

Constructing a Story-Based Interactive Learning Approach with the Anchor Strategy and Modularity Concept for Foreign Spouses (Case of Taiwan)

¹Yuh-Tyng Chen and ²Lin-Fang Chen

¹Department of Information Management,

²Department of Applied English, Tainan University of Technology, Tainan 71002, Taiwan

Abstract: In Taiwan, because of the change of social structure, the number of transnational marriage immigrants, mostly females, coming from Southeast Asia has increased dramatically in recent years. This one-exchanged mates and cultural circumstances differ will cause them to face the acculturation pressures. The aims of this study are to construct a story-based interactive for foreign spouses accommodation courses. Considering the varied cultural background and education divide, we integrated the anchor strategy, modularity concept and web navigation to construct a vivid, flexible and effective learning environment. An exploratory test was carried out with 32 foreign spouses. Research data were collected through the questionnaire. The results revealed that the interactive PowerPoint could effectively attract and maintain the participants attention; they felt that the course content and activities were related to their personal goals. Also, they were confident to achieve the expected outcomes of the course and satisfied with the instruction.

Keywords: Acculturation pressures, foreign spouses, story-based interactive PowerPoint, transnational marriage immigrants

INTRODUCTION

For centuries, the flow of people movement cross national boundaries, immigration, migrant workers and refugees, has been increasing all over the world. It does not only change the total population numbers of the countries involved, but also imply the interactions between cultures, politics and economies (Wang, 2001; Tsai and Tsay, 2000). Among the transnational migrants, Taiwan has a special gender division differs greatly from other countries that transnational marriage immigrants coming from Southeast Asia and the highest percentage of this were female (Lin, 2008). Those women who are called "foreign brides", through professional marriage brokers or personal contacts engage in marriages with Taiwanese men. This 'money-exchanged' mate and cultural situations vary will cause them to suffer the acculturation pressures such as the language (Hsia, 2003), health care (Yang and Wang, 2003), negative perceptions spread through the media (Hsia, 2000, 2007) and the commodification of marriage (Tien and Wang, 2006; Wang, 2007; Sandel and Liang, 2010). Recently, Taiwan government budgets for foreign spouses projects and establishes the targets to help the personal and family fundamental rights and needs of foreign spouses (Chen, 2006). Education, especially, is an effective way to destroy the barriers of communication because it can improve the level of knowledge and skills and enhance the quality of life and foster the self-esteem (Yang, 2006). However, according to the investigation shown that 38.4% of foreign spouses education was at a

junior high school level and 31.9% of foreign spouses had graduated from primary school or below (Wang *et al.*, 2011). Hence, considering the barriers of language and education divide, the presentation ways in instructional design will be a challenge. Multimedia-based instruction is being widely applied in the learning environment and helpful scaffold learners (Lai *et al.*, 2011a). PowerPoint, a multimedia and user-friendly package, can be used for the creation of visually clear, dynamic and attention capturing presentations (Holzl, 1997). Using PowerPoint to present multimedia materials in learning can benefit learners (Apperson *et al.*, 2008; Chen *et al.*, 2011). Hence, the aims of this study are integrated the multimedia technology into PowerPoint to design an interactive PowerPoint to enhance the foreign spouses learning.

The rest of this paper, we present the design, procedures and findings from our empirical study. And then, we discuss the conclusion and suggestions of this study.

METHODOLOGY

This study uses the PowerPoint as the experimental medium because PowerPoint is a widely accepted, easily compiled and maintained presenting medium. Previous studies also have constantly suggested that learners generally believed that the use of PowerPoint can effectively help their learning (Chen *et al.*, 2012a; Apperson *et al.*, 2008; Rankin and Hoas, 2001). Considering the multicultural background and educational divide of foreign spouses, this study intends to implement a vivid presentation tool-an interactive PowerPoint for

teachers to enhance the foreign spouses' learning performance. Hence, the purpose of this study is to incorporate the multimedia technologies appropriately into PowerPoint for the foreign spouses accommodation course and evaluate their learning effects.

Sample: The experiment was motivated by the need of 47 foreign spouses in southern Taiwan to learn the accommodation courses. The local government provided courses for ten weeks in total and students have to go to 2 h classes, three times a week. Exclude the unusable surveys which were incomplete questionnaire or activity. As a result, 32 respondents (68% of 47 cases) were used as the basis for data analysis. Of these participants, 36% of whom were from Vietnam, 33% came from Indonesia, 28% came from Mainland China and 3% came from Philippines; and 2% of their education was at a senior high school level, 29% of them were at a junior high school level and 69% of them had graduated from primary school or below. All of them have stayed in Taiwan more than one year and have more than six months learning experience with Chinese language.

Research instrument:

The learning perception survey: This study modified and adopted the closed-end questionnaire from the ARCS motivation model proposed by (Keller, 1983). The four constructs in this model include attention, relevance, confidence and satisfaction, they describe the motivational procedure: while keeping the learners attention is critical, instructors will provide an interactive and participative environment to gain and maintain learners attention; learners will feel relevant that the course content, activities and assignments must be related to their personal and professional goals, confident that they can achieve the expected outcomes of the course and satisfaction which derive from the instruction (Johnson and Aragon, 2003). The questionnaire, Instructional Material Motivational Survey (IMMS)--overall motivation to learn was evaluated. IMMS that developed around Keller's ARCS model of motivational design was designed to evaluate how instructional materials affected motivation to learn (Keller, 1983). It contains a 36 7-point Likert scale statements, ranging from extremely dissatisfied (1) to extremely satisfy (7), as well as to provide open comments on the system. Each statement measures an individual ARCS component. In order to minimize possible error because of participants' varying levels of English comprehension, a Chinese version of the questionnaire was used, with the Chinese version of IMMS administered by ESL/EFL and translation experts to prevent any translation mistakes. For the four constructs components, Cronbach alpha was between

0.821~0.882. Thus, the reliability of the questionnaire surveys is quite good.

To confirm validity, this study invited several scholars and senior foreign spouses and social workers to provide their suggestions and give appropriate modifications and corrections and integrate relevant questions and content to establish the validity of the questionnaire survey scale.

The design of story-based interactive PowerPoint:

Considering the varied cultural background and education divide of foreign spouses, previous researches suggested that multimedia and story-based materials are suitable for those special learners (Liou and Cheng, 2008). Hence, the design procedure of instructional materials in this study was as following:

Step 1: According to the cognitive load theory, the intrinsic cognitive load can not be changed during leaning, but with appropriate instructional design can increase the germane cognitive load and decrease the extraneous cognitive load (Hasler *et al.*, 2007). Therefore, we conducted the anchored instruction strategy into the curriculum material. Anchored instruction provides a problem-based story environment for learners (Fig. 1). An "anchor" is often a story, occurrence, or situation that includes a problem or issue to be dealt with that is of interest to the learners. All related activities should be designed around an "anchor"; this approach will encourage learners become more actively engaged in learning by situating or anchoring instruction around an interesting topic. The learning environments are designed to excite learners develop effective thinking skills and attitudes that lead to effective problem solving and critical thinking (CTGV, 1993).

Step 2: For resolving the extraneous cognitive load, we must assure that something should be as simple as having only one main idea per slide. We used the comic graphics instead of complicated texture or bullet points to illustrate the instructional content because using picture-based visual communication is able to improved learners' learning and recalling (Levie and Lentz, 1982). For capturing the attention and interesting, we conducted the animation to present the context of each slide (Fig. 1). Using animations appropriately in PowerPoint presentations can effectively increase emphasis to a particular point (Berk, 2011).

Step 3: Compared to the conventional linear slide shows, interactive presentation styles not only address

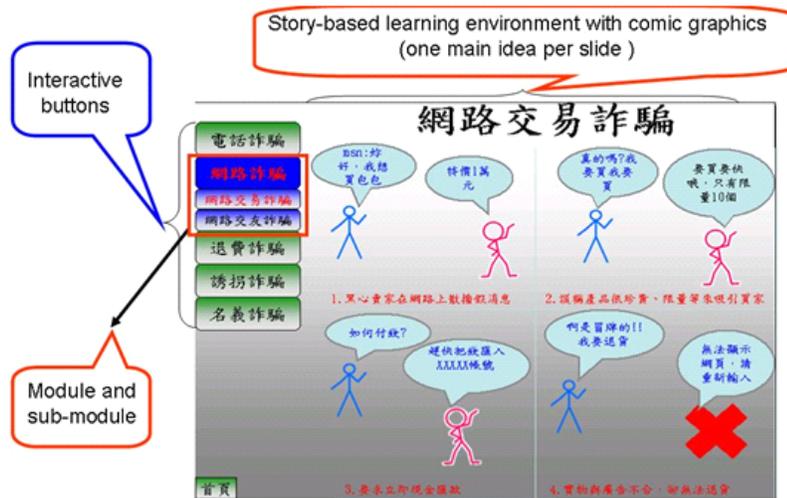


Fig. 1: The presentation of interactive PowerPoint. The interactive buttons (each buttons represented one module or sub module) with hyperlink allowed user random “on-demand” access to any particular part. Slides contain truly meaningful, visual content rather than complicated texts. And animation for presentation also has been added the audience’s interest

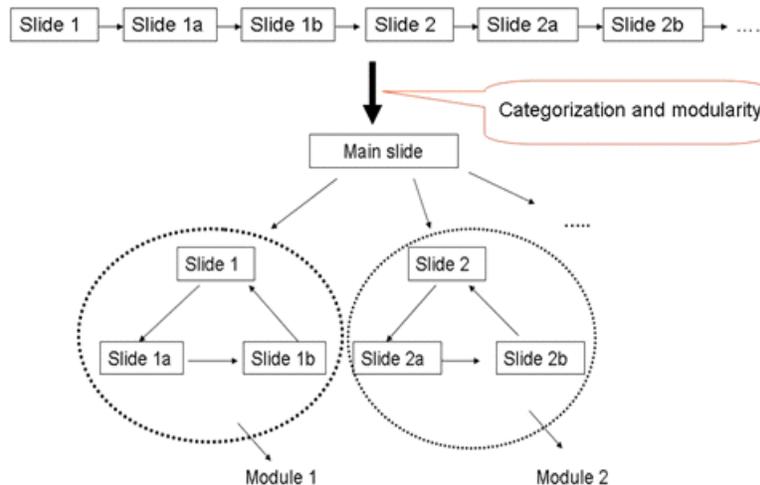


Fig. 2: Categorized and modeled the linear slides into the modules and sub- modules

the benefits, but also offer the users with much needed flexibility, ease of use and efficiency in managing the presentation slides as brand marketing resources (Hu, 2011). Accordingly, we adopted the concept of modularity to divide the contents of the entire presentation into individual modules (Fig. 2). Each module is an entirely independent slide show, containing just a few closely interrelated slides. It is easy to modify any slide in the separated module in future. Each module also can supply to individual or others repetition uses. From the information technology management point of view, it is a cost-effective and time-efficient approach.

Step 4: Finally, we conducted web navigation to integrate these separated modules to build a hierarchical presentation network. The interactive buttons which embraced the navigation (hyperlink) technology give a teacher the power to interact with students and be far more natural, spontaneous and conversational (Lane and Wright, 2009) (Fig. 1).

Procedure: In order to verify the learning perceptions of the story-based interactive PowerPoint presentation, an exploratory study was conducted. Considering the perceived of the Chinese literacy divide, there were some

Table 1: Paired-sample t-value of pre-test and post-test learning perception evaluation

	Tests	Mean	SD	t-value	Sig.
Attention	Pre-test	3.48	0.926	-2.528	0.017*
	Post-test	3.71	0.973		
Relevance	Pre-test	3.39	1.022	-2.283	0.008**
	Post-test	3.77	0.956		
Confidence	Pre-test	3.39	1.012	-4.139	0.000***
	Post-test	3.81	0.873		
Satisfaction	Pre-test	3.45	0.961	-2.176	0.024*
	Post-test	4.03	0.836		

*: Significant at <0.05; **: Significant at <0.01; ***: Significant at <0.001

senior foreign spouses and social workers voluntarily assisted this experimental activity.

Pre-test: To analyze the differences of the foreign spouses' learning perception between before and after of experimental activity, the pre-test was conducted at the first week of experimental activity.

In this experimental activity: Total workshop duration was ten weeks. In the workshop we not only provided the instructional content with story-based interactive PowerPoint but also conducted the discussion/feedback (learning experience share) in each class time.

Post-test: At the end of the activity, the participants accomplished the questionnaire of learning perception and were interviewed.

Data process and analysis: This study gathered the responses and used Statistical Package for the Social Sciences (SPSS) for Windows, a statistical program, for data analysis. The data collected was coded and entered into a computer by optical scoring and analyzed using SPSS. Paired-samples t test was used to determine the effects of experimental course. The standard for significance in this study was 0.05. Descriptive statistics, including means and standard deviations, were reported in order to understand the participants' cognitive results of the learning activity. The computed mean rating for each item was compared with the theoretical mean rating (assuming normal distribution of responses) of 3.0 to determine whether respondents agreed with the statements. Any computed mean of an item exceeding 3.0 indicated expression of agreement with the statement, while means below 3.0 indicated expression of disagreement with the statement (Donkor, 2011).

RESULTS

The difference of pre-test and post-test learning perception evaluation: This study employed the pre-test which was provided in the pre-experiment activity and post-test to differentiate between what participants already knew prior to the learning and what participants actually learned during the experimental programme (Rajeev *et al.*, 2009). Table 1 showed the statistical analysis of

paired-sample t test, the t-value of four components are at -2.528, -2.283, -4.139 and -2.176 and all of two-tailed test values (significances) were also <0.05. As a result, they have reached the statistically significant level. The statistical result reveals that after the learning with story-base interactive PowerPoint, the post-test of four components are statistically higher than those of pre-test.

Participants interview: The participants were interviewed during and after the study. The participants opinions were useful in examining the interactive PowerPoint. The participants comments were summarized as following:

The interactive PowerPoint stimulated their learning motivation and captured their attention.

They felt that the story-based learning environment could promote their understanding of the learning contents and fit their needs. Accordingly, they had confidence to finish their assignments and this learning activity.

They thought that the instructor could quickly changed and selected the particular slide to help them with their questions, thereby engaged them to acquire more information and remember more ideas.

They like the learning atmosphere in the experimental activity because of its vivid, flexible and usable characters. In addition, this activity provided the learning experience shared. Through the sharing process, they felt they would be inspired and cared. They also learned how to express themselves, this would benefit for their Chinese literacy.

DISCUSSION

Students in this case study revealed that the story-based interactive PowerPoint is helpful in the learning. The findings of this study are consistent with cognitive theory of multimedia learning (Mayer, 2001) and adult learning theory. We summarized them as following:

Firstly, a lesson must gain and sustain the learner's attention (Keller and Suzuki, 2004). And researchers found that attention which directed by learnable feature specialness may provide some internal guidance for human learners (Billman and Heit, 1988; Martin, 1989). Considering the different cultural background and education divide, this study replaced the complicated

texture with the comic story-based context, visual and animated presentation, which could successfully attract the participants attention and stimulate their interests.

Secondly, according to Mayer (2001) cognitive theory of multimedia learning, learners who selected from both graphic and text modes were able to build more referential connections between the verbal and visual mental representations (Lai *et al.*, 2011a, b). And based on the adult learning principles, adults have accumulated a foundation of life experiences and knowledge (Lieb, 1991). In this study, the foreign spouses learning belongs to adult learning. They need to connect learning to this knowledge and experience base. This study employed the anchored instruction strategy with the rich comic graphics and animations to lead the participants involving in the story that could best fit their needs and preferences (Jones and Plass, 2002). Thus, the interactive PowerPoint presentation could help the foreign spouses connect to their related life experience and thereby acquire more information and deeply comprehension.

Thirdly, in this study, the interactive PowerPoint presentation incorporated hyperlinks and hierarchical design strategies that provided the instructor with the flexibilities and efficiency in managing the presentation slides. The instructor also easily changed and selected the particular slide to help participants with their questions, thereby helping the cognitive process in the comprehension of the content being taught (Hasler *et al.*, 2007; Wallen *et al.*, 2005). Hence, they felt confident to achieve the expected outcomes of the course. However, in the traditional PowerPoint display environment instructors can not quickly move and change the desirable slides to explain two successive or separated slides. They may lose chances to make important links between more distantly related topics by showing materials in a set order. This may result in decreasing a student ability to solve a particular problem.

Last, in this study, we integrated the multimedia technology and anchor strategy into instructional materials design and shared the learning experience with each other which could encourage them more participation and integration. Through the questionnaire and interview, the participants of foreign spouses reflected that the story-based interactive PowerPoint not only provided the lively and flexible on demand learning environment but also established a friendly open atmosphere that showed the foreign spouses would be respected and valued (Chen, 2012b). Therefore, they felt satisfaction with this experimental activity.

CONCLUSION AND RECOMMENDATION

In Taiwan, the foreign spouses do need help in their cultural and daily life, especially with language and regulations. This study utilized the anchored Instruction strategy and multimedia technology to construct a story-

based interactive leaning environment to promote the positive effects of the interactive PowerPoint presentation in foreign spouses learning. Within the network presentation designed, the content was hierarchically arranged and navigable, the instructor could simultaneously show what he/she said, regardless of where the interaction leads, his/her message would take greater significance. As for foreign spouses, a good presentation meant being coherent, explicit and a clear structure. This study integrated the anchored instructional strategy into PowerPoint presentation materials which was helpful for them to understand the learning contents because the topics could be relevant to their daily lives and presented with the story-based manner. Accordingly, this learning environment allows foreign spouses to create more cognitive paths to facilitate the construction of referential links and mutual references between two channel representations (Lai *et al.*, 2011b; Chen *et al.*, 2011). Finally, the survey results of this study have shown that foreign spouses had a more positive attitude toward learning. The story-based interactive PowerPoint could effectively benefit foreign spouses to reach a better learning performance.

There is still room to improve in this study: the scope of the study was limited: the success of interactive PowerPoint may be varied by content and some topics or courses may be better-suited to learning than others; samples of participants drawn from one accommodation class were examined in this experiment and thus the results could reflect a bias. Further expansion of the scope, subjects and personal characters is needed for the future study.

REFERENCES

- Apperson, J.M., E.I. Laws and J.A. Scepansky, 2008. An assessment of student preferences for PowerPoint presentation structure in undergraduate courses. *Comput. Educ.*, 50(1): 148-153.
- Berk, R.A., 2011. Research on power point: From basic features to multimedia. *Int. J. Technol. Teach. Learn.*, 7(1): 24-35.
- Billman, D. and E. Heit, 1988. Observational learning from internal feedback: A simulation of an adaptive learning method. *Cogn. Sci.*, 12: 587-625.
- Chen, Y.L., 2006. Foreign spouses in Taiwan. Retrieved from: <http://163.22.14.202/2006SP/reportpdf/yuli/Foreign-spouses-in-Taiwan.pdf>.
- Chen, Y.T., T.J. Chen and L.Y. Tsai, 2011. Development and evaluation of multimedia reciprocal representation instructional materials. *Int. J. Phys. Sci.*, 6(6): 1431-1439.
- Chen, Y.T., 2012a. Integrating anchored instructional strategy and modularity concept into Interactive multimedia Power Point presentation. *Int. J. Phys. Sci.*, 7(1): 107-115.

- Chen, Y.T., 2012b. The effect of thematic video-based instruction on learning and motivation in e-learning. *Int. J. Phys. Sci.*, 7(6): 957-965.
- CTGV, 1993. Anchored instruction and situated cognition revised. *Educ. Technol.*, 33(3): 52-70.
- Donkor, F., 2011. Assessment of learner acceptance and satisfaction with video-based instructional materials for teaching practical skills at a distance. *Int. Rev. Res. Open Dist. Learn*, 12(5): 74-92.
- Hasler, B.S., B. Kersten and J. Sweller, 2007. Learner control, cognitive load and instructional animation. *Appl. Cogn. Psychol.*, 21: 713-729.
- Holzl, J., 1997. Twelve tips for effective PowerPoint presentations for the technologically challenged. *Med. Teach.*, 19(3): 175-179.
- Hsia, H.C., 2000. Transnational marriage and internationalization of capital-the case of the 'foreign bride' phenomenon in Taiwan, Taiwan: A radical Quart. in *Soc. Stud.*, 39: 45-92.
- Hsia, H.C., 2003. The Localization of Praxis-Oriented Research: The Case of "Foreign Brides Literacy Programs". Taiwan: A radical Quart. in *Soc. Stud.*, 43: 1-47.
- Hsia, H.C., 2007. Imaged and imagined threat to the nation: the media construction of the 'foreign brides' phenomenon' as social problems in Taiwan. *Inter-Asia Cult. Stud.*, 8(1): 55-85
- Hu, H., 2011. Tired of Feeling Trapped Inside Your Linear Power Point Slide Shows? Retrieved from: <http://alexhhu.weebly.com/demo-library.html>.
- Johnson, S.D. and S.A. Aragon, 2003. An Instructional Strategy Framework for Online Learning Environments. In: Aragon, S.A., (Ed.), *Facilitating Learning in Online Environments. New Directions for Adult and Continuing Education*. Jossey-Bass, San Francisco, 10: 1-44.
- Jones, L.C. and J.L. Plass, 2002. Supporting listening comprehension and vocabulary acquisition in French with multimedia annotations. *Modern Lang. J.*, 86(4): 546-561.
- Keller, J.M., 1983. Motivational design of Instruction. In: Reigeluth, C.M., (Ed.), *Instructional-design Theories and Models. An over view of their Current Status*. Lawrence Erlbaum Associates, Hillsdale, NJ.
- Keller, J.M. and K. Suzuki, 2004. Learner motivation and E-learning design: A multinationally validated process. *J. Educ. Media*, 29(3): 229-239.
- Lai, Y.S., H.H. Tsai and P.T. Yu, 2011a. Screen-capturing system with two-layer display for power point presentation to enhance classroom education. *Educ. Technol. Soc.*, 14(3): 69-81.
- Lai, Y.S., H.H. Tsai and P.T. Yu, 2011b. Integrating annotations into a dual-slide power point presentation for classroom learning. *Educ. Technol. Soc.*, 14(2): 43-57.
- Lane, R. and R. Wright, 2009. And the Research Says? Power Point Meets Cognitive Science. Retrieved from: <http://office.microsoft.com/en-us/help/and-the-research-says-PowerPoint-meets-cognitive-science-HA010198311.aspx>.
- Lievie, W.H. and R. Lentz, 1982. Effects of text illustrations: A review of research. *Educ. Technol. Res. Dev.*, 30(4): 195-232.
- Lieb, S., 1991. Principles of Adult Learning. Honolulu Community College. Retrieved from: <http://honolulu.hawaii.edu/intranet/committees/FacDevCom/guidebk/teachtip/adults-.htm>.
- Lin, C.Y., 2008. *Invisible Self? A Case Study on Literacy Learning of Transnational Immigrant Marriage in Taiwan*, 2nd Global Conference [online]. Retrieved from: <http://www.inter-disciplinary.net/ptb/persons/pil/pil2/lin%20paper.pdf>.
- Liou, C.S. and T.B. Cheng, 2008. From literacy to empowerment: An adequate course scheme for the foreign brides. *School Admin. Res. Assoc.*, 58: 33-43.
- Martin, J., 1989. Focusing attention for observational learning: The importance of context. *International Joint Conference on Artificial Intelligence*, 2: 562-567, Retrieved from: <http://www.ijcai.org/Past%20Proceedings/IJCAI-89-VOL1/PDF/090.pdf>.
- Mayer, R.E., 2001. *Multimedia Learning*. Cambridge University Press, Cambridge.
- Rankin, E.L. and D.J. Hoas, 2001. The use of PowerPoint and student performance. *Atlantic Econ. J.*, 29(1): 113.
- Rajeev, P., M.S. Madan and K. Jayarajan, 2009. Revisiting Kirkpatrick's model-an evaluation of an academic training course. *Curr. Sci.*, 96(2): 272-276.
- Sandel, T.L. and C.H. Liang, 2010. Taiwan's fifth ethnic group: A study of the acculturation and cultural fusion of women who have married into families in Taiwan. *J. Int. Intercult. Comm.*, 3 (3): 249-275.
- Tien, C.Y. and H.Z. Wang, 2006. Masculinity and cross-border marriages: Why do Taiwanese men seek Vietnamese women to Marry? *Taiwan J. Southeast Asian Stud.*, 3(1): 1-36.
- Tsai, P.L. and C.L. Tsay, 2000. Economic Development, Foreign Direct Investment and International Labor Migration: The Experience of Japan, Taiwan and Thailand. Paper presented at Symposium on Experiences and Challenges of Economic Development in Southeast and East Asia. Institute of Economics, Academia Sinica, Taiwan.
- Wallen, E., J.L. Plass and R. Brünken, 2005. The function of annotations in the comprehension of scientific texts: Cognitive load effects and the impact of verbal ability. *Educ. Technol. Res. Devel.*, 53(3): 59-71.
- Wang, H.Z., 2001. Social stratification, vietnamese partners migration and Taiwan lab our market. *Taiwan: A Radical Quart. Soc. Stud.*, 41: 99-127.

- Wang, H.Z., 2007. Hidden Spaces of Resistance of the Subordinated: Case Studies from Vietnamese Female Migrant Partners in Taiwan, Retrieved from: [http: 10.1111/j.1747-7379.2007.00091.x](http://10.1111/j.1747-7379.2007.00091.x).
- Wang, S.M., Y.H. Lin, J.L. Lee, W.Y. Chen and G.Y.W. Lian, 2011. Correlations between demographic characteristics and healthcare needs among new female immigrants in Taiwan. *Ching. Med. J.*, 7(1): 19-31.
- Yang, K.S., 2006. Indigenized conceptual and empirical analyses of selected Chinese psychological characteristics. *Int. J. Psychol.*, 41(4): 298-303.
- Yang, Y.M. and H.H. Wang, 2003. Life and health concerns of Indonesian women in transnational marriages in Taiwan. *Int. J. Nurs. Stud.*, 11(3): 167-176.