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# **A Reusable Peer-to-Peer Conversation Tool for Online Second Language Learning**

A thesis presented in partial fulfilment of the requirements

for the degree of

Master of Information Science in Computer Science

at Massey University, Palmerston North, New Zealand.

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**2008**



## **Abstract**

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To support extramural learning, Johnson (2005) has proposed the Learning Computer concept, which aims to provide a learning appliance that can be used for studying university courses at any time, from anywhere, and by anybody who might have only basic software and hardware, dial-up Internet connection, and little computer literacy. Lonely extramural students need extra support for interactions and collaboration in learning, especially in second language learning that requires intensive oral language practice between the students and the tutor.

This research project was a trial to extend IMMEDIATE (the prototype of the Learning Computer) to a second language extramural course. To meet the requirements of long distance conversation in such a course, a synchronous/asynchronous bimodal approach was conceptualised based on a review of e-learning, communication, and VoIP technologies. It was proposed that the prototype should automatically adapt to either synchronous mode or asynchronous mode according to different levels of Internet connection speed. An asynchronous conversation mode similar to Push-to-Talk (PTT) was also proposed.

A VoIP SDK was investigated and used in the prototype for fast development. IMMEDIATE messaging protocols have been extended in the prototype to control call procedures and the asynchronous conversation mode. An evaluation of the prototype which was conducted to assess its usability, functionality and integrity of the prototype demonstrated that users can conduct telephone-like synchronous conversation efficiently at high connection speed. Although the PTT-like asynchronous mode has a time lag problem, especially when two users are both at low connection speed, it is a still a good way for novices to practise second language oral skills. The evaluation has given strongly support to the feasibility and effectiveness of the bimodal approach for applying IMMEDIATE in second language extramural learning.



## Acknowledgements

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This project has been carried out with support and help from many people.

Firstly, I would like to thank Dr Russell Johnson, my supervisor, for the time and patience he has put in to helping me through this master's project. Under his consistent supervision and guidance, I carried out this research project from conceptualisation, prototyping, and evaluation to thesis writing, during which I became familiar with the research field, became confident to do research, and learnt how to write a thesis.

I would like to acknowledge the support from the staff of Computer Science, IIST, Massey University.

I also appreciate my friends for their help in the evaluation and encouragement in the whole study procedure.



## **Publication**

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The publication associated with this research is:

Ye, J & Johnson, R. 2008: An embedded bimodal tool to enable second language learners to practise conversation online over unreliable Internet connections. Paper presented at *the 5th International Workshop and Conference on Technology for Innovation and Education in Developing Countries (TEDC 2008)*, Kampala, Uganda.





# Contents

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<b>Chapter1</b>	<b>Introduction</b>	<b>1</b>
1.1	Background	1
1.2	Requirements for Extramural Second Language Learning	3
1.3	Research Objective and Methodology	4
1.4	Summary	5
<b>Chapter2</b>	<b>An Initial Conceptual Model</b>	<b>7</b>
2.1	Immediate Learning	7
2.1.1	E-learning Systems	7
2.1.1.1	Adaptive Learning Systems	8
2.1.1.2	Learning Management Systems	10
2.1.2	Information Appliance	11
2.1.3	Requirements of Immediate Learning	13
2.2	The Learning Computer	15
2.3	Communication Dimension	18
2.3.1	Communication Ways	18
2.3.2	Communication in E-learning	21
2.4	Toward an Initial Conceptual Model	22
2.5	Summary	24
<b>Chapter3</b>	<b>Voice over IP</b>	<b>27</b>
3.1	Internet	27
3.1.1	Internet Protocols	28
3.1.2	IP Address and Routing	30
3.1.3	Internet for Residential Users	31
3.2	VoIP Concepts	32

3.2.1	Audio Signal Processing	33
3.2.2	Speech Coding	34
3.2.3	Quality of Service	35
3.2.4	VoIP Protocols	38
3.3	Summary	39
<b>Chapter4</b>	<b>Towards a Specification</b>	<b>41</b>
4.1	A VoIP SDK	42
4.1.1	Requirements of a VoIP SDK	42
4.1.2	A Peer-to-Peer VoIP SDK	43
4.1.3	The Threshold of Low Speed and High Speed	45
4.2	Synchronous / Asynchronous Conversation	47
4.3	The specification of the Prototype	50
4.4	Summary	51
<b>Chapter5</b>	<b>Prototyping</b>	<b>53</b>
5.1	An IMMEDIATE-based Approach	53
5.1.1	Messaging in IMMEDIATE	54
5.1.2	Messaging in the Prototype	56
5.1.2.1	Folders on the Server	56
5.1.2.2	Database	58
5.1.2.3	Call Message Types	59
5.1.3	Inheritance from IMMEDIATE	60
5.1.3.1	CallClient	60
5.1.3.2	CallManager	62
5.2	Call Procedures	63
5.2.1	User Registration	65
5.2.2	Call Invitation	66
5.2.3	Call Teardown	68
5.2.4	User De-registration	68

5.3	Asynchronous Conversation	69
5.3.1	An Overview of Asynchronous Conversation	69
5.3.2	Control Messages in Asynchronous Conversation	71
5.3.3	Another Approach	72
5.4	Implementation	74
5.5	Summary	75
 <b>Chapter6 Evaluation</b>		<b>77</b>
6.1	Goals of the Evaluation	77
6.2	Evaluation Method	78
6.3	Laboratory Evaluation	79
6.3.1	Participants	79
6.3.2	Test Environment	80
6.3.3	Questionnaires and Interview	81
6.3.4	Tasks in the Laboratory Experiment	81
6.3.5	Test Scenarios	82
6.3.6	The Pilot Evaluation	87
6.4	Laboratory Evaluation Results	88
6.4.1	Observations	88
6.4.2	Questionnaires	89
6.4.2.1	Short Questionnaire	89
6.4.2.2	The Final Questionnaire	91
6.4.3	Log Files	93
6.5	Summary	96
 <b>Chapter7 Conclusion</b>		<b>97</b>
7.1	Review of the Project	97
7.2	Contribution	99
7.3	Future work	100

<b>References</b>	<b>103</b>
<b>Appendix A Client Application</b>	<b>111</b>
A1: The main part of the definition of TPLCVoiceFrame class	112
A2: The TimerTimer event in TPLCVoiceFrame class	113
A3: The cccStatusEvent event in TPLCVoiceFrame class	114
A4: The btTalkClick procedure in TPLCVoiceFrame class	116
A5: The ActConnectExecute procedure in TPLCVoiceFrame class	117
A6: The cccConnectionEvent event in TPLCVoiceFrame class	118
A7: The main part of the definition of plcVoiceMember class	119
<b>Appendix B Server Application</b>	<b>121</b>
B1: WAR FTP Daemon 1.80 – Screens shots	122
B2: The main part of the definition of TVoIPServer class	124
B3: The ccsRegistration event of TVoIPServer class	125
B4: The processCallList procedure of TVoIPServer class	127
B5: The ccsConversationAccepted event of TVoIPServer class	128
<b>Appendix C Evaluation</b>	<b>129</b>
C1: User Testing Steps for the Laboratory Experiment	130
C2: Information Sheet	132
C3: Participant Profile	134
C4: Short Questionnaire	135
C5: Final Questionnaire	136
C6: Interview Question Outline	137
C7: Case Study	138
C8: Log File Examples	140

## Figures and Tables

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### *Figures*

Figure 2.1	Learning Components in Two Learning Modes	16
Figure 3.1	The Four-layer TCP/IP Model	28
Figure 3.2	Data Packaging in Different Layers of the TCP/IP Model	30
Figure 3.3	Computers Accessing Internet via Dialup Connections	32
Figure 3.4	Audio Signal Transmission	34
Figure 3.5	IP Header for VoIP packets	37
Figure 4.1	Procedure of Call Setup in Conaito	44
Figure 4.2	Two Peer-to-Peer Conversation Modes	45
Figure 4.3	Relationship between the Prototype and Conaito SDK	46
Figure 4.4	PTT-like Asynchronous Conversation	48
Figure 4.5	Initial User Interface for Asynchronous Conversation	49
Figure 5.1	Status Change Message among Group Members	54
Figure 5.2	Stop Talking Message in Asynchronous Conversation	54
Figure 5.3	Messaging in IMMEDIATE	56
Figure 5.4	Control Message in the Prototype	57
Figure 5.5	Folder Structure on the Server for the Prototype	57
Figure 5.6	Table <i>VoIPUser</i>	58
Figure 5.7	Message Types in the Prototype	59
Figure 5.8	Message Head Format	60
Figure 5.9	Relationship between the Prototype and IMMEDIATE	61
Figure 5.10	CallClient Classes	61
Figure 5.11	Interface of CallManager	63
Figure 5.12	Main Events & Message Types in Call Procedures	64
Figure 5.13	System Procedure for Call Invitation	67
Figure 5.14	User Interaction Flow Chart for Bimodal Conversation	70
Figure 5.15	Control Messages for Asynchronous Mode	71
Figure 5.16	System Messaging when Both Users at Low Speeds	72

Figure 5.17	Control Messages when Recording on the Sender	73
Figure 6.1	Screenshot when Two Users Logs In	83
Figure 6.2	John's Screenshot when John Invites Esther	83
Figure 6.3	Esther's Screenshot when Being Invited by John	84
Figure 6.4	Screenshot in Synchronous Conversation	84
Figure 6.5	Inviter's Screenshot after a Call Invitation (Asynchronous)	85
Figure 6.6	Invitee's Screenshot after a Call Invitation (Asynchronous)	85
Figure 6.7	User's Screenshot when Talking (Asynchronous)	86
Figure 6.8	Time Delay in Asynchronous Conversation	95

### ***Tables***

Table 3.1	SIP Methods	38
Table 6.1	Laboratory Experiment Participants' Computer Usage	80
Table 6.2	Different Connection Speeds of four tests in the Laboratory Experiment	82
Table 6.3	Results of Short Questionnaires	90
Table 6.4	Results from the Final Questionnaire	91
Table 6.5	FTP Server Log File in Asynchronous Conversation	93
Table 6.6	Time Delay of Control Message in Asynchronous Conversation	94