



ICT Usage among Chinese Language Teachers in Malaysia Educational System

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Abstract- This study examined the perceptions, effectiveness, and problems faced by teachers in the use of information and communications technology (ICT) in teaching and learning of Chinese language in schools and teachers' views and interests on ICT courses. The Instructional Design Model by Dick and Carey (1990) was modified as a conceptual framework of this study to develop a questionnaire. The sample consisted of 549 teachers in Chinese National Primary schools (SJK(C), National Secondary Schools (SMK/SMJK), and Chinese Private Independent Schools in Johor, Selangor, Penang and Sabah. One-way ANOVA analysis shows that the state, school type, level of computer skills, and the frequency of teachers using ICT in teaching and learning of Chinese produce significant differences between respondents in ICT usage in teaching and learning of Chinese language in general. Teachers who are more skilled were found to be more effective in application of ICT teaching and delivery of Chinese language. To enhance the use of ICT, then ICT courses must be widely introduced to the Chinese language teachers, and not just focused on teachers of English, science and mathematics only.

Keywords- *ICT, Chinese Language, Malaysia, CALL, education*

I. INTRODUCTION

Development and rapid progress in the field of micro-electronics in the new millennium has led to the creation of Information and Communications Technology (ICT) and increasingly seen ICT influence on human life. Changes in the era of globalization through the explosion of knowledge and technological advances have changed the usage of multimedia in education from the 'sage on stage' (priest on stage) to the 'guide by the side' (guide on the side) [1].

To face these challenges and achieve the Multimedia Super Corridor (MSC) and 2020Vision, initiatives to integrate ICT in teaching and learning have been implemented at the right time. The usage of computers is no longer confined to research laboratories and large corporations only as happened in the 1970s, but has penetrated the classroom in primary schools, secondary schools up to tertiary level [2]. In Malaysia, the usage of ICT in education is still in its infancy stage, but growing rapidly.

Capability of early technology application in education such as usage of radio, cassette recorder, television and OHP (Over Head Projector) is now become less effective in attracting students' attention. As Md. Yunus, Aqsha Lubis, and Chua [3] stated, in terms of pedagogy, the development and application of various technological innovations in education has sparked a revolution in the teaching and learning process. The latest integrated technology has the advantage of combining realistic visuals with text and voice, allowing teachers better flexibility in creating teaching materials. Knowledge of the technology has become a necessity to ensure the success of an individual in this sophisticated world.

Thus, teaching and learning methods also undergo changes with the introduction of information and communications technology (ICT) in education. Various new methods are introduced and used to make teaching more effective besides making learning more meaningful, especially in language teaching in the field of education [4].

ICT development in areas of technology, satellite, telecommunications, multimedia and information technology enable teachers to deliver, collect, transmit, distribute, manage, process, store or combine various types of information easily and quickly [5]. Following development of this technology, communication between the interactive nature of individuals can be made quickly and easily.

All the community consisting of teachers, students and others may communicate and interact with each other quickly and easily in the global nature of cyberspace. E-mail, World Wide Web, digital technology, internet, CD-ROMs and other interactive multimedia materials have become tools or new facilities in the smart education system that the Information society can provide for a competent, creative and innovative generation [6].

Ajiya [7] says the use of computers in teaching and learning can improve students' motivation, interest and excitement to pursue their studies. Similarly, computer application can also encourage concentration and engage pupils in teaching and learning.

According to Rusnaini [8], ICT usage in teaching and learning will be discussed in accordance with aspects of teaching (for teachers using ICT) and aspects of learning (pupils using ICT). In the context of learning, the usage of ICT in teaching and learning can be categorized as tutorial, exploration, and communications applications. In the context

of teaching, the ICT is used as tutor and tool demonstrations. Teachers who use ICT in teaching in the class implementation can bring immense benefits to the students' understanding. This is because ICT provides vast opportunities for learning activities compared to traditional methods. ICT provides a method emphasizing active creation and discovery of knowledge other than one way receiving knowledge only.

Usage and understanding of ICT should be viewed in a positive light by all groups. Former Malaysian Prime Minister, Dato Seri Dr. Mahathir also expressed confidence that Malaysia can become a leader in the field of ICT if the entire citizens are working together to realize this objective. He also stressed that if all parties involved themselves in ICT, the country will not be left behind; instead it will be more competitive in the international arena [9]

In the Third Outline Perspective Plan (OPP3) 2001 to 2010, Malaysia has put ICT as the main media to build new knowledge and stimulate the development of the knowledge-based economy. Internet users are increasingly strengthening the role of ICT as an important tool for acquiring and disseminating information. Therefore, to ensure that education does not miss grabbing benefits of the latest technology, ICT has been integrated into the national education system.

II. PURPOSE OF STUDY

A. Objective of Study

Most studies available at present are focused on the usage of ICT in teaching and learning, but mostly emphasize student learning and outcomes [10][11][12]. There is not much research done on the teachers' usage of computer in schools, especially in Chinese subjects. Hence, the main objective of this study is to investigate if there are any differences between the social backgrounds of teachers with Chinese teachers use ICT in teaching and learning Chinese.

B. Research Question

Is there any difference between the social background of teachers with their usage of ICT in teaching and learning Chinese Language?

III. RESEARCH METHODOLOGY

A. Model of Research

The Instructional Design Model by Dick and Carey [13] was modified as a conceptual framework of this study. The implementation of ICT integration in the classroom is set to explore the situation of teaching Mandarin in secondary schools in Malaysia in general. Teachers create and design the materials for ICT integration scientifically, then used them to teach Mandarin effectively to enhance the positive attitude among the students, enhance the effectiveness of teaching in the classroom, lighten the homework burden of students, and inculcate valuable characteristics among the students.

B. Sample of the Study

The respondents of this study were teachers in premier primary Chinese schools, national secondary schools and

Chinese Independent Secondary Schools in Malaysia. A survey questionnaire was administered to 84 Chinese language teachers from randomly selected schools each in Penang Island, Selangor, Johor and Sabah State. The return rate was 90%.

C. Questionnaire of Study

The teachers' questionnaire was divided into two parts: Part 1 consists of 4 questions on the respondent's demography, while Part 2 consists of Part B, C and D. A Likert 5-point scale is used for the questions in Part 2.

Parts B, C, and D have 90 items. Part B contains 41 items about attitudes and perceptions of teachers toward using ICT in teaching and learning Chinese language. This section was divided into three areas, namely the (a) opinions of teachers on the usage of ICT, (b) problems encountered during the application, and (c) effective usage of ICT in Chinese Language subject.

Part C has 14 items that will be answered by all respondents to obtain data on the proficiency level of Chinese language teachers in the usage of ICT. These include skills in using software such as MS word, PowerPoint, the operation of software that can be used in teaching and learning of Chinese language, and knowledge of the hardware such as LCD, CD-ROM, digital cameras, scanners, and so forth.

Part D had 35 items. Information to be obtained from this section were Chinese teachers' perceptions of courses or training in ICT. This section was divided into three main areas: experience of participating in ICT courses/training, including teachers' views about the ICT course/training and interest in participating in the programs. Parametric statistical tests are used to analyze the data.

The Cronbach alpha statistic for the teachers' questionnaire was found to be .917; therefore the reliability of the questionnaire is acceptable.

IV. RESULT

A. Respondents' Profile

TABLE 1
RESPONDENTS' PROFILE

Social Background (N=549)	Characteristics	Frequency	Percentage
1. State	Penang Island	123	22.4
	Selangor	141	25.1
	Johor	161	29.3
	Sabah	124	22.6
2. Type of Schools	SJKC	237	43.2
	SMK	154	28.1
	Independant School	158	28.8
3. Level of Mastery Computer	Very expert	52	9.5
	Expert	369	67.2
	Less expert	128	23.3
4. Frequency in using computers	Every period	14	2.6
	Twice in a week	25	4.6
	Once a week	28	5.1
	Twice in a month	42	7.6
	Once a month	131	23.9
	Never	309	56.3

The total sample of this study was 549 teachers. State distribution was relatively balanced; Penang Island had 123 teachers (22.4%), Selangor 141 teachers (25.1%), Johor 161 teachers (29.3%), and Sabah 124 teachers (22.6%). Almost half of the samples consist of teachers from Chinese Primary National Schools (237 @ 43.2%), while the rest were national secondary teachers (154 @ 28.1%) and private school teachers (158 @ 28.8%). Experience using computers by teachers mostly fell between 1 to 3 years (118 @ 21.5%), 7 to 9 years (142 @ 25.9%), and 10 to 12 years (125 @ 22.8%). A total of 369 teachers (67 @ 2%) were proficient in the usage of computers, while 238 (23.3%) teachers were less skilled. However, more than half, or 309 teachers (56.3%) had not been using ICT in the teaching of Chinese language; the frequency of the highest teachers using ICT only once a month (i.e., 131 teachers or 23.9%).

B. Statistical Inference

Table 2 Analysis of One Way ANOVA Comparing State of schools in Usage of ICT in Teaching and Learning Chinese Language

Variable	Variation	Sum of square	df	Mean Square	F	Sig.
Teachers' opinion	Between groups	494.372	3	164.791	2.645	.05
	Within groups	14702.361	236	62.298		
	Total	15196.733	239			
Problems	Between groups	419.996	3	139.999	5.314	.00
	Within groups	6218.000	236	26.347		
	Total	6637.996	239			
Effect of using ICT	Between groups	61.723	3	20.574	0.255	.857
	Within groups	18933.850	236	80.570		
	Total	18995.573	239			
Level of ICT mastery	Between groups	805.221	3	268.407	2.453	.062
	Within groups	59629.729	236	109.412		
	Total	60434.951	239			
Experience of attending ICT courses	Between groups	146.189	3	48.730	1.444	.229
	Within groups	18396.318	236	33.755		
	Total	18542.506	239			
Opinion towards ICT courses	Between groups	2345.063	3	781.688	7.462	.00
	Within groups	57093.094	236	104.758		
	Total	59438.157	239			
Interest to attend ICT courses	Between groups	64.650	3	21.550	0.245	.865
	Within groups	47999.026	236	88.072		
	Total	48063.676	239			

Chinese Language teachers according to states variable were significant at the .05 level for items with $F(3, 236) = 2645, p < .05$, TMK problem with the $F(3, 236) = 5314, p < .05$, and the opinions of teachers on ICT courses with $F(3,$

$236) = 7462, p < .05$, and the level of ICT mastery with $F(3, 236) = 2,453, p < .10$. This means that the correlation between states with the four items was positive. However, the state variables of teacher had no significant difference with the three other items, namely the effect of ICT usage with $F(3, 236) = 0255, p < .05$, experiences of attending ICT courses with $F(3, 236) = 1444, p < .05$, and interest in ICT courses with $F(3, 236) = 0865, p < .05$.

Table 3 Analysis of One Way ANOVA Comparing Type of Schools in Usage of ICT in Teaching and Learning Chinese Language

Variable	Variation	Sum of square	df	Mean Square	F	Sig.
Teachers' opinion	Between groups	298.304	3	149.152	2.373	.09
	Within groups	14898.429	236	62.863		
	Total	15196.733	239			
Problems	Between groups	72.395	3	36.198	1.307	.273
	Within groups	6565.601	236	27.703		
	Total	6637.996	239			
Effect of using ICT	Between groups	406.704	3	203.352	2.582	.078
	Within groups	18588.869	236	78.766		
	Total	18995.573	239			
Level of ICT mastery	Between groups	809.650	3	404.825	3.707	.025
	Within groups	59625.301	236	109.204		
	Total	60434.951	239			
Experience of attending ICT courses	Between groups	316.093	3	158.046	4.735	.009
	Within groups	18226.414	236	33.382		
	Total	18542.506	239			
Opinion towards ICT courses	Between groups	1641.555	3	820.778	7.754	.00
	Within groups	57796.602	236	105.855		
	Total	59438.157	239			
Interest to attend ICT courses	Between groups	1662.836	3	831.418	9.783	.00
	Within groups	46400.840	236	84.983		
	Total	48063.676	239			

All items were significantly related to types of schools of the teachers with ICT usage except problems encountered by teachers with $F(2, 237) = 1307, p > .05$. The items that have significant differences included the level of ICT mastery with $F(2, 237) = 3707, p < .05$, experience of attending courses with $F(2, 237) = 4735, p < .05$, opinions of teachers on ICT courses with $F(2, 237) = 7754, p < .05$ and enthusiasm of teachers to attend the ICT courses with $F(2, 237) = 9783, p < 0.05$ the opinions of teachers towards ICT courses with $F(2, 237) = 2373, p < .10$ and the effect of using ICT with $F(2, 237) = 2582, p < .10$.

Table 4 Analysis of One Way ANOVA Comparing level of ICT mastery in Teaching and Learning Chinese Language

Variable	Variation	Sum of square	df	Mean Square	F	Sig.
Teachers' opinion	Between groups	830.623	3	149.152	276.864	0.004
	Within groups	14366.110	236	62.863		
	Total	15196.733	239			
Problems	Between groups	522.789	3	174.263	6.725	.00
	Within groups	6115.207	236	25.912		
	Total	6637.996	239			
Effect of using ICT	Between groups	211.313	3	70.438	0.881	.451
	Within groups	18784.261	236	79.933		
	Total	18995.573	239			
Level of ICT mastery	Between groups	17539.520	3	5846.507	74.282	.00
	Within groups	42895.430	236	78.707		
	Total	60434.951	239			
Experience of attending ICT courses	Between groups	289.348	3	96.449	2.880	.035
	Within groups	18253.158	236	33.492		
	Total	18542.506	239			
Opinion towards ICT courses	Between groups	1917.249	3	639.083	6.055	.00
	Within groups	57520.907	236	105.043		
	Total	59438.157	239			
Interest to attend ICT courses	Between groups	1706.993	3	568.998	6.690	.00
	Within groups	46356.683	236	85.05		
	Total	48063.676	239			

All items were significant to the level of ICT mastery except effect of using ICT with $F(3, 235) = 0.881, p > .05$. The items that have significant differences included the opinions of teachers on ICT with $F(3, 236) = 276.876, p < .05$, ICT problems faced by teachers with $F(3, 236) = 6.725, p < .05$, the level of ICT mastery with $F(3, 545) = 74.282, p < .05$, experience of teachers to attend ICT courses with $F(3, 545) = 2.880, p < .05$, the opinions of teachers towards ICT courses with $F(3, 545) = 6.055, p < .05$ and interest of teachers in pursuing ICT courses with $F(3, 545) = 6.690, p < .05$.

Table 5 Analysis of One Way ANOVA Comparing Frequency of Usage of ICT in Teaching and Learning Chinese Language

Variable	Variation	Sum of square	df	Mean Square	F	Sig.
Teachers' opinion	Between groups	1601.407	3	400.352	6.920	.00
	Within	13595.327	236	57.852		

	groups					
	Total	15196.733	239			
Problems	Between groups	416.683	3	104.046	3.930	.004
	Within groups	6221.813	236	26.476		
	Total	6637.996	239			
Effect of using ICT	Between groups	547.845	3	136.961	1.737	.143
	Within groups	18447.728	236	78.836		
	Total	18995.573	239			
Level of ICT mastery	Between groups	7758.856	3	1551.771	15.996	.000
	Within groups	52676.095	236	97.009		
	Total	60434.951	239			
Experience of attending ICT courses	Between groups	964.316	3	192.863	5.958	.000
	Within groups	17578.191	236	32.372		
	Total	18542.506	239			
Opinion towards ICT courses	Between groups	3298.759	3	659.759	6.381	.000
	Within groups	56139.398	236	103.387		
	Total	59438.157	239			
Interest to attend ICT courses	Between groups	376.673	3	75.335	0.858	.509
	Within groups	47687.003	236	87.821		
	Total	48063.676	239			

All items were significantly related to frequency of using ICT by the Chinese Language teachers except the effect of ICT usage with $F(4, 235) = 1.737, p > .05$ and teachers' interest in ICT courses with $F(5, 543) = 0.858, p > 0.05$. The items that have significant differences included the opinions of teachers on ICT courses with $F(4, 235) = 6.920, p < .05$, ICT problems faced by teachers with $F(4, 235) = 3.930, p < .05$, the level of ICT mastery with $F(5, 543) = 15.996, p < .05$, experience of teachers to attend ICT courses with $F(5, 543) = 5.958, p < .05$, and the opinions of teachers towards ICT courses with $F(5, 543) = 6.381, p < .05$.

V. DISCUSSION

ANOVA analysis results show that there were significant differences between the teachers' background in terms of states, school types, ICT mastery of teachers and the frequency of ICT application by teachers with the usage of ICT in teaching and learning Chinese Language. Teachers from different states and different types of schools have different tendency to use different ICT; states such as Johor, Selangor and Penang which are developed states for example, have better ICT equipment compared to Sabah; besides that, SJKC and SMK/ SMJK have better ICT facilities than private schools.

All the above factors influenced teachers' usage of ICT in teaching and learning Chinese Language. Similarly, the level of ICT mastery among the teachers and the frequency of using ICT of the Chinese language teachers gave impact on the

application of ICT in teaching and learning as well. Teachers who are more expert in computer use definitely will use ICT in teaching Chinese more frequently compared to those who are not skilled; this means that experienced teachers use computers a year to nine years and teachers with ICT high skills level were more likely to use ICT in teaching and learning of Chinese frequently. This is because the level of skill in the usage of ICT at a higher level will face a lot of problems and obstacles; problems or barriers encountered can be solved with their existing knowledge [14].

The nature of consciousness about the importance and effective use of ICT in teaching and learning teachers also provide more intensive usage of ICT in teaching and learning Chinese language. Such results indicated that basic skills and knowledge of using information technology by the Chinese language teachers must be enhanced. Cavendish [15] reported that significant changes in teacher education are related to their teaching. Changes will bring the desired success if teachers are willing to engage in the application of ICT.

VI. CONCLUSION

Usage of educational technology in education is a first step towards creating a technological society in line with Vision 2020 in Malaysia. The most important educational institutions serve as a platform to experience changes earlier than other institutions to achieve these goals. The application of ICT in teaching and learning Chinese Language should be a convention of all the Chinese language teachers. ICT usage indirectly demands creativity of the teachers. The activities of teaching and learning by using ICT in teaching and learning of Chinese language develop individuals in order to create a knowledgeable and competitive society.

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3. F. P. Chew, M. H. Teong & Z. Ishak. School Homework and Its Relationship with Student Academic Achievement in Malaysia. *International Journal of Human and Social Science*, 6, 446-449, 2012.

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