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目　　錄

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九十四學年度四技二專推薦甄選招生試務時程縮短之研究

The Research on Shortening the Timing to Four-year institute of Technology and Two-year Professional School Union of Testimouial in Year 2005

林秋堂[1]　王勝標[2]　蔣台程[3]　黃賢統[4]

C. T. Lin,　S. B. Wang,　T. C. Chiang,　S. T. Hwang,

1東南技術學院工業工程與管理系 副教授　2東南技術學院工業工程與管理系 助理教授

3東南技術學院企業管理系 副教授　4東南技術學院土木工程系 教授

摘　要

四技二專統一入學測驗與聯合甄選作業，其作業時程均於每年四、五月舉行，對學生學習及高中職教學正常化影響甚鉅，確有必要進行調整。本研究乃針對93學年度之四技二專推薦甄選試務作業，將資格審查、競賽證照加分作業、書面資料審查與口試等重要試務工作，採兩階段分別逐次進行處理，若能將這些重要試務合併同步進行處理及減少運送問題，將可大幅精簡推薦甄選試務作業時間。因此對於推薦甄選試務作業調整，需有配套措施(例如：對相關規章辦法之修訂、資訊處理系統規劃、招生作業流程改進、合併報名表件等)，以進行詳盡之研究與評估。

經評估後之主要結論與效益如下：

1. 對於縮短推薦甄選入學之試務工作時程，本研究顯示其可行性高，約可節省3星期的時間。對於改善高中職學校之正常化教學，有極大的幫助。
2. 採用電腦程式作業，可減低高中職學校推甄報名試務工作業務量與錯誤率。
3. 簡化報名程序，第一階段報名僅繳交由電腦列印之報名表，而不需繳交資料袋；另合併簡化第一階段與第二階段之報名表件，便利考生報名填寫。
4. 將資格審查作業移至第二階段審查，有效降低各四技二專學校的試務工作量與縮短作業時間。
5. 本推薦甄選試務作業之改善，將有助於提升技專校院之整體形象。

關鍵字：教學正常化、四技二專聯合推薦甄選

Abstract

The activity of Four-year-institute of technology and Two-year professional college enrollment examination and the united testimonies, which is taken place every April and May, needs to be adjusted since its great influences to students' learning and to the teaching normalization of senior-high and professional schools. This research points to the process of FTUT(Four-year institute of technology and Two-year professional college Union of Testimonial) in Year 2004, runs step by step in two stages distinctly with the qualification checkup, the upgrading of competition & certificates, document paper checkup, oral tests, and so on; the operating timing of FTUT will be shortened largely if these important tasks could be combined together, run contemporarily, and deducted the problems of delivery. Hence the adjustment of FTUT requires full sets of planning for beginning the research and evaluation in details (such as the re-edition to the related observance and approach, the plans for information processing system, the improvement of enrollment procedures, and the consolidation of examination documents).

The major conclusions and effects after evaluating are listed as below:

1. This research project is highly workable, and shortens around three weeks of the timing of FTUT. It also helps a lot for improving the normalizing teaching in senior-high and professional schools.
2. It takes computer programming for deducting the excess of work and the error rate of Union Testimonial enrollment.
3. It simplifies the enrollment procedures, such as requiring the computer-printed application form without the personal data bag in the first stage; on the other hand, it unites and simplifies the application papers in the first and the second stages for students to filling in more easily.
4. The qualification checkup is set at the second stage, and it effectively reduces the work burden and the working time.
5. It helps enhance the embodiment of the institutes of technology.

Keyword: teaching normalization, FTUT(Four-year institute of technology & Two-year professional college Union of Testimonial)

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以遠程遙控軟體實作軟體廣播教學系統

Using KMD-based software to implement a instruction broadcasting system

陳　星　光

東南技術學院工業工程與管理系 助理教授

摘　　要

本文提出一個簡易且低成本的軟體廣播系統架設方法，除了幾乎市面上現成的軟硬體產品所擁有的廣播功能之外，本文所提出的方法，尚可實作出許多意想不到的特殊功能，例如結合遠距教學的異地廣播應用等。由於目前市面上的產品良莠不齊，且其一致的特性就是價格昂貴，相容性也不夠，常常在電腦教室更新軟硬設備時，這些設備便面臨不相容而需更換的窘境，使得電腦教室的維護成本相對偏高。

本文的軟體廣播系統架設方法，採用了免費的開放原碼遠程遙控軟體，除了可以達成一般廣播教學系統需具備的功能以外，由於其記憶體只佔數百 K 字元，系統資源相對充裕，因此執行效率頗高。另外因為是軟體解決方案，電腦教室不需拉設管線，可以維持較乾淨的教學環境與較低的維護成本，經作者實際教學數月實證，證實可行，而且教學效果不輸市售軟硬體產品。

This paper proposed an easy way to implement a low-cost software based instruction broadcasting system. The system proposed can commit almost all the functions supported by the markets. Besides, some special functions those are not supported by markets can also be implemented. For example, the multi-site broadcast in distance learning applications. Since the quality differences from the markets and the limited compatibility, it is often needed to re-setup the system when the software or hardware upgrade in a computer classroom. Thus, it makes the high maintenance fee.

This paper proposed a software-based instruction broadcasting system by using an open source software – VNC. Due to the small size in memory requirement, the system can perform very high efficiency broadcasting application. The computer classroom can be cleaner for not to be wired. After physical experiments for months, the way is proofed to be feasible.

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台灣 TFT-LCD 產業之垂直整合與競爭優勢研究

The Study of Vertical Integration and Competitive Advantages of the TFT-LCD Panel Companies in Taiwan

楊台富[1]

洪敏哲、周日彥、黃善德、洪向志、賴鴻昌、涂古漢[2]

[1]東南技術學院工管系助理教授　[2]東南技術學院工管系四技同學

摘　　要

TFT-LCD 產業已被公認為將取代半導體成為台灣最有前景之產業之一，然而台灣面板廠雖挾有下游電腦廠商的訂單優勢，但在面對日、韓廠商的競爭中仍處於劣勢，日本的優勢在於掌握大部份關鍵零組件之技術及材料，南韓的優勢在於生產技術領先、高度垂直整合、資本集中及量產規模。

為了突破目前的劣勢，台灣廠商紛紛朝向掌握關鍵技術及材料努力，為了快速達到上述目標，策略聯盟及垂直整合便成為最有效的方式，因此本研究將以文獻收集、電話訪談及問卷調查的方法，分析台灣 TFT-LCD 產業現況，五大廠商的垂直整合架構，及垂直整合會造成哪些低成本競爭優勢及哪些差異化的競爭優勢。結果發現：垂直整合會造成「良好之上游供應商關係－原料成本低」等8項競爭優勢；垂直整合會造成「優良的顧客服務／產品支援」等9項差異化競爭優勢。

關鍵字：TFT-LCD、競爭優勢、垂直整合

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訊號燈色彩及肢體控制部位對肢體反應速度之影響

The effect of colored light and body-control are different on body-response

林成益、陳彥君、李建中

東南技術學院工業管理系

摘　　要

本研究的主要目的是探討機械儀表訊息的傳遞是否會受到顯示燈號色彩之影響而造成判斷上之時間落差，以及在肢體控制部位之不同對於控制反應之影響，並針對男女性別在控制能力之差異上，進行分析探討。本文係採用控制反應器之時間作為反應速度之指標，來進行衡量操控反應之優劣，並經由統計上分析，找出較佳之訊號燈色彩及肢體控制部位，以提供在人機系統訊息傳遞介面設計之參考。

關鍵字：訊號燈色彩、肢體控制、人機系統、視覺訊息傳遞。

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考慮檢驗時間之不完全保養製程的最佳生產與品管策略

宋建國[1]　　李建中[1]　　陳彥君[2]

[1]東南技術學院工業工程與管理系講師　[2]東南技術學院工業工程與管理系助理教授

摘　　要

不完全製程生產期間，到達檢驗點進行檢驗作業後，製程若診斷為管制狀態，則實施預防保養，檢驗和預防保養時間、預防保養的誤差等，對檢驗次數、生產策略及期望成本等均有直接的影響，一般檢驗與保養模式假設檢驗和預防保養時間皆忽略不計，本文討論在生產期間，考慮製程的檢驗時間，且探討檢驗時間長短和預防保養誤差大小，對檢驗次數、第一次檢驗時距、生產批量等生產策略及單位期望成本的影響，並利用數值方法，解析最佳的生產策略。

關鍵字：不完全製程、檢驗時間、第一次檢驗時距、預防保養、保養誤差。

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數位學習在非同步教學之應用探討
The Study of the e-Learning Adopting in the Asynchronous Teaching

鄭敬譯[1]　楊靖宇[2]　王　慧[3]　孫瑞琴[4]

Chin Yi Cheng[1]　Ching Yu Yang[2]　Hui Wang[3]　Jui Chin Sun[4]

[1]東南技術學院電算中心暨資管系兼任講師　[2]東南技術學院資管系副教授暨資管系主任

[3]東南技術學院應英系專任講師　[4]東南技術學院通識中心國文組專任講師

摘　要

數位學習（e-Learning）是一種建構在網路之上的教學方式，特點在於可以打破一般課堂式教學在時間和空間上的限制，在降低學校的營運成本上也有一定的助益。在教育部要求各校減少夜間和假日班修業時程的條件下，東南技術學院於九十三學年第一學期試辦「共享時段」式的數位學習，期望透過這樣的教學方式，減少學生實際到校的時數，且提高學生學習的滿意度和教學效果。

本文主要針對東南技術學院於九十三學年第一學期所試辦之「共享時段」式的數位學習，提出一相關的調查數據和實驗結果，並期望藉此提供未來學校再採行類似教學方式時的參考。

關鍵字：數位學習、非同步教學、混成式教學

ABSTRACT

e-Learning is a new teaching approach which is based on network. It released the classroom teaching and learning from the boundary of time and space. Also, it helped the school reduce its cost. In the first semester, 2004, Tung Nan Institute of Technology (TNIT) made an experimental teaching approach which alternated two courses in the same class every week. So that students reduced their present hours at school. We hope this approach could improve the students' satisfaction with learning and the teaching effect.

This paper focuses on the result of experimental teaching in the first semester, 2004, in TNIT. We expect this result could be referred when the schools want to adopt this kind of teaching approach.

Keywords: e-Learning, Asynchronous teaching, Blended learning

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主動式資料庫中異常規則行為的偵測

Detecting Rule Behavior Anomalies in Active Databases

張　志　祥
Chih-Shyang Chang

東南技術學院資訊管理系
Department of Information Management Tung Nan Institute of Technology

摘　　要

目前的資料庫管理系統都已經提供規則（rule）的設定及規則的處理;系統提供這樣的功能可以將原本被動的處理方式變為一種主動的處理方式。一般來說一個資料庫系統可以設定大量的規則，然而我們比較困難去預測規則的行為及其執行後所產生的效應。當資料庫系統一被更新，相關的規則在交易（transaction）即將結束前將被觸發。在規則的執行過程中，如果發生"衝突更新（contradictory update）"現象時，交易將被中斷（abort）。如果此現象發生的頻率過高時，將會大大降低系統的效能。然而這種現象大部份可以在規則的設定之前就能偵測出來。本篇論文提出一個以圖形為基礎的方法用來找出可能發生衝突更新的規則，以便能事先預防可能發生影響效能的現象。

關鍵字：主動式資料庫, 規則行為, 衝突更新, 圖論

Abstract

Various commercial database systems have supported rule specification and processing to bring the traditional passive systems to active ones. A large number of rules may be implemented in a database system. It is very difficult to predict the behavior of the rules. To process a user-specified update, the related rules may be triggered at the end of the transaction. In the rule execution process, if a phenomenon named *contradictory update* occurs, the transaction aborts. If the occurrence frequency of the phenomenon is high, the overall system performance will degrade substantially. However, the phenomenon in most cases can be discovered from the interaction between the events and actions specified in the rules. In this paper, we propose a graph-based approach to detect the rule behavior which may inspire the phenomenon such that the superfluous execution of the rules can be avoided.

Keywords: *Active databases*, *Rule behavior*, *Contradictory update*, *Graph theory*

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程序再造與辦公室自動化運用於 Intranet 之研究以學生曠缺課記錄 Web 公告系統為例

謝瑞宏、許昆重、翁加偉

東南技術學院資訊管理系講師、東南技術學院電算中心系統組組員

摘　　要

本研究的目的是設計一套學生曠缺課記錄 Web 公告系統來取代之前舊的曠缺課查詢系統，以達到企業網路(Intranet)的功能，並從程序再造的角度將學生曠缺課查詢系統重新設計。經與舊系統比較之後，結果顯示除了提高作業效率、增進作業時效及降低作業成本之外，更符合 Earl et al.(1995)所提出的 Process Alignment Model 觀點，並且衝擊到組織內部的法規與程序作業。也同時顯示學校舊有的法規與程序作業因為資訊技術的導入確實引起程序的合理化檢討。本研究除以程序再造、辦公室自動化及網際/企業網路為主要的探討外，並使用實證來探討辦公室自動化對程序再造的影響。

關鍵字: 網際網路、企業網路、企業程序再造、辦公室自動化。
Keyword : Internet、Intranet、Business Process Reengineering、Office Automatione。

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應用 BTM 模式之中文短語切分研究

A Study of Applying BTM Model on the Chinese Chunk Bracketing

蔡　佳　麟

Jia-Lin Tsai

Tung Nan Institute of Technology, Department of Information Management, Assistant Professor

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Abstract

The purpose of this paper is to automatically generate Chinese chunk bracketing with bottom-to-top mapping (BTM) model. The BTM model is designed as a supporting model with parsers. We define a word-layer matrix to generate the BTM dataset from CKIP Chinese Treebank (CCTB). Our model matches auto-learned patterns and templates against segmented and POS-tagged Chinese sentences. A sentence that can be matched with some patterns or templates is called a matching sentence. The experimental results have shown that the chunk bracketing of the proposed approach on the matching set (the set of matching sentences) for perfect and actual input is able to achieve more than 95% F-measure when training size is ≥ 5,000, POS layer number is ≥ 2 and BTM threshold value is ≥ 0.5.

Keywords: phrase, parser, template matching

摘　　要

本篇文章描述一個可自動產生中文短語切分的 BTM 模式。此 BTM 模式是用來支援中文剖析器。我們定義了一個詞層矩陣，用以轉換樹圖資料庫為 BTM 資料庫。一個句子若可對應到一個 BTM 特徵或模版，此句子被稱為可對應句。我們的實驗顯示，此 BTM 模式在訓練語料大於等於五千句，詞性標記大於等於兩層，及 BTM 閥值大於等於零點五的條件下，在可對應句上，可達到大於95%F-measure 的短語切分能力。

關鍵詞：短語，剖析器，模版匹配

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以特定詞配對辨識器改進中文輸入法

Using Specific Word-Pair Identifier to Improve Chinese Input Systems

蔡 佳 麟

Jia-Lin Tsai

Tung Nan Institute of Technology, Department of Information Management, Assistant Professor

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摘　　要

中文摘要・本篇文章描述一個特定詞配對辨識器，此辨識器可有效解決中文音轉字系統中，常見的同音詞與音串斷詞歧異的問題。本篇文章所檢視的特定詞配對包含三種類型：句首，句尾與邊界。我們的實驗顯示：（1）特定詞配對辨識器，對於測試句子的特定詞配對成分，其音轉字（含聲調）之辨識率為99.57%；（2）運用特定詞配對辨識器，改進微軟新注音2003系統之音轉字辨識率的幅度為27.88%，並達到96.8%音轉字之辨識率。

關鍵詞：音轉字，中文輸入法，由上而下辨識器。

Abstract

This paper describes a specific word-pair (SWP) identifier that can be used to resolve homonym/segmentation ambiguities and perform STW conversion effectively and robustly for Chinese. It is designed as a support model for Chinese input systems. In this paper, three types of SWP are investigated, namely: BEGIN, END and BOUND. Our experiments show the following: (1) the SWP identifier achieves tonal (syllables with four tones) STW accuracy of 99.57% among the identified word-pairs for the testing syllables; (2) by applying the SWP identifier, together with the Microsoft input method editor 2003, the tonal STW improvement is 27.88% and achieves the overall tonal STW accuracy of 96.8%.

Keywords: syllable-to-word, Chinese input method, top-down identifier.

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休閒導向消費者採用線上購物之因素分析與實證研究

Recreational Shoppers' Adoption of Online Shopping: A Factor Analysis and an Empirical Study

吳文傑[1]　　秦大智[2]　　江佩珍[3]
Wen-chieh Wu　Ta-Chih Chin　Pei-Chen Chiang
[1]國立台北大學企業管理學系研究生　[2]國立台北大學企業管理學系研究生　[3]東南技術學院資訊管理系

摘　　要

網際網路應用與電子商務快速發展，帶動線上購物的發達，學術研究針對線上購物也有相當的成果。然而，除了在經營者觀點與網站設計兩層面外，對於消費者行為的研究，尤其休閒導向消費者的線上購物行為，隨著經濟生活水準的提升，實有進一步深入探討的必要。本研究透過探索性因素分析，將過去有關休閒導向的變項彙整，並依分析結果命名建立休閒導向的三個構面：重視產品多樣化、追求購物樂趣與善用休閒時光。接著，以此理論構念進行實證研究，以結構方程模式驗證理論構念之因果路徑關係，且納入產品類別變數進行分析比較差異。

結果顯示，休閒導向消費者對於線上購物的採用，主要影響因素為對線上產品多樣化的重視（β=0.25, t>1.96）。利用類別分析後，發現對線上購物採用的影響，因主要購買產品類別的不同而有差異，當產品類別為便利品時，其影響採用決定的因素同樣來自於對產品多樣化的重視（β=0.25, t>2.58）；當產品類別為選購品，則來自於休閒導向消費者對線上購物樂趣的重視（β=0.10, t>1.96）。最後，本研究依據研究結果，對線上購物網站經營者提出建議，並期以此提供後續研究更全面完整的思考。

關鍵字：線上購物、購物導向、休閒導向

Abstract

As the applications of Internet and electronic commerce growing fast, online shopping has prospered for a while, with certain amount of studies on it as well. Their points of view, however, have been keeping on web design and management, and few of them focuses on consumer behavior, especially recreation-orientated consumers. This research collects explanatory variables and categories them with factor analysis as 3 factors: variety of products, fun of shopping, and leisure-time exploitation. Then, we use SEM to test this casual

model, and take types of products into consideration at the same time.

With 373 samples, the results refer to that variety of products is the main impact for recreation-oriented consumers to adopt online shopping (β=0.25, t>1.96), and that different types of products may result in different impacts. Recreation-oriented consumers who shop selective products, for example, may adopt online shopping mostly because of fun of shopping (β=0.10, t>1.96). Finally, we give some advices to firms of online shopping and the results could be taken into consideration in further researches.
Keywords: shopping orientation, online shopping

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探討休閒事業員工資訊科技的使用對於工作滿意度影響之研究

Study on Leisure business Employees' Job Satisfaction and Information Technology Usage

陳 俊 豪[1]　　侯 鳳 雄[2]

[1]東南技術學院資訊管理系助理教授　[2]國立金門技術學院資訊管理系助理教授

摘　　要

本研究的目的在於探討休閒事業員工資訊科技的使用對於工作滿意度影響。研究的樣本為五百位休閒事業的員工。這個研究是以對台灣休閒事業的員工進行問卷訪談。本研究以敘述性以及單因子變數等兩種統計方法對於休閒事業員工資訊科技的使用對於工作滿意度影響進行分析。研究的結果指出，資訊科技的使用對於休閒事業工作滿意度有顯著的影響。

關鍵詞: 休閒事業、資訊科技、工作滿意度。

Abstract

The purpose of this research was to explore possible relationship between the Information Technology usage and the job satisfaction in the leisure business organizations. The method employed quantitative research method in conducting this study was measure the use of Information Technology in various leisure business organizations and provided an overview of the method of Information Technology use in leisure business organizations' job satisfactions. The research participants were 550 employees in leisure business organizations. The Spearman Rank Correlation Coefficient and descriptive statistics were used to test the research hypothesis. Research result indicated: there were significant relationships between the Information Technology use and job satisfactions for: (1) promotion; (2) supervision; (3) fringe benefits; (4) operating procedures; (5) nature of work; (6) Communication. The data revealed there were no significant relationships between the Information Technology use and job satisfactions for: (1) contingent rewards; (2) coworkers; (3) pay.

Keywords: **Leisure business Organization; Information Technology Usage; Job satisfaction.**

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探討個人特質對休閒事業員工的工作投入有何影響

How Personal Characteristics Effect Job Involvement For Recreational Business Employees

侯 鳳 雄[1]　陳 俊 豪[2]　姚 卓 元[3]

[1]國立金門技術學院資訊管理系助理教授　[2]東南技術學院資訊管理系助理教授

[3]東南技術學院資訊管理系講師

摘　　要

本研究的目的在於探討個人特質對休閒事業員工的工作投入有何影響。研究的樣本為五百三十二位休閒事業的員工。這個研究是以對台灣休閒事業的員工進行問卷訪談。本研究以 Schefee 事後比較法以及單因子變數等兩種統計方法對於個人特質對休閒事業員工的工作投入有何影響進行分析。研究的結果指出，個人特質對休閒事業員工的工作投入有顯著的影響。

關鍵詞: 休閒事業、資訊科技、工作滿意度。

Abstract

This study empirically investigates the relationship between personal characteristics (including position, gender, age, education, marriage, working experience) and recreational business employee s' job involvement. The study was conducted on 532 full-time recreational business employees. They were drawn from a variety of recreational business in Taiwan. Job involvement among recreational business employees was measured using Kanungo (1982) proposed a ten-item job involvement measure with items derived from Lodahl and Kejner (1965). The design of the present study is to test the means of groups against the overall sample; the data collected were analyzed using descriptive statistics by frequency distributions, percentages, means, and standard deviations. Also, a one-way analysis of variance (ANOVA) was conducted to determine if significant differences existed in personal characteristics effect job involvement for recreational business employees. Position, and gender were found that the top two most effecting variables of recreational business employees' job involvement. Marriage was also found to affect job involvement. Married

recreational business employees were significantly more involved with their jobs than single recreational business employees. Work experience, age and education were found that the least three effecting variables of recreational business employees' job involvement. The ANOVA results also indicated that there had significant relationship between the personal characteristics (including position, gender, age, education, marriage, working experience) and recreational business employee s' job involvement.

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A Problem-based Learning Assessment Tool for IT Education

江　啓　忠

Akcell Chiang

Department of Computer Science and Information Engineering Tung Nan Institute of Technology

Abstract.

This paper reports on MALESA-assessment as a student-performance assessment tool to support MALESAbrain project to promote problem-based learning (PBL) to IT education. The assessment tool collects the learnt knowledge in the previous PBL discussion with the facilitation of MALESAbrain. It then becomes an expert system, called MALESA-assessment, to support students to answer the similar testing problems in the examination. The further refined students' testing answers will be collected into another knowledge base with case-based reasoning (CBR) engine for reuse in the future teaching.

Keywords: Problem-based learning (PBL), Case-based reasoning (CBR)

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Case Based Reasoning in a Pacman like game

Akcell Chiang

Department of Computer Science and Information Engineering
Tung Nan Institute of Technology

akcell@mail.tnit.edu.tw

Abstract

AI game would be more interesting if we could apply case-based reasoning (CBR) into a commercial game like Quake II. As a first step in that direction, the author tentatively transforms the SOAR tutorial eater game's playing rule as a platform to experience that CBR agent plays with human player in a shared system running map for finding its best solution as competition with human player and Greedy agent. This paper explains how the author adapts Pacman game's planning rules into our CBR platform - Brick Puzzle game. Based on the numbers of the retained CBR cases during training, the author made three versions of (100, 165 and 200 cases) CBR agents. From the competition results in the experiments, the author found the learning rate and the good retained case rule during training processing will affect the performance of CBR agent in its human contests.

Keywords: Case-based reasoning (CBR)

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奈米陶瓷材料之簡介及其應用

Introduction to Nano Ceramics and Their Application

王 茂 源[1]　　謝 建 新[2]　　蘇 亞 萍[3]

Wang Mou Yuan[1]　　Hsien Chien Shin[2]　　Shu Ya Pin[3]

[1]東南技術學院副校長　[2]東南技術學院副教授　[3]國立師範大學博士候選人

[1]Tung Nun Institute of Technology Vice president

[2]Tung Nun Institute of Technology Associate professor

[3]National Taiwan Normal University Doctor candidate

摘　　要

奈米科技又稱為超微細化技術，簡而言之就是凡論及尺寸大小在1-100nm(10^{-9}m)左右的物質之製程技術，，或探討這類物質的構造、機能、應用的學問，並依其特有的機能，創造新的規律及機能，進行全新的組合技術皆屬於奈米科技的範疇。而其應用更可擴充至所有科技領域，影響國家總體的發展。而奈水材料又稱為超微顆粒材料，由奈米粒子組成。而奈米材料又可分為光導材料、金屬材料、磁性材料、陶瓷材料、電子材料、複合材料、高分子材料、感測材料及醫用材料，而此次報告內容便針對奈米陶瓷材料的產業應用來做探討。

關鍵字：奈米陶瓷材料、奈米材料、奈米粒子、奈米科技

Abstract

Nanotechnology requires very small turning techniques.　Simply put，nanotechnology is a manufacturing technique involving materials with a size of 1~l00nm ($l0^{-9}$gm),or inquire into this type of materials of the knowledge of the structure,　function and application.　And according to its special function，create the new regulation and function,　carry on all 一 new technique of the combination and all belong to the category of the nanotechnology. Furthermore，the applications of nanotechnology can be expanded to include all technological areas,　affecting development in general　Nanomaterials also refer to tiny materials with grains constituted by nanoparticles. Nanomaterials can be divided into Metal materials、magnetic materials、Ceramics materials、electronic materials、Composite Materials、Thermoplastic polyurethane、Sensing materials and Medicine materials. This investigation examines the industrial application of the nano ceramics.

Keywords: Nano ceramics、nanomaterials、nanoparticles、nanotechnology

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應用賀伯夫分歧理論分析微波金屬半導體場效電晶體振盪器混沌現象

Analyzing Chaotic Phenomenon in MESFET Oscillator with Hopf Bifurcation

周 錫 強　　林 英 哲　　鍾 吉 榮　　徐 勝 銓

Hsi - Chiang Chou,　Ying-Che Lin,　Chi-Jung Chung,　Sheng-Chuan Hsu

東南技術學院電機工程系

摘　要

本篇論文之目的即在應用賀伯夫分歧理論探討微波金屬半導體場效電晶體振盪器之混沌現象，並嘗試運用複雜之Curtice-Cubic表示法構建一個新的金屬半導體場效電晶體模型，藉由計算機模擬分析結果驗證金屬半導體場效電晶體振盪器存在非線性混沌現象。

關鍵字：混沌、分歧、金屬半導體場效電晶體振盪器

Abstract

The purpose of this paper is explores the chaotic phenomenon in microwave MESFET oscillator with Hopf bifurcation theorem. A more complex representation using the Curtice-Cubic MESFET model are investigated, Simulated results give further insight into MESFET nonlinear phenomenon. Based on the numerical and simulation results that confirm the MESFET oscillator exists chaotic phenomenon.

Keywords: Chaos, Bifurcation, MESFET oscillator

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直流無刷馬達定位控制
Position Control of DC Brushless Motor

蔡志明[1]　林欽忠[2]　林明贊[3]
Chee-Ming Tsai　Chin-Chung Lin　Ming-Tsan Lin

[1]長庚大學電機研究所博士班，東南技術學院電機工程系
[2]華梵大學機電研究所博士班東南技術學院電機工程系[3]
東南技術學院電機工程系

摘　要

本文旨在利用 H∞強健控制理論建立一個直流無刷馬達的定位控制系統，直流無刷馬達的好處在於他有類似永磁式直流電動機系統中速度與轉矩之特性，亦具有低慣量及較少的火花問題。然而，也因為非線性特性導致複雜的控制問題，使得成為直流無刷馬達的缺點。比例積分控制器常常被使用在直流無刷馬達控制中，但是往往無法得到較佳之結果；因此，利用系統輸出誤差訊號的擴增矩陣作為新的狀態來作為定位控制狀態變數回授的解。另外，選擇適當的權重函數來滿足系統強健性能及穩定性。最後，本文將列出相關模擬與實驗之波形，以證明本 H∞控制器的可行性。

關鍵字:直流無刷馬達，H∞強健控制器

Abstract

This paper is proposed a brushless DC(BLDC) motor position controller by H∞ control theory. The advantage of using a BLDC motor is that it can be controller to have the speed-torque characteristics similar to that of a permanent magnet DC motor. In addition, the BLDC motor has the lower inertia and fewer spark problems. The disadvantages are the high cost and more complex controller caused by nonlinear characteristics. The BLDC motor control is that the PI controller is usually employed, which is simple in realization but difficult to obtain a sufficient high performance. It is however, known that the position controller problem using a state variable feedback can be simply solved by the augmentation of the output error as a new state. In addition, the proposed work comprises an H∞ controller design problem for a class of stable/ unstable plants and selecting suitable weighting functions such that which satisfies both robust performance and robust stability. Finally, the waves of related simulation will be showed to prove the feasibility of this H∞controller system..

Key words: DC Brushless Motor, H∞ controller

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Circuit Design of Fuzzy Units for Implementation of Fuzzy System

Chunshien Li,　Fang-Ping Wu　and　Jin-Long Chen

[1]長庚大學電機工程系 [2]東南技術學院電機工程系

Corresponding author. Send any correspondence to Dr. Chunshien Li at *jamesli@mail.cgu.edu.tw*

摘　　要

本文中將利 VHDL 來實現模糊集合之電路設計，三種最常被使用的模糊集合－三角形、左梯形及右梯形，將被設計在同一電路之中，我們可利用一個輸入訊號接腳來選擇使用哪一個模糊集合計算歸屬值，本文之設計方法並非採用查表方式。計算歸屬值過程中需同時使用到乘法與除法的運算，本文中所設計之電路其乘法器與除法器的位元數是可以調整的，本文之模糊集合電路可視為建立模糊硬體系統的一個建構方塊，這是該電路設計方法的最大優點，本文之電路將燒錄至 FPGA 上以驗證該電路之功能。

關鍵詞－除法器,模糊晶片, FPGA,模糊集合,乘法器, VHDL。

Abstract

Circuit design using VHDL for realization of fuzzy sets is presented in the paper. Three types of most used fuzzy sets with triangular, left-trapezoidal and right trapezoidal membership functions, are integrated in a circuit, in which a selection signal is used to indicate the type of fuzzy set for calculation of membership degree. The design approach is not based on look-up table. To calculate membership degree, the calculation needs the operations of both arithmetic multiplication and division. Multiplier and divider with adjustable bit width are designed in the circuit. The merit of the approach lies in integrated design approach to the fuzzy-set circuit, which can serve as a building unit for fuzzy hardware system. The circuit has been implemented on an FPGA for verification of the circuit functionality.

Index Terms— Divider, Fuzzy chip, FPGA, Fuzzy sets, Multiplier, VHDL.

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資訊傳播原理及應用簡介

Intoduction to Principles and Applications of the Information Communication

[1]盧 並 裕　　[2]董 明 麗　　[3]楊 靖 宇
[1]Bing-Yuh Lu　　[2]Ming-Li Tung　　[3]James C. Y. Yang

[1]東南技術學院電子工程系副教授[2]東南技術學院應用英文系講師
[3]東南技術學院資訊管理系副教授兼系主任
[1]Department of Electronic Engineering, [2]Department of Applied English,
[3]Department of Information Management
Tung-Nan Institute of Technology

摘　　要

網路資訊社會來臨、全球化與地球村發展趨勢，社會需要從事資訊內容的設計、蒐集、整理、檢索、加值與傳播，並能適時將資訊傳播給需要民眾。資訊傳播的相關領域很廣泛，包含通訊、電機、電子、資訊、語文、社會、大眾傳播、管理、藝術、科學等領域，其產業包含：演員、經紀公司、工作室、資訊與通訊科技公司、製作商、電影院、資訊媒體商店、作者、出版商、書局、書店、運輸公司、藝術工作者、唱片行及相關的行銷、管理人員等，在進入二十一世紀的課程設計中，學校應可規劃相關科系、學程，以因應新世紀的課程需求，結合人文素養與科技訓練，在目標導向式的規劃與設計，共同創造資訊傳播產業的利潤，並加強我國在全球化趨勢的影響力。

關鍵字：資訊傳播、學程、課程設計、媒體、全球化

Abstract

It has been the worldwide globalization with the wide use of Internet applications. The enormous information for the audience has to be designed, collected, processed, searched, added the value, and circulated by the workers related to information communication industries. The relevant fields of information communication include information engineering, computer science, electrical and electronic engineering, science, communication, art, social science, mass media, and management. Thus, the relevant industries or workers include actors,

agents, workshops, information and communication technology companies, producers, theaters, artists, media stores, authors, publication companies, book stores, traffic companies, music stores, salesmen, managers etc. At the beginning of the 21th century, some curriculum can be newly designed as the essentials of the information communication. It is necessary to combine the refined training of culture and relevant technology in the objective-oriented principle to design the information communication courses. The information communication industries will benefit greatly from it. Thus, the influence of our country will be increased with the trend of globalization.

Keywords: information communication, learning program, curriculum design, media, globalization.

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二硒化鎢單晶摻雜錸的溫度變化壓電調制研究

Temperature-dependent Piezoreflectance Study of Re-doped WSe_2 Single Crystals

胡　勝　耀

Sheng-Yao Hu

東南技術學院電子系講師

摘　　要

本文章是以溫度變化壓電調制的方法來對二硒化鎢單晶摻雜錸 (Re) 的單晶在1.4到2.4 eV 的能量範圍進行溫度變化的近能帶邊際的激子躍遷研究。摻雜錸的單晶可以用來作凡得瓦面 ($\boldsymbol{E}\perp\boldsymbol{c}$; $\boldsymbol{k}\parallel\boldsymbol{c}$) 的壓電調制。對於壓電調制下所得到的激子 A 和激子 B 躍遷，我們可以用勞倫茲振盪器模式來和無摻雜的二硒化鎢單晶進行線形吻合比較。經由此項研究一個基本的激子躍遷位置和能帶架構可以同時被正確的求得。

關鍵字: 壓電調制，摻雜，激子躍遷

Abstract

We have recorded temperature-dependent piezoreflectance (PzR) spectra from 15 to 300 K in the energy range of 1.4 to 2.4 eV for WSe_2 single crystals with Re impurity to examine the effect of dopant on the near band-edge excitonic transitions. Freshly cleaved van der Waals planes ($\boldsymbol{E}\perp\boldsymbol{c}$; $\boldsymbol{k}\parallel\boldsymbol{c}$) PzR measurements was made possible by the samples of Re-doped WSe_2. The excitonic transitions A and B for $\boldsymbol{k}\parallel\boldsymbol{c}$ configurations have been studied in terms of Lorentzian oscillators comparing with that of the undoped samples. The basis for assignment of excitonic transition energies is determined accurately and a probable energy-band structure is constructed.

***Keywords*:** Piezoreflectance; Doping; Exciton transition

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新型原子力顯微鏡探針懸臂之最佳化設計

Optimum Design of a Novel Atomic Force Microscope Probe

陳坤男[1]　　蔡智昇[2]
Kun-Nan Chen　　Zhi-Sheng Tsai
[1]東南技術學院機械工程系副教授　　[2]東南技術學院機電整合研究所碩士生

摘要

原子力顯微鏡(AFM)之量測原理乃以微探針掃描樣本表面而成像，AFM 使用之微探針是極為重要的微奈米量測元件，並關係著掃描量測之成敗。本文係以原子力顯微鏡所使用之 V 型探針為藍本，提出具有三叉樑結構之新型探針，此探針具有比原來 V 型探針更高之懸臂勁度，且具有較高之自然頻率，並能提高掃描速率。本研究應用有限元素法及最佳化程序，以第一自然頻率最大化為目標函數，設定探針懸臂勁度常數範圍，並設第一頻率與第二頻率之最小倍差為限制條件，成功地設計出十種符合限制條件的新型探針外形。

關鍵字：原子力顯微鏡、探針懸臂、新型探針、最佳化設計

Abstract

The Atomic Force Microscope (AFM) utilizes a micro-probe to scan across the sample surface to form 3-D images. The AFM probe is an important device for nano-scale measurements and the quality of the scanned images is greatly influenced by its dynamic characteristics. Based on the shape of the popular V-shaped probe, this paper proposes a novel AFM probe that has a three-beam structure. An AFM probe with the new shape will have a higher cantilever stiffness and natural frequencies, and therefore can increase the scanning speed. This research employs the finite element method and an optimization procedure to maximize the probe's fundamental frequency, with the cantilever stiffness and the frequency difference between the first and the second modes as the constraints. Ten new shapes for the tree-beam probe are obtained according to various constraint conditions.

Keywords: Atomic Force Microscope (AFM), probe cantilever, novel probe, optimum design

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核能電廠電氣設備承受地震載荷的驗證審查導則研究-測試法

The Guidelines of Seismic Qualification of Main Equipment for Nuclear Power Plants-Test Method

鍾 興 遼[1]　　賴 月 梅[2]

Hsing-Liao Chung　　Yueh-Mei Lai

[1]機械工程系助理教授, [2]機械工程系講師

摘　　要

本文係原委會核能研究所「核能電廠電氣設備承受地震負載之結構安全評估」計畫的第一階段工作-核能電廠重要設備承受地震載荷的驗證審查導則研究的部分成果報告。根據核能法規的要求，CLASS 1E 電氣設備及其相關介面功能，必須在其設計與運轉期間符合技術規範。核能電廠電氣設備的耐震驗證審查，必須能展現該設備在承受一次安全停機地震 SSE 負載期間與之後的安全功能確保。此外，該電氣設備在承受安全停機地震 SSE 之前，必須能承受數次的運轉基準地震 OBE 效應。電氣設備的耐震驗證審查最常使用到的方法，可歸納為四個大類：分析法、測試法、綜合法及經驗法。本文謹論述其中測試法部分的研究成果，並闡述驗證測試、通用性測試、損壞性試驗等不同測試目的所應考量的因素，而對於可用以模擬地震環境的最佳輸入運動型態：單頻測試與多頻測試，其測試方法與該注意的事項亦有詳細的說明。

關鍵詞：核能電廠、耐震驗證、安全停機地震(SSE)、運轉基準地震(OBE)

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應用電化學原子力顯微鏡即時量測銅材料在純水與外加偏壓下奈米級表面形貌變化之研究

The in-situ nonsocial surface morphologies evaluation of pure copper under DI water and bias by electrochemical atomic force microscope

黃仁清[1]　　李志偉[2]　　許良瑋[3]
Jen-Ching Huang　　Jyh-Wei Lee　　Liang-Wei Shiu

[1]東南技術學院機械系講師　[2]東南技術學院機械系副教授　[3]東南技術學院機械系學生

摘　要

本文以電化學原子力顯微鏡(EC-AFM)在 Contact Mode 模式對純銅試片進行電化學實驗，以探討純銅在去離子水(DI water)與外加電壓的環境的奈米級表面形貌的變化行為。經掃描後發現之銅塊材表面形貌在去離子與外加偏壓作用下會產生變化，實驗剛開始時在掃描區域的表面會有平坦化的趨勢，表示矽探針對純銅表面產生奈米等級的切削作用而將表面突出的部分刮平。且在經3285秒的掃描時間後，探針會在純銅表面加工出一清晰可見的凹洞。而在探針未持續掃描的區域，然後隨著作用時間加長，純銅表面會因氧化而使純銅表面的數百奈米大小的突起部分氧化而變大至約為將近1000奈米。本文亦發現在 EC-AFM 實驗時，探針在有水溶液環境中施予偏壓時，探針的背面也同時被腐蝕使探針的反射率變低，易造成在表面形貌量測上之誤差。而掃描時探針的鈍化，也是誤差的來源。

關鍵詞(Keywords)：電化學原子力顯微鏡，表面形貌，銅，奈米

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超大型平面之銑削加工技術探討-以大型油壓機械之基準面元件為例

The Study of the Face-milling Technique of the Large Plane - Taking the Datum Plane of Component of the Large-scale Hydraulic Machine as An Example

巫　維　標[1]　　黃　仁　清[2]

Wei-Piao Wu　　Jen-Ching Huang

[1]東南技術學院機械系講師

摘　　要

基準平面是整部機器精度的基礎，大型油壓機械的相關零組件定位均以此平面為基準，且一般此種幾十平方公尺之超大基準面元件之研究並不多見，因此本文針對數公尺等級的超大平面之面銑削加工進行研究。本文首先進行工業界常見的超大型平面加工方式之製程規劃分析，並針對其所產生之缺點，提出一改良式超大型平面加工製程規劃，並實際進行加工實驗以驗證其效果，而可使超大型平面加工件達到精密的尺寸公差與幾何公差。本文且進一步導入 Marco 程式之設計，將本文提出之改良式超大型平面加工製程規劃的技術轉換成容易使用的 CNC Marco 程式，以方便工業界使用。

關鍵詞：超大型平面加工、基準平面、Marco、CNC

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電流變儀的研製

郭　文　化[1]　梁　乃　文[2]

[1 1]東南技術學院自動化工程系 副教授　[2 2]東南技術學院自動化工程系 講師

摘　　要

電流變液（Electro-Rheological Fluid, ERF）主要由高介電常數(dielectric constant)的微奈米顆粒與絕緣液體所混合而成，其機械性質如剪應力及黏度會隨電場強度大小而改變。為了瞭解電流變液的機械性質，必須有一套精準的量測儀器，作為研究電流變液特性的工具。然而研究電流變液的學者及研究人員使用的量測儀器大都是自行研製，本文從多年來對電流變液及其應用的研究中，來探討電流變儀的研製技術。

電流變儀是由一般的黏度計改變設計而成，兩相對運動的內外筒改成可施加電場的電極，由於電極須施加高壓電場，故電極須包覆絕緣裝置。外筒則繞上可加溫的線圈及定溫控制的裝置，旋轉內筒的軸上裝置扭力計，量測流體的剪切力，並轉換成剪應力(shear stress)。扭力計上方裝置驅動馬達，控制轉速，使用轉速計量測流體的剪切速率，並直接轉換成剪應變率(shear strain rate)。電流變儀可隨不同電場及不同溫度變化，量測出電流變液之黏度、降伏剪應力，並畫出電場強度-剪應力關係圖、剪應變率-剪應力關係圖以及剪應力-溫度關係圖。

關鍵詞：電流變液，黏度計，電流變儀，降伏剪應力，電流變效應

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利用輪廓端銑刀加工 LED 模用放電電極之研究

黃　錦　鐘

東南技術學院自動化工程系　副教授

Abstract

A study on machining electrode for LED(Light Emitted Diode) mold with shaped end-mill is presented. The electrode machining by shaped end-mill has been used for maximizing the productivity in manufacturing semiconductor mold. However, it has not been researched systematically for many difficulties such as the making of shape end-mill, generation of tool path due to distinctive tool geometry, and so on.

Tool path is generated on geometry of the shaped end-mill and cutting force to provide accurate and efficient machining of electrode. The verification program can drive enhancement of productivity, selecting cutting conditions from experiment function of cutting force. Also, compensation of tooling and maching error can make the electrode accurately by modifying tool path. Therefore, the research on machining with shaped end-mill can contribute to enhancement of accuracy and productivity in building semiconductor mold.

Key Words : Electrode(放電電極), Shaped end-mill(輪廓端銑刀), Tool path(加工路徑), Cutting condition (切削條件), productivity (生產性)

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空調機性能測試初探

Air Conditioner Capacity Testing Methods

謝 桂 平[1]　　謝 建 新[2]

[1]國立勤益技術學院冷凍空調系兼任講師　[2]東南技術學院自動化工程系副教授

摘　　要

空氣調節機簡稱「空調機」，乃是泛指對一空間進行冷卻、加熱、加濕及除濕，甚至包含空氣清淨及空氣芳香等功能之空氣調節設備。空調機除了與一般家用電器一樣，在電器安全規範下，必須對其絕緣電阻、耐電壓、溫度、注水絕緣性能、電壓變動特性及起動特性等安全性試驗加以確認外，最重要的是還必須進行冷氣能力、冷氣消耗功率、暖氣能力、暖氣消耗功率、過載性能、結露與冷凝效果、低溫性能、冷媒洩漏、噪音及能源效率比值(E.E.R.)等性能試驗。

本文僅針對一般家用小型空調機，也就是我們常見之窗型及分離式冷、暖氣機，其所有之性能測試方法及管制標準，加以介紹。

關鍵字：性能測試(capacity testing)、能源效率比值(Energy Efficiency Ratio，E.E.R.)

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人工濕地自然淨化系統在集水區生活污水處理之應用研究

The study of efficiency using constructed wetland complex system to treat sewage

林奇剛[1]　秦孝偉[1]　鄧家基[1]　廖啟承[1]　劉篤業[1]　巫龍章[2]

[1]東南技術學院　環境與安全衛生工程系　　[2]東南技術學院　工業工程與管理系

摘　　要

本水源水質水量保護區社區生活污水處理之試驗設施除了採用連續排放批次式活性污泥法(CDSBR)之生物處理單元之外，同時配合選用低成本而具高處理效率的如人工濕地(CWP)的自然淨化處理系統作為三級處理的搭配使用，同時於整體的生物處理流程後，再加設具自動反洗之過濾設備。

本計畫社區內的暴雨頻繁，而雨量過多導致試驗期間所收集的污水中含有多量的雨水，已採用污水、雨水分流方式的收集系統。本計畫社區內的污水組成，因受雨水稀釋，其中有機物質濃度較一般的生活污水為低，但是整體的污染負荷量應該差異不大；相對的，污水中油脂、氮、磷的濃度卻有偏高的傾向，特別是枯水期間。首先，污水中油脂濃度偏高，其來源可能是由於本計畫社區內，除了一般的家庭的廚房污水之外，尚有9家觀光餐廳的設置所導致。因此，於進行設施之規劃與設計時，已於前處理設施中期望能配合如加壓浮除設備或是油脂截留等設備之設置與使用，以確保處理後水質能達到87年放流水標準。

其次，本計畫社區所排放的氮、磷等營養鹽類之濃度較一般的生活污水之濃度為偏高，其原因推測可能是由於過量雨水將土壤中殘留的含有氮、磷等營養鹽之肥料或農藥，直接沖流至本集水區所致，繼而影響周圍居民所取用的飲用水的水質問題。本設施除了採用 CDSBR 之生物處理單元之外，同時配合選用低成本而具高處理效率的 CWP 的自然淨化處理系統作為三級處理的搭配使用，甚至於整體的生物處理流程後，再加設如自動反洗過濾設備的物理化學處理設備，俾使處理後之水質合乎87年放流水標準，更以確保集水區社區之飲用水質與提昇其生活之品質。

關鍵字：自來水水質水量保護區，油脂，脫氮除磷，連續排放批次式活性污泥法(CDSBR)，人工濕地處理法(CWP)，自然淨化

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臭氧和過氧化氫預氧化法結合生物活性碳處理受 MTBE 污染水體之研究

秦孝偉[1]、林奇剛[1]、廖啟承[1]、鄧家基[1]、巫龍章[2]

[1]東南技術學院環境與安全衛生工程系　　[2]東南技術學院工業工程與管理系

摘　　要

甲基第三丁基醚（Methyl tert-butyl ether, MTBE）由於其價廉、製程容易且易於與汽油其他成份混和等特性，已廣泛使用來作為汽油添加劑，用於提升汽油辛烷值並幫助汽油燃燒，藉以降低機動車輛排放一氧化碳（CO）和燃燒不完全之碳氫化合物。由於 MTBE 於製造或運輸過程中可能洩漏至環境中，導致地表水及淺層地下水遭受污染，造成嚴重之環境污染問題。本文係探討以 O_3/H_2O_2結合生物活性碳程序，進行 MTBE 污染水體之研究。經30分鐘之反應發現 O_3結合 H_2O_2（75 mg/L）對 MTBE 之去除率可達70%，若再增加 H_2O_2濃度至150 mg/L，則 MTBE 之去除可提升至約95%。研究結果顯示，MTBE 反應副產物之生成，與系統中氫氧自由基生成量有關，當添加 H_2O_2時會促進‧OH 生成，使副產物如 TBF、TBA 及 MA 等進一步降解生成 AC 及 AA。另氧化後再以活性碳吸附，則 MTBE 之去除率可達99%以上，且對副產物 TBF、MA 及 AA 之去除率可達100%，但對 TBA 及 AC 之最佳去除率則分別為79%及95%。若以 O_3/H_2O_2程序結合 BAC 處理受 MTBE 污染水體時，對 MTBE 及其副產物之去除效率皆可達到99%；相對於 GAC 吸附，BAC 對 MTBE 及其氧化副產物可獲致更佳之去除效果。因此未來應可將此類程序推廣應用於受 MTBE 污染水體之處置。

關鍵字：甲基第三丁基醚（MTBE）,臭氧（O_3）, peroxone (O_3/H_2O_2), by-products

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淡水河流域廢棄物資訊之現況評估

闕 蓓 德[1]　　孫 世 勤[2]

[1]東南技術學院土木工程系 [2]中興工程顧問公司

摘　　要

廢棄物清理問題為眾人關心之環境議題，因其清理清統之運作易對環境品質造成衝擊與民眾爭議，相關資訊成為衝擊評估、爭議定奪及其他決策之重要基礎。近年來環境資訊研究熱烈，其中廢棄物資訊之呈現與廢棄物清理息息相關，係為一偏向實務應用之資料項。淡水河流域位於台灣北部，人口密集，經濟活動興茂，流域內由早期河岸傾棄場至目前大型掩埋場、焚化廠設施、近年推動之資源回收措施均具代表性，且資訊建置工作亦推動較早，故本研究以此區域之廢棄物清理現況及資訊現況，利用資訊生命週期評估現有廢棄物資訊之狀態。評估結果顯現，淡水河流域廢棄物資訊在各階廢棄物管理層系均已有簡單至複雜之資料、資訊及應用系統，且已有部分資訊演進至各階段生命週期。本研究為國科會環境資訊系統計畫資能源善用分組成果之一部分，該組研究內容包含淡水河、高屏溪及濁水溪流域之農林漁牧、水資源、廢棄物等物質之使用現況，以及採行環境管理系統之影響等。本文僅摘述群體研究成果中淡水河流域之廢棄物資訊評估部分，討論相關資訊之發展與應用。

關鍵字：廢棄物資訊、淡水河流域、資訊生命週期

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IPCC 對於溫室氣體排放量推估方法之探討

The Study on the Greenhouse Gases Emission Rate Estimation Methods Established IPCC

林斌龍[1]、華梅英[2]、余泰毅[3]、張漢聲[4]

[1]東南學院環安系兼任講師暨道成國際工程顧問公司總經理　[2]東南學院環安系副教授

[3]蘭陽技術學院環境工程系助理教授　[4]道成國際工程顧問公司專案經理

摘　　要

國際目前所使用於推估溫室氣體排放量之方法，為「聯合國氣候變化政府間專家委員會」(Intergovernmental Panel on Climate Change, 以下簡稱 IPCC) 所推出之方法，又稱溫室氣體統計初步準則。此方法將溫室氣體分成6個部門來做統計，分別為能源、工業製程、農業、土地使用變化及林業、廢棄物以及溶劑使用。各個國家及都市可依本土性之排放特性進行排放量的推估。

關鍵字：溫室氣體、聯合國氣候變遷綱要公約、溫室氣體統計初步準則、全球溫室潛能。
Key Words: Greenhouse Gases, Draft guidelines for National Greenhouse Gas Inventories, IPCC, GWP

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利用統計方法分析生物分解 PAH/界面活性劑之生態多樣性

Ecosystem Diversity of PAH/Surfactant Biodegradation by Multivariate Analysis

張怡塘[★] 李俊福[★★] 蘇暐翔[★★★] 阮彥豪[★★★] 楊智遠[★★★]
蔡宗儒[★★★] 郭旭瓊[★★★] 張雅筑[★★★] 康閎洋[★★★]

Yi-Tang Chang[★] Jiunn-Fwu Lee[★★] Wei-Shiang Su[★★★] Yan-Hau Ran[★★★] Jr-Yuan Yang[★★★]
Tzung-Ru Tsai[★★★] Hsu-Chiung Kuo[★★★] Ya-Zhu Chang[★★★] Hung-Yang Kang[★★★]

[★]東南技術學院環境與安全衛生工程系專任講師
[★★]國立中央大學環境工程研究所教授
[★★★]東南技術學院環境與安全衛生工程系學生

摘　　要

土壤地下水復育多環芳香烴化合物(polycyclic aromatic hydrocarbons, PAH)時，經常結合界面活性劑淋洗作用與生物分解以提高處理效果，但卻經常忽略添加界面活性劑對生態多樣性的改變。本研究結合統計學多變量分析(multivariate analysis)之族群生理圖譜(community-level physiological profiling, CLPP)評估 PAH/界面活性劑生物復育過程微生物族群之多樣性。實驗結果顯示，添加不同界面活性劑於3種不同環數 PAH 之生物分解過程生物多樣性受到不同影響，生物分解 naphthalene 添加 TX-100之生態多樣性與不添加時相似，與添加 Brij 35差距較大；生物分解 pyrene 添加 Brij 35之生態多樣性與不添加時相似，卻與添加 TX-100差距較大；生物分解 phenanthrene 添加界面活性劑則無明顯區隔。進一步評估分解過程對10類各類碳源的表現，包括 sugars and deratives、carboxylic acids、amino acid and peptides 3類之生物分解於 CLPP 呈現不同分佈。至於生態多樣性變化可由 CLPP 所計算之代謝潛能(carbon potential)清楚地描述。

關鍵字：多環芳香烴化合物、界面活性劑、族群生理圖譜、代謝潛能

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荷重轉移法疊代運算條件對分析結果之影響

The effects of operation condition of iteration to the load transfer method

熊雲崠[1]　周義娟[2]　莊進昌[2]

1東南技術學院營建管理系教授　　2東南技術學院營建管理系講師

摘　要

本文應用微分方程解，作為數值解基準，分析各影響參數所組合成之384種情況，比較 C-R 法與 K-E 法數值解之誤差，探討荷重轉移法不同疊代運算條件，對分析結果之影響，獲得下列結論；基樁分段長度之特徵值合併了誤差主要影響因素，經分析比較顯示，特徵值可作為數值法誤差之指標。數值解之誤差隨樁身分段特徵值減少而減少，採用 K-E 法分析，樁身分段長度特徵值小於0.3，數值解可達成小於2%誤差。此項結果顯示，若其他條件相同，採用 C-R 法樁身分段長度約為 K-E 法之1.7倍，達相同誤差。因為疊代運算條件不同，K-E 法沉陷量或荷重之分析值偏高，相對而言，C-R 法數值解比 K-E 法準確。建議軸向荷重樁行為分析，採用 C-R 法，可使分析工作較為簡單。

關鍵詞：軸向荷重樁，荷重轉移法，特徵值

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災害防救專職人員制度建議之芻議
The proposition of the dedicated personnel system for hazard mitigation tasks

黃慶隆[1]　陳俊吉[2]　詹雅惠[2]
Hwang,Ching-Loong　Chen,Chun-Chi　Chan,Ya-Hui

[1] 東南技術學院營建管理系 副教授
[2] 東南技術學院防災科技研究所 研究生

摘　要

災害防救法自八十九年七月公布施行以來，中央及地方各級政府無不戮力於災害防救工作，惟部分機關(單位)因人力不足或其它因素，在推動本項工作時，未能由專職人員辦理，進而間接影響災害防救工作之執行成效。

依災害防救法第二十六條之規定：「各級政府及相關公共事業應置專職人員，執行災害預防各項工作」，因此，中央及地方各級政府應如何設置專職人員，才能有利於長期、穩定推動災害防救政策規劃，以及協調、整合各類型災害防救業務之執行，以提高災害防救業務之品質與績效，是現今刻不容緩之要務。

針對行政院災害防救委員會與消防署為災害防救工作之需要，本研究將對「災害防救專職人員制度」之釐定策略與相關資訊，依情、理、法與執行面之考量評估，研擬一套適合我國國情需要之中央與地方合專職人員制度,藉以執行災害防救之相關應變措施。

關鍵詞：災害防救法、災害防救專職人員制度

Abstract

Since the execution of Hazard Mitigation Code in July 2000, both the central and local government have been very much dedicated in hazard mitigation task. However, due to manpower shortage and some other factors, some of organizations were not able to deploy dedicated personnel in handling hazard mitigation and therefore the effect of this mission was discounted.

According to Title 26 of Hazard Mitigation Code, every level of government and related public business sectors should set up dedicated personnel for the execution of hazard mitigation tasks. In this regard, how the central government and each level of local government to set up dedicated personnel for enhancing the policy planning, the coordination and the quality as well as performance of hazard mitigation services becomes an imminent mission.

To meet the requirements of both Hazard Mitigation Committee and National Fire Agency (NFA) in hazard mitigation, in this project, the dedicated personnel system for hazard mitigation are fully investigated. The methodologies for investigation include: paper collection and analysis, questionnaire, expert interview, expert questionnaire and statistical induction, etc.

Keywords：Hazard Mitigation Code、the dedicated personnel system for hazard mitigation tasks

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PCM 專案績效評估模式建構

A Neural Model of PCM Performance Evaluation

周 義 娟[1]　　莊 進 昌[1]　　熊 雲 嵋[2]

Yi-Chuan Chou[1]　Chin-Chang Chuang[1]　Yun-Mei Hsiung[2]

[1]東南技術學院營建管理系講師　[2]東南技術學院營建管理系教授

摘　　要

在台灣，工程專案採用PCM顧問之相對效益一直無法具體衡量，亦因而影響業主採用PCM之信心與意願；因此，建立一個有效的PCM績效評估模式是一個相當值得研究之重要課題。本研究建立七個績效評估指標，結合DEA與EBFNN二者優點，建構一個PCM專案績效評估模式。模式建立後，一旦有新的PCM案例需要進行評估，業主輸入新案例每個評估指標之特徵向量，即可評估績效等級。

Abstract

Professional Construction Management (PCM) was introduced into Taiwan by the Bechtel Corporation (U.S.A.) early in the 1980s. In Taiwan, the relative benefits of projects involving PCM consultants are difficult to measure, thus, would affect the confidence and willingness of proprietors in employing PCM consultants. Therefore, establishing an effective PCM performance evaluation model is an important topic. This study established PCM 7 performance evaluation indices, combined the advantages of both DEA (Data Envelopment Analysis) and EBFNN(Exemplar-Based Fuzzy Neural Network) to establish a performance evaluation model of PCM project. With this model, whenever there is a new PCM project for evaluation, the proprietor only has to input the feature vector of each index of the new PCM case for evaluating performance class.

Keywords: fuzzy, neural network, DEA, performance evaluation

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經由 TPR 教學增進學生英語聽說能力
Applying TPR to Improve College Students' English Listening and Speaking

曾　慶　英
Ching Ying Tseng

東南技術學院應英系助理教授兼系主任

摘　　要

技術學院學生經由Total Physical Response (TPR)教學提昇技術學院學生學習英語的興趣並增進學生英語聽說能力。本研究目的在擬定TPR教學課程以適用於技術學院學生英語聽說能力之演練。本研究引述國外研究報告並測試TPR英語聽說教學成效包括學生對於TPR教學與學習之態度、課程內容規畫、及學習成果之評量。

Abstract

The students of limited proficiency in English listening and speaking can develop their English skills as they become actively involved in Total Physical Response (TPR) classes. Using conversational functions and strategies based on the dialogs of video or CD-ROM as a dramatic script, teachers are the directors of the play and the students are the actors. Such activities offer multiple opportunities for students with Limited English Proficiency (LEP) to practice and reinforce their English skills.

Artzt and Newman (1990) suggested that cooperative-learning groups are the optimal setting for TPR. As a result, students feel more secure about making a contribution in a small group. Within TPR classes, teachers have a perspective that students communicate among themselves, which helps them to develop their English skills. In addition, TPR is a complete and comprehensive listening and speaking methodology which allows students to acquire and produce sophisticated language in a fully communicative approach.

Key Word: **LEP (Limited English Proficiency), English language skills, TPR (Total Physical Response), intervention, comprehension, proficiency, acquisition**

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Education in East Asia and the West: A cross-cultural study December 2004

"Tell me, and I forget, Show me, and I remember, Involve me, and I understand."
Chinese Proverb

Pascal Marie
Tung Nan Institute of Technology
Taiwan, Republic of China

Abstract

Everyone who has experienced educational systems in several countries knows that education is not the same everywhere. Teaching and learning processes are different in the classrooms of one country or another.

One may wonder *how* cultural perspectives influence education in different traditions.

By comparing cultural contexts, one hopes to bring new insights into their educational processes, thus promote a better understanding of some differences in teaching and learning and hopefully enrich their pedagogical philosophies.

KEY WORDS: Confucian tradition, cognitive approach, symmetrical/asymmetrical patterns, power distance, deep/rote learning.

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Learning English In Taiwan: A Comparative Commentary

Dr. Paul W. Mathews
Tung Nang Institute of Technology Taiwan, Republic of China

Abstract

In a short period Taiwan's economic progress has been impressive, but as globalization moves ahead, Taiwan's new generation appears to have been slow in keeping abreast of necessary English proficiency. This paper, from the comparative viewpoint of a newcomer to the Island, explores why Taiwan's English-learning students may be lagging behind some of Taiwan's Asian neighbours in this arena, and suggests that despite the use of TPR, English acquisition remains largely compartmentalized among Taiwanese students.

Key Words: Taiwan, Philippines, Australia, proficiency, language exposure, TPR (Total Physical Response)

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Students' Negative Assessments of English Skills

Darren Dillman

After teaching in Taiwan for just seven months, I've discovered that most Taiwanese are haunted by the same perception I often heard from Taiwanese students in the United States: that their English is not good. In fact, "not good" are the very words they use to describe their English speaking and listening skills. This surprises me, since it's rare that I find a Taiwanese student who is inept in his or her ability to understand and speak English at an adequate level of communication. Still, many of them rate their own skills very low and are afraid to speak English, especially to a foreigner or to an English instructor. They enjoy talking to friends—even in English, if they feel compelled or prompted by the instructor—but they tend to freeze up when asked to speak English in front of the class or to the instructor himself.

Two questions emerge from my experiences: 1. Why do Taiwanese students carry such a low assessment of their own English skills?, and 2. How can they approach learning English in a way that is less intimidating?

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家庭研究中生態理論之概念建構及其對父母教養研究之影響

Ecological Perspective of Family Study: Its Postulations and Impacts on Parenting Investigation

魏　世　台

Shih-tai Wei

東南技術學院通識教育中心教授

摘　　要

二十世紀後期起，生態觀點成為家庭研究的新典範。適應是生態理論的基要觀點；生態理論強調個體與族群間的互動關係及有機體與環境間的交互作用，均發生在不斷改變的場域中。在研究方法論上，生態理論主張任何現象的研究，必須由多個不同的分析層面來加以檢視。本文以文獻分析法闡述生態理論之概念架構、生態理論針對家庭系統所提出之基本假設及其在父母教養研究上的應用與貢獻，再根據理論建構之規準加以批判。

關鍵詞：家庭研究、生態理論、父母教養

Abstract

Ecological approach has become a new paradigm on family study since the late twentieth century. The most basic notion in the ecological theory is adaptation. The interrelationship between individual and population as well as the interaction between organism and environment were considered in a changing context. Ecologists urged that a phenomenon should be explored concerning different levels of examination. A theoretical analysis was used to interpret the concepts and propositions postulated by ecological theorists. The research findings were illustrated and the criticisms directed at the logic of the explanation were discussed.

Keyword:　family study; ecological theory; parenting.

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創造思考教學在工程教育之運用

The Application of Creative Thinking Teaching in Engineering Education

周　談　輝

Dr. David Chou

東南技術學院教授

摘　　要

過去學校教育主要是偏重在記憶、吸收等學習方式，忽略了學生的創造思考能力。然而現在的環境比以前複雜,各種問題相對的產生,唯有培養學生具有創造力,能應付各項事務及著重各種不同方式解決問題的人，才能符合未來社會之人力需求。工程教育注重各項專業領域之學習，未來創造思考教學的運用,可以藉著合作學習教學法、科技性教學法之虛擬模擬情境法、問題解決法、專家系統法、教學媒體法、多媒體法，以及創造思考教學法之六 W 法、聯想與想像、類似法、強力組合、檢核表技術、腦力激盪法、K J 法等方式,引導學生從先備知識、經驗,以及現有人力、物力等各項資源，進行不同的方向和範圍的創造思考學習活動,以產生有別以往的各種觀念及具有新穎、獨特和各種價值的產品出來。

關鍵字：創造思考教學、工程教育

Abstract:

In the past, the school education mostly put more stress on learning ways such as memorizing and absorbing, etc. and ignored students' creative thinking ability. However, the environment nowadays is much complicated that all kinds of problems happen. Only to cultivate students' creativity and let them be the ones who could handle all matters and emphasize on all different ways to solve problems that would be available for the demand of human resource in future society. Engineering education lays emphasis on the learning to every professional fields and application to future creative thinking teaching. And by

Collaborated Learning Teaching, Virtual Simulated Reality of technological teaching, Question-solving, Expert System, Teaching Media, Multi-media, and the methods to creative thinking teaching like 6w' s (why, who, what, how, when, where), Association and Imagination, Similarity, Powerful Combination, Check Sheet Skill, Brain-storm, KJ and so on to guide students to carry out different ways and ranges of creative thinking learning activities from pre-knowledge and experience to the available manpower and resources and produce the new concepts that are different from the old ones and create up-to-date , unique and valuable products.

Keyword: creative thinking teaching, engineering education.

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生命教育實施的觀念與做法及其對青少年生涯發展之影響

The Concepts and Methods to the Implement of Life Education and its Influence to Teenagers' Career Development

周 談 輝[1]　　陳 清 惠[2]

Dr.David. Chou　　Ms.Ching-hui. Cheng

[1]東南技術學院教授 [2]聖母護理專校教師

摘　要

國家發展包括個人發展，如果個人沒有得到發展，國家也就沒有良好的發展。國家是許多個人所組成的共同體，所以當中的成員愈優秀，則社會就會愈繁榮，國家也就愈強盛；青年人是國家未來的希望，卓越的青年人更是開創國家前景所寄託的。

生命教育及全人教育等通識課程教育所承擔的使命，是拓深且拓寬青少年未來的人生領域，使其在健康、完整的人文主義精神下，發展出人類高尚品質的文明。生命教育是全人教育的理念，亦為具體的教育方案或課程，以促進吾人生理、心靈、社會、道德及靈性各方面均衡發展為目的，建立自己與他人以及環競相互尊重和諧共處的關係，協助其追求生命的意義與永恆的價值，以期達到成熟和快樂的人生。

生命教育是自我之教育、生命教育是自我概念之教育、生命教育是自我發展教育。生命從自己開始，生命教育也要由自我做起，自我有發展性，生命教育要隨著個體的發展而異。因此，對現今青少年實施生命教育更要符合學生之發展狀況，實施生命教育及建立學生自我發展教育的觀念。藉由生命教育內涵，教育我們的青少年認識生命的意義、認識自我、增進人際關係、建立正確人生觀。並藉由實施生命教育的做法，從生理教育、心理教育、學業教育、成就教育、認知教育、價值教育及情緒教育等幫助青少年健全發展，有好的形象，得到好的評價，自己對自我有好的評價、看法、感情和態度，才會欣賞自我生命，尊重自我生命，愛惜自我生命。如此才能真正幫助青少年開拓美好的生涯發展。

關鍵字: 生命教育、生涯發展

Abstract:

Country Development includes individual development that if the individual could not get developments, the country would not have good ones, either. Country is a community composed by many individuals that if the members inside are better, the society is more prosperous and of course the country will be strong and powerful. The youth is the country's future hope and the superior young people are what the country's prospect counts on.

The mission that Life Education and Holistic Education bear is to broaden and expand teenagers' future life fields and develop the elevated-quality civilization under the healthy and complete spirit of Humanism. Life Education is the ideal of Holistic Education and also the concrete education proposal or class. The purpose is to improve the balanced developments of all aspects like physiology, psychology, sociability, morality and intelligence, etc. To establish the harmonious relationship among oneself, other people, and the environment and provide help to chase the meaning of life and value of eternity that hope to reach a mature and happy life.

Life Education is self education, self-concept education and self-developed education. Life is from self that Life Education has to be started by self. Self is developmental that Life Education should be varied depending on each individual's development. Therefore, it should depend on students' development situations to implement Life Education on nowadays teenagers and build the concept of self-developed education in their minds. By the comprehension of Life Education, it could educate the teens to realize the meaning of life, understand self, increase the social relations and establish the correct philosophy. And by the method of implementing the Life Education, it could help the teenagers to soundly grow up with physiological education, psychological education, schoolwork education, achievement education, perception education, value education, mood education and so on. One has a good image and he could get good esteem. One who owns positive esteem, viewpoint, feelings and attitude towards oneself, he could appreciate, respect and cherish the life. Only in this way, it could really and truly help the teens to broaden the beautiful career development.

Keyword: Life Education career development

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豫劇牡丹豫西調研究及其他

The Peony of Yu Play— Studies and Others on Yusi Tune

張　紹　鐸

Shaw-Dwo Chang

[1]東南技術學院通識教育中心 副教授

Associate Professor of the General Education Center at Tung Nan Institute of Technology

摘　　要

豫劇豫西調是豫劇中的牡丹，它用本腔發聲，韻腳多落在豫東調主音〔5〕的下五度及下屬音〔1〕，因而豫西調又稱作「下五音」。在唱腔特點上，豫西調是穩重、含蓄、抑揚、演訴的，適於表演悲劇。特別是在表演現代戲方面，男聲用本嗓演唱更為適合，所以大有研究的必要。本文著重研究於豫劇豫西調的由來、豫西調名演員的藝術特徵、豫劇豫西調男生真嗓演唱極為難能可貴等幾個方面，並為豫西調的沒落深感憂慮。

一個劇種能夠形成多種藝術流派，是藝術上達到成熟的標誌，藝術流派越多，這個劇種也就顯得更加成熟和繁盛。〈豫劇流派的考察與研究〉，就豫劇流派進行了實際調查，就流派問題進行了理論上的探索。

豫劇呼喚美學，從整體上說，需要對它的藝術特徵進行概況了解；從實踐上說，需要對它二百八十多年來的藝術實踐以理論總結，從演出評論著眼，也需要有堅實的美學依據。〈豫劇呼喚美學〉，就此闡述了筆者的淺見。

振興豫劇，絕非空話，要靠幾代人的相繼努力，靠我們研究理論，不斷實踐，方能有所建樹。

願把我之拙見奉出，求教於專家學者。

關鍵詞：豫劇、豫西調、流派、美學

Abstract

Yu Play's Yusi Tune is a Peony in Yu Play. The tune is articulated by genuine voice, and its rhyme feet are usually set on a sound which is five level lower than the major sound [5] of Yu Tung tune. So Yusi tune is also called "lower fifth sound" (a literal translation). In terms of the music for voices, Yusi Tune is steady, heavy, conservative, suppressed, and narrative. It is suitable for the narration of tragedies. When it comes to the performance of modern plays, male sound articulated by genuine male voice is excellent. This deserves our study. In this study, I focus on such aspects as "the evolution of Yu play's Yusi tune," "the artistic features of well-known Yusi tune actors," and "the immense value of Yusi tune sung by the original male voices." In addition, I have been worried that Yusi tune has been becoming more and more obscure.

If a kind of play can develop into various artistic schools, it could signify that the art is mature. The more the schools, the more mature and prosperous the play is. "*The Study and Research of Yu Play's schools"* is designed to make a survey of Yu play's schools. I analyze the theoretical aspect of the Yu play's schools.

In general, I research the artistic features of the Yu play. In practice, I reach a theoretical conclusion of Yu play's more than 280 years long history. And in the light of criticism on its performance, any remark is supposed to be made in accordance to convincing aesthetics. In actuality, I point out my personal view of the aesthetic aspect of Yu play in "*The Calling Aesthetic Features of Yu Play"*.

We've got to revive Yu play by conscientious efforts of several generations. We have to persist in the study of its theory, and to practice the theory. In this way, we will get somewhere.

I hope that all the professionals and scholars can give me solid opinions for my own improvement.

Key Words: Yu play, Ysi tune, School, Aesthetics,

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台灣大學生自戀行為之特徵
Narcissistic Behaviors of Taiwan College Students

陳 莉 榛

Li-Chen Chen, Graduate student

政治大學心理系博士班研究生

Department of Psychology, National Chengchi University

摘　　要

自戀行為在西方廣泛被心理學界探討，然而其研究對象僅針對西方大學生，同時國內在自戀方面的相關研究相當闕如。本研究使用歸納取向檢驗台灣大學生的自戀行為，從北、中、南取四所公私立大學，訪談了168位大學生，請他們描述在校園裡觀察到的大學生自戀行為，結果共得出642的行為表現，然後藉著歸納法，將自戀行為的內容區分歸類，歸類後獲得九個特徵，其中有五個特徵符合西方現有文獻所記載的自戀向度，有四個特徵不同於西方現有文獻資料。

關鍵字： 自戀行為, 歸納法

Abstract

Narcissistic behaviors profoundly affect mental health, on which almost all psychological studies are conducted for college students of western countries. This study examines the narcissistic behaviors of college students in Taiwan by inductive approach. We interview 168 students from four universities, public and private, located in north, middle, and south of the island, asking them to describe the narcissistic behaviors they observe in campus. Results show that 642 behavioral patterns can be obtained, from which analysis is made to classify the narcissistic behavioral patterns into nine categories. Among the nine behavioral dimensions, there are five dimensions similar to, and four dimensions different from, those reported for western college students.

Key word: narcissistic behaviors, inductive approach

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社會甲組籃球隊運動心理技能差異性之研究

A Study on the Variance of Sport Psychology Skills of Social First Division Basketball Teams

張 芳 文[1]　　張 書 御[2]
Chang Fang-Wen　　Chang Shu-Yu

[1]東南技術學院　[2]大葉大學

摘　要

本研究以參加九十三年奧利多百萬籃球挑戰賽，七支社會甲組籃球隊90名球員，作為研究對象，施以運動員心理技能量表，研究的主要的目的在探討不同人口統計變項的籃球運動員，運動心理技能各個因素的差異性。所得資料以獨立樣本 t 考驗、單因子變異數分析以及薛費法事後考驗進行統計分析，研究結果發現：年齡、球齡較高以及先發的球員在運動心理技能方面有較高的趨勢，並且在部分的因素達到顯著性差異；後衛球員在壓力處理與逆境調適以及動機等兩個因素，顯著高於中鋒球員；曾經擔任國手的球員在自信心因素方面，顯著優於未曾擔任國手的選手。根據研究結果，筆者亦提出相關意見，給予球隊教練以及後續研究者做為參考。

關鍵詞：籃球、運動心理技能

Abstract

This study sampled 7 social first division basketball teams 90 players who participated 2004 Oligo Million Basketball Challenge Cup as subjects. Researcher employed “Sport Psychology Skills Scale” to investigate the variance of different demographic variables with regard to sport psychology skills. Data was analyzed by t-test, ANOVA and Scheffe’s method. The results indicated that higher age and sport experience athletes possessed significantly higher scores at parts of sport psychology skills. Guard players had significantly higher scores than center players with regard to “peaking under pressure and coping with adversity” factor and “motivation” factor. Players who had ever been elected as national representatives possessed significantly higher confidence than those who didn’t. According to the results, researcher also presented some suggestions for coaches and future studies.

Keywords: basketball, sport psychology skills

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體育系學生與一般科系學生對體育新聞接觸程度之調查研究—以輔仁大學學生為例

An Exploration of Contact Degree of Sports News among Students from Department of Physical Education and other Departments -- based on Students of Fu Jen Catholic Universitys

常 震 中[1]

[1]東南技術學院

摘　　要

本研究以輔仁大學體育系與一般科系學生對體育新聞接觸程度之情形為本目究之目的，經進行問卷調查回收之有效資料171份建檔並統計、分析後得研究結果並加以討論，依此提出以下結論與建議：

一、結論

（一）體育系學生有50.0%的同學常常看體育新聞，而平時最常接觸體育新聞之媒介，依序主要為報紙、電視、雜誌、網路、廣播。

（二）一般科系學生有37.6%的同學常常看體育新聞，而平時最常接觸體育新聞之媒介，依序主要為電視、報紙、網路、雜誌、廣播。

（三）體育系學生與一般科系學生在平時看不看體育新聞上有顯著差異（$p<.05$），即體育系學生比一般科系學生更會看體育新聞；在看不看報紙、雜誌、電視、廣播及網路的體育新聞上皆有顯著差異（$p<.05$），即體育系學生比一般科系學生在不同傳播媒介上更會接觸體育新聞。

（四）體育系學生與一般科系學生在雜誌與廣播體育新聞數量上有顯著差異（$p<.05$），即體育系學生比一般科系學生更認為雜誌和廣播的體育新聞數量是不夠的。

（五）體育系學生與一般科系學生在最有興趣之體育新聞項目上有顯著差異，一般科系學生比體育系學生對於籃球與棒球之體育新聞更有興趣（$p<.05$）。

（六）在觀看體育新聞理由方面，體育系學生與一般科系學生在「獲得和體育有關的新消息」、「和家人分享看體育新聞的樂趣」、「滿足個人對體育方面的好奇心」、「了解別人對體育問題的看法」、「增加和別人討論體育話題的資料」、「了解體育問題的解決辦法」、「了解國際和國內的體育大事」、「獲得和體育有關的參考資料」上有顯著差異。

關鍵詞：觀看新聞、體育新聞、接觸程度。

Abstract

This research intends to explore students of Department of Physical Education and students from other departments of Fu Jen Catholic University to probe their contact degree of sports news. The 171data collected through poll have been filed, estimated and analyzed. The study of the outcome has been conducted and summarized. The consequences will be the followings:

I. 5o% of the students from Physical Education Department contact sports news very often and the media they use will be TV, newspaper, the Internet, magazine, broadcasting in order of frequency.
II. 37.6% of the students from departments other than Physical Education contact sports news very often and they use TV, newspaper, the Internet, magazine, broadcasting in order of frequency.
III. These two groups of students have distinct difference on sports news contact degree ($p<.05$), i.e. students from Physical Education department tend to contact more sports news. This is also true in respect of various media.
IV. Physical Education students have different opinion than other students about the volume of sports news on magazine and broadcasting ($p<.05$), i.e. they don't have enough sports news on magazine and broadcasting.
V. As to favorite programs, students from department other than Physical Education are interested in basketball and baseball more than students of Physical Education.
VI. As to the reason of contacting, these two group of students have distinct difference on "acquiring the update sports news", "sharing the pleasure being with family", "satisfying individual curiosity", "providing information for conversation on sports issues", "seeking the solution to sports issues", "understanding national and international sports issues", "acquiring reference materials of sports".

Key terms: news watching, sports news, contact degree

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目標來源、目標難度與回饋方式對大學生桌球發球表現之影響

陳金海[1]、郭明珍[2]、侯淑玲[3]

[1]長榮大學、[2]東南技術學院、[3]長榮女中

摘　要

本研究目的在探討目標來源、目標難度與回饋方式對大學生桌球發球表現之影響。以長榮大學 180 名(男 56，女 124)學生為研究對象，平均年齡 20.71(±1.1)歲。以桌球發球為實驗項目，採 3×2×2 的實驗設計(目標來源、目標難度、回饋方式)。以自設目標問卷、參與設定目標問卷及目標檢核問卷為研究工具。所得資料以獨立樣本三因子變異數分析、杜凱法事後比較進行統計分析。研究結果發現：目標來源、目標難度與回饋方式對桌球發球表現沒有交互作用影響。不同目標來源在桌球發球表現有差異存在(參與設定目標優於分派目標)。不同目標難度在桌球發球表現沒有差異存在。不同回饋方式在桌球發球表現有差異存在(正向回饋優於無回饋)。由上述結果顯示，大學生不同目標來源在桌球發球表現，以參與設定目標最好。而不同回饋方式在桌球發球表現，以正向回饋最好。因此建議體育教師在上課中應多使用參與設定目標的方式，並給予學生正向回饋，藉以提昇表現。

關鍵詞：目標來源、目標難度、回饋方式、桌球發球表現

Abstract

The purpose of this study was to investigate the influence of goal sources, levels of goal difficulty, and ways of feedback type in the table tennis service performance. There were 180 subjects drawn from Chang Jung Christian University (including 56 males and 124 females), and the average age is about 20.71(±1.1). The experiment was a 3×2×2 factorial design (goal source, goal difficulty, and feedback type). The subjects were administered by Self-set Goal Questionnaire, Participative Set Goal Questionnaire, and Goal Checking Questionnaire. The data were analyzed by three-way ANOVA (independent) and Tukey method. The main

findings of this study were as follows. There was no significant intrinsic influence on goal source, goal difficulty, and feedback type in table tennis service performance. There were significant differences in table tennis service performance among different goal sources (Participative Set Goal is superior to Assigned Goal). There were no significant differences in table tennis service performance among different goal difficulties. There were differences in table tennis service performance among different feedback types (Getting feedback is superior to non-feedback). So we knew that in the different goal sources of table tennis service performance, if students got participative set goal, they would be better; in the different ways of feedback type, if students got feedback, they would be better. We suggest that teachers should give students more positive feedback and encourage students to set their goal sources in class, so that students can do their best show.

Key words：goal source, goal difficulty, feedback type, table tennis service performance.

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超級籃球聯賽攻防技術與成績表現之迴歸分析

A Regression Analysis of Offense and Defense Skills and Sport Performance of Super Basketball League Games

張　芳　文

Chang Fang-Wen

東南技術學院

摘　　要

本研究以第一屆超級籃球聯賽(SBL)七支球隊預賽93場186份攻守資料進行分析，探討籃球運動十項攻防技術對於比賽得失分差的預測能力。所得的資料以逐步迴歸進行統計分析，研究結果發現能夠預測比賽得失分的籃球攻防技術分別是助攻、防守籃板、二分球得分、罰球得分、三分球得分、抄截以及失誤等七項攻防技術。最後，根據研究結果與討論，研究者亦提出相關建議，提供球隊訓練上的參考。

關鍵字：籃球、攻防技術、成績表現、迴歸分析

Abstract

This study recruited 186 competing data of Super Basketball League (SBL) games to analyze the predicting ability of ten offense and defense basketball skills on sport performance. Data was treated by stepwise regression and the statistical results revealed that assist, offense rebound, 2-points goal, free throw goal, 3-points goal, steal and miss were the most powerful seven predicting variables. Finally, according to the results and discussion, researcher presented some suggestions for the training of Super Basketball League teams.

Keywords: basketball, offense and defense skills, sport performance, regression analysis