in Nvivo. The coding schemes developed in Chapter 3 were implemented. When new themes were identified, a new category was added.

Phase 3: In order to understand how children's concerns were pursued and developed through online discussion across time, the reply messages from both boards were analysed in Nvivo. The coding schemes developed in Chapter 3 were also implemented. When new themes were identified, a new category was added.

Phase 4: In order to verify the reliability of the coding, another PhD student was asked to code 30% of the data according to the code scheme. Based on 30% of all the messages coded by the two researchers, Cohen's Kappa was calculated.

Section 6.2 has described the methodology used in the current study. The next

section will now discuss the findings.

6.3 Results

Because the analysis method in this chapter is similar to the one used in Chapter 3, there are also two sets of results to be presented. The quantitative findings, pertaining to the density of message board contents, the density of the message board participation and the practical functioning of the point-rewarding scheme, will be discussed in Section 6.3.1 to 6.3.3. The qualitative findings about the characteristics of the discussions in the Maths board and the Chinese board will follow in Section 6.3.4 and 6.3.5.

6.3.1 Density of contents

In order to explain how a threaded discussion is developed and sustained, one basic method is to measure the density of the message board contents. The same measure is used in both the British (Section 3.3.1) and the Chinese board. There are two levels of density. The first is to measure how many messages are contributed to developing a discussion thread. This measure reveals how a discussion thread is developed and sustained. The second is to measure how many Chinese characters a message consists of. This measure explores how much effort is made to contribute a message and how much time a user will need to read a message. This section will give descriptive statistics of thread length and message length.

Maths board: the average thread length is 12 messages (SD= 38.83), but there are four extreme cases in the data set. The longest thread in the Maths board has 330 messages discussing about how to use criss-cross method to do factoring, while 83% of the threads in the Maths board have no more than eight messages and nearly 30% of the threads have less than three replies.

The average message length is 235 Chinese characters (SD=807.63). The statistics demonstrate a high variation in the number of Chinese characters per message in the Maths board. A histogram is drawn to display the distribution of message length in both boards in Figure 6.5.

Figure 6.5: Variation of message length in Maths board

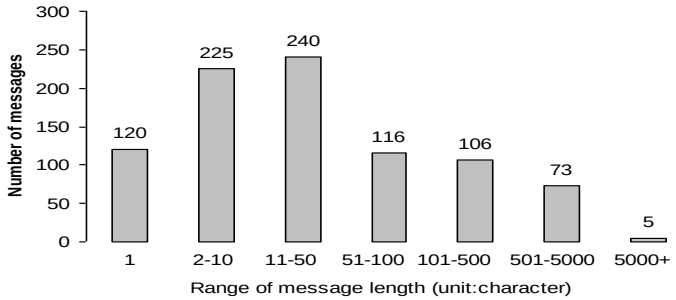
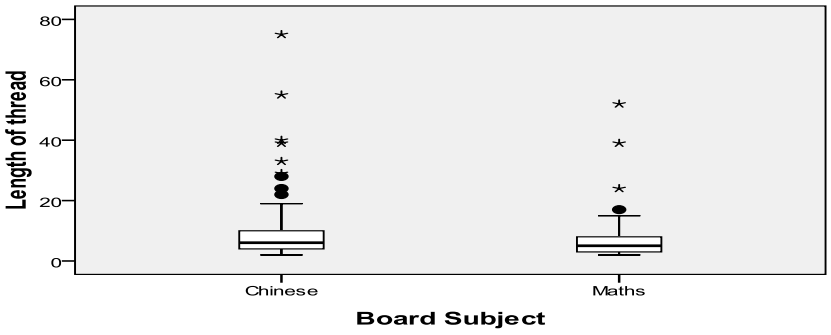


Figure6.5 shows that there are nearly 40% of the messages containing no more than 10 Chinese characters or numbers, but there are also 78 messages containing more than 500 Chinese characters in the Maths board and 5 messages containing more than 5000 Chinese characters. Section 6.3.4 will analyse the message contents in details, especially it will explain how children contributed to the long messages with hundreds of characters and numbers.

Chinese board: the average thread length is about 10 messages (SD= 12.58) and the maximum thread length is 75 messages. 85 per cent of the threads in the Chinese board have no more than 20 messages, and nearly 20% of the threads have less than three replies. This suggests that the variance of thread length in both boards is big. In light of that, a non-parametric analysis was carried out to understand the distribution of the data as shown in Figure 6.6. The extremely long thread mentioned above that has 330 messages was removed from the dataset when Figure 6.5 was generated. Examination of Figure 6.6 suggests that threads in Chinese board are longer than threads in Maths board. Similar difference has been found between the UK English board and the UK Maths board.

Figure 6.6: Variation of the thread length in Chinese board and Maths board



The average message length is 875 Chinese characters (SD=2794.48). A histogram is

also drawn to display the distribution of message length in the Chinese boards in Figure 6.7.

Figure 6.7: Variation of message length in Chinese board

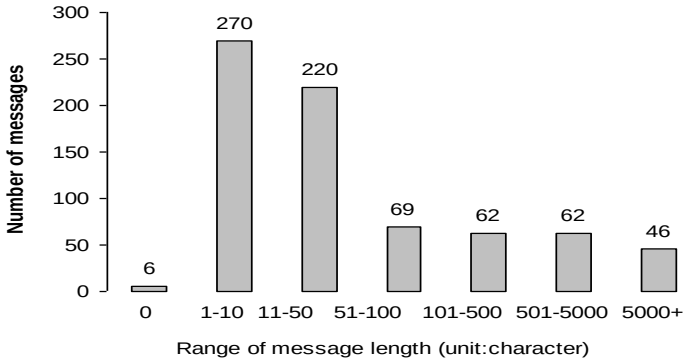


Figure 6.7 shows that there are also nearly 40% of the messages containing no more than 10 Chinese characters in the Chinese board. But there are 108 messages with more than 500 Chinese characters and it is notable that there are 46 messages containing more than 5000 Chinese characters. Section 6.3.5 will analyse the message contents in details, especially it will interpret the contents of these very long messages.

Messages in the Chinese board are significantly longer than the messages in the Maths board. Nevertheless, it does not necessarily indicate that when browsing the two boards, people need to put more effort in the Chinese board. For example, there are 120 messages with only one character in the Maths board. But nearly one third of these one-character messages include a single line of Maths formula responding to the threads' starting messages. And the rest of them are identified as just straightforward as a single-number or a word such as '*28500*' or '*D'* to the threads' initial questions. In this sense, the single character replies can be an abstract answer or statement that may take time for the children to understand and assimilate.

6.3.2 Density of users' participation

Sustained user participation may promise deeper discussion in the message board. Density of participation is used as a measure to evaluate to what extent users' participation is sustained in the message boards. The average number of contributions made by each participating username is 2.6 messages (SD= 1.2) in the Maths board. The average number of contributions made by each participating

username is 2.2 messages (SD= 1.4) in the Chinese board. Generally speaking, the usernames in the Chinese board contribute less than the usernames in the Maths board. But, the difference is not statistically significant (p> .10, two-tailed t test).

6.3.3 How point rewarding scheme influenced the dynamics of the board

The point rewarding scheme is intentionally implemented by the designers to improve both the quantity and the quality of the discussions. Firstly, if the virtual points are meaningful to the owners, the board participants will not spend their points on posting a thread that leads to meaningless replies to them. In other words, the initial thread topics will, to some extent, relate to the participants' real concerns and priorities. Secondly, like the thread owners, the repliers will pay attention to the thread's initial concern and try to give a relevant and valuable answer because otherwise they may just have wasted time in getting no rewarding points. Finally, given the virtual points' value to the owners, there will be more replies to a thread when more points are offered in it. The three hypotheses will only be testable on condition that 'the virtual points are meaningful to its owner' assumption is true. However, this assumption is hard to assess. Therefore, in this section the influence of the point rewarding scheme on the dynamics of the message boards will be illustrated.

A Pearson correlation addressed the relationship between the rewarding virtual points (M =648.33, SD =738.07) and the number of replies (M=12.00, SD =38.83) in the Maths board, and the relationship between the rewarding virtual points (M =139.08, SD =142.29) and the number of replies in the Chinese board (M=10.00, SD=12.58). For an alpha level of .05, the correlation between rewarding points and the number of replies in the Maths board was found to be statistically non-significant, $r(74) = .02$, $p < .15$, while the correlation between rewarding points and the number of replies in the Chinese board was also found to be statistically non-significant, $r(74) = .04$, $p < .38$. This indicates that rewarding point value and the number of replies are not related in both boards. This further indicates that the intensity of participation in the boards is not driven by the value of the virtual points. The implication is that besides the visible rewards such as virtual points, other invisible rewards such as how the user is satisfied by giving help to others should be considered. This will be further discussed in section 6.3.4 and 6.3.5.

Adopting the point rewarding scheme not only reveals the designers' intentions to increase users' participation, but also provides the board users with a tool to label the importance of their threads and their expectation of good replies. The average points offered to a Maths thread is nearly five times of the points offered to a Chinese thread. It may indicate that, a timely and satisfactory reply is more appreciated in the Maths board than in the Chinese board.

6.3.4 Characteristics of discussions in the Chinese Maths board

This section will provide a qualitative analysis of the characteristics of Chinese children's Maths discussion out of school. The same coding scheme (described in Table 3.3) is used. However, different from the UK Maths board, there is no 'social chat' and 'offering help' thread in the Chinese Maths board. Table 6.6 will explain these themes in more detail.

Comparing to the thread topics in the UK Maths board, the proportion of each type showed in table 6.6 turns out to be totally different. The results indicate that discussions in the Chinese Maths board are less diverse. Table 6.7 makes a contrast between the two maths boards.

Table 6.6: First post in the Chinese Maths board

Main theme[23]	Code explanation and Illustrative messages	Proportion to corpus
Questioning	Have a complete maths question written in the message E.g.: *A known point A (-1, -1) is on parabola y= (K-1)X2- 2(K-2)X+1, what is the symmetry of this parabola?*	80.22%
Topic help-seeking	State needs to receive help on a specific maths topic without asking a particular question. E.g.: *Anyone knows the criss-cross method? Be concrete! It would be better to have examples.*	13.19%
General	State needs to get help in maths without clarifying	

[23] Based on all the messages coded by the two researchers, a Cohen's Kappa of 0.98 was established.

help-seeking	any specific maths topic E.g. *How to improve Maths?*	1.33%
Collect Exam paper	Ask for a specific exam paper. E.g.: *Who can put up 2006 Senior highs school entrance Maths exam paper of Hunan province? It would be better to include the standard answer.*	5.26%

Table 6.7: Comparison between UK Maths board and Chinese Maths board

Theme	UK Maths board	Chinese Maths board
General help-seeking	32.9%	1.3%
Topic help-seeking	24.5%	13.2%
Questioning	19.7%	80.2%
Offering help	3.5%	-
Social chat	17.9%	-
Collect exam paper	-	5.3%

Table 6.7 suggests that there are more than 80% threads asking specific maths questions in the Chinese Maths board. However, no more than 20% of the threads are posted in the UK Maths board to ask specific maths questions. It is also worth mentioning that there is no social chat in the Chinese Maths board. In Chapter 3, we have already highlighted the importance of social chat to constructing the atmosphere of togetherness in the UK Maths board, and how the togetherness can potentially encourage the UK children to form a learning community. So far, the social chat indication does not exist in the Chinese dataset. In the following section, the characteristics of exchanges made by the Chinese children in the Maths board will be identified.

Apart from coding the threads, the 810 reply messages were also coded in order to

discover how the children had developed the thread topics. The same categorisation of messages as in the UK Maths board was adopted. However, because there are more than 80% of specific question threads in the Chinese Maths board, it is necessary to examine how these questions were solved. Therefore four categories were generated: a correct answer with a procedural solution, a correct answer without a procedural solution, a wrong answer with a procedural solution and a wrong answer without a procedural solution. All the conflicts and differences between 'wrong' and 'correct'; 'procedural' and 'nonprocedural' could stimulate children to learn. Additionally, 'on-topic message', 'off-topic chat message' and 'copied message' were named as the other three categories. Table 6.8 will explain the categories of replies in more details.

Although the Chinese Maths discussions appear to be less diverse with less discussion types and no social discussion threads, the replies in the discussion threads however demonstrate children's intention to build up social chats. Section 6.3.5.1 – 6.3.5.4 will explain each type of discussion topic and how the topics are discussed in detail.

Table 6.8: Categories of the reply messages in the Chinese Maths board

Category24		**Code explanation and Illustrative messages**
Information -Oriented exchange	On-topic about Maths subject matter	A specific reply to the concrete information need about Maths subject matter E.g.: *No you can't. Set X pieces of 2*2 tiles and Y pieces of 3*3 tiles will be used, According to the known condition, we can get linear system:* *4X+9Y=529 2X+3Y=23 We get X= -230 Y= 161, so you can't*
	On-topic about strategic and instrumental information	A general informative reply relating to ongoing topics and interests. It provides strategic or instrumental information without discussing about a specific Maths subject. E.g.: *There is not enough condition to solve your question.*

[24] Based on 20% sample of all the messages coded by the two researchers, a Cohen's Kappa of 0.96 was established.

Socio-emotional exchange	A reply to socio-emotionally discuss the topic E.g.*: 100 points is not a lot You can't call someone stupid because he can't answer your question. Do you talk to people in this way in real life?*

6.3.4.1 Questioning

When Chinese children ask specific Maths questions in the board, more than half of the specific question threads show their desire to get correct answers instantly. Because the message board highlights the thread status by labelling it as 'solved', 'waiting for a solution' and 'expired without a solution', the users are more likely to set a deadline for replies, e.g., saying *'Urgent!!! It is my homework.'* or *'I need to know the correct answer by 3pm.'* In this type of thread, the thread owner is more likely to return to the thread later on by saying '*I have got the correct answer, thank you.*' or bringing up a correct answer they have got from somewhere else. More than one third of the specific question threads simply include a Maths question without any other information. They do not have contextual information to attract replies; rather they expect replies by offering virtual points.

There are also quite a few threads raising questions in a challenging way to attract replies, such as '*a question which can only be answered if your IQ is higher than 130*.' or '*Come in if you are a master.*' The number of views and replies of this type of thread is not always higher than the average, because most of them are very unlikely to be asked in the entry exams. These questions are normally Maths puzzles or problems from Mathematics Olympiad. One reply to a Maths puzzle question is '*don't you feel you asked this question with frivolity'*. This indicates that some of the children in the board do not think the maths question irrelevant to the exam should be asked. However, there are also replies with correct answers to the Maths puzzle questions. This indicates that there may be a group of children who are intrinsically interested in Maths. Furthermore, when replying to this type of question, the children are keen to make their replies original and clarify the ownership of the correct answer. For example, a

user replied: '*XXX*[25] *fellow who just replied, I must tell you it is a shame to copy other's answer.*' This is not identified in the exam-related question threads. By contrast, in the exam-related question threads, the children are keen to prove that their answer is the correct one by saying *'my teacher just demonstrated the question. My answer is definitely correct*' or '*I spent a night to work it out. So trust me!*' The comparison above indicates that exam as a contextual factor changes the way children discuss Maths as well as their relationships built around the Maths discussion. What's more, it also changes the structure of the knowledge building around the question.

Last but not least, there are two specific question threads which do not urge to get answers but clearly express the owners' intention to make friends by saying '*I am going to graduate from middle school, and will not come here anymore. I just want to give out my points and make friends. Any answer is welcome.*' The number of replies is higher than the average. This may indicate that offering virtual points for friendship together with a correct answer is more attractive to repliers.

Within the 'questioning' category, the threads are further divided into two groups: specific Algebra question and specific Geometry question. The reason for doing so is that it has been identified that text-based communication media limited children's discussion about Geometry questions in the UK board. Separating the two Maths branches will help better understand how diagram uploading was used in the Maths discussions.

Algebra question: More than three fifths of specific questions are algebra questions. Only three algebra question threads (6.52%) uploaded diagrams to explain the questions. On average, one algebra question thread got more than three correct replies of which nearly two correct answers were given together with detailed solution procedures. This indicates that users who posted algebra questions got at least one right answer, but it also shows that within the thread, the repliers did not refer to each other's contribution.

[25] XXX is a username.

Geometry question: Nearly two fifths of the specific questions are Geometry questions. Among those questions, 63% of them uploaded diagrams to demonstrate the questions. Although children did not use diagram very often in Algebra discussions, they favoured using diagram uploading in Geometry discussions. This may show how diagram drawing can be supportive in children's Maths discussions. To answer the geometry question, on average, a geometry question thread got at least three correct answer replies and at least one correct answer reply was given together with a procedural solution. But same as in the Algebra discussions, there is no cross reference to each other's contribution in the replies. Children in the board usually posted their individual answers and waited to see who put the same answers and who did not. The children then waited for the thread owner to show up with his/her final choice.

Almost all replies to the most popular 'questioning' threads were responding to the thread's initial question with an answer or further asking the thread owner for more question details. There is no evidence of shared grounding or logical argument, although there may be a short reply saying '*I agree with the second reply*'. The descriptive statistics show that the number of replies has little correlation with the value of points offered. However, there is evidence showing children's intention to earn the points for instance by saying *'The answer is 120 degree. Give me the points ba'* or *'DDDDDDDDD, it is definitely correct. Our teacher told us before, trust me.'* This may partly explain why deeper discussions did not emerge in the board. When competing for the points, children were eager to be the first person to give the right answer, rather than collaboratively construct the answer. Therefore, perhaps the children did learn from other people's replies when they spotted valuable answers, but this learning process might have been kept to themselves. This learning experience would not be shared and would be invisible from the board.

6.3.4.2 Topic help

Out of the 'topic help' threads, 50% talked about algebra topics, such as 'There are many practical Maths questions about quadratic function. I really don't know where to start with when doing these questions. Anyone knows more concrete method to do this rather than repeatedly practising?' and the rest talked about geometry topics,

such as 'With a line and a circle, what are the possible positions between them?' However, there was no diagram uploaded.

Although there are only ten 'Topic help' threads, 495 messages are posted in the threads. About 194 messages were copied from e-book or other online sources. In these 10 threads, the owners did not further elaborate how they wanted the topics to be discussed. The copy-and-paste style replies may indicate that the children assumed that a good reply should include more sub-topics or aspects of the topic being concerned. And, it would be time-consuming and intellectually challenging for a child to write a complete and comprehensive discussion about a topic. So they chose to copy information from reliable sources. For example, in a discussion about the possible relationship between a circle and a line, among the 6 replies in this thread, 4 were copied over from other sources, respectively containing 347 characters, 875 characters, 912 characters and 3358 characters. The length of the 4 replies and the wording of their contents suggest that the contents were copied over from four different sources. They did discuss the topic at different levels from the definition of a circle to the formula to work out the length of a chord. This may indicate that the children had access to a wide range of reliable sources.

There are also 132 messages genuinely created by the children to discuss the topics. However, when children put down these replies with original answers, the messages were quite simple and short. The average length of the on-topic messages is 12.7 Chinese characters per message. Taking the longest thread about the criss-cross method as an example, there were only 73 messages created by children saying things like '*It is just what to do with factoring'*, compared with 129 copied ones, The comparison between copied and original on-topic messages indicates that children were more competent and confident in valuing online sources and copying them to the message board than creating original answers. On the other hand, the children's easy access to various online sources might have undermined their initiative to create innovative answers.

Additionally, 34.1% of the reply messages in 'topic help' threads were created by children chatting with each other off the topic. A good example is still the long

thread about criss-cross method. It got so many off-topic replies because in the middle of the thread children started a completely different discussion about '*your attitude to Japan*' while the initial question was *'Anyone knows the criss-cross method? Be concrete! It would be better to have examples'*. The early 121 messages of the thread still focused on the topic of 'criss-cross method', but in reply No.122, a child started that '*I would not talk about criss-cross method, since you have discussed everything about it. I will talk about Japan. I will not buy anything from Japan, including comic books. By the way, KFC is Japanese. But I have to admit that Japanese are diligent at learning from others, which is good. Contrary to them, we think learning from others make use lose face. How do you think about Japan?*' After this message, the children completely shifted their focus to discussing about Japan.

6.3.4.3 Collect exam paper

Four threads from the dataset are categorised as "collect exam paper", for example '*Who can put up 2006 senior highs school entrance Maths exam paper of Hunan province? It would be better to include the standard answer.'* Out of the replies to these threads, 25% were exam papers copied-and-pasted from other online sources. 60% of were suggestions about where to find the example paper, such as through a book store, key-word search in Google or Baidu[26], or simply a URL address. In addition, 15% of the replies were social chats to encourage or greet each other. Exchanges of exam papers or information sources did not happen in the UK boards. One obvious reason is that URL or email address would have been deleted from the UK boards by the moderator. The other reason may be that a culture of information sharing was created in the Chinese board, thanks to the pressure of the forthcoming exams and the points rewarding system.

6.3.4.4 General help

Although the UK children posted many threads asking for general help in their Maths board, there was only one thread in the Chinese Maths board identified as 'general help' in which children did not even specify his/her needs. There were 22 replies to this topic. Six of them were copied over from other resources talking about

[26] Baidu is a Chinese online search engine. URL: http://www.baidu.com

how to improve one's math exam scores in long paragraphs with an average of 3123 Chinese characters each. This may indicate that the Chinese children highly valued the information from experts or authorities. Those believe was so strong that the children even given up the opportunity to start a genuine conversation with each other. The rest 16 replies were created by the children, suggesting *'take notes of your mistakes'*, *'more practice'* or *'concentrate during the lessons'*. Similar to the UK children, they discussed Maths learning as a daily practice, although the discussion is much less intensive in the Chinese Maths board.

6.3.5 Characteristics of discussion in the Chinese board

This section will conduct a qualitative analysis of the characteristics of the children's out-of-school discussions about Chinese. The same coding scheme as described in Table 3.5 is used. However, different from the UK English board, there is no 'General help' and 'Reading discussion' thread in the Chinese board. Table 6.9 will explain the themes in the Chinese board in more details.

Table 6.9: First post in the Chinese Chinese board

Main theme[27]		Code explanation and Illustrative message	Proportion to total threads
L	Questioning	A thread discussing about a literature or the author of the literature. E.g. *How was mother depicted in 'Mon Oncle Jules' by Guy de Maupassant?*	58.1%
	Topic help	A thread asking for help about a specific topic or term. E.g. *How to use character '以' in classical Chinese?*	25.4%

[27] Based on all the messages coded by the two researchers, a Cohen's Kappa of 0.89 was established.

E A R N I N G	Collect exam paper	A thread asking for information source for exam papers. E.g. *Who can post 2005 Senior high school entrance exam paper of Jiangsu province?*	9.9%
S O C I A L	Social chat	A thread chatting about exams, such as worries or attitudes. E.g. *There are 6 months left before the exam. I started to feel that Year 9 is toilsome. How is your feeling?*	6.6 %

Compared to the thread topics in the UK English board, the proportions of each category in the Chinese board in table 6.9 are very different. The results indicate that discussions in the Chinese board are less diverse. Table 6.10 makes a comparison between the two language learning boards.

Table 6.10: Comparison between the UK English board and the Chinese board

Theme	UK board	Chinese board
General help	13.3%	-
Topic help	35.7%	25.4%
Questioning	19.4%	58.1%
Offering help	0.6%	-
Reading discussion	6.7%	-
Social chat	23%	6.6%
Collect exam paper	-	9.9%

Table 6.10 suggests that there are more than 50% of the threads asking specific questions. However, there is no 'reading discussion' thread. As discussed in Chapter 3, reading discussion threads gathered the UK children as reading groups who shared

information and reflection. There is also no 'General help' thread in the Chinese board, whereas this type of thread may have generated the atmosphere of togetherness for the UK children out of school. What's more, in order to explore how these threads are developed and sustained, the 660 reply messages were coded according to the coding scheme in Table 6.11. The same categorisation as in the UK English board was adopted. However, among the information-oriented exchanges, there are a significant amount of 'copy-and-paste' messages. Therefore, the whole set of reply messages were further divided into categories of 'children created' and 'children copied'.

Table 6.11: Categories of the reply messages in the Chinese board

Category[28]		**Code explanation and Illustrative message**	**No. of messages**
Information Oriented exchange	Children created	A message with original discussion about a topic E.g.: *A great English playwright.*	355
	Children copied	A message with information copied over from somewhere else E.g.: *A reply copied from Shakespeare's Wikipedia page in long paragraphs.*	172
Socio-emotional exchange		A socio-emotional chat message that is not on any learning topic. E.g.: *I feel very tired everyday. Can't wait anymore for the exams.*	133

The details of different types of threads and their replies will be explained in sections 6.3.5.1- 6.3.5.4.

[28] Based on 20% sample of all the messages coded by the two researchers, a Cohen's Kappa of 0.95 was established.

6.3.5.1 Questioning

More than half of the threads in the Chinese board are asking specific questions. Similar to the Chinese Maths board, they are essentially information-oriented. The thread owners sometimes also emphasised on the quantity of the information they needed, such as *'I need fifteen spring couplets, urgent!'; 'Poems about moon, star and sun, the more, the better.'; 'Who can find all the classical poems and classical Chinese poems on Year 8 textbook? If you can't find the full article, titles are also fine.'* Very often in a Chinese exam, there are always one or two fill-in-the-blank questions asking candidates to fill in missing words or sentences in poems or couplets they have learnt. Therefore, summarising the poems the children have learnt from Year 7 to Year 9 can be a useful method to prepare for this particular type of exam question. For this reason, information collecting and accumulating can be a useful skill to tackle the exam questions. 62.1% of the replies to the 'questioning' threads were copied over from e-book, online encyclopaedia or online learning sources. For example, replying to the thread *'I need fifteen spring couplets, urgent!'* two children posted one hundred-spring couplets in their reply messages. And the contents of their replies were exactly the same. In addition, 29.4% of the replies to the 'questioning' threads were original contributions by the children. For example, when a child replied to the thread '*Poems about moon, star and sun*', he typed in a four-line poem and said *'this is easy.'* In contrast to what is indicated in the Maths board that children were less confident and competent to post original answers to discuss abstract Maths topics, the original contribution replies highlight children's needs for information gathering and to pursue the quantity of relevant information.

Besides, there are also more specific questions asking, for example *'Three features of a novel are ____, _____, and _____.'*, This type of question can only be answered by a person who is very familiar with the exam and the national curriculum, because the thread owner did not provide any article title, making the question completely out of context. Another such example is 'This article was written by_____, who was *born in Chengdu, Sicuan.'* Given that so many writers could be the one, there is no way for others to follow had he or she not been taught the same article at the same stage as the thread owner. This finding strongly indicates a sense of community among the

children who shared the same discourse and experience influenced by the school learning and exams. The child message board extends the Chinese children's learning to the out-of-school context.

6.3.5.2 Topic help

25.4% of the threads in the Chinese board specified a topic to discuss such as '*How to use character '以' in classical Chinese?'* or *'Who knows good websites about current political issues? Put up!'* But similar as in the UK English board, most discussion topics were about writing. Writing is a very important issue when children take their Chinese exams, because essay writing normally accounts for 25%-35% of the total scores in these exams. This may explain why there were many topics discussing about writing. There were two sub-categories of writing discussions, corresponding to two different approaches children took to improve their writing.

Discuss writing ideas: The discussion within this type of threads is biased towards writing topics rather than writing skills. The threads may include detailed thoughts of a topic or an outline of a topic written by a child. The purpose of these threads is to discuss about how to improve the writing. For example, in one thread, a user posted a draft of her writing and said that *'there are many things to write about this topic. I just put up this outline. Do you have any good suggestions?'* Nearly 75% of the replies in this type of thread were original ideas and thoughts about the writing topics. However, there were still 25% of the replies were either copies of sample articles about the topic or writing instructions.

Collecting sample articles: There were a small proportion of the threads that clearly expressed children's needs of *'right and good'* sample articles. Threads in this category were similar to the threads of writing ideas, except that they were looking for sample articles of the writing topic or format, for example *'I hope you can put up three sample articles. If you reply something like 'you should write on your own', I will make a complaint about your reply to the system'*. Threads in this category were relatively short, and the average length of the threads was four messages. And only 30% of the replies provided sample articles. The rest replies were social chat messages talking about things like '*if the thread host was mean to offer 150 points to the difficult task.'*

6.3.5.3 Collect exam papers

Practicing with previous exam papers is regarded as an efficient way to improve their exam achievements by Chinese children. There were nearly ten percent of the threads collecting exam papers, for example *'SOS, I need mock exam papers. Put up as much as you can.'* One third of the replies to this kind of threads were copied exam papers; another one third of the replies included a URL address or a website name; and the rest were social chats which were all included in a single thread. In that social chat thread, some repliers chatted about how lazy the thread host was by asking other people to find the exam paper for him/her.

6.3.5.4 Social chat

There were not many social chat threads in this category. The owner of one such thread was obviously pressed by the coming exams, and he/she said '*There are 6 months left before the exam. I started to feel that Year 9 is toilsome. How is your feeling?'* There were 21 replies in this thread. The children generally reflected on how hard they were working on the preparation by saying *'I used out 1 pen a day' or 'I used out 3 or 4 pens a day'*. Some of them posted positive messages saying that their hard working is *'worthy'* and *'meaningful for their future'*. And, some of them posted negative messages saying that *'exam is very competitive. 5000 people work for 1000 opportunities. Highly pressured life!'* or *'I don't have time to watch TV or go online. Even if I have time, doing that makes me feel guilty. I have nowhere to escape.'*

In the rest social chat threads, the children were either greeting each other or discussing their experience of using this online school and this homework message board. It is interesting to find that children intended to find a 'correct' answer to a social topic. For example, in a thread discussing about advantage and disadvantage of attending an online school, a replier quoted a piece of news written by professional journalist about online school in China as others talked about their own experiences and opinions. This may due to the children's belief that posting a correct and reliable message is a commonly agreed standard.

6.4 Discussion

Continuing from Chapter 3, this section will discuss the characteristics of the potential learning community in the Chinese boards. Through the identification of the Chinese participation patterns, this section therefore will discuss the difference between the Children' needs and concerns out of school. Finally, how their needs and concerns were shaped by the message board regulation will be discussed.

6.4.1 Characteristics of the potential Chinese learning community

Through the content analysis, it is found that there are a large proportion of 'questioning' topics in both Maths and Chinese board. The Chinese children were more likely to post learning topics they were really worried about. There is no evidence to show that they were trying to build social relationship with each other in the message boards. The lack of social topics might be due to the embedded point-rewarding scheme which aimed to generate a more serious learning atmosphere in the online space. It has been shown that the Chinese children got used to the point-rewarding scheme and they asked for points when they contributed to the discussion. Therefore, their relationships in the message board were more constrained by the design of the message board, which means that the children were essentially assigned two roles by the system: point giver and point gainer.

Furthermore, the Chinese children's interactions were highly information-oriented. It has been revealed that their learning concerns mainly focused on the exams they were preparing for. This finding is similar to what was identified in the UK boards, showing how children asked for general help and expressed their feelings towards the exams. However, the exam influences lead to different online behaviours. The UK children tended to share their emotions and get comfort from each other. By contrast, the Chinese children tended to ask practical questions and were unlikely to show their emotions. Although they did not generate the atmosphere of togetherness through socio-emotional exchanges as the UK children did, the notable amount of questions that got answers in discussion threads were encouraging enough for the children to participate. This may indicate that the Chinese children shared a trustworthy relationship.

On the other hand, there are a large number of copy-and-pasted contents in the information-oriented replies. Because it is extremely hard to measure how much an individual user gained by participation, it is impossible to discuss whether children learnt from reading other people's replies. However, findings in the Maths board show that in a 'questioning' thread, a user could read both correct answers and wrong answers and in the Chinese board, in 'topic help' thread, a user had access to a variety of on-topic information from more than one reliable sources. This implies a learning possibility for the board users. It highlights that although there was no visible evidence of knowledge-building through the media, the out-of-school use of message boards still could provide more learning opportunities to the Chinese children.

Psychological studies of children's social networking out of school suggest that they are self-initiated, inventive, and spontaneous online users (Hsi, 2007). Findings in this chapter about how the Chinese children developed discussion threads also suggest so. In Chinese discussion topics in which they were less confident and competent, the children tended to refer to reliable sources without self-interpretation, whereas in topics that they were familiar with, they tended to give very short answers, most of which only included keywords. In Maths discussions asking concrete maths questions, they tended to give their own answer, whereas in discussions about an abstract topic, they tended to refer to reliable sources without explaining their own understanding. This indicates that when communicating with other children out of school, they found balance between what they could easily provide and what other children asked for from them. Therefore, when children voluntarily participate in out-of-school learning discussion, the designers should design the medium according to the children's learning concerns and their capability to pursue their needs collaboratively.

In contrast to the UK children, the Chinese children asked many specific questions instead of asking for general help in the Maths board. In return, they got correct and procedural answers. Consistent with this finding, the statistics of virtual points offered by threads indicate that the Chinese children on average offered many more points to a Maths discussion reply than to an English discussion reply. This finding further indicates that children wanted instant and reliable replies in the Maths board.

6.4.2 Children' needs and the message board mediation

This section will discuss the regulation of the message board in two respects: e-safety for children and scripted collaboration.

Regulation for e-safety: In designing online social networking space for children, e-safety is a prime concern. According to Ofsted (2008) 4 in 10 children in England have experienced cyber-bullying. The three main concerns of children's e-safety are misuse of personal information, exposure to undesirable contents and cyber-bullying (Livingstone, 2005, 2007, and 2008). Nevertheless, given the valuable fun children will have in interacting with people and sharing information online, it is vital to balance the opportunities and risks they will encounter online. In addition, a comparative study of Canadian and Chinese children's experience of cyber-bullying highlights the importance of cultural understanding in designing the regulation of social software to prevent children from online risk, due to the different patterns identified between Canadian and Chinese students' perceptions about adult intervention (Li, 2008).

The study described in this chapter presents the design and use of a message board for children in a different culture from the UK. Examination of the design of the UK and the Chinese message boards reveals two fundamental ways to protect children from unnecessary risks in a message board. The first is to embed moderation rules within the message board, such as the compulsory pre-moderation period in the UK message board. The second is to involve online moderators in regulating users' online behaviours, such as the notices made by the moderator in the UK board and the user complaints dealt by the moderator in the Chinese board. The different strategy for regulating children's online behaviour revealed the cultural impact. In terms of the embedded regulation, the UK board took a tougher approach by hiding all the messages that had not been reviewed by the moderator and by deleting the email address in the message. In terms of the moderator responsibility, the UK moderator took a pre-emptive action in moderating online behaviour and the Chinese boards adopted a more powerful user complaints scheme to support moderation. The fact that a user loses points when a complaint against him or her is accepted and earns points when his or her answer is accepted further indicates that the point-rewarding

scheme is intended to enhance the user complaint scheme. However, findings in this chapter suggest that the Chinese children's interactions were less constrained by the message board for the e-safety reason, whereas pre-moderation in the UK board constrained and delayed the UK children's interactions in the message board.

Regulation for sustaining discussion: The findings about thread length in this chapter show that threads in the Chinese board are in general longer than in the UK board in terms of the number of replies. However, the threads in the UK boards in general were sustained for a longer time. The time interval between two replies in the UK board was on average much longer. As discussed in chapter 4, this long time interval was mainly caused by the pre-moderation, which impeded the development of discussion threads. In addition, the design of the UK board did not have any particular feature looking to sustain its users' discussion. On the other hand, findings in this chapter show that the value of virtual points was not correlated with the thread length. Furthermore, findings about the message contents all indicate that when children competed with each other for the virtual points, they were less likely to build shared grounding and to co-construct knowledge. Therefore, although the point-rewarding scheme was intended to encourage on-topic discussion, it manipulated the development of discussion in a negative way.

Chapter 7

INTERVIEWS WITH CHILDREN

Chapter 7 overview:

In order to contextualise findings in Chapter 3 to 6 and reveal the dynamics of the socio-cultural context, 14 British children aged 14 and 18 Chinese children aged 14 were interviewed to map their out-of-school activities around their in-school experience. A thematic analysis was conducted to pin down the shared emerging themes from the interview data. Both the UK children and the Chinese children experienced different degrees of informality out of school. The informality they experienced was associated with their commitment to education, and consequently influenced the take up of technologies out of school. The UK children valued a broader range of learning experience and its related issues, whereas the Chinese children hold a more constrained view about what types of learning can be supported through computers.

7.1 Introduction

The aim of the study described in this chapter is twofold. Firstly it aims to contextualise the observations which are made in the chapters 3, 4 and 5. Chapters 3, 4 and 5 have painted a more comprehensive and in-depth picture of how children naturally take part in school-related learning with social software outside of school. One of the findings so far is that how teenage children choose online communication media for learning depends on the match children make between the interaction purposes and the attractiveness of the technology. Each previous study has identified specific participation patterns embedded in children's learning practices, which reveal various degrees of attractiveness to use of the technology. But this finding leads to more specific questions: how is the children's use of technology constructed through their daily life experience? How is the use of technology valued by children across different contexts and cultures? Therefore, in order to understand children's experiences, besides direct observation it was also vital to discover how these various kinds of experiences can be mapped onto children's daily lives and their socio-cultural contexts.

Furthermore, the study aims to further explore the tensions and dynamics which have been lightly revealed through the contrast between British and Chinese children's use of homework message boards. It has been found that Chinese children are likely to post learning topics in the message board and nearly 90% of the topics get replies. The high reply rate implies an atmosphere of togetherness and a trustworthy relationship amongst children. Evidence on the large amount of copy-and-paste replies in the Chinese boards also indicates that Chinese children have a more shared judgement of valuable contribution, i.e. reliable and authoritative. However, Chapter 3 showed that no more than 60% of threads in the UK boards get replies. UK children are likely to post socio-emotional messages and the online atmosphere of togetherness is cultivated through their socio-emotional exchanges. A broad spectrum of issues revealed in their messages also indicates that they value their contributions in a variety of ways. The contrast made in Chapter 3 and 6 has identified children's different perspectives to knowledge, information, and school learning, which significantly shape the use of message board out of school. With the assumption that child's experiences are constructed from the coordination of school and out-of-school, this study specifically identifies the cultural dynamics in and out of school.

Children become socialised through participation in their daily routines, which immerse them directly in the values of their community (Goodnow, 1990). In this study, although British children's out-of-school learning is still kept as the principal interest of this thesis, it intends to pursue two different cultural groups of children's voices: British and Chinese. In order to reveal children's perspectives, the interview was adopted as a method. This allows children to reflect on their personal experiences, to give their personal opinions, and to justify their personal decisions. By interviewing two comparable groups of children who differ in culture, further light might be shed on how contextual factors have constructed British children's experiences. These contextual factors would not be visible until the British children are compared with their equivalent Chinese counterparts who behave and view their lives differently. Subsequently, these insights on the children's circumstances may help us see more clearly what is constraining the UK children's better use of the

technology, and explain what the technology design should consider more for its specific context. A social constructionist (Burr, 1995) approach was adopted to understand children's description of their routines. Nonetheless, children are not solely viewed as social actors who are structured and framed by the values and norms of their peer group, school, family, and even broader social contexts. Instead, their descriptions of life are viewed as being something constructed through their self-explorations and the negotiations between themselves and their socio-cultural contexts. However, before the current research is considered further, 14 to 15-year olds' education in the UK and China will be introduced to establish the context more fully.

7.1.1 Children's school education in Britain and in China

At the age of 14, UK children would be in Year 10 at Key Stage 4 and Chinese children would be in Year 9 in a junior high school. Therefore, this section will generally review the school education they will go through as Year 10 students in the UK and as Year 9 students in China.

Class organisation: UK children are involved in a system of setting by 'ability' in many secondary school subject departments. The amount of setting increases throughout Key Stage 3 across all subjects (Kutnick et al, 2005), meaning that they may need to go to different classrooms and meet different classmates when taking lessons in different subjects. Chinese children are organised in a class with a head teacher who normally teaches a subject to the class, meaning that the students stay with their classmates in their own classroom during the whole school day. Many Chinese studies suggest that the students' belonging to the class as an organisation is a key element promoted by the teacher which, in turn, benefits the students' school achievement (e.g., Ge, 1980; Xu, 2007).

Subjects and assessments: UK[29] children in Year 10 study a mix of compulsory and optional subjects. The compulsory subjects are English, Mathematics, Science, ICT

[29] UK National Curriculum: http://curriculum.qcda.gov.uk/key-stages-3-and-4/subjects/index.aspx

(Information Communication Technology), PE (Physical Education) and Citizenship. In addition, they have to take careers education and work-related learning. Schools must also offer religious education, SRE (Sex and Relationship Education) and at least one subject from each of the four 'entitlement' areas: arts subjects, design and technology, humanities and modern foreign languages. They sit national examinations, usually GCSEs. GCSE stands for General Certificate of Secondary Education, and is highly valued by schools, colleges and employers. So it will be useful whatever the pupil is planning to do afterwards. GCSEs are available in more than 40 academic and nine 'applied' subjects. GCSEs are assessed mainly through written exams, although in some subjects there are also elements of coursework.

Chinese Children[30] in Year 9 normally study 12 compulsory subjects without optional subjects. These subjects are Chinese, Mathematics, Physics, Chemistry, Biology, Geography, History, English, Politics, Music, Painting, and PE (Physical Education). They normally sit their provincial senior high school entrance examination, so the number of subject exams depends on the province in which the children are. Normally, all 12 subjects need to be examined, but the sum of eight subject examination results can decide which senior high school the students can go to. The eight subjects are Mathematics, Chinese, English, Physics & Chemistry (in one examination paper), Politics & History (in one examination paper) and PE. Aside from PE, all subjects are assessed completely through written examinations. As opposed to GCSEs, the entrance examination results are not valued by employers, although the examination results are the only evaluation to decide what kind of senior high school the students will attend.

It is the case that the 14-year-olds in the UK have more choices in terms of the subjects they can study; their achievements are more closely associated with their future careers and they take a variety of assessments, i.e. coursework and examinations. In Section 7.2, the methodology of the study will be described, and more details about the research participants will be presented.

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[30] China National Curriculum: http://www.being.org.cn/ncs/

7.2 Methodology

7.2.1 Institutional context

Participants were recruited from a community college in the east midlands of England and a secondary school in the northeast of China. The two schools were selected to match each other, in terms of their catchment areas' backgrounds and the schools' ratings. The school details are given in Table 7.1.

The British school is a local college, including a main school and a 'sixth form' (Key Stage 5), which makes it a bigger school than other typical secondary schools in the suburbs of a town. Most students come from white heritage backgrounds, and less than one-fifth come from a range of other ethnic and cultural backgrounds, mainly Indian and other South Asian countries. The Year 10 students aged 14 were recruited as participants who were facing their Key Stage SATs and GCSEs. These participants were also the same age as the participants in the study on multimedia whiteboards, and the participants in the study on the Mandarin-learning social networking site.

Table 7.1: Showing background information on the participating schools

Title	UK school	Chinese school
School type	Comprehensive	Public
Ways of recruitment	Catchment area	Catchment area
Age range of pupils	14-19	12-15
Number enrolled	1361[31]	1020[32]
Number of classes	N/a	182

31 This number referred from the 2007 Ofsted report.
32 This number referred to the school's online prospectus (2004).
Retrieved at 05/11/2008 from http://www.cnhbj.com/html/2005-4/20054272023051.htm

School rating[33]	Satisfactory	N/a
Free school meals[34]	Lower than the average for England	N/a
Proportion of graduates entering high school	N/a	90.8% which is above the city's average rate of 80.47%[35,36]

The Chinese school was specifically selected to be comparable to the British school. As stated on the school's website,[37] it is located near to a university. The local community including the school service was built to support the people working for the university. The children's parents earn stable incomes and supported them in a normal education that allows them to buy their children textbooks, stationery etc., when required by the school and the children. This could be regarded as similar to the education provided by a British state school. The Chinese school has three year-groups of students: Year 7, Year 8 and Year 9. Year 9 students aged 14 or 15 were targeted as our participants. In Year 9, the children need not only study the curriculum-based courses, but also prepare for the provincial high school exams at the end of the academic year.

33 This evaluation result was obtained from the 2007 Ofsted report in which it was stated that the school was 'grade 3: satisfactory'. There were 5 grades in scale. But there is no data on free school meals.

34 The 2004 Ofsted report only stated that the proportion of students entitled to free school meal is lower than the average for England and has fallen in recent years, and no further reports are available.

35 沈阳市 2004 年国民经济和社会发展统计公报：ShenYang's 2004 statistical report on economy and development.

36 The average figure 80.47% was made upon all the schools governed by the city bureau, including the schools in rural areas. Most schools in rural areas had less graduates entering high school. This may explain why the participating school was more than 10% above the average figure.

37 The school website, school's overview section: Retrieved at 05/11/2008 from http://school.cnceda.com/school_briefing.asp?strSchoolId=210100001003

7.2.2 Participants

In order to recruit the participants, contact was made with the deputy head in both schools. After explaining the purpose and procedure of the study, the deputy heads agreed to participate. The British school arranged for its Year 10 head teacher to coordinate with the interviewer, and the Chinese school arranged for two Year 9 classroom teachers to coordinate with the interviewer. Personal visits were made to meet with the Year 10 head teacher and the Year 9 classroom teachers. They were introduced to the purpose of the study and asked to select the participants randomly. They were also told that there were no specific requirements regarding the children's gender and school performance, but it would be better to have the same number of boys and girls. Teachers also helped to put the participating children into pairs, on the proviso that the children in each pair should know each other well to encourage a relaxed atmosphere.

Fourteen British children were interviewed over two days and eighteen Chinese children were interviewed over three days.

7.2.3 Ethical issues

The consent forms in English and in Chinese are shown in Appendix 4. They were sent separately to the schools' deputy heads. With their agreement, the children were recruited to the study. Criminal Records Bureau (CRB) clearance was obtained for the researcher and made available to the British school.

Before starting the interview, the children were briefed as follows: "Thank you for helping me. I will ask some questions about your daily life. In order to review our conversation, I will audio record our discussion. Are you OK with this?" The interviewer then waited for the children's feedback. All the children agreed with and were comfortable with the audio recording. After the children replied, the interviewer continued, saying that "our talk will be fully confidential, which means only I will listen to it and if I quote your answers, it will be anonymous. Also, if at any time during the interview you want to quit or skip a question, feel free to do so." In practice, no child asked to leave or skip any question. In the end of the interview, the interviewer gave her contact details i.e. name, address and email to the children, and the children were told to contact the interviewer if they needed to.

7.2.4 Procedure

7.2.4.1 Interview with pairs

According to David et al. (2001), children are more comfortable in groups than in a one-to-one interview. Although the interviewer had been in the UK for nearly four years and had teaching experience at a British school, she, having grown up in China, still had more knowledge about Chinese school culture and Chinese children's lives. Therefore, in order to achieve full discussions with both groups and move to detailed discussions about personal opinions, the interviewer chose to talk with the children in pairs rather than in groups. This allowed the interviewer to give full attention to both children, and allowed the children to create more topics of discussion by encouraging each other.

7.2.4.2 The interview room setting

The interviews with the British children all took place in the school's conference room. The interviews with the Chinese children all took place in the school's reading room. These rooms were quiet, and because the children were familiar with these rooms, they also felt comfortable during the interviews. Two children and the interviewer sat around the corner of a table. In this way, children sat close to the interviewer and were able to see the interviewer's voice recorder and materials on the table.

7.2.4.3 The interview schedule

The interviews were semi-structured, and each was designed to take 30-40 minutes. At the beginning of the interview, the children were told about their rights regarding the study and its purpose, which was followed by the interviewer and the children introducing themselves. During the interview, there were four key themes to be investigated: school life, out-of-school life, parental involvement, and technology. These four themes corresponded to the research aim to explore children's expectations of education, their autonomy out of school, and how they viewed technology in their out-of-school lives. Because children's out-of-school lives would be more identifiable if they also talked about their school lives, rather than directly asking children about their out-of-school lives, the interview started with questions

about the children's school lives. After their school lives, the children were asked about their out-of-school life experiences. Then, in order to deepen the children's discussion of their out-of-school lives, they were specifically invited to talk about their parents' role and technology's role in their out-of-school lives. Finally, there was a short free conversation that was intended to let the children reveal their expectations for their education and future.

Because the British children and the Chinese children had different school and family life experiences and different learning experiences, two different schedules of questions were employed. The aims of the questions to British and Chinese children were same. The differences between the questions were necessary in order to ask the right questions in the different contexts. Table 7.2-7.4 show separately the details of the questions in each theme. The semi-structured questions were asked in an informal style. In order to deepen the discussion and come up with interesting avenues for exploration, the children were asked their opinions on each other's answers. All the interview sessions were followed by an opportunity for the children to ask questions or make comments.

Table 7.2: The question schedules about 'school life'

Questions to the British children		Questions to the Chinese children (Translate from Chinese)	
Questions	**Notes/Idea for follow-up questions**	**Questions**	**Notes/idea for follow-up questions**
Could you please generally talk about your daily routine at school?	Warm-up questions, which may reveal students' attitudes to schooling.	How many subjects do you have this year? Do the senior school entrance exams assess all these subjects?	Warm-up questions, which will lead to students' self evaluation on their school achievement
How many subjects do you have this year? How is your school day?	Explore the way students value their school life	Do you think everyone in your class should go to the senior high school and finally go to university?	Bridge the school achievement to their future.
What is your expectation for your GCSE exams? What is your future plan after you finish your GCSE	Explore what they expect for their exams and education	If someone doesn't want to go to the senior high school, what do you think they will do in his/her future?	Question them about their expectations about future

Table 7.3: The question schedule about 'out-of-school life'

Questions to the British children		**Questions to the Chinese children (Translate from Chinese)**	
Questions	**Notes/Idea for follow-up questions**	**Questions**	**Notes/Idea for follow-up questions**
How do you arrange your after-school time?	Explore how they arrange their out-of-school time	Can you tell me your daily routine during the weekdays in and out-of-school?	Explore how they arrange their out-of-school time
Do you need to do homework after school? How long does it normally take to do your homework? Do you set your personal revision plan for the GCSEs?	Explore the role of school-related work in their out-of-school time, e.g., how they do their homework, coursework and revision	Can you always finish your homework on time? Do you think all the homework is helpful for you to improve you final exam results? Do you need to do extra work besides the homework for your exam revision?	Explore the role of their homework in their out-of-school life
When you are doing your homework at home, could you please describe what kind of environment you are in?	Explore the resources used for homework that include people, technology, etc.	When you are doing your homework at home, could you please describe what kind of environment you are in?	Explore the resources used for homework that include people, technology, etc.

Table 7.4: The question schedule about 'parental involvement'

Questions to the British children		Questions to the Chinese children (Translated from Chinese)	
Questions	**Notes/ideas for follow-up questions**	**Questions**	**Notes/ideas for follow-up questions**
Do your parents help you to arrange your time out of school, such as suggesting you go to out-of-school clubs or helping you set up learning plans for your school subjects?	Explore how active the children are in their relationships with their parents in terms of their school lives	Do your parents help you to arrange your time out of school, such as buying extra exercise books, giving you extra study tasks or anything else?	Explore how active the children are in their relationships with their parents in terms of their school lives
How do your parents know about your performance at school?	Explore how the children think about their parents' attitudes towards their school performance	How do your parents know about your performance at school?	Explore how the children think about their parents' attitudes towards their school performance

Table 7.5: The question schedule about 'technology'

Questions to the British children		Questions to the Chinese children (Translated from Chinese)	
Questions	**Notes/ideas for follow-up questions**	**Questions**	**Notes/ideas for follow-up questions**
Do you have a computer at home? How do you use it?	Generally explore their computer access and use.	Do you have a computer at home? How do you use it?	Generally explore their computer access and use.
Do you think computers, mobile phones and the internet are important for you to maintain your daily student life?	Explore the educational value of technology from children's points of view	Do you think computers, mobile phones and the internet are important for you to maintain your daily student life?	Explore the educational value of technology from children's points of view.
Do you use MSN messenger or email? Do you think you can get educational help online?	Explore the educational value of online communication media from children's points of view.	Do you use MSN messenger, QQ or email? Do you think you can get educational help online?	Explore the educational value of online communication media from children's points of view.

7.2.5 Analysis of interviews

The interview data is a 312-minute audio file in Chinese, and a 204-minute audio file in English. This section will explain how the data was dealt with and analysed.

7.2.5.1 Transcribing the data

All the interviews of the two groups of children were conducted by the same interviewer, although different languages were used. Therefore, data was collected in two different languages. When transcribing the interviews in Chinese, the interviewer translated the data into English first and typed the data into Word documents. After that, another Chinese/English speaker helped check the reliability of the transcript through listening to the audio files and reading the transcripts at the same time. Finally, the data was imported into Nvivo for further analysis.

7.2.5.2 Analysis method

In order to capture the children's mapping of their school and out-of-school lives and their personal preferences of technologies, inductive thematic analysis was used to construct new themes. The analysis followed six phases of thematic analysis described by Braun and Clarke (2006) throughout. Description of the 6 phases of analysis is as follows:

Phase 1: Familiarisation with data. When data was transcribed, it had been listened to and read carefully many times. This process allowed the researcher to immerse herself in the data and generate some first thoughts and notes.

Phase 2: Generating initial codes. With Nvivo, the original data was firstly categorised by the initial codes (there were 28 codes generated from the British interview data and 26 codes from the Chinese interview data). These codes appeared as 'nodes' in Nvivo. Some codes from the two different data sets were given the same names.

Phase 3: Searching for themes. Because those initial codes were presented as nodes in Nvivo, the researcher was able to code on the initial codes at 'node' level. New themes were constructed.

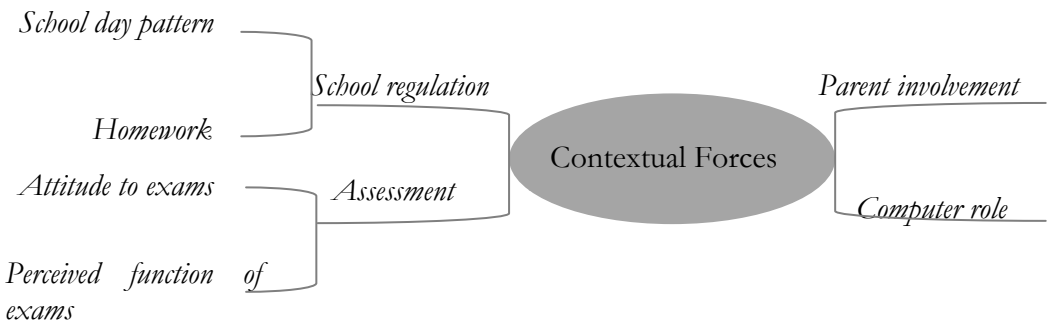
Phase 4: Reviewing the themes. This stage involved going through the whole process of analysis once the first theme was generated. The reliability of the links between the initial codes and the themes were checked. More importantly, the relationships among the themes were examined. In this process, some of the themes were integrated into new themes, and some of the themes were identified as sub-themes. Finally, they were grouped into four themes from the two data sets.

Phases 5 & 6: Defining and naming themes, and writing up. These two phases were interwoven with each other. Because Phases 1 to 4 were purely inductive by intentionally neglecting other theoretical frameworks or views, the themes generated in Phase 4 were highly contextualised in the data. Therefore, it was necessary to refine the specifics of each theme and to generate clear definitions and names for each theme. When writing up the study, it was also necessary to present an overall story.

7.3 Results

This section will present four emerging themes from the two interview data sets: British and Chinese. The four themes were identified as the contextual forces that may help in shaping children' out-of-school learning experiences.

Figure 7.1: The major themes elicited



Four contextual forces emerge through the thematic analysis. These declarations may shed light on the resolution of the contextual forces in the children's views. Although the four themes were treated as discrete, they are interwoven in practice.

7.3.1 School regulations

When children go to school, they understand and conform to their school's regulations, such as the way they should talk to the teacher, the length of their lunch break, and even the side of the corridor on which they should walk. Some regulations make their major impacts within schools, but some impacts are transferred from school to out-of-school settings by the children. In this section, the impact of the school day pattern and homework on children's out-of-school lives will be discussed.

7.3.1.1 School day pattern affecting how children viewed their out-of-school time.

When the children were asked about the routine of their daily lives, they inevitably referred to their school day patterns. The UK children said that their school day started at 8.35am with 'briefing' and 'registration'. After that, they had two 50-minute lessons consecutively and one 20-minute break. After the break, they had another 50-minute lesson in the morning. At 12.35 they had a 40-minute lunch break. After the lunch break, they had two 50-minute lessons with a 10-minute break in the middle. Their school day ended at 14:55. By contrast, as described by the Chinese children, their school started at 7.40 with 'briefing' and homework collection. From 8am to 11.40am they had four 45-minute lessons with two 10-minute breaks and one 20-minute break. From 11.40 to 13:00 they had a 40-minute lunch break and a 40-minute self-learning session. During the self-learning session, their teacher required them to stay in the classroom and study quietly. In the afternoon from 13.00 to 16.30, they had two 45-minute lessons and two 45-minute self-learning sessions. From 16.30 to 17.00, the students had a break during which they usually had some snacks. From 17.00 to 18.50, they had two 50-minute lessons and one 10-minute break. In the two 50-minute lessons the teachers taught the subjects that would be assessed in the senior high school entrance examination, but normally during the two evening lessons, the subject teachers did not teach new content, but reviewed homework sheets and mock examinations papers with students. The Chinese students' school day finished at 18.50.

Obviously, the Chinese children had a longer school day than the British children. Consequently, they had less out-of-school time than the British children.

Normally after the Chinese children got home, at around 19.30, they had at least one hour of homework that needed to be handed in the next morning. To ensure sufficient sleep, after finishing their homework they did not have much time to do other activities. Therefore, compared with the Chinese children, the British children might have more out-of-school activities available to them during the week, but both groups had free weekends and free vacations. During their free time, both the UK children and the Chinese children needed to make their own choices about how to spend their spare time.

During the interviews, the number and types of out-of-school activities mentioned by the two groups were similar to each other. However, the way they talked about these activities revealed that the British children held a more flexible attitude to arranging their comparatively longer out-of-school time, e.g., "*anything that's convenient, but more often than not either call a friend or come on the computer and listen to music and talk to folks." (UK10) However,* the Chinese children regarded their out-of-school time as a limited resource to be used to achieve school-related targets.

"Only two things are fair to everyone in the world. One is time… I saw that my classmates who are at the top of my class seldom go out of the classroom during the break. They fully used their time for study after school. That's why they got better scores." (CN15)

"I think efficiency is more important than time. I can finish my homework [which refers to practical examination papers in the context of this dialogue], but I cannot do it as fast as you." (CN16)

The extract indicates how the child's view to time is shaped by his peers' view of time, when he tends to be highly competitive over school achievement. The way Chinese children manage their time may act as an index allowing them to compare their learning outcomes or intellectual abilities with each other. By this comparison, they are able to evaluate themselves through each other and construct a shared value of time.

"Normally I don''t use a computer at home during the school week, unless I need to search for some sample articles for my writing." (CN3)

"We play basketball together after the exams. It is the freest time we have. Also it is important to maintain a healthy body at our age." (CN7)

However, British children's choice of out-of-school activities may be dependent on their personal interests and their varied feelings towards the activities at different times. Hence, the way they manage time is more of an individual decision:

"I do my homework when my mum asked me, and I stop doing it when I am bored." (UK11)

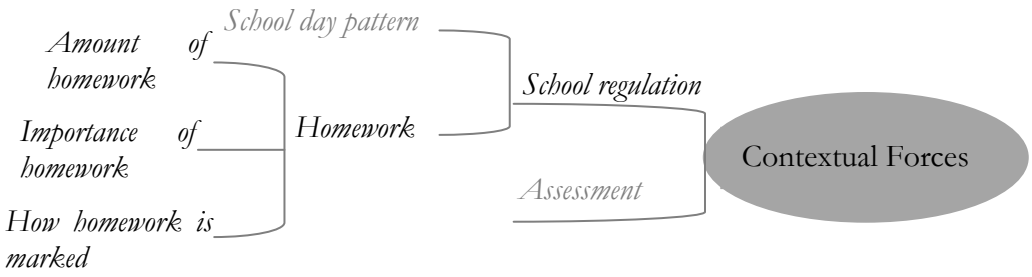
"We form a band, we meet twice a week after school… it is not serious, we are good friends, really good friends, so it is just for having fun." (UK8)

Both the Chinese and British children use their out-of-school time for their own benefit. The British children expressed their awareness of how they felt about the activities and how they chose different activities according to their varying feelings. They also showed fewer concerns about their school requirements than did the Chinese children with regard to their out-of-school time. The Chinese children showed their consideration for taking out-of-school activities to improve their school performance, even after having a longer school day. In addition, they did not express their emotions verbally, although they could be assumed to have feelings about different activities. During the interviews, the way they talked about their leisure activities, such as 'playing computer games'; or 'listening to music' also indicated that they were entertained by these activities.

7.3.1.2 <u>Priority of homework</u> reflecting how children managed their out-of-school activities.

Homework, as the term implies, indicates the tasks assigned to students by their teachers to be completed mostly outside of class, normally at home. It is regarded as a critical part of the learning process, and it undoubtedly affects children's out-of-school lives. In this section, children's views about homework will be discussed in relation to how they manage and experience their out-of-school activities.

Figure 7.2: The contextual factors elicited in homework category



Amount of homework

A number of pieces of research (e.g., Cooper et al, 2006; Sharp et al, 2001) have shown that the amount of homework students do is positively correlated with students' school performance, and the positive correlation is much stronger for secondary school students. In this section, rather than relating children's amount of homework to their school performance, the children's perceptions about the amount of homework they have will be illustrated, together with their freedom to choose other out-of-school activities.

In the UK, the recommended amount of homework for Year 10 to Year 11 students is 1.5 -2.5 hours per day, according to the UK's national homework guidelines in 1998[38]. Researchers and practitioners continue debating the pros and cons of homework[39]. However, interviews with the British children revealed that the amount of homework the British children felt they did or needed to do was much less than the recommended amount. Out of 14 children interviewed, two boys said that they did not do homework. One boy said in his first response that they did not have any homework, and added that he would do his homework if he had any. Two boys said that they had around two hours of homework a week. All seven girls and another two boys reflected that they normally need to do some homework which takes around 30 minutes to two hours per day. Most of the British children reported that the amount of homework they had was *'reasonable'* and they did not have to complete it under time pressure, but they preferred to do their homework at *'the last minute'* or *'when I have to'*.

[38] Homework: Guidelines for Primary and Secondary Schools at URL: http://www.teachernet.gov.uk/_doc/12761/full.pdf
[39] BBC: Schools try abolishing homework at URL: http://news.bbc.co.uk/1/hi/education/4579313.stm

"There is nothing really like to spend hours on that which is good. And sometime, you can stay at your school for an hour and do your homework like that. And you can talk to your teacher."(UK1)

"I did majority of it (homework). I will do it when I am free." (UK12)

On the other hand, for the Chinese children, the amount of homework had been criticised and regulated since 1994.[40] The regulations clearly state that junior high school students (Year 7 – Year 9) need to do no more than one and a half hours of homework per day. However, according to a survey [41] in 2005, which distributed questionnaires to 2500 children from six main cities in China, 77 per cent of junior high school students did not have enough hours of sleep (nine hours), and 46 per cent of them slept less than eight hours a night. Overloaded homework was still the most common reason for this. In response to this information, the city's local Education Bureau set a policy statute[42] requiring that no school should be open before 7.40 to ensure they enjoyed enough sleep.

The interview data revealed that only two Chinese boys reported that they did not do any homework at home. They were the top two students of Year 9. They reported that they had enough time to finish their homework during their self-learning sessions, and *'only girls'* and *'the classmates who dillydally with their time'* cannot finish their homework during the self-learning sessions at school. However, both of them reported that they do extra learning at home, such as *'reading'* and *'doing extra exercise books'*. All the other Chinese children reported that they had at least two hours of homework to do every day, and even more homework over the weekends. Some of them also do some extra learning when they have time. The majority of the Chinese children thought that they had quite a lot of homework to do, and they completed most of it. Their reports about how they did their homework reveal the intensity of homework demand, and the students' commitment to completing it.

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40 原国家教委《关于全面贯彻教育方针解决中小学生过重课业负担的意见

41 2005 年 2 月中国青少年研究中心

42 关于加强中小学常规管理的意见沈教发[2005]73 号 Retrieved at 05/11/2006 from http://www.xczedu.com/xxjyw/news.asp?id=1193

"Once I finished my homework at 1 AM. On that day, I finished school at 7 PM and then I went to an out-of-school maths learning club. It finished at 9.30 PM. I got home at 10 PM, and I still had homework to do. I finally finished my homework at 1 AM." (CN15)

"I cannot go to sleep later than 9 PM. I feel very sleepy by then. So my mum wakes me up at 4.30 in the morning. I write my homework in the morning before I go to school." (CN4)

We therefore find that although the Chinese government suggests that children to do less homework than the British government, in practice the British children reported less homework and a more flexible time schedule for homework. This means that the British children were available to do more alternative out-of-school activities.

How homework was marked

During the interviews, when justifying their attitudes to homework, the children inevitably referred to their school's homework policy and how their homework was marked by their teachers. In this section, children's views about homework and how their homework completion is affected by their teachers' marking of homework will be discussed.

In addition to the recommended allocated time for homework, the UK school provided a much more detailed homework timetable to its teachers and students than the Chinese school. The information about when and how homework should be done was more transparent to British teachers, children and parents. In contrast, the Chinese children's homework schedule was not fixed, and children were less informed about what homework would be assigned beforehand. Compared with the Chinese case, the UK school's homework timetable may not only act as guidance, but also as a piece of written information that can be negotiated between the teacher and the children.

Although homework was assigned by the teacher, the two groups of children showed different attitudes to their homework. The British children expressed their intention to take control of their out-of-school-life, saying things like '*We spent the same time at school as the teacher. They didn't get any homework. Why would we get it?*' (UK9) They tended to personalise their out-of-school lives, rather than devoting it to school. However, with less out-of-school time and a considerable

amount of homework, the Chinese children were left less control of their out-of-school lives.

Importance of homework

In this section, the importance or value of homework in children's eyes will be discussed. The majority of the children, both British and Chinese, reported that they did all or most of it. This might demonstrate that they view homework as an important or necessary task to do outside of school. However, compared with the Chinese children who stay up until midnight or even later to complete their homework, the British children were less occupied by their homework, even though they had more time to do it. Therefore, for the Chinese children, homework was seen as being important to complete and requiring most of their out-of-school time and effort, but for the British children, homework was seen as being less important to complete, and could be negotiated together with other out-of-school activities.

Although the two groups engaged with homework completion, both groups showed that they were uncertain about the value of their homework. When they discussed whether homework could help them achieve better results at school, the British children's typical response was: "*it may do*" or "*it can do*". But when it came to examinations, they typically replied that *"practice makes perfect"* or "*it's helpful to complete the homework for exams.*" However, the Chinese children's typical response was: "*Homework is just the basis. Because everyone completes homework, whether we can achieve better results will depend on how hard we work and on our learning strategies.*" (CN9, CN10) This may reveal that both groups of children believe that doing homework can benefit their examination performance, but the UK children had a less serious attitude regarding the relationship between homework and examinations than the Chinese children. When '*homework is the basis'* amongst the Chinese children, they need to put more personal efforts into improving their examination results in order to be competitive.

Nonetheless, how the British children treated their coursework was significantly different from how they treated their homework. In Britain, as introduced in the previous section, coursework is partially done at school and partially at home, and it will be marked as part of their GCSE results. Therefore, although the British

children seemed reluctant to do homework, they were serious about completing their coursework. When talking about the environment in which they did their homework, some of them said they would do it *'in front of the TV'* or *'wherever really'*. By contrast, when talking about doing important work such as *'coursework'*, *'part of the GCSEs'*; or *'revision for a test that'll count'* they will *'try to concentrate and find somewhere where nobody else is'*, *'go to my own room'* or *'where it is quiet'*.

We find that even though the British children seemed lax in terms of completing their homework, they were serious and active in completing their coursework which they thought mattered. This probably also reflects the fact that beyond reacting to homework regulations, such as how the homework would be marked, the British children were aware of what they wanted to gain from school.

With the identification of the three contextual elements above, it is possible to understand how children's out-of-school lives are shaped. Assigning homework is normally regarded as a method to bring school and home closer together. But how close the children intend these two contexts to be is a personal choice that is influenced by contextual elements, such as how their homework is valued at school and what they expect to achieve at school. The two schools regulated children differently. Once the children accustomed themselves to these regulations, their personal choices of out-of-school activities also revealed their degree of independence and autonomy.

When the children were asked about how they felt about their lives, most of the Chinese children thought that they did not have much freedom to do what they liked. The following extracts come from the interview with the top student in the class. Compared to his classmates, he completed his homework much quicker.

CN6: *"My school life is boring. I want freedom."*

Interviewer: "What kind of freedom do you want?"

CN6: *"To do whatever I like."*

Interviewer: "But you can always choose to do whatever you like, if you can accept the consequences."

The Chinese boy stayed silent for a few seconds and then said: *"I think I will get freedom when I go to university. So I work hard at the moment to ensure I can go to university."*

His access to freedom was linked with his entrance to university. It seemed that '*freedom*' to this Chinese boy was more of an ideology, and less of a constructive idea to change his current life. This may implicitly reveal that the school regulations put the Chinese children in a position with less freedom, and that the children feel that they are obligated to do their work in order to fulfil their future dreams. With a mission accepted and carried in their daily lives, they autonomously choose the 'right' activity to fulfil the mission in and out of school.

Compared with the Chinese children, school in the British children's eyes was more like a place to *'meet with friends*', *'get knowledge'* and *'have fun with people'*. Their out-of-school lives were less influenced by their school. They were not only available for more out-of-school activities in terms of time, but they also felt free and flexible to make their personal choices.

7.3.2 School tests

In the previous section, the value of homework in children's eyes partially revealed the influence of examinations on children's out-of-school lives. In this section, how school tests reinforce children's particular ways of learning outside of school will be further explored.

7.3.2.1 Perceived function of exams affecting children's expectations for education.

The British children were interviewed after they finished part of their GCSE (General Certificate of Secondary Education) examinations, which are the main qualifications taken by 14 – 16-year-olds in the UK. The Chinese children were interviewed when they had just finished their winter term school exams, and stayed at school to prepare for their senior high school entrance exams the following summer. Some of them who would not get high enough scores to enter the senior high school would have to choose a vocational high school or stop their formal education. In the UK, many children and teachers observed that they had a much more examination-orientated educational system since the National Curriculum was introduced in 1988. However, the direct impacts of examinations on children's lives and futures in British culture are far less documented than

those in Chinese culture (Ebel, 1972; Suen and Vu, 2006). Possibly corresponding with this, this section will depict how children's perceptions of examinations affect their understanding of learning.

When talking about their future plans, most of the British children agreed that GCSEs were useful for them to *'get a proper job'* or *'earn money'*. This understanding is similar to how GCSEs are introduced on government websites. However, some children did not feel it was necessary to get a very high score, saying things like '*it would be enough if you passed*'. Some of them who hold clearer future career ambitions, e.g. to become a machinist, physiotherapist, teacher, or architect, expressed their intention to get good GCSE results, but their future career plans were not always associated with an intention to get good GCSE results. A girl who wanted to be a nursery teacher said: *"Yeah…the teacher said things like even to be a hairdresser you need to learn percentages to perm people's hair. But I don't really think GCSEs are that important to me." (UK4).*

We may therefore find that the British children hold a shared understanding of the public examinations, but they did not feel the anxiety to put all their efforts into preparing for them.

The perceived functions of examinations were also shared by all the Chinese children interviewed. They agreed that the examinations would help select which senior high school they could go to. Quite a few of the Chinese children asked the interviewer which senior high school she went to. The better school they could go to, the greater the possibility they would get into a university. All of them reported that they wanted to go to the better schools, e.g., '*You know, X senior high school is the best, but I do not think I can go that one. I ranked around 40th in my year. This level would let me go to Y school*'.[43] When discussing their future career plans, compared to the UK children, most of them did not have a clear career to pursue, and thought it was too early to think about that. Only one boy thought he would be a businessman like his father, but better. However, several children reported that they had a clear education plan, e.g., '*go abroad to study*' or '*go to a good university*'.

43 There are three levels of senior high school available to them: province key school, city key school and normal school. X school and Y school were both province key schools.

Although all of them thought that going to senior high school and university was their only target at the moment, they were unsure whether it was the only way to a brighter future. A Chinese girl said: "*There are several boys in my class who will go to vocational high school. They play computer games very well. They may have their own sky one day.*" (CN 6)

We find that the Chinese children hold a shared understanding of examinations. They related their examination results more to their future educational opportunities, but much less to their personal future careers. With their shared and determined ambitions to attend good schools, they left themselves less time for personal interests.

7.3.2.2 <u>Attitudes to the exams</u> shaping children's ways of learning.

Beyond children's perception of their national examinations, this section will illustrate children's personal attitudes to their school tests and how their learning is affected by them.

When talking about exams, the British children tended to show that they had a relaxed and calm attitude to examinations in their life. In other words, the British children tended to show how they kept cool with regard to examinations:

"It [examination] sounds a bit stressful. I feel it. But I don't really worry about it that much." (UK7)

"I think that you should do your best [in the examinations] and should not think about it at the end of the day." (UK9)

None of the British children stated that they worried about their examinations, although some of them thought that their calmness with regard to the examinations depended on their personality:

"It is good to just do what you can do and don't try to do too much. You know what I mean? Some people get the book in their hands and read it all the time." (UK3)

"I don't get stressed out much really. It quite depends on what kind of person you are." (UK5)

This may reveal that the British children wanted to keep calm when confronting their examinations, and that they did not want their school life to be driven or

affected by the negative side of examinations. However, owing to the different perceived function of examinations in Chinese culture, the Chinese children tended to show their sensitivity to the examinations.

"Our monthly tests are not important, and they won't decide which high school I can go to, but I still care about them." (CN2)

Interviewer: "Why?"

"Because I don't want to lose face in the class, if the test shows I get a lower rank in the class." (CN2)

"I don't want to show that I am not as intelligent as my classmates in the exams, especially the girls." (CN5)

Because the school ranked its students' scores in every monthly test, the Chinese children thought their exam results were not only a personal matter, but also affected how the teacher and their peers viewed them. In addition, their sensitivity to the examinations was also due to their awareness about their importance. Most teachers, parents and students used their monthly test results to predict which senior high school they should apply for. Unlike the British children, the Chinese children thought their sensitivity to the examinations was natural and essential for them to succeed among their peers and to succeed in their future. It also shows that '*keeping cool about the exam*' is not seen to have a positive effect on the Chinese children's learning. E.g. '*Some of my classmates don't care about the exams, because they will go to vocational schools after graduation.*' *(CN6)*

These different attitudes to examinations also led to the children's different views on their examination revision outside of school. The Chinese children agreed that if they revised more they would get better results, but the British children wanted to set limits for the amount of out-of-school time spent on their revision, for example, saying things like *'I just do whatever I can do, but I can't do it all the time.'* However, the Chinese children wanted to put their examination revision ahead of other activities, and the amount of time they spent on revision outside of school was less affected by other out-of-school activities.

7.3.3 Parental involvements as secure back-up or interventions

We have illustrated how the British children and the Chinese children experienced different lives in and out of school. As 14- or 15-year-old early adolescents, the interviewees were likely to be exploring their autonomy, and their relationships with parents and peers were shifting (Noom et al., 1999). However, this theme will specifically highlight children's perception of their parents' different supportive roles to their school-related learning.

In many Western cultures, it is generally believed that dependence on others is as a sign of weakness and as something that should be discouraged. Probably an echo to this, the British children showed an awareness of their independence from their parents. When talking about whether their parents would help their out-of-school learning, such as buying books or helping with their homework, a typical reply was '*I think they would do it, if I asked them'*. Instead of giving details of how their parents got involved in their learning, they tended to illustrate a reliable and respectable bond with their parents, for example:

"My mum and dad would ask when the test is coming up. They just make sure that whether I've been revising; they make sure I carry on." (UK 14); "My mum tried to get me read books. She bought me a revision book, but I didn't read it." (UK3)

To maintain this bond, they also showed their ability to control how much their parents can be involved in their learning. Moreover, probably in order to justify their reliable and respectable bond with their parents, when talking about their parents' response to their examinations, the British children were more likely to describe the secure love and support that they get from their parents no matter what kind of examination results they get, e.g., *"If I don't pass, they [the parents] would still be happy, if I tried." (UK7); "My mum is always happy with what I get." (UK1)*

However, the Chinese children were more likely to talk about the details of how their parents helped their learning, such as how their parents stop watching TV when the children do their homework; how their parents help them to set revision plans, how a boy's grandfather was asked to stop talking by his grandmother when the boy was studying, and so on. For example, *"When I do my homework, my mum just reads a newspaper or books beside me, and she brings me fruit and water when I ask her. It is like she works together with me." (CN2)* The Chinese children

tended to show their appreciation of their parents' efforts in supporting their learning. As a result of this appreciation, they felt that they ought to *'perform well at school'* and '*not disappoint the parents'*.

Therefore, we may find that the British children regarded their parents' involvement as a secure back-up; on the other hand, the Chinese children view their parents as people who share the consequences of their learning failures and successes.

7.3.4 Computer are for entertainment although they can be for learning

This final theme stressed the children's preferred value and use of computer out-of-school. Thirteen out of the 14 British child participants reported that they use computers out-of-school. Although they access various kinds of technologies out-of-school, such as mobile phone, computer, TV, mp3 player and so on, most of them clearly separate their use of technology for entertaining from their use of technology for learning. Their initial response to the question '*how do you use computer out-of-schoo*l' is about their personalised use of computer, e.g., how they use MSN Messenger to connect with friends or how they play computer games, rather than the general ways of using a computer for learning, such as how they write their coursework or search information. To clarify their use of computers, they divided the computer usage into two categories in terms of the purposes of using computers:

"For my leisure point of view, without computer, I would miss them a lot. But for education, probably it is just computer. It wasn't really my thing to. But computer like Bitesize[44] *revision and all sort like that, that helps."*

When the computer is used for different purposes, they hold different attitudes to it. When they talked about using computers for learning, they would like to refer how they use computers at school, e.g., "*We use bitesize with the teacher at school. So I don't really do that at home"*. Very few of them talked about their use of computer for school learning and none of them talked about their informal learning experience with computer. This may indicate that their understanding of the computer's educational benefit is mainly constructed through their use of computer at school. Furthermore, the neglect of informal learning experience

[44] Bizesize: http://www.bbc.co.uk/schools/gcsebitesize/

with computers at home by the UK children may be due to two reasons. Firstly, the children may not recognise the significance of their informal learning experience with computers. Secondly, the children may think that their informal learning experience with the computer is not valuable in their school setting. On the other hand, a broad range of computer use for '*entertaining*' was reported.

To the Chinese children, use of computers at home is normally restricted, unless they can give a good reason to their parents for using computer, *'I can use the computer when I finish my homework.'* and *'I use the computer a lot during the weekend right after the monthly tests.'* Therefore, use of computer was regarded as a distraction and disturbance to the children's learning, especially when Chinese children were preparing for their vital exams. Relating to the previous section about their attitude to exams, we may find that the Chinese children and their parents hold a strict understanding of learning under exam pressure. Therefore, whether the computer is a helpful tool to learning may depend on its role in improving the children's exam results. However, when they had free time, the computer is mainly an entertaining tool for the Chinese children to relax and chill out. Although 2 of the 18 Chinese children reported that they had access to Chinese Online schools during the out-of-school time to improve their learning at school, but most of the children showed their negative attitude to using computer for learning:

"I don't use online learning resources such as multimedia or PowerPoint courseware. I know they are available online. But I think they are useless."

The interviewer: why?

"The teachers taught everything we need. And the courseware is too general."

In the Chinese children's understanding, in terms of exam outcomes, computer support out-of-school learning is not competitive to their learning with textbooks and work sheets out-of-school.

To summarise, we find that both the British children and the Chinese children regard the computer more as an entertaining tool than an educational tool. Both of them know what they want to obtain from the computer as an entertaining tool. But their understanding of how computer can support learning was constrained by their use of computer at school and their school requirements.

7.4 Discussion

This chapter has explored children's out-of-school life in their own eyes. The main contribution of this chapter has been in mapping out some key elements of context that mediate how social software can support UK children's education out of the school context in a broader sense. Findings in this chapter suggest that what the fate of a supportive technology is out of school must be judged with a firm grasp of the learning culture that it is implemented. The elements embedded in the learning culture might be invisible and not considered if the contrast of views between UK children and Chinese children is not made. This section will therefore discuss a synergy of the elicited themes.

7.4.1 Informality of school-related learning out of school

Chapter 3 has revealed how the UK children discuss their school-related concerns and how their specific subject inquires fail to get replies. This indicates that they tend to replicate their school learning out of school. Chapter 5 has addressed how the children naturally and informally build a learning community out of school. Both studies have identified the informality of interactions, which cultivates a learning community. However, the informality will be further discussed through revealing how the children's out-of-school learning is structured.

The findings in Section 7.3 have shown that the UK children had a shorter school day with less compulsory subjects to learn. They are less governed by their homework than the Chinese children. However, their course work needed to be done as an assessment. They highly related their GCSEs to their personal future careers. In turn, the school provides more choices to the children, in terms of their learning at school. Therefore, their commitment to school learning is more associated with their own future, than the Chinese children. On the other hand, the Chinese children's learning was more driven by the exams. Although in their understanding, the exam results strongly influence their education paths, they do not directly relate their school learning to their future careers like the UK children. Moreover, the competitive atmosphere generated by the exam system is reinforced by the school in terms of the school day pattern and homework evaluation. This reinforced competitive atmosphere influences the Chinese children to work as hard as they can. They not only worry about if they can go to the prominent senior high school, but also worry if they will be overtaken by their

classmates in monthly exams. In addition, UK parents are more viewed as a reliable support that is available when they are needed. However, the Chinese parents are more viewed as a collaborator and a moderator that is available all the time. In light of these findings, the thesis believes that the informality of the out-of-school learning revealed in the previous chapters is shaped by both the school and the family. It is negotiated by desires and intentions of children, parents, school and the government.

7.4.2 Informality of learning with computer

Chapter 6 has shown that the children in the Chinese message board valued the subject matter discussion much more than the UK children. By contrast, chapter 3 has shown that British children in the UK message boards engaged with the socio-emotional exchanges much more than Chinese children in the Chinese boards. This indicates that the UK children value a broader range of learning experience and its related issues, when using computer. However, when using the computer for learning, the Chinese children hold a more constrained view about what type of learning can be supported through computers. As discussed in the previous section, the two groups experienced different degrees of informality in their out-of-school learning. This also leads to their different perspectives on the educational benefits of the computer. Therefore, it is worth noting that school plays an important role in shaping children's understanding about what out-of-school practices with computers are valuable to learning. Compared to the Chinese children, the UK children are more prepared for a broader range of experience with computer. But school should act to inspire children to recognise and expand the value of their various experiences with computer.

The concluding chapter will look again at the importance of these findings to cultivating UK children as an out-of-school learning community through informality. It will also consider how these new understandings of contextual forces and the research method can be carried forward into future research in exploring children's activities in a broader context.

Chapter 8

DISCUSSION AND CONCLUSIONS

Chapter 8 overview:

This chapter discusses the findings and look ahead to the future. It first discusses the core contributions arise from this thesis in response to the two sub-research challenges proposed in the end of Chapter 2. Second, it reflects on the methodological issues arise from the thesis, in terms of its strengths and limitations. In the end, this chapter proposes the implications of this thesis.

According to the Becta Web 2.0 survey, KS3 and KS4 learners are having high levels of access to many of the technologies that support Web 2.0 and the Web 2.0 activities are prolific. On the other hand, the survey notes that, with the increasingly diverse forms of Web 2.0 technologies, the range of sites used by children for learning is limited. The gap between children's intensive use of Web 2.0 technologies and limited use of them for learning motivates this doctoral research to harness children's energy and enthusiasm on using social software for out-of-school learning. More particularly, this thesis considers how children perform their school related learning out of school and on balance how their out-of-school activities through social software can benefit their education in school. As stated by Green and Hannon (2007), when bridging formal and informal learning with digital technologies, the grain of what children are doing needs to be well considered. The authors (2007) suggest that when coming to digital media, children have higher skill levels, awareness and self-reflection than they are usually given credit for. Furthermore, by investigating what children are doing, Clark et al (2009) identify a sense of 'digital dissonance', which occurs around KS3 and KS4 learners' experience of Web 2.0 activities in and out of school. Therefore, in order to better acknowledge children's spontaneous use of social software out of school, from children's use of a homework message board to a social networking site, all the learning practices studied in this thesis are genuine and on a voluntary basis.

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8.1 Discussion on the two sub-research challenges

This section explains how the findings in this thesis illuminate the issues with regard to the two sub-research challenges proposed in Chapter 2.

8.1.1 Whether and how does the informality influence the cultivation of children as a community of learners through social software out of school?

The five case studies reported in this thesis find out that the informality of out-of-school learning influenced the cultivation of children as a community of learners through social software out of school in the following three ways:

8.1.1.1 Informality encourages the emotional and social connectedness

Chapter 2 puts forward the approach that children should be cultivated as a community of learners, whose life is in association with each other. Brown and Duguid (2000) advance the view to look at learning as a social act, which binds people together. This thesis further revealed that what binds children together is the social and emotional connectedness between children. This connectedness was developed and sustained, when they exchange feelings and attitudes towards their communal ways of living and learning. Chapter 3 concluded that seeking for help with their school work emerged as a shared concern amongst children in the message board. They spontaneously exchanged feelings and attitudes towards the shared issues. Help seeking and provision are regarded as a social transaction that takes place within an interpersonal relationship. The affective responses evoked by the help seeking intentions might strengthen and enrich the interpersonal relationships and consequently benefits the collective help seeking and provision. Chapter 5 also concluded that the online gathering out of school encouraged children to acknowledge each other's personal expertise and interest, and consecutively developed a sense of trust and togetherness in school. Both investigations show that although learning is a social act, children were driven by their individual interests and value the feedback and help when they are appreciated to their individual interests. What binds them together thus is the social and emotional connectedness developed when they exchange feelings and attitudes towards their communal ways of living and learning.

This conclusion further leads us to think about the ecology, in which such connectedness was cultivated. Crook (2000) points a concern that cognition is privileged over affect in order to understand collaborative learning. He argues that

collaboration has a distinct and important emotional dimension and a particular feature of collaborative settings is that they evoke affective responses. Corresponding to Crook (2000), studies in Chapter 3 and 5 both reveal that how the emotional dimension, instead of private learning agenda, binds children together out of school. Hence this thesis argued that it is the informality which is embedded in the ecology of such learning encourages the development of the connectedness. From the Maths exam revision to the Chinese cultural exploration, different degrees of informality were embedded and captured in the case studies. The study in Chapter 4, which failed to engage children with continued online tuition out of school, indicated that the informality of out-of-school learning should have been more inherited in the online tutoring. By contrast, the study in Chapter 5 showed that the informal gathering on a social networking site provides children with opportunities for self-presentation, identity exploration and emotional bonds around an academic interest and accordingly enables children to be more engaged with formal learning in classroom. More obviously, the comparison between the Chapter 3 and 6 showed that the Chinese children were constrained to focus on copying and pasting reliable information and to avoid social exchanges, when there was a limited informality allowed in the ecology.

8.1.1.2 Informality harmonises the varying forms of participation

Many factors can explain the varying forms of participation, for example a child can simply prefer supporting others who share an interest to expressing individual learning agenda. However, beside the personal preferences, informality of out-of-school learning opens up the freedom for children to experiment with the different ways of participation and harmonise the diversity. This thesis clearly indicated that when orientating towards a full Community of Practice out of school, the varying forms of participation and intentions need to be accommodated and valued. Community of Practice is regarded as an ideal realisation of children's networked learning. Lave and Wenger (1991) put learning into 'situations of co-participation', as they believe learning is no longer seen as an individual cognitive process, but rather takes place in several kinds of social engagements. The co-participation in a Community of Practice is supposed to be organised and systemic. This leads to question how the diversity of participation and intentions out of school can be shaped towards systematic and organised.

Study in Chapter 5 captured the diversity of children's online participation out of school, in terms of degrees of engagement, purposes of participation, and take ups of the technologies. Chapter 5 also concluded that the teacher played multiple roles to accommodate the diversity in the community. And more importantly, the multiple roles emerged, when she interacted with the children via different communication channels. Bielaczyc (2006) argues that the social infrastructure should be supported by the technological infrastructure in computer supported learning community. Corresponding to Bielaszyc, Chapter 5 showed how the technological infrastructure of a social networking site enabled the teacher to play multiple roles in response to the varying forms of participation. The study in Chapter 4 also warned the danger of discouraging participation, when the teacher tended to conduct more formal online tutoring.

By contrast, the Chinese homework message board put efforts in structuring children's participation to be systematic and organised by reinforcing a universal standard of participation (i.e. the point awarding scheme). It was found that the Chinese children tended to have less diverse participation which is significantly lack of personal reflection and creation. The comparison of the messages between the British children and the Chinese children clearly indicated the value of diversity in a community. Lippoton, Hakkarainen, and Paavola (2004) argue that knowledge creation goes further than participation with capacity of reflection and creation. Such community may move beyond its current understandings of the domain and become creative, engaging in the renegotiating of the knowledge in their domain (Wenger, 1998). In chapter 5, it was found that the diversity of participation lead to the group to touch underlying academic themes and extend the boundaries of their group interests. This thesis thus argued that the diversity of participation is essential to achieve a full community of practice, and the informality plays a supportive role in harmonising the diversity.

8.1.1.3 Informality transforms the role of the teacher and online tutoring

Findings in Chapter 3 indicated that in order to move towards a community of practice out of school, online presence of a teacher might be helpful. Chapter 4 and Chapter 5 explored how a teacher was involved into children's out-of-school learning in two different subjects: Maths and Mandarin. These two different subjects indicate different degrees of informality embedded in learning. The

previous section (8.1.1.2) discusses how the diversity of participation required a teacher to response differently. This section thus focuses on understanding how informality transforms the role of the teacher and online tutoring.

Generally, there is an understanding that teaching online is different from teaching face-to-face (Goodyear, 2002). Additionally, in a community of practice, the way we experience learning and teaching is transformed (Lave & Wenger, 1991). The teacher is no longer in full control and learners are actively taking responsibility and starting to regulate their own learning (Laat et al., 2007; Anderson, Rourke, Garrison & Archer, 2001). Children are characterised as self-initiated, inventive, and spontaneous to use the Internet out of school (Hsi, 2007). Hence, children may spontaneously prefer to take more responsibility to regulate their learning, even with a teacher. The study in chapter 5 also concluded that the teacher was no longer in full control, especially on the personal comments wall which is more informal than the public forum. Furthermore, it was also shown that the teacher was not highly interacted with the children via each communication channel, although research shows that in various online groups; high teacher involvement is associated with a relatively high level of participation and interaction (Lockhorst, 2004). Moreover, Chapter 5 concluded that the teacher showed a high level of openness to welcome the diverse participation from children. The openness better acknowledged the informality of out-of-school learning and empowered the teacher to be a source of inspiration and guidance and also to be a comfortable peripheral member within children's social network.

8.1.2 How to support children to collaboratively engage in the transitions of learning practices across home and school through social software?

The five case studies reported in this thesis propose two suggestions to support children collaboratively engage in the transitions of learning practices across home and school through social software.

8.1.2.1 Open up and deepen a dialogic space, which is resourced with children's communal ways of living and learning

Wenger, McDermott and Snyder (2002) state that with respect to the creation, accumulation and diffusion of knowledge in a Community of Practice, a member should know what is relevant to communicate and how to present information in

useful way. However, there is a considerable overlap of findings between how UK children and how Chinese children communicated with each other in their homework message boards. That is, their replies were much information-oriented with limited reflection. Hence, in order to move towards a full community of practice, the question is how to transform the information-oriented exchanges to be more reflective and creative. Besides affective responses, it was also found in the UK message boards that children opened up a discussion about their daily practices, with an intention to improve their academic achievement. This thesis thus argued that a dialogue around children's communal living out of school should be valued in school and should be deepened further out of school. Wegerif (2010) argues for the value of playful talks for children to open up a dialogic space in which children can generate reflection, thought and understanding, guided towards a curriculum topic. The prevailing learning concerns expressed in the UK message board and Chinese message board indicated rich opportunities for children to open up an online discussion, which can be transformed to a fruitful learning dialogue. The study in Chapter 5 further showed how openness developed between children enabled children to reach underlying academic topics through informal exchanges.

8.1.2.2 Encourage children to value a wider range of learning practices and make connections between them across home and school

In order to open up and deepen a fruitful learning dialogue, this thesis further argued that children should be encouraged to value a wider range of learning practices in and out of school and make connections between the different learning practices.

Chapter 7 investigated how the UK children and the Chinese children mapped their out-of-school learning activities around their learning in school. It is shown that Chinese children generally held a constrained understanding of what they ought to do after school and had a narrow notion of learning, which is strongly associated with their school assessment and the educational system. Therefore, they were less flexible to value informal learning practices than the UK children. Additionally, the study in the Chinese homework message board showed how the design of the technology constrained the opportunities for children to experiment informal learning activities. The setting of the message board was designed to be

formal, which shares some qualities of a school setting in China. However, the online setting cannot provide children with resources and motivations as rich as a real school setting. Comparing to the UK children, Chinese children thus simply focused on accumulating and exchanging information. This finding indicates that children's confidence and willingness to transform an informal discussion about their daily lives to a fruitful learning dialogue partly depend on how they value these informal discussions. Furthermore, how they value these informal discussions partly depends on the school system and educational infrastructures in which they are embedded.

Nonetheless, making this transformation is challenging to children. Learning in school is less open-ended, less dialogic and team-based, whereas out-of-school learning is more procedural, contextual and problem-based (Drotner, 2007). Each experience and the environment of which that experience is part, becomes part of the meaning of that experience (Duffy & Jonassen, 1992). How children make meaning of their learning experience is situated in the setting. Chapter 5 shows how a teacher made an effort in supporting children to make meaning of their out-of-school learning activities in classroom. However, it is worth noting that they were experiencing an extracurricular subject which they all shared an interest. Whether this practice can be transferred to a core curricular subject is under question. But a teacher's openness to responding to different needs in and out of school might be a good start to encourage the transformation

8.2 Reflections on methodology

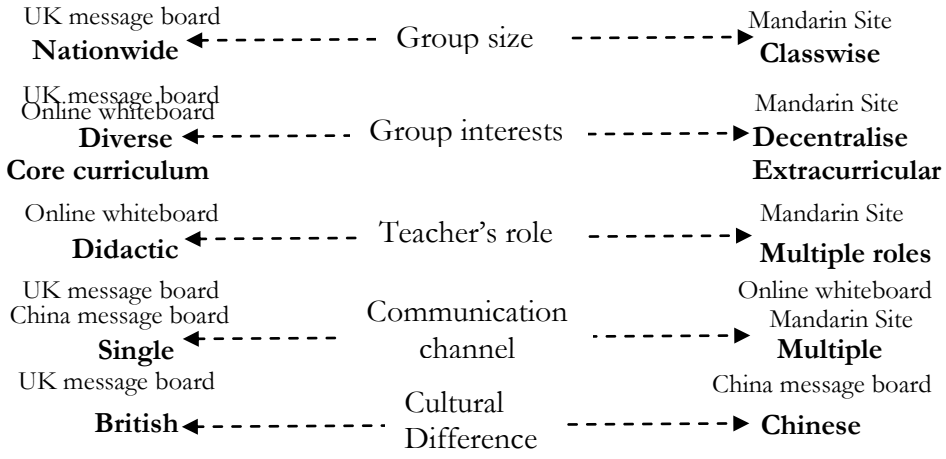
This section firstly reflects on the how the complex nature of out-of-school learning through social software leads to a multi-method approach in Section 8.2.1. Second, the validity and generalisability issues of this thesis are discussed in Section 8.2.2.

8.2.1 The multi-method approach

This section discusses how the four exploratory case studies in Chapter 3-7 explore the 'complex' nature and the multi-method approach. Chapter 2 proposes three research challenges and justifies how the exploratory case studies respond to them. Each case study has its own unique set-up and thus tells its own story, but by studying the multiple cases we hoped to rise above individual cases in an attempt to generalise the findings.

From the very beginning of this thesis, the 'complex' nature of the social aspect of out-of-school learning is aimed to be unpacked further. Due to the qualitative nature of this work, several interconnected and related cases were conducted. In this way, we hoped to seek a better understanding which considers a broader context. The four exploratory cases are UK children's use of a nationwide homework message board; UK children's use of an online whiteboard with a Maths teacher; a group of UK children's use of a social networking site with a Mandarin teacher and Chinese children's use of a nationwide homework message board. Figure 8.1 demonstrates the 'complex' nature of these four case studies, which separately stays at different ends of five continua.

Figure 8.1: The 'complex' nature of the four exploratory cases in Chapter 3-6.



- In terms of group size, Chapter 3 explores UK children's use of a nationwide homework message board. This study not only captures children's interaction and participation patters in a message board, but also captures children's prevailing concerns when they were confronted with private learning out of school. The prevailing concerns can only be captured by investigating a nationwide group. By contrast, Chapter 5 studies a class of seven students who used a social networking site for three months. This study allows us to seek deeper understanding of varying forms of individual learner's participation over time.

- In terms of group interests, Chapter 3 and 6 study how a large group of children expressed and pursued their personal learning concerns together.

This study allowed us to understand how children accommodated and responded each other's different interests. Whereas, Chapter 5 study seven children who formed a group with a shared interest in school and extended this interest on a social networking site out of school. This study allowed us to capture how the group deepened their exploration of shared interests together.

- In terms of the role of the teacher, Chapter 3 explores how a Maths teacher supported children's Maths exam revision through an online whiteboard during after school hours. The teacher was unknown to the students and tended to conduct formal online teaching. By contrast, because Mandarin is an extracurricular subject, Chapter 5 explores how the teacher supported children's self-interests exploration during after school hours. The teacher interacted with the children in the classroom and the social networking site.

- In terms of communication channel, chapter 3 and 4 separately investigate an asynchronous communication medium and a synchronous medium. By contrast, Chapter 5 investigates a well resourced environment in which multiple communication channels, both synchronous and asynchronous, were embedded.

- In terms of cultural difference, Chapter 3 and Chapter 6 study message boards used by two different cultural groups for a similar purpose. Illeris (2007) argues that situatedness always has a dual nature: the immediate situation that the learners find themselves in, e.g. at school and the general societal situation in the widest possible sense. This comparison allowed us to explore how children's out-of-school learning experience through social software was situated in the general societal situation in the widest possible sense.

Through the case studies, a multi-method approach is developed to study the group process of interactions over time. In chapter 3 and 6, descriptive statistics by quantitative content analysis presents the participation patterns and the qualitative content analysis captures the quality of the participation. But this approach also has its limitation, because the coding schemes are often developed in small studies and thus have a narrow empirical base (De Wever, Schellens,

Valcke & Van Keer, 2006). Hence, in chapter 5, more research methods were used to investigate the learning process at an individual level and to triangulate the findings. A social network analysis was conducted separately with each of these two media. Based on the structures of the two networks, learners were categorised into four types and each type was analysed as a different case to capture more individual behaviours. In the end, the focus group discussion was conducted in order to invite children to reflect on the experience as a whole. Besides these four case studies, interviews with both British children and Chinese children were conducted to seek an alternative perspective to understand the findings from the four case studies.

8.2.2 Validity and generalisability

As a qualitative research, this thesis is concerned with whether or not the interpretation and explanations fit with the practices we are studying, without claiming that there is only one way of doing that (Denzin & Lincoln, 2000). To improve generalisability of the findings, Stake (2003) suggests that qualitative researchers can undertake multiple case studies to identify general patterns. Whereas, to improve internal validity, Stake (2003) suggests that researchers can use triangulation throughout the research process. Triangulation is used to clarify meanings by identifying the different ways in which the phenomenon is being seen (Stake, 2003).

In this thesis, the triangulation is achieved in the following three ways. First, the outcomes of one method were integrated into the next method. For example, the social network analysis helped to divide individual users into groups and thus each group is reported as different cases to reveal the diversity of participation at an individual level. Second, the outcomes of one study were used to interpret and contextualise the outcomes of another study. For example, the findings of the UK children's use of social software were understood by the findings of the interview study.

8.3 Educational implications

This section concludes the major outcomes of this thesis in response to the thesis overarching research aim, which is *to investigate how social software can cultivate children aged 11 – 14 as a community of learners out of school, in order to support their education.*

One major outcome of this thesis has been to propose ways of implementing social software to foster children as a community of learners and consequently support their education. A range of social software: Message board, multimedia whiteboard, and social networking site, has led this thesis to research a spectrum of UK children's out-of-school activities relating to their school-based learning. The UK children had naturally and innovatively been involved in a variety of informal out-of-school learning communities which are concerned with learning at school. Learning is not constrained within school walls. The notions of learning and schooling are not the same to children. Learning can be viewed as going on pervasively in children's everyday life, while formal education at school is just the visible tip (Fox, 2001, p. 81). Nonetheless, 'the visible learning' in the formal education is formatively assessed nationally and influences the life children can choose in their future. This thesis has identified how children's school-based experiences inhabit and shape children's communal ways of living, and how the varying degrees of informality encourage children to reflect on their communal ways of living through social software. During this process, children collaboratively express their shared concerns and develop an extending view of learning. School therefore should be capable of and confident to accommodate the extending views of learning children develop out of school, by giving more credit to these informal learning practices, in terms of its value and outcome. With the school's recognition, the children will be more creative and autonomous to make meaning of their out-of-school experience together. Meanwhile, teacher is no longer institutionalised and their online presence out of school will remediate the online setting and culture. They are assigned with multiple roles according to the children's diverse needs and interests emerged out of school. The teacher should be open and flexible to recognise and respond to the complexity of the context in which the children are situated, especially when children are engaged with situating their school knowledge in different context: virtual and domestic.

Another major outcome of this thesis has been to endorse the adoption of a multi-perspective approach to understand children's out-of-school learning with social software. This multi-perspective approach is particularly advisable, when researchers investigate complex activities within their authentic contexts and when practitioners implement a new technology to mediate complex activities

within their authentic contexts. This multi-perspective approach led to a rather particular cross cultural study in this thesis. However, this never set out to be a cross cultural psychology thesis. The point of making the comparison was to understand how the fate of a technology is governed by cultural factors which are embedded with the complex activities and the authentic context, when the technology is designed and implemented. And informality of learning and transitions of learning across contexts are identified as two core issues to explore cross culturally. For example, in this thesis, the study on the UK children's use of a homework message board identified a strong emotional tone, not just intellectual or cognitive ones in the boards. However, by investigating the Chinese children's use of a homework message board, it was revealed that this specific emotional tone is related to the UK children's particular perspectives in learning and nature of knowledge, which are different from the Chinese children. And this emotional tone is associated with to what extent informal learning practices are accepted by the children. Furthermore, by interviewing with both UK and Chinese children, it was discovered that children's perspectives in learning and nature of knowledge were related to their school regulations, their homework mediation, their attitudes to exams, and their parental involvement. This example indicates that understanding the multiple dimensions of the learning culture in a broader sense is strongly advisable when designing with/around technology for learning.

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APPENDIX

Appendix 1: the advertising card for the multimedia whiteboard (2 sides)

GCSE Maths Talk!

Get instant help from a real maths teacher at home and work with a group of peers before the exams! You won't be disappointed!!

Go to this website:

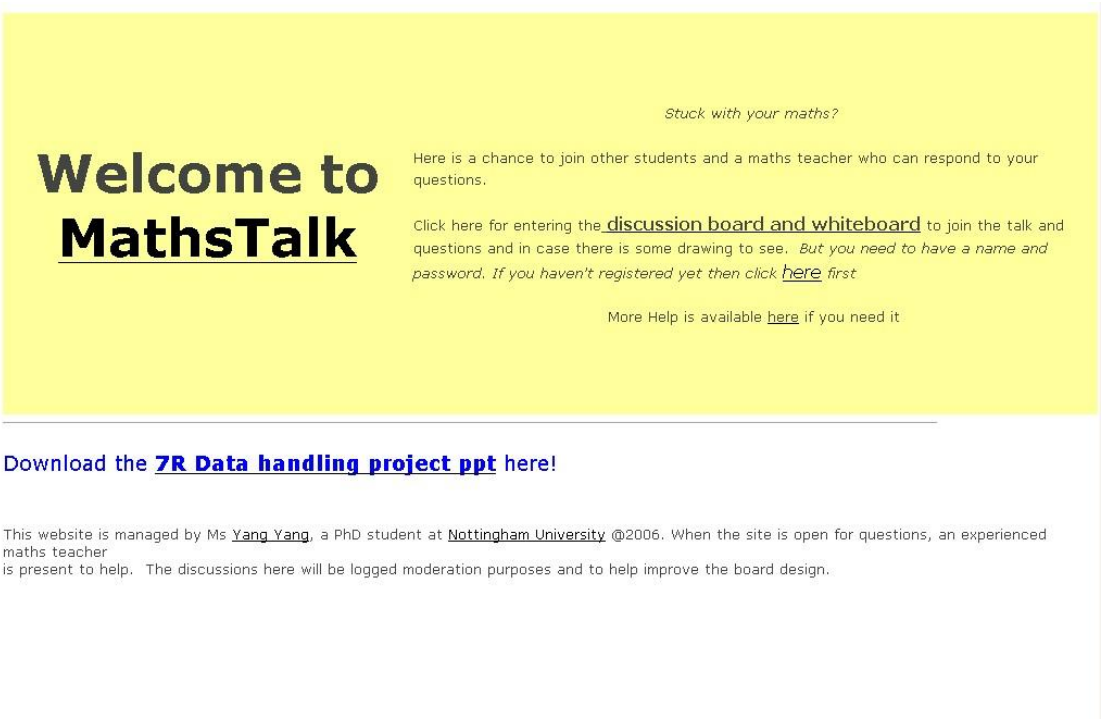
Http://come.to/mathstalk

The Open time

28th of May	29th of May	30th of May	31st of May	1st of June	2nd of June	3rd of June
	1-3 PM	4-6 PM		12 – 2 PM		
4-7 PM	4-6 PM	7-9 PM	4-6 PM	4-6 PM	4-6 PM	4-7 PM

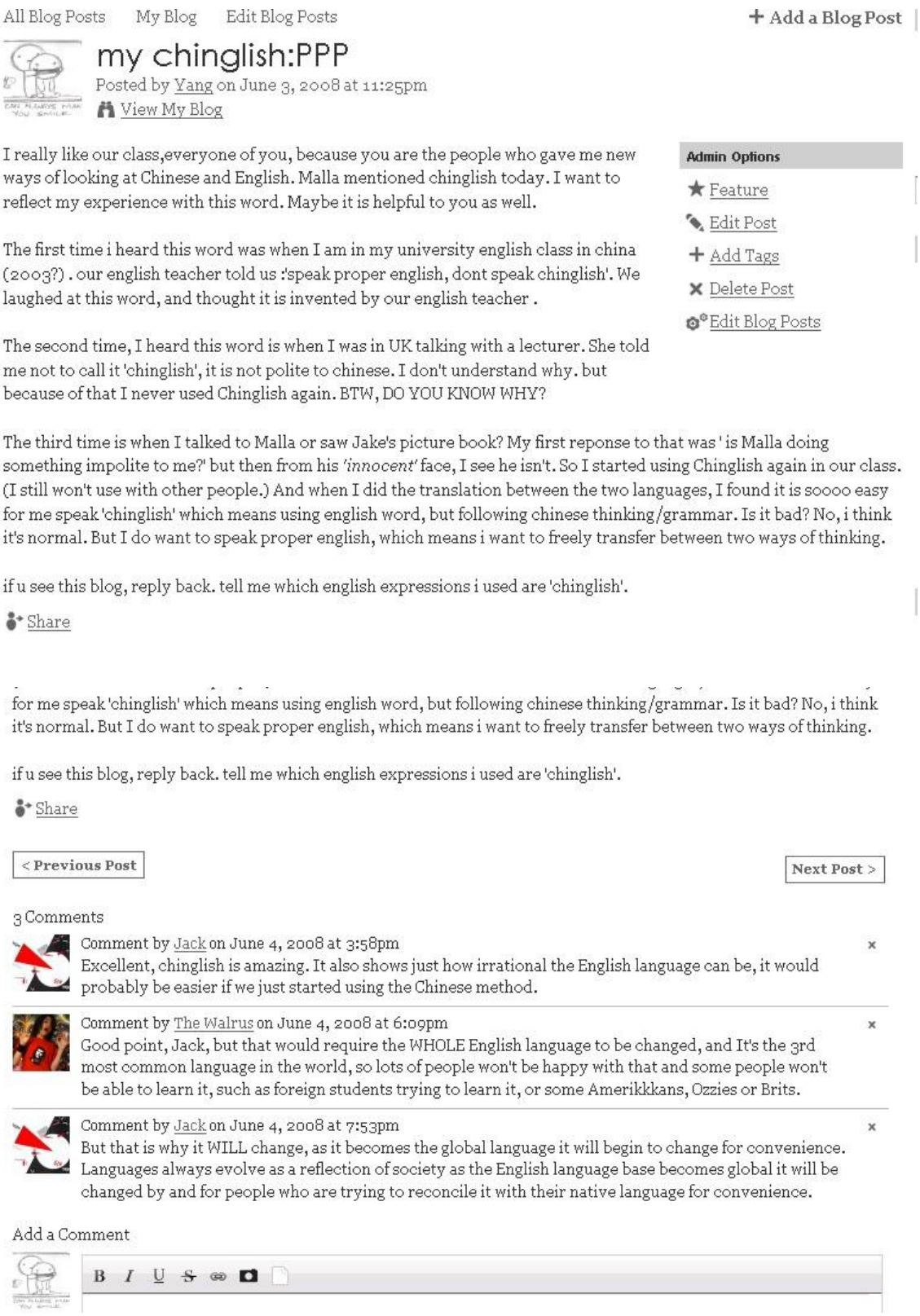
If you have any questions, email Yang (yang.y@hotmail.co.uk). And, if you want the board open on a specific time period, email Yang as well… We will open it when we receive more than 5 requests for a time period.

Appendix2: Snapshot of the multimedia whiteboard pages




Name
Log In
Type in your nickname you like to use and click
If you can't see this, click for Adobe FLASH PLAYER FREE DOWNLOAD
Simple ways to use the graphical board
Once you entering the system, in the left, it is the whiteboard, you can draw with fre
Freehand
Load
Save
And Change colours you like by selecting
Kaa
ALL
Kaa

Appendix 3: Snapshots of the teacher's blog posts



All Blog Posts My Blog Edit Blog Posts + Add a Blog Post

my chinglish:PPP

Posted by Yang on June 3, 2008 at 11:25pm

View My Blog

I really like our class,everyone of you, because you are the people who gave me new ways of looking at Chinese and English. Malla mentioned chinglish today. I want to reflect my experience with this word. Maybe it is helpful to you as well.

The first time i heard this word was when I am in my university english class in china (2003?) . our english teacher told us :'speak proper english, dont speak chinglish'. We laughed at this word, and thought it is invented by our english teacher .

The second time, I heard this word is when I was in UK talking with a lecturer. She told me not to call it 'chinglish', it is not polite to chinese. I don't understand why. but because of that I never used Chinglish again. BTW, DO YOU KNOW WHY?

Admin Options
- Feature
- Edit Post
- Add Tags
- Delete Post
- Edit Blog Posts

The third time is when I talked to Malla or saw Jake's picture book? My first reponse to that was ' is Malla doing something impolite to me?' but then from his *'innocent'* face, I see he isn't. So I started using Chinglish again in our class. (I still won't use with other people.) And when I did the translation between the two languages, I found it is soooo easy for me speak 'chinglish' which means using english word, but following chinese thinking/grammar. Is it bad? No, i think it's normal. But I do want to speak proper english, which means i want to freely transfer between two ways of thinking.

if u see this blog, reply back. tell me which english expressions i used are 'chinglish'.

Share

for me speak 'chinglish' which means using english word, but following chinese thinking/grammar. Is it bad? No, i think it's normal. But I do want to speak proper english, which means i want to freely transfer between two ways of thinking.

if u see this blog, reply back. tell me which english expressions i used are 'chinglish'.

Share

< Previous Post Next Post >

3 Comments

Comment by Jack on June 4, 2008 at 3:58pm
Excellent, chinglish is amazing. It also shows just how irrational the English language can be, it would probably be easier if we just started using the Chinese method.

Comment by The Walrus on June 4, 2008 at 6:09pm
Good point, Jack, but that would require the WHOLE English language to be changed, and It's the 3rd most common language in the world, so lots of people won't be happy with that and some people won't be able to learn it, such as foreign students trying to learn it, or some Amerikkkans, Ozzies or Brits.

Comment by Jack on June 4, 2008 at 7:53pm
But that is why it WILL change, as it becomes the global language it will begin to change for convenience. Languages always evolve as a reflection of society as the English language base becomes global it will be changed by and for people who are trying to reconcile it with their native language for convenience.

Add a Comment

Appendix 4: Research Consent Form

Researcher: Yang Yang

Address: B3 Exchange Building, Nottingham University, Jubilee Campus, NG8 1BB.

Phone: 0044-115-8467672 (UK); 024-86619977 (ShenYang, PRChina)

Thank you for agreeing to participate in this study which will take place from 11th of December to 19th of December, 2006. This form outlines the purposes of the study and provides a description of your involvement and rights as a participant.

The purposes of this study are

- To fulfill the requirement of a doctoral thesis about an online learning system design supervised by Professor Claire O'Malley and Dr. Charles Crook.

- To gain insight and experience in the topic of how 15 year old young people in China perceive the education.

The methods to be used to collect information for this study are explained below. From these data, I will write a case report about your students.

Semi-structured Interview: I will interview 10 pairs of students separately, and each interview will take 30-45 minutes. The whole process will be audio-recorded.

You are encouraged to ask any questions at any time about the nature of the study and the methods I am using. Your suggestions and concerns are important to me; please contact me at any time at the address/phone number listed above.

The data I collect from you will contribute my PhD thesis and a research paper I intend to publish on the Journal.

I guarantee that the following conditions will be met:

- Your real name will not be used at any point of information collection or in my thesis and paper.

- If you grant permission for audio recording, no audio records will be used for any other purpose other than to do this study and will not be played for any reason other than to do this study. At your discretion, these records will either be destroyed or returned to you.

- Your participation in this study is voluntary; you have the right to withdraw at any point of this study for any reason, and without any prejudice.

- You will receive a copy of the final paper or thesis before it is published, so that you have the opportunity to suggest changes to the researcher, if necessary.

Do you grant permission to be audio recorded? Yes _____ No _____

I agree to the terms

Participant_____

Date_____

I agree to the terms

Researcher_____

Deate_____

Appendix 5: Letter sent to the Chinese schools to invite participation

亲爱的先生/女士：

我是英国诺丁汉大学心理学院的一名博士二年级研究生。同时我的研究也是诺丁汉大学学习科学研究所所(LSRI)主持下的研究的一部分。LSRI 是优异的世界学习科学和技术革新中心。作为欧洲最早成立的学习研究中心，LSRI 探索学习的基本过程和实践，以及怎样设计新技术来加强人类的学习和互动。

我的研究是关于在线网络媒体设计发展以支持同伴的互助学习。更具体地说，就是使用基于文字和图像的在线通讯以支持 14 到 15 岁学生的多方面课后学习。我希望我的研究能在日常教学中得到实际应用，特别是能够为中国的技术辅助学习作出贡献。

作为中国东北地区的一所知名教育机构，贵校在第二外语教学方面取得了令人尊敬的成就。因为我的研究项目正处于对在线通讯技术的文化接受性进行探索和评估的重要阶段，如果贵校能够给与支持，让学生们参与到这个系统的评估中来，我将不胜感激。这个项目将不会占用学生们的上课时间。他们将参与课后活动并被在线系统评估。参与者最好是 20 个 9 年级的学生（今年暑假以后将上 10 年级的高中生）。最好他们有过在线经验并且能够有上网条件。请参考附录“学习活动”以获取更多详细情况。

这个项目的成功实现将会给在线第二外语教学的现代化做出贡献。这个系统在项目结束以后能够继续发挥对贵校的通常课内教学的辅助作用。同时，如果我的论文以任何形式发表，我将在答谢中提到贵校的名字。如果我能对贵校的技术辅助教学的发展有任何帮助，我将更加高兴。非常感谢你们，同时期待着和你们的会面。

诚挚的

杨阳（博士研究生）

学习科学研究所

诺丁汉大学

英国 NG8 1BB

Appendix 6: The Chinese school at 6 PM during a school day

Appendix 7 : Out-of-school activity list reported in the UK children interviews

1. Homework
2. Revision
3. Do gym with mum
4. Go out with friends
5. Do Taekwondo
6. Go computer: computer games; MSN messenger, Beebo
7. Football
8. Watch TV
9. Visit my nanny
10. Conservative club
11. Teach dance to younger kids
12. Watch DVD
13. MP3
14. Play instrument
15. Music lessons
16. Drama lessons

Appendix 8: Out-of-school activity list reported in the Chinese children interviews

1. Go to bookstore
2. Go to internet café
3. Feed my pet
4. Read newspaper and magazine
5. Play chess online
6. Play basketball
7. Personal tutor time
8. Out-of-school Maths lessons
9. Out-of-school English lessons
10. Listen music
11. DIY airplane model
12. Discuss about TV programs with friends
13. Reading books

LIST OF PUBLICATIONS

1. Yang, Y., Crook, C., O'Malley, C. (2008). 'Cutting through Layers of the BBC Onion Street: Children's Use of Homework Message Boards Out-of-school '. *In Proceedings of ICLS*, Utrecht, The Netherlands, June 23-28, 2008.

2. Yang, Y., Crook, C., O'Malley, C. Informality of social learning: Chinese children's use of peer-to-peer forum out of school. Paper submitted to CSCL2011.

3. Yang, Y., Crook, C., O'Malley, C. Cultivating children as a community of Mandarin learners out of school. Paper accepted in CAL 2011