Structural Engineering and Mechanics, Vol. 44, No. 5 (2012) 633-647
DOI: http://dx.doi.org/10.12989/sem.2012.44.5.633

An integrate information technology model during earthquake dynamics

Chen-Yuan Chen*[1], Ying-Hsiu Chen[2], Shang-En Yu[3], Yi-Wen Chen[1] and Chien-Chung Li[4]

[1]*Department and Graduate School of Computer Science, National Pingtung University of Education, No. 4-18, Ming Shen Rd., Pingtung 90003, Taiwan, ROC*
[2]*Department of Applied Finance, Yuanpei University, No.306, Yuanpei Street, Hsinchu 30015, Taiwan, ROC*
[3]*Department of Tourism, School of Tourism, Ming Chuan University, 5 De Ming Rd., Gui Shan Township, Taoyuan County 333, Taiwan, ROC*
[4]*Department of Civil Engineering, Natonal Taiwan University, Taiwan, ROC*

(Received May 16, 2012, Revised October 9, 2012, Accepted October 27, 2012)

Abstract. Applying Information Technology (IT) in practical engineering has become one of the most important issues in the past few decades, especially on internal solitary wave, intelligent robot interaction, artificial intelligence, fuzzy Lyapunov, tension leg platform (TLP), consumer and service quality. Other than affecting the traditional teaching mode or increasing the inter-relation with users, IT can also be connected with the current society by collecting the latest information from the internet. It is apparently a fashion-catching-up technology. Therefore, the learning of how to use IT facilities is becoming one of engineers' skills nowadays. In addition to studying how well engineers learn to operate IT facilities and apply them into teaching, how engineers' general capacity of information effects the results of learning IT are also discussed. This research introduces the "Combined TAM and TPB mode," to understand the situation of engineers using IT facilities.

Keywords: NXT; dynamics; information technology; C-TAM-TPB

1. Introduction

From the multimedia teaching, internet teaching to today's interactive board teaching, the software and hardware of teaching changes drastically because of the development in technologies (Kerry *et al.* 2011). Information is quickly circulating under the changes in the old and new technologies, and the new knowledge is being created. Therefore, the teaching patterns and teaching methods of engineers are bound to be adjusted (Kerry *et al.* 2011). Many engineers and scholars also believe that information technology can contribute to business management reform and bring innovation into the traditional teaching (Dexter *et al.* 1999, Dias 1999).

*Corresponding author, Professor, E-mail: cyc@mail.npue.edu.tw

2. Literature review

After 1999, the Ministry of Business management implemented the program on "Information Business management Infrastructure Project" to expand domestic demand, where every high school and elementary school in Taiwan owns a computer lab which can connect via ADSL or T1 line to the Taiwan Academic Network TANet. In 2009 "Build schools with equally high-quality digital business managemental environment plan" established a special list including multi-functional e-classrooms, single-gun projectors or monitors, networks, computers, electronic whiteboards, cameras, portable and writable computers, and other equipments (White Paper of Ministry of Education 2008, Chang *et al.* 2012a-d, Chen 2012a-e, Chen 2004 2006a-b, 2007a-c, 2008, 2009a-d, 2010a-e, 2011a-h, 2012a-i, Chen *et al.* 2012a-i, Chen 2005a-b, 2006a-b, 2007a-g, 2008a-b, 2009a-b, 2010a-g, 2011a-d, 2012a-k, Chen *et al.* 2012a-i).

Information technology in teaching refers to integrating IT in the curriculum, teaching materials and teaching, so that information technology becomes an indispensable teaching tool and learning tool for engineers and users, making use of information technology into the classroom in their daily teaching of activities, which can be extended to use information technology as a method or a program at any time, any place to find answers to your questions (Wang 2000, Kerry *et al.* 2011, Chiang *et al.* 2010, Chiou *et al.* 2011, Chu *et al.* 2011, Chung *et al.* 2012, Hsiao *et al.* 2005a-e, Hsieh *et al.* 2006, Hsu *et al.* 2012, Hsu *et al.* 2011, 2012a-c, Huang *et al.* 2012).

The implementation of information technology in teaching could not distinguish whether if this course intends to learn how to use information technology or just to learn other subjects or areas in the academic curriculum. In other words, IT has been truly integrated into other learning areas, rather than as a separate discipline (isolated subject). The emphasis of information technology in teaching is holistic and integrated, which is inseparable with both curriculum and teaching. If we can make use of information technology in everyday teaching and learning, IT will become a common tool for teaching and learning, thus successfully integrating information technology into teaching (Wang 2000, Liu *et al.* 2011, 2012, Shen *et al.* 2011, Shih *et al.* 2010, 2011, 2012, Shih 2010a-c, 2011a-c, 2012a-o, Chen *et al.* 2008, 2009a-b, 2011a-b, Chen 2012).

The teaching pattern has also changed after the implementation of information technology into teaching (Dexter *et al.* 1999, Dias 1999). Engineers no longer play the main role in teaching but the roles as guiders and supporters, consequently, users become the center of teaching and learning. In addition to the changing roles of engineers and users, the design of curriculum, teaching materials, and teaching strategies will all be shifted to user-centered integrated curriculum (Wolf *et al.* 2011, Chen 2008, 2010, Cheng *et al.* 2011, Kuo 2010, 2011a-b, Kuo and Chen 2012a-b, Lee 2011a-b, Lee 2010a-d, 2011, 2012a-c, Lin *et al.* 2009, Lin *et al.* 2012, Lin 2011, 2012a-d).

The key to success in teaching lies on engineers rather than teaching media. Many people have the misconception that new technology will be more effective than the traditional teaching media, in fact, effective learning is not media itself, but what teaching strategies and teaching methods are used when applying information technology or teaching media (Clark 1994, Lin 2009, 2010, 2011a-b, 2012a-b, Liu 2010, Liu *et al.* 2012, Liu 2009, 2011, 2012a-c, Yeh *et al.* 2008, 2010, 2012, Yu *et al.* 2011a-b, Zhang *et al.* 2011a-d).

Whether it is traditional media, digital media, multimedia, etc., as long as the tool is beneficial for teaching, engineers can integrate any information into teaching and learning activities (Wolf *et al.* 2011, Su *et al.* 2011, Tang *et al.* 2011, Tsai *et al.* 2008, Yang and Chen 2012).

It is believed that the sound and light video in information technology can draw attention and

stimulate learning motivation of users through animation and other features, and materials are easily updated over the network to promote independent learning and skills in information for users via technology (Shen 2008, Tsai and Chen 2010, 2011a-b, Tseng *et al.* 2012a-d, Yang *et al.* 2008a-b).

3. Information model

3.1 The meaning of information literacy

Literacy can be divided into two categories, where one is the traditional meaning of the so-called literacy; in other words, individuals with reading, writing and arithmetic ability to adapt to life. The other is functional literacy, referring to as an individual with a certain skills, and according to their own set of goals to conform to at home, work, community, and social life of role-playing (Huang, 2003). Simply put, information literacy is the ability to adapt to the information society. International scholars (McClure 1994) suggest that information literacy is integrated by the following four qualities:

1. Traditional literacy: the ability of reading, writing and arithmetic. 2. Media literacy: the ability of understanding printed form of non-text media, the interpretation, evaluation, analysis, production, and evaluation. 3. Computer literacy: the ability of using computer hardware and software such as word processing, spreadsheet and other tools to handle the file data capabilities. 4. Network literacy: the ability of understanding the functions of Networking, application network resources, retrieving, processing, using and evaluating Internet resources.

3.2 The information literacy of engineers

Ho and Lan (2000) believed that based on information technology applied in the classroom, engineers should obtain the information literacy both in operation and demonstration of teaching integration. In the aspect of opeational demonstration, engineers must familiarize with the operations of school hardware devices (such as network, PC, digital TV, single-gun projectors, video systems, etc.), the integration of multimedia computer applications, the type and suitable condition of network and software resources available at schools, and to fully understand the meaning of teaching, in order to use free software resources for the most appropriate hardware at present with the most appropriate teaching and learning processes and thereby to receive the best teaching results. In the integration of teaching, engineers must be equipped with the operation and demonstration of information literacy, yet familiarize with the basic application software used (especially in the open software such as word processing, spreadsheet, presentation systems, etc.), and the need for learning strategies and full understanding of teaching content, thereby to design the integration of IT teaching and learning strategies.

There are three basic qualities and ten indicators established by Ministry of Business management for engineers with regards to information literacy, namely (1) Literacy of professional knowledge and information programs: to understand the network etiquette, to respect intellectual property rights, to understand the importance of information security, and to understand the computer as a teaching tool for general. (2) Operation literacy of software packages and application software: to use the computer-aided teaching software and network resources, to manage and process user data system, and to operate the system and related applications. (3) Literacy of application of online

teaching for subjects: to use network resources for individual teaching activities, to use network resources in participated interactive teaching, and to use the Internet resources to distance teaching and activities (Information literacy of Ministry of Education 2000).

4. Combined TAM and TPB model

Taylor and Todd (1995) believed in applying TAM in predicting technology acceptance of user's behavior intention for use of new technology and actual behavior. Although a large number of empirical studies support this theory, t the other two factors have not been confirmed by studies so to display the significant effects of factors - social factors and control factors in the model. These two factors are referred to as the TPB variables in theory of planned behavior. Therefore, Taylor and Todd (1995) attempted to combine the technology acceptance model and theory of planned behavior by adding the two variables, the subjective norms and perceived behavioral control, into the new model, in addition to proposing combination of Planned Behavior Theory and Technology Acceptance Model (Combined TAM and TPB, C-TAM-TPB).

According to the empirical findings, the C-TAM-TPB modelexplains the behavior of users for use of new technology with a high fitness. In addition, Pavlou and Fygenson (2006) applied the theory to predict e-commerce adoption behavior, and the studies have shown self-efficacy through PBC. This study adds a self-efficacy factor before the PBC factor to the use of IT for viewing whether if the PBC is related.

In this study, C-TAM-TPB (Taylor and Todd 1995) is adopted as a theoretical basis. At the same time IT self-efficacy and information literacy are increased as variables in this study. The correlation is showed in Fig. 2 variables.

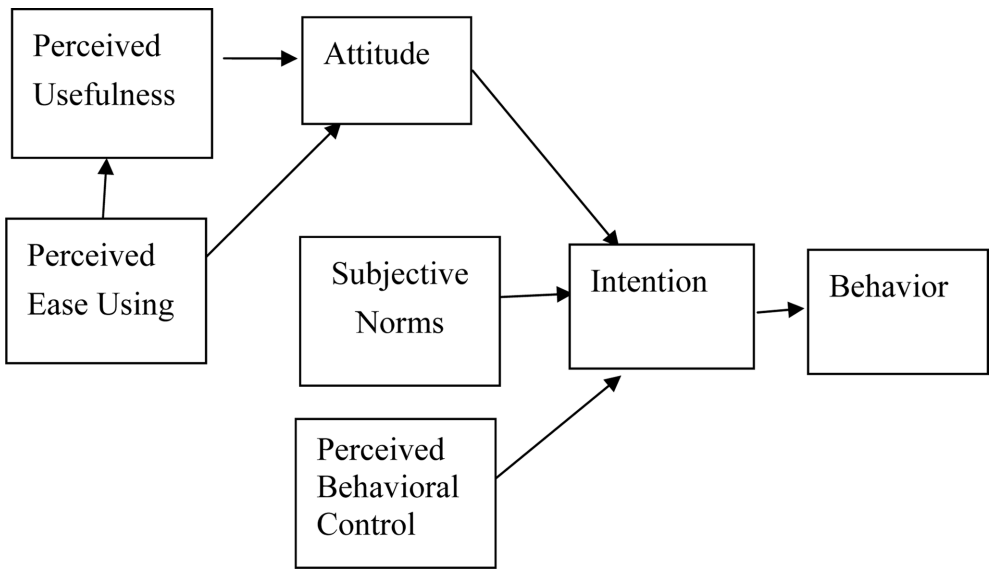

Fig. 1 C-TAM and TPB Model (Taylor and Todd 1995)

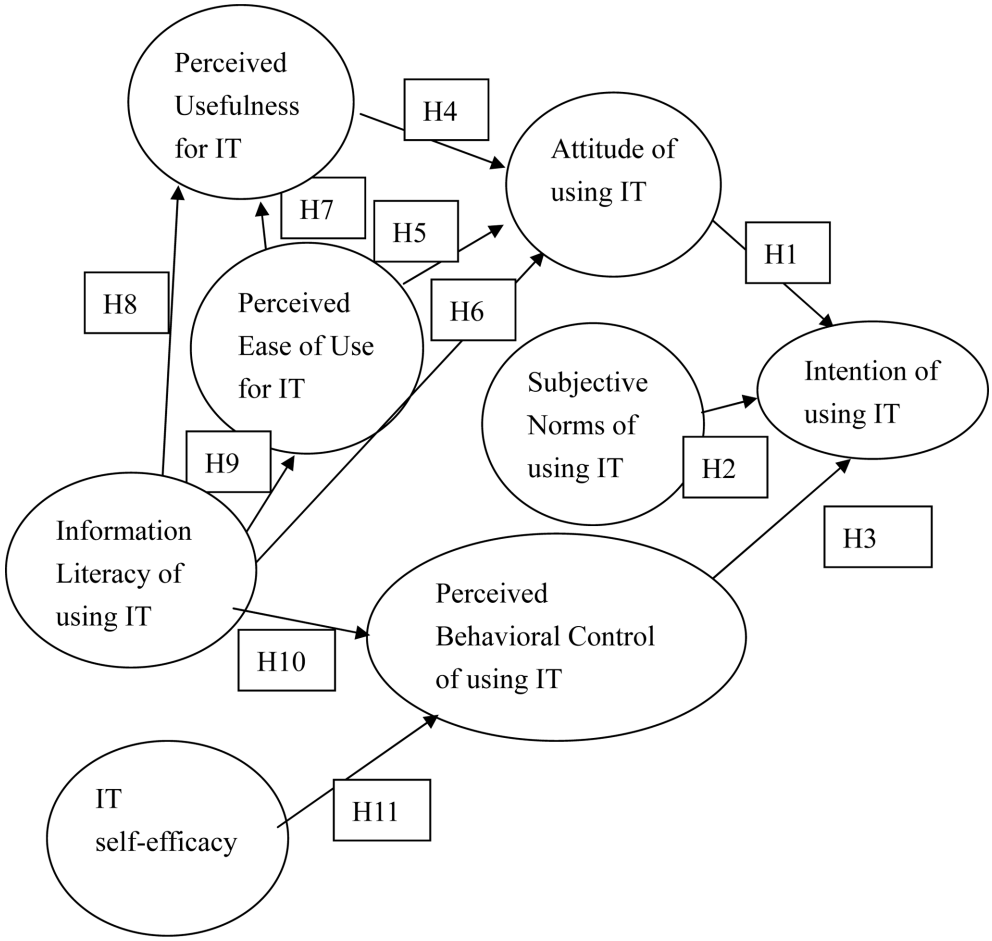

Fig. 2 Research model

Eleven paths can be founded in Fig. 2. This study has developed hypothesis H1-11, and described in the follows:

H1 User attitude toward using IT has a positive effect on behavioral intention.
H2 Subjective Norms has a positive effect on behavioral intention.
H3 Perceived Behavioral Control has a positive effect on behavioral intention.
H4 Perceived usefulness has a positive effect on user attitude toward using IT.
H5 Perceived ease of use has a positive effect on user attitude toward using IT.
H6 Information literacy has a positive effect on user attitude toward using IT.
H7 Perceived ease of use has a positive effect on perceived usefulness.
H8 Information literacy has a positive effect on perceived usefulness.
H9 Information literacy has a positive effect on perceived ease of use.
H10 Information literacy has a positive effect on PBC.
H11 IT self-efficacy has a positive effect on PBC.

5. Conclusions

In summary, the research model have shown more significance and the model can be established in this study. The future work is to certify the flexible and its useful on educational measurement and pratical application. Since information technology may be integrated in the situation of natural hazards, the model presented in this paper would benefit future study on engineernig dynamics.

Acknowledgements

The authors are appreciative of the financial support in the form of research grants to CYC and YHC from the National Science Council, Republic of China under Grant Nos. NSC 101-2221-E-153-001-MY2, NSC 101-2410-H-264-005, and NSC 100-2628-E-153-001. The authors also wish to voice his appreciation for the kind assistance of Prof. Chang-Koon Choi, Editor-in-chief of the Structural Engineering and Mechanics, and would also like to thank three anonymous reviewers for their constructive suggestions which have greatly aided in the improvement of this paper.

References

Ajzen, I. (1985), *From Intentions to Actions: A Theory of Planned Behavior*, Eds. J. Kuhl and J. Bechmann, Action Control: From Cognition to Behavior, Springer Heidelberg,.

Ajzen, I. (1991), "The theory of planned behavior", Organizational Behavior and Human Decision Processes, **50**(2), 179 -211.

Ajzen, I. (2002), "Perceived behavioral control, self-efficacy, locus of control, and the theory of planned behavior", *J. Appl. Soc. Psychol.*, **32**, 665-683.

Bandura, A. (1982), "Self-efficacy mechanism in human agency", *Am. Psychol.*, **37**(2), 122-147.

Chang, C.J., Chen, C.Y. and Huang, C.W. (2012a), "Applications for medical recovery using wireless control of a bluetooth ball with a hybrid G-sensor and human-computer interface technology", *J. Vib. Control,* DOI:10.1177/1077546312442948.

Chang, C.J., Chen, C.Y. and Chou, I.T. (2012b), "The design of information and communication technologies: telecom MOD strength machines", *J. Vib. Control,* DOI: 10.1177/1077546312449644.

Chang, C.J., Kuo, H.C., Chen, C.Y., Chen, T.H. and Chung, P.Y. (2012c), "Ergonomic techniques for a mobile e-invoice system: operational requirements of an information management system", *Hum. Factor. Ergon. Man.,* DOI: 10.1002/hfm.20340.

Chang, R.F., Chen, C.Y., Su, F.P., Lin, H.C. and Liu, K.C. (2012d), "Multiphase SUMO robot based on an agile modeling-driven process for a small mobile robot", *J. Vib. Control,* DOI: 10.1177/1077546312464993.

Chen, C.H., Kuo, C.M., Chen, C.Y. and Dai, J.H. (2012a), "The design and synthesis using hierarchical robotic discrete-event modeling", *J. Vib. Control,* DOI: 10.1177/1077546312449645.

Chen, C.H., Yao, T.K., Kuo, C.M. and Chen, C.Y. (2012b), "Evolutionary design of constructive multilayer feedforward neural network", *J. Vib. Control,* DOI: 10.1177/1077546312456726.

Chen, C.H., Yao, T.K., Dai, J.H. and Chen, C.Y. (2012c), "A pipelined multiprocessor SOC design methodology for streaming signal processing", *J. Vib. Control,* DOI: 10.1177/1077546312458821.

Chen, C.H., Kuo, C.M., Hsieh, S.H. and Chen, C.Y. (2012d), "High efficient very-large-scale integration (VLSI) implementation of probabilistic neural network image interpolator", *J. Vib. Control,* DOI: 10.1177/1077546312458822.

Chen, C.H., Wu, W.X. and Chen, C.Y. (2012e), "Ant-inspired collective problem-solving systems", *J. Vib. Control,* DOI: 10.1177/1077546312456231.

Chen, C.W. (2004), "Stability analysis of T-S fuzzy models for nonlinear multiple time-delay interconnected

systems", *Math. Comput. Simul.*, **66**, 523-537.
Chen, C.W. (2006a), "Fuzzy Lyapunov method for stability conditions of nonlinear systems", *Int. J. Artif. Intell. Tool.*, **15**, 163-171.
Chen, C.W. (2006b), "Stability conditions of fuzzy systems and its application to structural and mechanical systems", *Adv. Eng. Softw.*, **37**, 624-629.
Chen, C.W., Yang, H.C. and Chen, T.H. (2007a), "Analysis of experimental data on internal waves with statistical method", *Int. J. Comput.-Aid. Eng. Softw.,* **24**, 116-150.
Chen, C.W., Yeh, K., Chiang, W.L. and Wu, D.J. (2007b), "Modeling, H^{∞} control and stability analysis for structural systems using Takagi-Sugeno fuzzy model", *J. Vib. Control*, **13**, 1519-1534.
Chen, C.W., Lin, C.L. and Tsai, C.H. (2007c), "A novel delay-dependent criteria for time-delay T-S fuzzy systems using fuzzy Lyapunov method", *Int. J. Artif. Intell. Tool.*, **16**, 545-552.
Chen, C.W. (2008), "Evaluation of inference adequacy in cumulative logistic regression models: an empirical validation of ISW-ridge relationships", *China Ocean Engi.,* **22**, 43-56.
Chen, C.W. (2009a), "Adaptive fuzzy sliding mode control for seismically excited bridges with lead rubber bearing isolation", *Int. J. Uncertain, Fuzz. Knowl.-Bas. Syst.*, **17**, 705-727.
Chen, C.W. (2009b), "Managing target the cash balance in construction firms using a fuzzy regression approach", *Int. J. Uncertain, Fuzz. Knowl.-Bas. Syst.*, **17**, 667-684.
Chen, C.W. (2009c), "Modeling and control for nonlinear structural systems via a NN-based approach", *Expert Syst. Appl.,* **36**, 4765-4772.
Chen, C.W. (2009d), "The stability of an oceanic structure with T-S fuzzy models", *Math. Comput. Simul.*, **80**, 402-426.
Chen, C.W. (2010a), "Application of project cash management and control for infrastructure", *J. Mar. Sci. Tech.*, **18**, 644-651.
Chen, C.W. (2010b), "GA-based adaptive neural network controllers for nonlinear systems", *Int. J. Innov. Comput., Inform. Control,* **6**, 1793-1803.
Chen, C.W. (2010c), "Stability analysis of an oceanic structure using the Lyapunov method", *Eng. Comput.*, **27**, 186-204.
Chen, C.W. (2010d), "Modeling and fuzzy PDC control and its application to an oscillatory TLP structure. Mathematical Problems in Engineering", *An Open Access Journal 2010: Article ID 120403,* DOI: 10.1155/ 2010/120403.
Chen, C.W. (2010e), "Application of fuzzy-model-based control to nonlinear structural systems with time delay: an LMI method", *J. Vib. Control*, **16**, 1651-1672.
Chen, C.W. (2011a), "Conceptual framework and research method for personality traits and sales force automation usage", *Sci. Res. Essay.*, **6**(17), 3784-3793.
Chen, C.W. (2011b), "The statistical analysis for consumers' intensions of purchasing cosmetics", *Afr. J. Business Manage.,* **5**(29), 11630-11635.
Chen, C.W. (2011c), "Stabilization of adaptive neural network controllers for nonlinear structural systems using a singular perturbation approach", *J. Vib. Control*, **17**(8), 1241-1252.
Chen, C.W. (2011d), "Fuzzy control of interconnected structural systems using the fuzzy Lyapunov method", *J. Vib. Control*, **17**(11), 1693-1702.
Chen, C.W. (2011e), "Stability analysis and robustness design of nonlinear systems: an NN-based approach", *Appl. Soft Comput.*, **11**(2), 2735-2742.
Chen, C.W. (2011f), "Modeling, control and stability analysis for time-delay TLP systems using the fuzzy Lyapunov method", *Neur. Comput. Appl.,* **20**(4), 527-534.
Chen, C.W. (2011g), "A critical review of parallel distributed computing and the Lyapunov criterion for multiple time-delay fuzzy systems", *Int. J. Phys. Sci.*, **6**(19), 4492-4501.
Chen, C.W. (2011h), "Internet services and interface design for marketing: a preliminary study of Cliven products", *Int. J. Phys. Sci.*, **6**(15), 3585-3596.
Chen, C.W. (2012a), "Modified intelligent genetic algorithm-based adaptive neural network control for uncertain structural systems", *J. Vib. Control*, DOI: 10.1177/1077546312442232.
Chen, C.W. (2012b), "Neural network-based fuzzy logic parallel distributed compensation controller for structural system", *J. Vib. Control*, DOI: 10.1177/ 1077546312442233.

Chen, C.W. (2012c), "Delay independent criterion for multiple time-delay systems and its application in building structure control systems", *J. Vib. Control*, DOI: 10.1177/1077546311429341.
Chen, C.W. (2012d), "Applications of linear differential inclusion-based criterion to a nonlinear chaotic system: a critical review", *J. Vib. Control*, **18**(12), 1886-1899.
Chen, C.W. (2012e), "Applications of the fuzzy Lyapunov linear matrix inequality criterion to a chaotic structural system", *J. Vib. Control*, **18**(13), 1925-1938.
Chen, C.W. (2012f), "Default risk-based probabilistic decision model for risk management and control", *Nat. Hazards*, **63**(2), 659-671.
Chen, C.W. (2012g), "Applications of the fuzzy-neural Lyapunov criterion to multiple time-delay systems", *J. Vib. Control*, DOI: 10.1177/1077546312451034.
Chen, C.W. (2012h), "A new viewpoint of hazard assessment and management for Taiwan's insurance issues", *Nat. Hazards*, DOI: 10.1007/s11069-012-0363-6.
Chen, C.W. (2012i), "Applications of neural-network-based fuzzy logic control to a nonlinear time-delay chaotic system", *J. Vib. Control*, DOI: 10.1177/1077546312461370.
Chen, C.W., Chang, K.L. and Tseng, C.P. (2012a), "Human factors of knowledge-sharing intention among Taiwanese enterprises: a model of hypotheses", *Hum. Factor. Ergon. Man.*, **22**(4), 362-371.
Chen, C.W., Chang, K.L. and Tseng, C.P. (2012b), "Critical human factor evaluation of knowledge sharing intention in Taiwanese enterprises", *Hum. Factor. Ergon. Man.,* DOI: 10.1002/hfm.20300.
Chen, C.W., Yeh, K., Liu, K.F.R. and Lin, M.L. (2012c), "Applications of fuzzy control to nonlinear time-delay systems using the linear matrix inequality fuzzy Lyapunov method", *J. Vib. Control*, **18**(10), 1561-1574.
Chen, C.W., Yeh, K., Yang, H.C., Liu, F.R. and Liu, C.C. (2012d), "A critical review of structural system control by the large-scaled neural network linear-deferential-inclusion-based criterion", *J. Vib. Control*, DOI: 10.1177/1077546312443377.
Chen, C.W., Lee, K.L. and Tseng, C.P. (2012e), "The relationship between personality traits and sales force automation usage: a preliminary study", *Hum. Factor. Ergon. Man.*, DOI: 10.1002/hfm.20313.
Chen, C.W., Yang, H.C., Chen, C.H., Tseng, C.P. and Lee, K.L. (2012f), "The relationship between personality traits and sales force automation usage: a review of methodology", *Hum. Factor. Ergon. Man.*, DOI: 10.1002/hfm.20311.
Chen, C.W., Tseng, C.P., Hsu, W.K. and Chiang, W.L. (2012g), "A novel strategy to determine the insurance and risk control plan for natural disaster risk management", *Nat. Hazards*, **64**(2), 1391-1403.
Chen, C.W., Liu, F.R., Tseng, C.P., Hsu, W.K. and Chiang, W.L. (2012h), "Hazard management and risk design by optimal statistical analysis", *Nat. Hazards*, **64**(2), 1707-1716.
Chen, C.W., Lee, C.C. and Tseng, C.P. (2012i), "Application of GIS for the determination of hazard hotspots after direct transportation linkages between Taiwan and China", *Nat. Hazards*, DOI 10.1007/s11069-012-0402-3.
Chen, C.Y. (2005a), "Interaction between internal waves and a permeable seabed", *Ocean Eng.,* **32**, 587-621.
Chen, C.Y. (2005b), "Fuzzy logic derivation of neural network models with time delays in subsystems", *Int. J. Artif. Intell. Tool.,* **14**, 967-974.
Chen, C.Y. (2006a), "Profile evolution and energy dissipation for internal soliton transmitting over different submarine ridges", *China Ocean Eng.,* **20**, 585-594.
Chen, C.Y. (2006b), "Numerical model of an internal solitary wave evolution on impermeable variable seabed in a stratified two-layer fluid system", *China Ocean Eng.,* **20**(2), 303-313.
Chen, C.Y. (2007a), "Wave propagation at the interface of a two-layer fluid system in the laboratory", *J. Mar. Sci. Tech*., **15**(1), 8-16.
Chen, C.Y. (2007b), "Generation of internal solitary wave by gravity collapse", *J. Mar. Sci. Tech*., **15**(1), 1-7.
Chen, C.Y. (2007c), "Localized mixing due to an interfacial solitary wave breaking on seabed topography in different ridge heights", *J. Offshore Mech. Arctic Eng.,* **129**, 245-250.
Chen, C.Y. (2007d), "Dynamic behavior of an internal solitary wave oscillating over variable bathymetry", *Kuwait J. Sci. Eng.,* **34**, 153-166.
Chen, C.Y. (2007e), "Laboratory observations on internal solitary wave evolution on steep and inverse uniform slopes", *Ocean Eng.,* **34**, 157-170.
Chen, C.Y. (2007f), "An investigation on internal solitary waves in a two-layer fluid: propagation and reflection

from steep slopes", *Ocean Eng.*, **34**, 171-184.
Chen, C.Y. (2007g), "An experimental study of stratified mixing caused by internal solitary waves in a two-layered fluid system over variable seabed topography", *Ocean Eng.*, **34**, 1995-2008.
Chen, C.Y. (2008a), "Diagnosing and revising logistic regression models: effect on internal solitary wave propagation", *Int. J. Comput.-Aid. Eng. Softw.,* **25**, 121-139.
Chen, C.Y. (2008b), "Experiments on mixing and dissipation in internal solitary waves over two triangular obstacles", *Envir. Fluid Mech.,* **8**, 199-214.
Chen, C.Y. (2009a), "A stability criterion for time-delay tension leg platform systems subjected to external force", *China Ocean Eng.*, **23**, 49-57.
Chen, C.Y. (2009b), "Amplitude decay and energy dissipation due to the interaction of internal solitary waves with a triangular obstacle in a two-layer fluid system: the blockage parameter", *J. Mar. Sci. Tech.*, **14**, 499-512.
Chen, C.Y. (2010a), "Fuzzy control for an oceanic structure: A case study in time-delay TLP system", *J. Vib. Control*, **16**, 147-160.
Chen, C.Y. (2010b), "Are educational background and gender moderator variables for leadership, satisfaction and organizational commitment", *Afr. J. Business Manage.*, **4**, 248-261.
Chen, C.Y. (2010c), "Using discriminant analysis to determine the breaking criterion for an ISW propagating over a ridge", *Envir. Fluid Mech.,* **10**, 577-586.
Chen, C.Y. (2010d), "The study of a forecasting sales model for fresh food", *Expert Syst. Appl.,* **37**, 7696-7702.
Chen, C.Y. (2010e), "Linking the balanced scorecard (BSC) to business management performance: A preliminary concept of fit theory for navigation science and management", *Int. J. Phys. Sci.*, **5**, 1296-1305.
Chen, C.Y. (2010f), "A case study of reinforced concrete short column under earthquake using experimental and theoretical investigations", *Struct. Eng. Mech.,* **36**, 197-206.
Chen, C.Y. (2010g), "Association rule mining for evaluation of regional environments: Case study of Dapeng Bay, Taiwan", *Int. J. Innov. Comput., Inform. Control,* **6**, 3425-3436.
Chen, C.Y. (2011a), "Statistical and dynamical analyses of propagation mechanisms of solitary internal waves in a two-layer stratification", *J. Mar. Sci. Tech.*, **16**(1), 100-114, DOI 10.1007/s00773-010-0112-z.
Chen, C.Y. (2011b), "Obstacle avoidance design for a humanoid intelligent robot with ultrasonic sensors", *J. Vib. Control*, **17**(12), 1798-1804.
Chen, C.Y. (2011c), "The exploration of internet marketing strategy by search engine optimization: A critical review and comparison", *Afr. J. Business Manage.,* **5**(12), 4644-4649.
Chen, C.Y. (2011d), "A critical review and improvement method on biped robot", *Int. J. Innov. Comput. Inform. Control,* **7**, 5245-5254.
Chen, C.Y. (2012a), "An innovative knowledge management learning cycle by Lego NXT for science education. *Int. J. Innov. Comput. Inform. Control,* **8**, 791-798.
Chen, C.Y. (2012b), "A critical review of internal wave dynamics. Part 1 - Remote sensing and in-situ observations", *J. Vib. Control*, **18**(3), 417-436.
Chen, C.Y. (2012c), "Disaster prevention and reduction for exploring teachers' technology acceptance using a virtual reality system and partial least squares techniques", *Nat. Hazards*, **62**(3), 1217-1231.
Chen, C.Y. (2012d), "A critical review of internal wave dynamics. Part 2 – Laboratory experiments and theoretical physics", *J. Vib. Control*, **18**(7), 983-1008.
Chen, C.Y. (2012e), "The motion editor and high precision integration for optimal control of robot manipulators in dynamic structural systems", *Struct. Eng. Mech.,* **41**, 633-644.
Chen, C.Y. (2012f), "The development of autonomous low cost biped mobile surveillance robot by intelligent bricks", *J. Vib. Control*, **18**, 577-586.
Chen, C.Y. (2012g), "Review of an autonomous humanoid robot and its mechanical control", *J. Vib. Control*, **18**, 973-982.
Chen, C.Y. (2012h), "Assessment of the major hazard potential of interfacial solitary waves moving over a trapezoidal obstacle on a horizontal plateau", *Nat. Hazards*, **62**(3), 841-852.
Chen, C.Y. (2012i), "NN-based fuzzy control for TLP systems: A case study of practical structural parameters and wave properties", *Appl. Soft Comput.,* DOI:10.1016/j.asoc.2012.08.017.
Chen, C.Y. (2012j), "Internal wave transport, nonlinear manifestation, and mixing in a stratified shear layer-

technical briefs", *J. Vib. Control*, DOI: 10.1177/1077546311429337.
Chen, C.Y. (2012k), "Wave vibration and simulation in dissipative media described by irregular boundary surfaces: a mathematical formulation", *J. Vib. Control*, DOI: 10.1177/1077546311464258.
Chen, C.Y., Shih, B.Y., Shih, C.H. and Wnag, L.H. (2012a), "Human–machine interface for the motion control of humanoid biped robots using a graphical user interface Motion Editor", *J. Vib. Control*, DOI: 10.1177/1077546312437804.
Chen, C.Y., Shih, B.Y. and Ma, J.M. (2012b), "Development for low-cost and cross-platform robot control environment", *J. Vib. Control*, DOI: 10.1177/1077546311430107.
Chen, C.Y., Shih, B.Y., Shih, C.H. and Wnag, L.H. (2012c), "Enhancing robust and stability control of a humanoid biped robot: system identification approach", *J. Vib. Control*, DOI:10.1177/1077546312442947.
Chen, C.Y., Shih, B.Y., Shih, C.H. and Wnag, L.H. (2012d), "Human-machine interface for the motion control of humanoid biped robots using a graphical user interface Motion Editor", *J. Vib. Control*, DOI:10.1177/1077546312437804.
Chen, C.Y., Shih, B.Y., Shih, C.H. and Wnag, L.H. (2012e), "Design, modeling and stability control for an actuated dynamic walking planar bipedal robot", *J. Vib. Control*, DOI:10.1177/1077546311429476.
Chen, C.Y., Chang, C.J. and Lin, C.H. (2012f), "On dynamic access control in Web 2.0 and cloud interactive information hub: trends and theories", *J. Vib. Control*, DOI:10.1177/1077546311463762.
Chen, C.Y., Chang, C.J. and Lin, C.H. (2012g), "On dynamic access control in Web 2.0 and cloud interactive information hub: Technologies", *J. Vib. Control*, DOI:10.1177/1077546311464992.
Chen, C.Y., Chen TH, Chen, Y.H. and Chiu, J. (2012h), "A multi-stage method for deterministic-statistical analysis: A mathematical case and measurement studies", *J. Vib. Control*, DOI:10.1177/1077546311466579.
Chen, C.Y., Shih, B.Y., Chen, Y.H., SE, Y.U. and Liu, Y.C. (2012i), "The exploration of 3T flow model using vibrating NXT: I. Model formulation", *J. Vib. Control*, DOI:10.1177/1077546311467360.
Chen, P.C., Chen, C.W. and Chiang, W.L. (2008), "GA-based fuzzy sliding mode controller for nonlinear systems. Mathematical Problems in Engineering", *An Open Access Journal 2008: Article ID 325859,* DOI: 10.1155/2008/325859.
Chen, P.C., Chen, C.W. and Chiang, W.L. (2009a), "GA-based modified adaptive fuzzy sliding mode controller for nonlinear systems", *Expert Syst. Appl.,* **36**, 5872-5879.
Chen, P.C., Chen, C.W., Chiang, W.L. and Yeh, K. (2009b), "A novel stability condition and its application to GA-based fuzzy control for nonlinear systems with uncertainty", *J. Mar. Sci. Tech*., **17**, 293-299.
Chen, P.C., Chen, C.W., Chiang, W.L. and Lo, D.C. (2011a), "GA-based decoupled adaptive FSMC for nonlinear systems by a singular perturbation scheme", *Neur. Comput. Appl*., **20**(4), 517-526.
Chen, P.C., Chen, C.W. and Chiang, W.L. (2011b), "Linear matrix inequality conditions of nonlinear systems by genetic algorithm-based H (infinity) adaptive fuzzy sliding mode controller", *J. Vib. Control*, **17**(2), 163-173.
Chen SF (2012), "A simulation study using EFA and CFA programs based the impact of missing data on test dimensionality", *Expert Syst. Appl.,* **39**, 4026-4031.
Chen TH (2008), "A mathematical tool for inference in logistic regression with small-sized data sets – A practical application on ISW-ridge relationships", *Mathematical Problems in Engineering- An Open Access Journal 2008: Article ID 186372,* DOI: 10.1155/2008/186372.
Chen TH (2010), "Application of data mining to the spatial heterogeneity of foreclosed mortgages", *Expert Syst. Appl.,* **37**, 993-997.
Cheng, M.H., Hsu John RC and Chen, C.Y. (2011), "Laboratory experiments on waveform inversion of an internal solitary wave over a slope-shelf", *Envir. Fluid Mech.,* **11**(4), 353-384.
Chiang, W.L., Chiou, D.J., Tang, J.P., Hsu, W.K. and Liu, T.Y. (2010), "Detecting the sensitivity of structural damage based on the Hilbert-Huang transform approach", *Eng. Comput*., **27**, 799-818.
Chiou, D.J., Hsu, W.K., Chen, C.W., Hsieh, C.M., Tang, J.P. and Chiang, W.L. (2011), "Applications of Hilbert-Huang *transform* to structural damage detection", *Struct. Eng. Mech.,* **39**(1), 1-20.
Chu, T.H., Lin, M.L., Chang, C.H. and Chen, C.W. (2011), "Developing a tour guiding information system for tourism service using mobile GIS and GPS techniques", *Adv. Inform. Sci. Serv. Sci.,* **3**(6), 49-58.
Chung, P.Y., Chen, Y.H., Walter, L. and Chen, C.Y. (2012), "Influence and dynamics of a mobile robot control on mechanical components", *J. Vib. Control*, DOI: 10.1177/1077546312452184.
David, B. (2001), ""Information and digital literacies: a review of concepts", *J. Documentation*, **57**(2), 218-259.

Davis, F.D. (1989), "Perceived usefulness, perceived ease of use, and user acceptance of information technology", *M IS Quarterly*, **13**(3), 319-339.
Deborah, R.C. and Christopher, A.H. (1995), "Computer self-efficacy development of measure and initial test", *M IS Quarterly,* **19**(2), 189-211.
Dexter, S., Anderson, R.E. and Becker, H.J. (1999), "Teachers' viewsof computers as catalysts forchanges in their teaching practice", *J. Res. Comput. Edu.*, **31**(3), 221-239.
Dias, L.B. (1999), "Technology integration: some things you should know", *Learn. Lead. Technol.*, **27**(3), 10-13.
Fishbein, M. and Ajzen, I. (1975), *Belief, Attitude, Intentions and Behavior: An Introduction to Theory and Research*, Addison-Wesley, Boston, MA.
Hobbs, Steven D. (2002), "Measuring Nurses' Computer competency: An Analysis of Published Instruments", *Comput. Nursing*, **20**(2), 63-73.
Ho, R.G. and Boston Lan, YR . (2000), "The implementation of classroom computer teachers should have the information literacy", *Inform. Edu.*, **77**, 23-27.
Hsiao, F.H., Chen, C.W., Wu, Y.H. and Chiang, W.L. (2005a), "Fuzzy controllers for nonlinear interconnected TMD dystems with external force", *J. Chinese Inst. Eng.,* **28**, 175-181.
Hsiao, F.H., Hwang, J.D., Chen, C.W. and Tsai, Z.R. (2005b), "Robust stabilization of nonlinear multiple time-delay large-scale systems via decentralized fuzzy control", *IEEE Trans. Fuzzy Syst.,* **13**, 152-163.
Hsiao, F.H., Chiang, W.L., Chen, C.W., Xu, S.D. and Wu, S.L. (2005c), "Application and robustness design of fuzzy controller for resonant and chaotic systems with external disturbance", *Int. J. Uncertain, Fuzz. Knowl.-Bas. Syst.,* **13**, 281-295.
Hsiao, F.H., Chiang, W.L. and Chen, C.W. (2005d), "Fuzzy control for nonlinear systems via neural-network-based approach", *Int. J. Comput. Meth. Eng. Sci. Mech.,* **6**, 145- 152.
Hsiao, F.H., Chen, C.W., Liang, Y.W., Xu, S.D. and Chiang, W.L. (2005e), "T-S fuzzy controllers for nonlinear interconnected systems with multiple time delays", *IEEE Trans. Circ. Syst.-I,* **52**, 1883- 1893.
Hsieh, T.Y., Wang, M.H.L. and Chen, C.W. (2006), "A new viewpoint of s-curve regression model and its application to construction management", *Int. J. Artif. Intell. Tool.,* **15**, 131-142.
Hsu, J.R.C., Cheng, M.H. and Chen, C.Y. (2012), "Potential hazards and dynamical analysis of interfacial solitary wave interactions", *Nat. Hazards*, DOI 10.1007/s11069-012-0360-9
Hsu, W.K., Huang, P.C., Chang, C.C., Chen, C.W., Hung, D.M. and Chiang, W.L. (2011), "An integrated flood risk assessment model for property insurance industry in Taiwan", *Nat. Hazards*, **58**(3), 1295-1309.
Hsu, W.K., Chiou, D.J., Chen, C.W. and Chiang, W.L. (2012a), "Risk and uncertainty analysis in the planning stages of a risk decision-making process", *Nat. Hazards*, **61**, 1355-1365.
Hsu, W.K., Chiou, D.J., Chen, C.W., Liu, M.Y., Chiang, W.L. and Huang, P.C. (2012b), "Sensitivity of initial damage detection for steel structures using the Hilbert-Huang transform method", *J. Vib. Control*, DOI:10.1177/1077546311434794.
Hsu, W.K., Chiang, W.L., Xue Q, Hung, D.M., Huang, P.C., Chen, C.W. and Tsai, C.H. (2012c), "A probabilistic approach for earthquake risk assessment based on an engineering insurance portfolio", *Nat. Hazards*, DOI 10.1007/s11069-012-0425-9.
Huang PH, Chen, C.Y., Chang, C.J., Lo, D.C. and Huang, C.C. (2012), "Computer-aided ergonomics and visualization for improving 3D display techniques", *Hum. Factor. Ergon. Man.*, DOI: 10.1002/hfm.20298.
Huang, YH. (2003), "Teachers' information literacy to explore the impact of learning effect", *J. Network Soc. Commun.*, **33**, 19.
Information Literacy of Ministry of Education for Elementary and Secondary School Teachers (2000), Retrived from http://content.edu.tw/primary/info_edu/tp_tt/content/nerc-1/law/teacher_point.htm
Karasavvidis, I. (2009), "Activity Theory as a conceptual framework for understanding teacher approaches to Information and Communication", *Comput. Edu.*, **53**, 436-444.
Kerry, R., Jennifer, C. and Farnoush, D. (2011), "Technology in the classroom: the impact of teacher's technology use and constructivism", Retrived from http://stu.westga.edu/~bthibau1/MEDT%208484-%20Baylen/final%20report/18.doc
Kuo, H.M. (2010), "A behavioral model of the elderly Internet consumer: a case study", *Int. J. Innov. Comput. Inform. Control,* **6**, 3507-3518.
Kuo, H.M. (2011a), "Application of quality function deployment to improve the quality of Internet shopping

website interface design. International", *J. Innov. Compu. Inform. Control,* **7**(1), 253-268.
Kuo, H.M. (2011b), "A study of merchandise information and interface design on B2C websites", *J. Mar. Sci. Tech*., **19**(1), 15-2.
Kuo, H.M. and Chen, C.W. (2012a), "A novel viewpoint on information and interface design for auction web sites", *Hum. Factor. Ergon. Man.,* **22**(4), 287-295.
Kuo, H.M. and Chen, C.W. (2012b), "A study of B2C supporting interface design system for the elderly", *Hum. Factor. Ergon. Man.,* DOI: 10.1002/hfm.20297.
Lee, S.C. (2011a), "The idolization of Chien-Ming Wang and social psychological factors in Taiwan", *Int. J. Phys. Sci.*, **6**, 2607-2612.
Lee, S.C. (2011b), "Mass media in Taiwan and the formation of Chien-Ming Wang's baseball superstar image", *Int. J. Phys. Sci.*, **6**, 3000-3006.
Lee, W.I. (2010a), "The relationship between consumer orientation, service value, medical care service quality and patient satisfaction: The case of a medical center in Southern Taiwan", *Afr. J. Business Manage.,* **4**, 448-458.
Lee, W.I. (2010b), "The development of a qualitative dynamic attribute value model for healthcare institutes", *Ira. J. Public Health,* **39**(4), 15-25.
Lee, W.I. (2010c), "Relationship between quality of medical treatment and customer satisfaction - a case study in dental clinic association", *Int. J. Innov. Comput., Inform. Control,* **6**, 1805-1822.
Lee, W.I. (2010d), "The development of half-circle fuzzy numbers and application in fuzzy control", *J. Vib. Control*, **16**, 1977-1987.
Lee, W.I. (2011), "Assessing the effects of consumer involvement and service quality in a self-service setting", *Hum. Factor. Ergon. Man.,* **21**(5), 504-515.
Lee, W.I. (2012a), "An experimental design of service failure, recovery and speed analysis in cloud service", *Afr. J. Business Manage.*, **6**, 3059-3064.
Lee, W.I. (2012b), "A comparative study on the forecast of fresh food sales using logistic regression, moving average and BPNN methods", *J. Mar. Sci. Tech*., **20**, 142-152.
Lee, W.I. (2012c), "A hybrid artificial intelligence sales-forecasting system in the convenience store industry", *Hum. Factor. Ergon. Man.* **22**, 188-196.
Lin, C.L., Wang, J.F., Chen, C.Y., Chen, C.W. and Yen, C.W. (2009), "Improving the generalization performance of RBF neural networks using a linear regression technique", *Expert Syst. Appl.,* **36**, 12049-12053.
Lin, C.W., Hung YP, Hsu, W.K., Chiang, W.L. and Chen, C.W. (2012), "The construction of a high-resolution visual monitoring for hazard analysis", *Nat. Hazards*, DOI 10.1007/s11069-012-0409-9.
Lin, J.W. (2011), "Fuzzy Lyapunov stability analysis and NN modeling for tension leg platform systems", *J. Vib. Control*, **17**(2), 151-158.
Lin, J.W. (2012a), "Modeling and assessment of bridge structure for seismic hazard prevention", *Nat. Hazards*, **61**, 1115-1126.
Lin, J.W. (2012b), "Kalman filter decision systems for debris flow hazard assessment", *Nat. Hazards*, **60**(3), 1255-1266.
Lin, J.W. (2012c), "Fuzzy statistical refinement for the forecasting of tenders for roadway construction", *J. Mar. Sci. Tech*., **20**(4), 410-417.
Lin, J.W. (2012d), "Potential hazard analysis and risk assessment of debris flow by fuzzy modeling", *Nat. Hazards*, **64**(1), 273-282.
Lin, M.L. (2009), "Fuzzy model-based assessment and monitoring of desertification using MODIS satellite imagery", *Eng. Comput*., **26**, 745-760.
Lin, M.L. (2010), "Application of fuzzy models for the monitoring of ecologically sensitive ecosystems in a dynamic semi-arid landscape from satellite imagery", *Eng. Comput*., **27**, 5-19.
Lin, M.L. (2011a), "Using GIS-based spatial geocomputation from remotely sensed data for drought risk-sensitive assessment", *Int. J. Innov. Comput., Inform. Control*, **7**(2), 657-668.
Lin, M.L. (2011b), "Stability analysis of community and ecosystem hierarchies using the Lyapunov method", *J. Vib. Control,* **17**(13), 1930-1937.
Lin, M.L. (2012a), "Fuzzy neural modeling for n-degree ecosystems using the linear matrix inequality approach", *J. Vib. Control* DOI: 10.1177/1077546312458533.

Lin, M.L. (2012b), "Stability conditions for ecosystem modeling using the fuzzy Lyapunov method", *J. Vib. Control*, DOI: 10.1177/1077546312451301.
Liu, K.C. (2010), "The structure behavior of reinforced concrete wing–wall under earthquake", *Int. J. Phys. Sci.*, **5**(7), 1164-1174.
Liu, K.C., Liu, Y.W., Chen, C.Y. and Huang, W.C. (2012), "Nonlinear vibration of structural deterioration in reinforced concrete columns: experimental and theoretical investigation", *J. Vib. Control.* DOI: 10.1177/1077546311429477.
Liu, K.F.R. (2009), "A qualitative decision support for environmental impact assessment using fuzzy logic", *J. Envir. Inform.*, **13**, 94-104.
Liu, K.F.R. (2011), "Hierarchical analytic network process and its application in environmental impact evaluation", *Civil Eng. Envir. Syst.*, **28**(1), 1-18.
Liu, K.F.R. (2012a), "Applying Bayesian belief networks to health risk assessment", *Stocha. Envir. Res. Risk Assess.,* **26**(3), 451-465.
Liu, K.F.R. (2012b), "Combining scientific facts and significance criteria to predict the result of an environmental impact assessment review", *J. Environ. Inform.*, **19**(2), 93-107.
Liu, K.F.R., Ko, C.Y., Fan, C.H. and Chen, C.W. (2012c), "Combining risk assessment, life cycle assessment and multi-criteria decision analysis to estimate environmental aspects in EMS", *Int. J. Life Cycle Assess.*, DOI:10.1007/s11367-012-0407-x.
Liu, T.Y., Chiang, W.L., Chen, C.W., Hsu, W.K., Lu, L.C. and Chu TJ (2011), "Identification and monitoring of bridge health from ambient vibration data", *J. Vib. Control,* **17**(4), 589-603.
Liu, T.Y., Chiang, W.L., Chen, C.W., Hsu, W.K., Lin, C.W., Chiou, D.J. and Huang, P.C. (2012), "Structural system identification for vibration bridges using the Hilbert-Huang transform", *J. Vib. Control,* **18**(13), 1939-1956.
Liu, S.F., Huang, L.S. and Chiou, Y.H. (2011), "An integrated attitude model of self-service technologies: Evidence from online stock trading systems brokers", *Serv. Indus. J.*, **32**(11), 1823-1835.
McClure, C.R. (1994), "Network literacy - a role for libraries", *Inform. Technol. Lib.*, **13**(2), 116-117.
Nunnally, J.C. (1978), *Psychometric Theory*, 2nd Editon, New York.
Pavlou, P.A. and Fygenson, M. (2006), "Understanding and predicting electronic commerce adoption: An extension of the theory of planned behavior", *Manag. Inform. Syst. Quart.*, **30**(1), 115-143.
Shen, C.W., Cheng, M.J., Chen, C.W., Tsai, F.M. and Cheng, Y.C. (2011), "A fuzzy AHP-based fault diagnosis for semiconductor lithography process", *Int. J. Innov. Comput., Inform. Control,* **7**(2), 805-816.
Shen, Z.W. (2008), *Technology and Learning, Theory and Practice*, Third Edition, Psychological Publishing, Taipei.
Shih, C.H., Yamamura, S. and Chen, C.Y. (2010), "Analysis of control structure for turning maneuvers", *Math. Problem. Eng. 2010,* Article ID 481438, DOI:10.1155/2010/481438.
Shih, C.H., Wakabayashi, N., Yamamura, S. and Chen, C.Y. (2011), "A context model with a time-dependent multi-layer exception handling policy", *Int. J. Innov. Comput., Inform. Control,* **7**(5A), 2225-2234.
Shih, C.H., Huang, P.H., Yamamura, S. and Chen, C.Y. (2012), "Design optimal control of ship maneuver patterns for collision avoidance: A review", *J. Mar. Sci. Tech.*, **20**, 111-121.
Shih, B.Y. (2010a), "The development of enhancing mechanisms for improving the performance of IEEE 802.15.4", *Int. J. Phys. Sci.*, **5**, 884-897.
Shih, B.Y. (2010b), "Enhanced MAC channel selection to improve performance of IEEE 802.15.4", *Int. J. Innov. Comput., Inform. Control,* **6**, 5511-5526.
Shih, B.Y. (2010c), "The exploration of the mobile mandarin learning system by the application of TRIZ theory", *Comput. Appl. Eng. Edu.,* DOI : 10.1002/cae.20478.
Shih, B.Y. (2011a), "Obstacle avoidance using a path correction method for autonomous control of a biped intelligent robot", *J. Vib. Control,* **17**(10), 1567-1573.
Shih, B.Y. (2011b), "Elementary school student's acceptance of Lego NXT: The technology acceptance model, a preliminary investigation", *Int. J. Phys. Sci.*, **6**(22), 5054-5063.
Shih, B.Y. (2011c), "The research of quadtree search algorithms for anti-collision in radio frequency identification systems", *Sci. Res. Essay.,* **6**(25), 5342-5350.
Shih, B.Y. (2012a), "Merged search algorithms for radio frequency identification anticollision", *Math. Problem. Eng. 2012,* Article ID 609035, DOI:10.1155/2012/609035.

Shih, B.Y. (2012b), "Dynamics and control for robotic manipulators using a greedy algorithm approach", *J. Vib. Control*, **18**, 859-866.
Shih, B.Y. (2012c), "Construct OCR on mobile mechanic system for android wireless dynamics and structure stabilization", *Struct. Eng. Mech.,* **42**, 747-760.
Shih, B.Y. (2012d), "An enhanced obstacle avoidance and path correction mechanism for an autonomous intelligent robot with multiple sensors", *J. Vib. Control*, **18**(12), 1855-1864.
Shih, B.Y. (2012e), "A novel NXT control method for implementing force sensing and recycling in a training robot", *J. Vib. Control*, DOI: 10.1177/1077546312446361.
Shih, B.Y. (2012f), "Path planning for autonomous robots - a comprehensive analysis by a greedy algorithm", *J. Vib. Control*, DOI: 10.1177/1077546311429841.
Shih, B.Y. (2012g), "Using Lego NXT to explore scientific literacy in disaster prevention and rescue systems", *Nat. Hazards*, **64**(1), 153-171.
Shih, B.Y. (2012h), "An empirical study of an internet marketing strategy for search engine optimization", *Hum. Factor. Ergon. Man.,* DOI: 10.1002/hfm.20348.
Shih, B.Y. (2012i), "The control application and simulation - particle swarm optimization exploration of control application for user intention toward mobile Mandarin learning system", *J. Vib. Control*, DOI: 10.1177/1077546312452904.
Shih, B.Y. (2012j), "A robust license plate recognition methodology by applying hybrid artificial techniques", *Int. J. Innov. Comput., Inform. Control,* **8**(10A), 6777-6785.
Shih, B.Y. (2012k), "Lego NXT information on test dimensionality using Kolb's innovative learning cycle", *Nat. Hazards*, **64**(2), 1527-1548.
Shih, B.Y. (2012l), "Robot cross platform system using innovative interactive theory and selection algorithms", *J. Vib. Control*, DOI: 10.1177/1077546312463757.
Shih, B.Y. (2012m), "The development of an APP interactive game-based information system", *J. Vib. Control*, DOI: 10.1177/1077546312464682.
Shih, B.Y. (2012n), "Autonomous navigation system for RFID mobile robot e-book reader", *J. Vib. Control*, DOI: 10.1177/1077546312466578.
Shih, B.Y. (2012o), "How to manipulate interactive E-book on learning natural catastrophe – An example of structural mechanics using power machine", *Nat. Hazards*, DOI 10.1007/s11069-012-0413-0.
Staggers, N., Gassert, C.A. and Curran, C. (2002), "A Dephi study to Determine Informatics Competencies for Nurses at Four Levels of practic", *Nur. Res.*, **51**(6), 383-390.
Su, T.J., Cheng, J.C., Huang, M.Y., Lin, T.H. and Chen, C.W. (2011), "Applications of cellular neural networks to noise cancellation in gray images based on adaptive particle swarm optimization", *Cir. Syst. Signal Pr.,* **30**(6), 1131-1148.
Taylor, S. and Todd, P. (1995), "An integrated model of waste managient behavior: A test of household recycling and composting intentions", *Envir. Behavior*, **27**, 603-630.
Tang, J.P., Chiou, D.J., Chen, C.W., Chiang, W.L., Hsu, W.K., Chen, C.Y. and Liu, T.Y. (2011), "A case study of damage detection in benchmark buildings using a Hilbert-Huang Transform-based method", *J. Vib. Control*, **17**(4), 623-636.
Timothy, T. (2009), "Modelling technology acceptance in education: A study of pre-service teachers", *Comput. Edu.*, **52**(2), 302-312.
Tsai, C.H., Chen, C.W., Chiang, W.L. and Lin, M.L. (2008), "Application of geographic information system to the allocation of disaster shelters via fuzzy models", *Int. J. Comput.-Aid. Eng. Softw.,* **25**, 86-100.
Tsai, C.H. and Chen, C.W. (2010), "An earthquake disaster management mechanism based on risk assessment information for the tourism industry-A case study from the island of Taiwan", *Tour. Manage.,* **31**, 470-481.
Tsai, C.H. and Chen, C.W. (2011a), "The establishment of a rapid natural disaster risk assessment model for the tourism industry", *Tour. Manage.,* **32**(1), 158-171.
Tsai, C.H. and Chen, C.W. (2011b), "Development of a mechanism for typhoon and flood risk assessment and disaster management in the hotel industry - a case study of the Hualien area", *Scand. J. Hospital. Tour.,* **11**(3), 324-341.
Tseng, C.P., Chang, M.L. and Chen, C.W. (2012a), "Human factors of knowledge sharing intention among Taiwanese enterprises: a preliminary study", *Hum. Factor. Ergon. Man.*, **22**(4), 328-339.

Tseng, C.P., Chen, C.W. and Liu, F.R. (2012b), "Risk control allocation model for pressure vessels and piping project", *J. Vib. Control*, **18**(3), 385-394.
Tseng, C.P., Chen, C.W. and Tu, Y.P. (2012c), "A new viewpoint on risk control decision models for natural disasters", *Nat. Hazards*, **59**(3), 1715-1733.
Tseng, C.P. and Chen, C.W. (2012d), "Natural disaster management mechanisms for probabilistic earthquake loss", *Nat. Hazards*, **60**(3), 1055-1063.
Venkatesh, V., Morris, M.G., Davis, G.B. and Davis, F.D. (2003), "User acceptance of information technology: toward a unified view", *MIS Quarterly*, **27**(3), 425-478.
Wang, Q. (2000), "The meaning and content of information technology into teaching", *Inform. Edu. Bim.*, **80**, 23-31.
White Paper of Ministry of Education on Primary and Secondary Information Education (2008), Retrived from http://www.edu.tw/secretary/content.aspx?site_content_sn=25093.
Wolf, D., Lindeman, P., Wolf, T. and Dunnerstick, R. (2011), "Integrate with user success", *Mathematics Teachi. Midd. School*, **16**(9), 556-560.
Yang, H.C., Chen, C.Y., Chen, C.W. and Chen, T.H. (2008a), "Estimation on internal wave reflection in a two-layer fluid system by cumulative logistic regression model", *J. Mar. Sci. Tech*., **16**, 44-51.
Yang, H.C., Chen, T.H., Chen, C.W., Chen, C.Y. and Liu, C.T. (2008b), "Accuracy evaluation of a diagnostic test by detecting outliers and influential observations", *China Ocean Eng*., **22**, 421-429.
Yang, H.C. and Chen, C.W. (2012), "Potential hazard analysis from the viewpoint of flow measurement in large open-channel junctions", *Nat. Hazards,* **61**(2), 803-813.
Yeh, K., Chen, C.Y. and Chen, C.W. (2008), "Robustness Design of Time-Delay Fuzzy Systems Using Fuzzy Lyapunov Method", *Appl. Math. Comput.,* **205**, 568-577.
Yeh, K. and Chen, C.W. (2010), "Stability analysis of interconnected fuzzy systems using the fuzzy Lyapunov method. Mathematical Problems in Engineering", *An Open Access Journal 2010:* Article ID 734340, DOI: 10.1155/2010/734340.
Yeh, K., Chen, C.W., Lo, D.C. and Liu Kevin, F.R. (2012), "Neural-network fuzzy control for chaotic tuned mass damper systems with time delays", *J. Vib. Control*, **18**, 785-795.
Yu, S.E.S., Huarng, K.H. and Li, M.Y.L. (2011a), "A novel option pricing model via fuzzy binomial decision tree", *Int. J. Innov. Comput., Inform. Control*, **7**(2), 709-718.
Yu, S.E., Li, M.Y.L, Huarng, K.H. and Chen, T.H. (2011b), "Model construction of option pricing based on fuzzy theory", *J. Mar. Sci. Technol.*, **19**(5), 460-469.
Zhang, H., Xie, X. and Zhao, J.L. (2011a), "Parametric vibration of carbon fiber reinforced plastic cables with damping effects in long-span cable-stayed bridges", *J. Vib. Control*, **17**(14), 2117-2130.
Zhang, L., Dupuis, R. and Dupuis, X. (2011b), "Measurement and identification of dynamic properties of flexible polyurethane foam", *J. Vib. Control*, **17**(4), 517-526.
Zhang, Y., Sharf, I. and Sharf, X. (2011c), "Force reconstruction for low velocity impacts using force and acceleration measurements", *J. Vib. Control*, **17**(3), 407-420.
Zhang, Y., Huang, X. and Zhao, Q. (2011d), "Sensitivity analysis for vibration transfer path systems with non-viscous damping", *J. Vib. Control*, **17**(7), 1042-1048.