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不同海拔高度竹林其土壤微生物多樣性及組群結構

張義宏

中文摘要：

海拔高度差異所存在的不同氣候條件，不僅造成植物族群自然分布的改變，同時也對於土壤化育和土壤微生物的族群結構構成重大影響。鑑於微生物扮演構成生態系能量轉移和養分循環的重要環節，亟待大尺度地根據不同海拔比較土壤微生物的族群組成與結構。我們將運用分子生物技術建立微生物族群之基因庫，藉以克服傳統無法培養鑑定的問題。透過高通量定序分析以判斷土壤微生物族群多樣性。我們也將使用磷脂質脂肪酸分析技術定量森林土壤細菌、真菌、放射菌的族群組成。過去五十年裡孟宗竹的生長分布範圍已從平地逐漸擴展到台灣中高海拔的山坡（大多在 500-1800 m asl）。此篇研究中我們利用磷脂質脂肪酸(PLFA)及高通量定序來瞭解孟宗竹在中台灣其七種不同海拔高度時(600、800、1000、1200、1400、1600 和 1800 公尺)對土壤微生物生質量、活性及微生物族群之影響。當海拔增加時，微生物的生質碳氮也隨之增加。當海拔增加時，土壤磷脂質脂肪酸中的總菌量、革蘭氏陽性及革蘭氏陰性菌也同時隨之增加，然而革蘭氏陽性對革蘭氏陰性菌的比例卻隨海拔增加而減少。而 PLFA 的主成分分析也顯示微生物族群呈現低中高海拔等三區。而真菌 ITS 也顯示真菌族群結構呈現低中高海拔等三區。綜合以上結果顯示，有機質隨海拔高度改變，進而影響微生物族群，其中真菌在高海拔下扮演重要角色。

關鍵字：森林，土壤， ITS 基因庫，磷脂質脂肪酸分析。

英文摘要：

The change in climatic conditions along altitudinal levels, considerably influences vegetation pattern. Moreover, soil genesis and composition of soil microbial communities differ with ecosystems in different altitudinal levels. With an attempt to understand the nutrient cycles and energy flow of forest ecosystems in different climate, a larger scale ecological research on the composition and nature of microbial communities is necessary. Microbial community analysis has been limited in the past because only a minor percentage of the microbial population has been cultured. Metagenomics approaches and recent improvements in the next-generation sequencing methods, have become a method of choice in establishing a microbial population structure. Another subject, phospholipid fatty acid (PLFA) analysis, will be applied to determine the microbial communities of bacteria, fungi and actinomycetes in soils. Moso bamboo plantations have been widely distributed from the bottomland to high-altitude hillside (mostly around 500–1800 m asl) of the mountains of central Taiwan in the past five decades. we investigated the soil microbial biomass, enzymes, and composition of bacteria and fungi in five moso bamboo plantations along an elevation gradient (600, 800, 1000, 1200, 1400, 1600, 1800m asl) in central Taiwan. The soil microbial community structure was determined by analysis of the phospholipid-derived fatty acid (PLFA) and next generation sequencing. The soil microbial biomass C (Cmic) and biomass N (Nmic) increased along the elevation gradient. The proportion of PLFAs that were attributed to total bacteria, Gram-positive (G+) bacteria, and Gram-negative (G-) bacteria also increased with the increase in elevation. However, the ratio of G+/G- bacteria decreased along the elevation increase. Principle component analysis of PLFA content separated the low-elevation and intermediate-elevation plantations from the high-elevation plantations. The ITS analysis also revealed that changes fungal community structures were associated with the elevation gradient. Soil organic matter changes along the elevation gradient contributed to variations in the soil microbial community in the bamboo plantations. In addition, Fungi play a major role at high-elevation plantations.

Key words: Forest, soil, ITS, PLFA.

探討滲出性肋膜積液中高遷移率族蛋白 B1 的臨床意義

陳偉玲

中文摘要：

肋膜發炎和肋膜纖維化的進展可能會導致不可逆的肺功能障礙且與發病率及死亡率有顯著的關聯性。高遷移率族蛋白 1 是一種多功能細胞因子，透過不同分子路徑活化生長因子、凝血路徑以及抑制纖維溶解活性，在各種炎症和纖維化疾病的發展上扮演著重要的角色。基質金屬蛋白酶-1，是已知的膠原酶，具有分解肺基質的獨特能力。然而，高遷移率族蛋白 1 和基質金屬蛋白酶-1 在結核性肋膜積液中的臨床相關性及病理角色仍不清楚。

利用酵素連結免疫分析法評估結核性 (n=36) 及心衰竭 (n=14) 患者肋膜積液中高遷移率族蛋白 1 與基質金屬蛋白酶-1 濃度。以放射影像學評分法評估治療 6 個月時殘留肋膜纖維化的程度。

與漏出性胸腔積液相比，高遷移率族蛋白 1 與基質金屬蛋白酶-1 在結核性肋膜積液中呈現顯著升高且呈正相關。此外，這兩種纖維化因素都與殘餘肋膜增厚相關，在 6 個月的抗結核治療和胸腔 X 光檢查後，有殘餘肋膜增厚 $\geq 10\text{mm}$ 的結核性肋膜積液患者 (n = 12) 顯著高於沒有殘餘肋膜增厚的患者 (n = 24)。

綜上所述，高遷移率族蛋白 1 在結核性肋膜積液的病理過程中是必不可少的，其中它與基質金屬蛋白酶-1 存在交叉關係，或許在肋膜纖維化中扮演著重要的角色。

關鍵字：結核性肋膜積液、高遷移率族蛋白 1、肋膜纖維化、基質金屬蛋白酶。

英文摘要：

Pleural inflammation and pleural fibrosis may progress to irreversible thoracic dysfunction and associate with significant morbidity and mortality. High mobility group box 1 protein (HMGB1) is a multifunctional cytokine that activates growth factors, coagulation cascade and represses fibrinolytic activity through different molecular pathways, plays a central role in the development of various inflammatory and fibrotic disorders. Matrix metalloproteinases-1 (MMP)-1, known as a collagenase, which has a unique ability to breakdown of lung matrix. However, the clinical relevance and pathological role of HMGB1 and MMP-1 in tuberculous pleural effusions (TBPE) remains unclear.

Pleural fluid levels of HMGB1 and MMP-1 in patients with TBPE (n=36) or heart failure (n=14) were measured by the method of immunoblotting and enzyme-linked immunosorbent assay (ELISA). Radiological scores for residual pleural fibrosis at 6-month follow-up were assessed.

HMGB1 and MMP-1 are significantly increased and correlated positively in tuberculous pleural effusion than those in transudative effusion. Moreover, both of the fibrotic factors are linked to residual pleural thickening (RPT) and significantly higher in TBPE patients with RPT ≥ 10 mm (n = 12) than those without (n = 24) after 6-month anti-TB treatment and chest radiography follow up.

Conclusively, HMGB1 are essential in the pathogenesis of TBPE, in which its cross relationship with MMP1 and may play an important role in pleural fibrosis.

Key words: tuberculous pleural effusions 、 high mobility group box 1 protein 、 pleural fibrosis 、 matrix metalloproteinases.

中文摘要：

山葵 (*Eutrema japonicum*)，又稱為山蔘菜，俗稱為哇沙米，是屬於十字花科山蔘菜屬 (*Eutrema* sp.) 的綠色植物，植株本身特別是根部具有非常特殊且強烈的辛辣味。山葵的辛辣味主要是刺激鼻竇，是人們食用生魚片及日式料理不可或缺的高貴佐料。山葵原產於日本，近年來在農委會及林試所的積極輔導下，山葵已成為台灣阿里山及南投地區重要的高經濟價值作物兼藥用植物。近年來有關山葵的生理機能，發現具有殺死消化道寄生蟲、抑菌及防治胃癌等功效。

為了解山葵植物的生理活性，本研究擬以過去研究為基礎，進一步探討山葵萃取液對常見致病菌，如 *Acinetobacter baumannii*(ATCC19606), *Bacillus subtilis*(ATCC11774), *Escherichia coli* (ATCC25922) , *Pseudomonas aeruginosa* (ATCC19429) , *Klebsiella pneumoniae* (NCTC9633) , *Salmonella enterica* (NCTC6017) , *Staphylococcus aureus* (ATCC6538) 等致病菌之抗菌活性，以了解山葵所具有抗菌活性之情形。本研究以過去對青蔥及黑蒜研究之經驗，並以台灣本土所生產之山葵植物作為試驗材料，進行山葵植物之不同萃取方式，並進一步探討山葵植物萃取物之抗菌活性與其所含相關成分之分析，以探討有效成分與其抗菌活性之相關性，作為未來研究山葵萃取物開發為天然保鮮抗菌劑之依據。

關鍵字：山葵、抗菌活性、鮑氏不動桿菌、枯草桿菌、大腸桿菌、綠膿桿菌、克雷白氏肺炎桿菌、沙門氏桿菌、金黃色葡萄球菌

英文摘要：

Wasabi (*Eutrema japonicum*), also known as *Osmanthus japonicum*, commonly known as Wasami, is a green plant belonging to *Eutrema* species of the cruciferous family. The plant's root has a very special and strong spicy flavor. The pungent taste of wasabi is mainly to stimulate the sinuses and is an indispensable noble condiment for people to eat sashimi and Japanese cuisine. Wasabi was originally produced in Japan. In recent years, under the active guidance of the Council of Agriculture and Forestry Laboratory, wasabi has become an important high-value crop and medicinal plant in Alishan and Nantou, Taiwan. In recent years, the physiological functions of wasabi have been found to kill parasites in the digestive tract, inhibit bacteria, and prevent gastric cancer.

In order to understand the physiological activities of *Eutrema japonicum*, this study intends to further explore the effects of wasabi extract on common pathogenic bacteria, such as *Acinetobacter baumannii* (ATCC19606), *Bacillus subtilis* (ATCC11774), *Escherichia coli* (ATCC25922), *Pseudomonas aeruginosa* (ATCC19429), *Staphylococcus aureus* (ATCC6538), *Klebsiella pneumoniae* (NCTC9633), and *Salmonella enterica* (NCTC6017) etc. bacteria's antibacterial ability to understand the antibacterial ability of wasabi. In this study, we used past research experience on shallots and black garlic, and used the wasabi plant produced in Taiwan as the test material to carry out different extraction methods of wasabi plant, and further explore the antibacterial ability of wasabi plant extract and its related components. The analysis is to explore the correlation between the effective ingredients and their antibacterial ability as a basis for future research on the development of wasabi extract as a natural antibacterial agent.

Key words: Wasabi (*Eutrema japonicum*), antimicrobial properties, *Acinetobacter baumannii*, *Bacillus subtilis*, *Escherichia coli*, *Pseudomonas aeruginosa*, *Klebsiella pneumoniae*, *Salmonella enterica*, *Staphylococcus aureus*

中文摘要：

心房顫動是最常見的慢性心律失常，在患者的表現和症狀方面差異很大，對數百萬人的生活品質產生不利影響。房顫處置指南針對其治療，著重於預防血栓栓塞和控制症狀，並強調患者遵守治療計劃的重要性，以確保獲得更好的結果。護理師要能夠評估患者，記錄症狀，監測心律並實施降低風險的策略。

這是一項回顧性相關研究，收集接受心血管植入式電子設備 (CIED) 植入手術後入院進行節律控制的患者。使用人工神經網絡收集和分析了 435 名患者的電子醫療數據。由於採用人工神經網絡及決策樹統計分析方法進行預測，數據被劃分為 70% 和 30% 的數據是訓練數據和測試數據。在本研究中，輸入屬性是 42 個影響因素。節律控制方面，輸出層包括三個神經元，分別是心房高頻持續時間 (AHR)、AHR 發作和 AHR 出現百分比的基線。病患結果方面，輸出層神經元是病患產生中風。

435 名患者的平均年齡為 76.85 ± 11.02 歲，其中 62.1% 為女性。78.6% 的患者有病竇綜合徵病史，77.2% 有高血壓，21.4% 有房室傳導阻滯。節律控制後 71.7% 的患者 AHR 明顯下降。在 ANN 模型中，AHR 基線持續時間、體重指數 (BMI)、室間隔 (IVS) 和左心室 (LA) 的權重均超過 80%。表示這四個因素是影響在評估心房顫動患者的節律控制時考慮。

關鍵字：心房顫動，心律負荷量，機器學習。

英文摘要：

Atrial fibrillation, the most common chronic cardiac arrhythmia, varies widely in patient presentation and symptoms, adversely affecting the quality of life of millions of people. Guidelines for the management of atrial fibrillation address its treatment, focusing on thromboembolism prevention and symptom control, and stressing the importance of patient adherence to a treatment plan to ensure better outcomes. Nursing practitioners need to be able to assess patients, record symptoms, monitor heart rhythm, and implement risk reduction strategies.

This is a retrospective correlation study of patients admitted to the hospital for rhythm control following implantation of a cardiovascular implantable electronic device (CIED). Electronic medical data from 435 patients were collected and analyzed using artificial neural networks (ANN). Due to the use of artificial neural network and decision tree statistical analysis method for prediction, the data is divided into 70% and 30% of the data is training data and test data. In this study, the input attributes are 42 influencing factors. In terms of rhythm control, the output layer consists of three neurons that are the baseline for the duration of atrial high frequency (AHR), AHR onset, and percentage of AHR occurrence. In terms of patient outcomes, the neurons in the output layer were the ones that caused the stroke in the patient.

The mean age of the 435 patients was 76.85 ± 11.02 years, of whom 62.1% were female. 78.6% of patients had a history of sick sinus syndrome, 77.2% had hypertension, and 21.4% had atrioventricular block. AHR decreased significantly in 71.7% of patients after rhythm control. In the ANN model, AHR baseline duration, body mass index (BMI), interventricular septum (IVS), and left ventricle (LA) were all weighted over 80%. Indicates that these four factors are influencing factors to be considered when assessing rhythm control in patients with atrial fibrillation.

Key words: atrial fibrillation, arrhythmia burden, machine learning.

性風險覺察與控制技能量表之發展與信效度測試

王燕慧

中文摘要：

本研究旨在建構「性風險覺察與控制技能量表」之題項與檢驗信效度，依據文獻查證及實務經驗擬定初步題項並實際於年輕女性進行測試，經由相關領域的專家進行專家檢定內容效度。透過專業專家和經驗專家效度來檢視內容的關聯性和明確性。利用項目分析計算量表中各題目之鑑別度 (discrimination) 與矯正項目總分相關，以評估量表題目的可用程度，進行題目的刪減。採方便取樣招募台北市某專科學校女性學生收案 198 位年輕女性，平均年齡為 17.25 (SD=.49) 歲，以探索性因素分析「性風險覺察與控制技能量表」萃取出 3 個因素，分別為「情緒導向風險控制」5 題、「問題導向風險控制」9 題及「自我效能」7 題，共 21 題，總解釋變異量為 55.30%；量表 Cronbach's α 係數為 .93。具良好信效度之「性風險覺察與控制技能量表」可做為未來性健康介入方案評測之工具。

關鍵字：性風險覺察與控制技能、量表發展、年輕女性。

英文摘要：

This study aims to develop a scale for measuring “sexual risk perception and control skills scale” of young women. Furthermore, this study verified the reliability and validity of this scale. Content relevance and clarity were examined through professional expert validity and experiential expert validity. Subsequently, item analyses were used to calculate the discrimination of each item on the scale and their corrected item–total correlation to evaluate the suitability of the items. Accordingly, the items were revised. Convenient sampling will be taken and a total of 198 valid responses (mean age of respondents: $17.25 \pm .49$ years) were collected for a factor analysis. The Sexual Risk Perception and Control Skills Scale had an expert validity of 0.98. Three factors represented by 21 items were extracted through an exploratory factor analysis; five items were based on “Emotion-oriented risk control,” nine items were based on “Problem-oriented risk control,” and seven items were based on “Self-efficacy.” The total variance explained was 55.30%; the Cronbach's α of the scale was 0.93. In order to establish a “sexual risk perception and control skills scale “with good reliability and validity as a tool for evaluating future sexual health intervention programs.

Key words: Sexual Risk Perception And Control Skills Scale 、 Scale development 、 young women.

探討乳癌婦女之外陰陰道萎縮症狀及其影響

李月卿

中文摘要：

乳癌婦女可能因接受治療而導致停經，造成外陰陰道萎縮(Vulvovaginal atrophy, VVA)。外陰陰道症狀主要因停經後婦女缺乏雌激素所導致，因此婦女有陰道乾燥、缺乏潤滑、性交疼痛，甚至外陰有搔癢、灼熱、刺痛等症狀。患有外陰陰道萎縮(Vulvovaginal atrophy, VVA)的女性有更高的風險罹患骨盆泌尿生殖系統的疾病(Constantine et al., 2014)，但卻未獲得適當的醫療處置。因此，本研究目的在探討乳癌婦女外陰陰道萎縮與骨盆底影響的相關性。本研究採相關性研究橫斷式調查法(crosssectional)，問卷包含外陰陰道症狀量表(vulvovaginal symptoms questionnaire, VSQ)及骨盆底影響量表(Pelvic Floor Impact Questionnaire, PFIQ-7)。採立意取樣，樣本來自台北某醫學中心門診，招募符合收案條件的乳癌婦女 100 位參與本研究。研究結果發現 58%的個案報告至少有一種外陰陰道症狀，41%個案性生活受到影響，而外陰症狀、情緒、生活影響與 PFIQ-7 陰道的相關係數分別為 $r=.64, p<.001$ 、 $r=.32, p<.01$ 、 $r=.21, p<.05$ ，顯示骨盆底影響的陰道與外陰陰道萎縮症狀具有明顯的關聯性。本研究可提升照護者對此議題重要性的了解，並做為未來臨床外陰陰道萎縮症狀的評估、治療與介入措施研究的根基。

關鍵字：外陰陰道症狀、骨盆底影響、乳癌婦女。

英文摘要：

Women with breast cancer, treatment may lead to menopause, resulting in vulvovaginal atrophy (VVA). Vulvovaginal symptoms are mainly caused by the lack of estrogen in postmenopausal women, so women have vaginal dryness, lack of lubrication, painful intercourse, and even genital itching, burning, tingling and other symptoms. Women with vulvovaginal atrophy (VVA) are at increased risk of developing pelvic urogenital disorders (Constantine et al., 2014) without appropriate medical treatment. Therefore, the purpose of this study was to investigate the correlation between vulvovaginal atrophy and pelvic floor effects in women with breast cancer. Correlation research cross-sectional survey method (cross-sectional) was used in this study, and the questionnaires included the vulvovaginal symptoms questionnaire (VSQ) and the Pelvic Floor Impact Questionnaire (PFIQ-7). The samples were taken from the outpatient clinic of a medical center in Taipei, and 100 women with breast cancer who met the conditions for admission were recruited to participate in this study. The results of the study found that 58% of the cases reported at least one vulvovaginal symptom, and 41% of the cases had affected sexual life, and the correlation coefficients of vulvar symptoms, mood, life influence and PFIQ-7 vagina were $r=.64$, $p<.001$, $r=.32$, $p<.01$, $r=.21$, $p<.05$, indicating that the vagina affected by the pelvic floor is significantly correlated with the symptoms of vulvovaginal atrophy. This study can improve caregivers' understanding of the importance of this issue and serve as the basis for future research on clinical vulvovaginal atrophy symptoms assessment, treatment, and intervention.

Key words: Vulvovaginal symptoms, Pelvic floor disorders, women with breast cancer.

中文摘要：

研究背景：2016年12月18日台灣首部以病人為主體制定的法案「病人自主權利法」立法通過，2019年1月6日正式施行，更完整保障病人自主權，維護病人的尊嚴及擁有善終的權利。但本土研究也顯示，臨床中維生醫療照護仍多由病人家屬代理決策，而家屬較病人而言傾向較積極且過度地醫療，致使病人醫療決策自主性未受重視甚或影響病人善終，且造成醫療人員末期醫療決策的困擾。護理人員24小時接觸病人與家屬，面臨瀕死與死亡的機會為醫療人員之最，因此應具備對病人自主權之倫理法律涵養。在英、美，將生命末期照護相關課程列為必修或選修課程的醫學院校達九成以上，且在護理師執照考中預立醫療照護計畫及預立醫療指示為必備核心知識與能力。因此了解護理人員在「病人自主權利法」相關倫理法律的準備度及其行為意向是必要的。

研究設計：然而，目前缺乏以病主法為基礎且具有良好心理計量測試之相關測量工具，故本研究之研究目的：「病人自主權利法之知識、態度、維持生命治療及ACP&AD行為意向量表」之發展與心理計量驗證。選樣：年滿20歲之一般社區民眾為研究對象，有效樣本為204人。研究工具：發展完成之基本屬性資料表、病人自主權利法之知識、態度、維持生命治療意向及ACP&AD行為意向等項，於預測後進行正式資料蒐集。資料分析：以SPSS20.0版 & Amos for Windows 套裝軟體進行資料建檔及統計分析。研究結果：(1)病主法知識量表(14題) KR-20=.80 難易度與鑑別度分析均在可接受範圍。(2)ACP&AD態度量表共萃取出二個因素，分別命名為「正向態度」(6題)、「負向態度」總解釋的變異量48.95%。Cronbach's alpha係數，分別為.80、.83。Model Fit Index: $\chi^2(df) = 180.32(85)$, $\chi^2/df = 3.12$, RMSEA = .08, GFI = .90, CFI = .90, TLI = .88, RMR = .05 (3)維持生命治療與人工營養偏好量表，Cronbach's alpha係數為.79~.89 (4)ACP & AD行為意向量表 Cronbach's alpha係數分別為.85。

成果：發展及驗證完成之「病人自主權利法知識、態度、維持生命治療意向及ACP&AD行為意向量表」之心理計量分析，確認其具有良好信效可用於未來相關研究中。

關鍵字：病人自主權利法(Patient Right to Autonomy Act)、預立醫療照護諮商(advance care planning)、預立醫療決定(advance decision)、量表(questionnaire)。

英文摘要：

Background: The Hospice & Palliative Care Act has been legalized for over ten years in Taiwan. From 2006, the department of health promoted actively that the people can note the advance directive in the IC chip of personal NHI IC card. However, it still be recognized not to be helpful in the promotion of the autonomy of patients which might be due to the difficult to practice in our cultural context. A number of studies have shown that family members decision to the end of life treatment for patient. Family members tend to desire more aggressive intervention than patients. Patient autonomy in medical decision making is not fully respected. Health provider is difficult to decide on the treatment. Recent years have seen increased attention being given to the issue of advance directive and advance care planning in the related literature. But little research has been done on advance directive in Taiwan. How to establish an appropriate intervention to promote the autonomy of patients and the care quality will be very important work in the near future. However, it is the front burner to explore the intention of completing advance directive and related factors among the patient and their family.

Objectives: The purpose of this study was to develop a theoretically based, psychometrically robust instrument to assess “Knowledge, Attitude, Behavioral Intention of Patient Right to Autonomy Act in Taiwan ” for the community residents.

Method: This study used a prospective, cross sectional, descriptive design with measurement of variables at one time point. The 204 participants in a cross-sectional study were just selected based on the inclusion and exclusion criteria set for this study

Results: Findings on the validity and reliability of “Knowledge, Attitude, Behavioral Intention of Patient Right to Autonomy Act in Taiwan” were as follows. (1)“Knowledge about Patient Right to Autonomy Act in Taiwan” (14 items) KR20=.80. (2) The two domains of the Attitude of ACP&AD (48.95 % total variance explained), namely the domains of "positive attitude"(6 items), "negative attitude"(6 items). Confirmatory factor analysis supported that the factors structures of the two questionnaires. Model Fit Index: $\chi^2(df) = 180.32(85)$, $\chi^2/df = 3.12$, RMSEA = .08, GFI = .90. The internal consistency coefficients of the questionnaires were .80 and .83, respectively. Construct validity was evaluated by hypothesis testing and the findings supported construct validity. (3) Cronbach’s alpha of ”preference for Life-sustaining treatment on 4 situations” were .79~.89. (4) Cronbach’s alpha of “behavioral intention of ACP & AD” was .85.

Conclusion: “Knowledge, Attitude, Behavioral Intention of Patient Right to Autonomy Act in Taiwan” questionnaire are valid and reliable in measuring decision making for ACP & AD in community residents. .

Key words: Patient Right to Autonomy Act 、 advance care planning 、 advance decision 、 questionnaire

中文摘要：

培育學生具有批判思考和解決問題的能力是各學習領域教育的基本目標，創新教學的方式在課室教學中經由討論引發學生具有批判性思維特質是重要的變革，本研究目的旨在探討治療性遊戲對護理科學生的批判性思考成效。研究分為兩階段，第一階段為描述橫斷性相關性研究，採單組前後測設計，以北部一所技職專科學校院五專四年級護理科學生為招募對象，採方便取樣，研究工具有個人基本屬性、批判思維量表和兒童溝通自擬問卷，預計符合條件約有 200 位樣本。在介入「治療性遊戲教學方案」前後均進行量表的施測，研究結果可做為設計提昇技職護生批判思考能力相關課程和教學活動安排之參考。第二部份是比較接受「傳統教學」及「創新教學」的護理學生在兒科護理學實習時之批判性思維展現之差異，探討影響護生批判思考能力的重要預測變項。本研究共計收案 146 名護理科兒科護理學實習課程的學生，包含研究對象含實驗組 76 人，對照組 70 人，以女生居多(92%)，學生的人格特質多為宜人性(64.55%)。兒科護理學前，最近一次學期總成績實驗組 75-79 分(32.9%)，對照組 80-84 分(40.8%)為大宗。在研究結果中發現，實驗組的實驗組的前測學理成績高於對照組。實驗組的後測封閉性思維能力高於對照組。實驗組的前測開放性思維能力低於對照組。兒科護理學課程介入治療性遊戲創作對於學生投入兒科護理學實習是有明顯助益的。

關鍵字：批判性思考、治療性遊戲、護理學生。

英文摘要：

Cultivating students to have the ability to think critically and solve problems is the basic goal of education in various learning areas. The transformation of innovative teaching methods in classroom teaching and discussion to induce students to have critical thinking characteristics is an important change. The purposes of this study were to explore the relationships between critical thinking ability among students of therapeutic play teaching programs. The study is a descriptive cross-sectional survey. We used a one-group pretest-posttest design. Subjects will recruit by convenient sampling from a institutes of technology junior college in north Taiwan. Structured questionnaires, including the Critical Thinking Inventory will apply as research instruments. Data were collected from 200 4th grade nursing students. These findings may be used in curriculum development and teaching planning in order to promote the active fostering of critical thinking skill among students in the nursing. A total of 146 students in the pediatric nursing practice course of the Department of Nursing were enrolled in this study, including 76 subjects in the experimental group and 70 in the control group. Most of them were girls (92%), and the students' personality traits were mostly agreeableness (64.55%). In the preschool of pediatric nursing, the most recent semester total score was 75-79 points (32.9%) in the experimental group and 80-84 points (40.8%) in the control group. In the results of the study, it was found that the experimental group's pre-test academic performance was higher than that of the control group. The post-test closed thinking ability of the experimental group was higher than that of the control group. The open thinking ability of the experimental group was lower than that of the control group. The intervention of therapeutic play teaching programs in the course of pediatric nursing is obviously helpful for students to participate in the practice of pediatric nursing.

Key words: critical thinking, therapeutic play, nursing education.

中文摘要：

英語是公認的國際語言，但英語教學成效日趨雙極化，很多學生強調自己對學習英語有障礙。在第二語言的學習中動機扮演重要角色，近年來台灣醫療產業增長，提高護理專業對英語能力的需求，尚未有針對護生英語學習動機及焦慮的現象進行探討，因此，本研究擬探討五專護生英語學習動機及焦慮。以本校護理科學生為母群體，採質量混合研究設計，運用「英語學習機量表」及「英語學習焦慮表」，採分層隨機抽樣，評估 468 位五專護理科學生。結果顯示：(1)英語學習動機題平均為 3.45 分屬中上等程度；(2)英語學習焦慮題平均為 3.69 分屬中上等程度；(3)英語學習動機與性別、年級、學業成績、英文成績、是否擁有英語證照、是否於英語系國家居住，和畢業後先升學或就業具顯著差異；(4)英語學習焦慮與英文成績、是否擁有英語證照和校外學習英文時間具顯著差異；(5)喜歡護理程度、喜歡英文程度、認為英文的重要程度與英語學習動機呈正相關；(6)英語學習動機中的外在動機與英語學習焦慮呈正相關，但英語學習動機中的內在動機、學校課程及課外學習與英語學習焦慮呈負相關。男性、學業成績及英文成績差、不喜歡護理、沒有英語證照其英語學習動機較差，英語教學時可留意以上特質學生，加強其外在動機，輔導其英語證照，可提升學生自信及學習動機。另外，引導學生創造自主的英語學習環境，可以提升學生內在動機及課外學習動機，也可降低護生英語學習焦慮。

關鍵字：英語學習動機、英語學習焦慮、護生。。

英文摘要：

English has obviously become the dominant language for communication in many international contexts. There has been a long-standing difference in English learning outcome among students in Taiwan. In the second language learning, motivation plays as a very important role. Recently, Taiwanese medical industry for the international visitors is increasing as well as an increasing need of English language in to meet the needs of the growing population of international visitors from nursing professional. At the same time, there is limited research to explore the motivation and anxiety in English learning for nursing students. Therefore, the purpose of this research is to explore the English foreign language learning motivation and anxiety of the nursing students from the five year nursing programs.

For purpose of the study, a purposeful sample of volunteer included 468 nursing students from a college of North Taiwan. The data for the study were gained through the use of questionnaires. The instruments used in this study were “Foreign Language Anxiety Scale”, and “EFL Learning Motivation Scale” developed by Yu-Ting Hsu (2004). SPSS 25 software was used to analysis the data in the questionnaires. The results indicated as follows : (1) the average score of nursing students’ English Foreign Language Learning Motivation is 3.45, suggesting a medium to high level of English Learning Motivation, (2) the average score of nursing students’ English Learning Anxiety is 3.69 ,suggesting a medium to high level of English Learning Anxiety, (3)English Learning Motivation was significant differences with gender, grades, academic and English scores, owning English test certificate, lived in English Foreign country, the plan after graduated, (4) English Learning Anxiety was significant differences with the English score, owning English test certificate, and years of English learning outside school, (5) English Learning Motivation was statistically positively correlated with the level of liking English ($r=.691$, $p < .01$), the importance level of English ($r=.619$, $p < .01$) and the level of liking nursing ($r=.256$, $p < .01$). (6) English Learning Anxiety was statistically positively correlated with the level of extrinsic motivation ($r=.179$, $p < .01$), but negatively correlated with the level of intrinsic motivation ($r=-.103$, $p < .05$), and school courses ($r=-.097$, $p < .05$) and outside learning ($r=-.154$, $p < .01$). According to the finding, nursing students who are male, lower academic and English scores, without English test certificate had a significant lower English learning motivation. During teaching process, teachers can pay attention to those characteristics, try to increase their extrinsic motivation, lead them to own English test certificate may build their confidence and decrease their learning anxiety.

Key words: English learning motivation, English learning anxiety, nursing student

先天性膽道閉鎖青少年母親生活經驗之探討

林琦華

中文摘要：

面對罹患先天性膽道閉鎖青少年的母親來說，當孩子經常的復發膽管炎時，進出醫院頻繁外，也會耗費大量的時間、精力照顧而感到疲累與負擔，看著孩子承受著身體、心理與社會的痛苦外，更讓母親可能有沮喪、無望感受，甚至擔憂孩子肝臟惡化而出現生命存活問題，這些照護過程為母親帶來心理層面莫大的壓力。本研究目的為探討先天性膽道閉鎖青少年母親生活之經驗，採現象學研究法，以半結構訪談指引，一對一深入訪談，將所得資料之內容及意義進行重整。藉由照護膽道閉鎖青少年母親的生活經驗探討，未來在協助先天性膽道閉鎖青少年的母親能主動給予關懷，了解內心想法，提供訊息滿足心理或照護的需求，並提供正向回饋，以提供做日後臨床照護之參考。

關鍵字：膽道閉鎖、青少年、母親生活經驗。

英文摘要：

In the case of a mother with a congenital biliary atresia, when the child has frequent recurrent cholangitis, In and out of the hospital frequently, it will also take a lot of time and energy to take care of and feel tired and burdened. Looking at the child suffering from physical, psychological and social pain, the mother may have depression and hopeless feelings. Even worrying about the deterioration of the child's liver and the survival of life, these care processes bring great psychological pressure to the mother. The purpose of this study are: To explore the experience of the life of adolescent mothers with congenital biliary atresia. Phenomenological research method, guided by semi-structured interviews, one-on-one in-depth interviews. Reorganize the content and meaning of the proceeds.

In the future, mothers who assist adolescents with congenital biliary atresia can take the initiative to care, understand their inner thoughts, provide information to meet the needs of psychology or care, and provide positive feedback and develop professional functions for clinical care.

Key words: biliary atresia, adolescent, mother life experience.

中年婦女與其預防中風到院前延遲就醫知識之關係

王寶鈺

中文摘要：

中年婦女瞭解預防中風到院前延遲就醫的知識，有助於確保中風發作時的即時反應、減少到院前延遲就醫的發生。儘管中年婦女是中風的高危險群，但有關於中年婦女預防中風到院前延遲就醫知識的數據資料仍闕乏。本研究目的探討中年婦女與其預防中風到院前延遲就醫知識(Prevention Knowledge Scale for Stroke Prehospital Delay, PKSPD)之關係。採橫斷式研究(cross-sectional study)、立意取樣北部 2 個社區的中年婦女進行收案。結果：本研究中 36.4% 的中年婦女的 PKSPD 接近平均水準，中風知識答錯率題項前二名為「至家附近門診打針吃藥、坐著/臥床休息」、「自行到急診由自己騎車或家人開車或叫計程車」。中年婦女「年齡」與 PKSPD 呈弱的負相關 ($r = -0.20$, $p < 0.05$)，而「教育程度」($F = 6.45$, $p < 0.05$)與 PKSPD 有顯著差異。

關鍵字：預防中風到院前延遲就醫知識、中年婦女、中風衛教。

英文摘要：

Prevention Knowledge for Stroke Prehospital Delay in middle-aged women is helpful for reducing incidences of stroke and to ensure a rapid response to disease onset. Although middle-aged women are at a high risk for strokes, there is still a lack of data on Prevention Knowledge for Stroke Prehospital Delay in middle-aged women. This study purpose to explore the relationship between Prevention Knowledge Scale for Stroke Prehospital Delay and its related factors among middle-aged women. The cross-sectional correlated survey using purposive sampling was applied. Result: The majority of middle-aged women had a medium level of PKSPD (36.4%). The 2 items with the highest rate of self-identified knowledge gaps were “Go to the outpatient clinic near your home for injections and medicines, sitting/bed rest” “Go to the emergency room by yourself, ride by yourself or drive by your family or call a taxi” . The “age” of middle-aged women and PKSPD are negatively correlated ($r = -0.20$, $p < 0.05$). “Educational level” ($F = 51.04$, $p < 0.001$) for middle-aged women and PKSPD showed significant differences.

Key words: PKSPD, middle-aged women, stroke education

中文摘要：

微課是現今的網路線上課程發展而來的一種新的技術模式，可以有效地促進學生的自我學習。

本研究目的為運用微課教學設計學習模式於護理技能教學課程，檢視學生學習成效。研究採用「準實驗設計法」編製前後測試卷，於實驗教學前、後進行施測，將微課的製作設計介入，並以「基本護理學暨實驗」課程為例，由網路化測驗平台，導入微型課程實作，編製微型課程教材，發展學生自主學習所需之教材。針對護理學生進行線上學習成效探討。研究對象以方便取樣選取北部某五專護理學生為對象。統計分析方法包括：敘述型統計、獨立樣本 t 檢定、相依樣本 t 檢定以及廣義估計方程式。

研究結果：學生在學習工具改變幅度差異方面之交互作用達顯著水準 ($p < .05$)，顯示微課程教學對於學生在學習工具上具有明顯的成效。在學習成效方面之交互作用達顯著水準 ($p < .05$)，實驗組學生的進步幅度高於控制組，對於學生在學習成效上具有明顯成效。在整體學習態度從前測至後測的改變幅度具有顯著差異，實驗組學生的進步幅度高於控制組，在整體學習態度上具有明顯的成效。本研究顯示採用微課教學設計學習模式於護理技能教學課程方式的學習成效優於傳統學習方式。藉由網路化測驗平台，導入微型課程實作教材，發展學生自主學習教材可統整資訊和延展知識，提升學生學習動機與學習成效。

關鍵字：微課程、護理技能、學習成效。

英文摘要：

Background: Good nurses are expected to have the necessary technical competences and knowledge. As students must have many opportunities to practice clinical skills themselves to become competent practitioner. Self-directed learning ability is a method or process used by students to take the responsibility of their own learning, to determine their objectives and learning resources, to deal with appropriate activities and to evaluate their results with or without the help of instructors. Microlecture is a new kind of teaching model developed from modern online courses. In this way, microlecture effectively promotes the self-learning of students, which help grasp the knowledge points.

Purpose: To demonstrate how to apply microlecture design learning model on the nursing skill course and to evaluate the student's learning effect.

Methods: This study used the "quasi-experimental research method" to prepare the pre-test and the post-test .This article development and design of microlecture.” Fundamental Nursing and Lab” will be used as an example to demonstrate how to apply microlecture on the course and to evaluate the student's learning effect. This study focuses on studying the effects of online learning on nursing school students. The design of this study is based on convenience sampling to select nursing college in the northern of Taiwan participated this study. The data were analyzed by descriptive statistics, independent sample t-test, paired-sample t-test, and ANCOVA.

Results: The findings of this study revealed that nursing students participating in the Microlecture Design Learning Model to Nursing Skill Courses had statistically significant higher scores than those studied a conventional Medical cours learning method.

Key words: micrlecture , learning , nursing skill.

慢性思覺失調症患者於病房音樂相關活動之經驗探討

駱天惠

中文摘要：

慢性思覺失調症的負性症狀是患者未來生活品質和功能重要預測指標，然而人際互動、情感表達等負性症狀以藥物治療效果不明顯，而音樂介入具有許多積極的影響和作用，亦可利用音樂經驗來解決患者可能無法解決的問題。目前國內外以音樂為介入措施於慢性思覺失調症患者之相關研究，多以量性研究為主，較少以質性分析方式探討思覺失調症患者於病房音樂相關活動的主觀經驗。本研究目的是了解慢性思覺失調症患者於病房音樂相關活動的經驗，以作為未來照護方向的參考。採描述性現象學研究法，以半結構性訪談指引深度訪談資料收集。研究對象採立意取樣，為北部某精神科專科醫院慢性病房之慢性思覺失調患者。依據 Lincoln 與 Guba 所提出質性研究嚴謹度作為考量，資料分析採取 Colaizzi (1978) 發展的七大步驟分析法進行。訪談其中 2 位患者，表達音樂活動可改善情緒(心情放鬆或變好、煩惱減少)、提升活動參與度(參與活動時間延長、喜歡參與活動)、期待的分享機會(期待分享喜歡的歌、思念的家人)及人際互動增加(有話題可以聊天、可自在與人互動)等四大主題。音樂活動對個案情緒、活動參與及人際互動有深入的影響；結果可作為未來臨床照護或病房音樂相關活動設計之參考。

關鍵字：慢性思覺失調症、病房音樂活動、經驗。

英文摘要：

Negative symptoms of chronic schizophrenia are important predictors of the patient's future quality of life and function. However, the effect of drug treatment on negative symptoms such as interpersonal interaction and emotional expression is not obvious. Music intervention has many positive effects, and also could solve problems that patients may not be able to solve via music experiences. Domestic and foreign studies on patients with chronic schizophrenia using music as interventional measures are mostly quantitative studies, and qualitative analysis methods are rarely used to explore the subjective experience of schizophrenia patients in music-related activities in the ward. The purpose of this study is to understand the experience of patients with chronic schizophrenia in music-related activities in the ward, as a reference for future care. Adopt descriptive phenomenological research method, guide in-depth interview data collection with semi-structured interviews. The subjects of the study took a purpose sample and were patients with chronic schizophrenia in the chronic ward of a psychiatric hospital in the north. Based on the rigor of qualitative research proposed by Lincoln and Guba as a consideration, the data analysis adopts the seven-step analysis method developed by Colaizzi (1978). Interviews with two of the participants and four major themes were found, including music activities could improve their mood (relax or get better, reduce worries), increased the activity participation (participated in the activities longer, and enjoyed participating in the activities), and expected having the opportunities to share (expected to share favorite songs or missed family members) and increased interpersonal interaction (had topics to chat and freely interact with others). Music activities have in-depth influences on the participants' mood, activity participation and interpersonal interaction. The expected results can be used as a reference for the design of future clinical care or music related activities in the ward.

Key words: schizophrenia, Ward Music Activity, experience.

探討慢性思覺失調症患者面對汙名的經驗

曹天怡

中文摘要：

本研究為現象學研究，目的是討論慢性思覺失調症患者對汙名的經驗。研究對象的納入條件為年齡在 20~60 歲，患有思覺失調症 2 年以上，並且精神疾病汙名感受量表（perceived psychiatric stigma scale；PPSS）（Han & Chen，2008）之得分在 50 以上。招募期間符合條件且願意訪談的對象有 3 人，年齡在 42 至 50 歲之間，PPSS 得分為 59 至 82 分，以半結構的訪談方式收集資料，並在全程錄音後轉錄，並以 Colaizzi (1978) 的現象學方法將訪談內容進行分析和歸類，資料分析的嚴謹度則依 Lincoln 和 Guba (1985) 的原則進行，最終有三大主題，包括尋求情緒抒發的管道、讓自己強大起來以及避免可能受傷害的情境。這些結果可以幫助人們更多地了解思覺失調症患者，進而發展相關策略，幫助他們實現更多元的發展。

關鍵字：汙名、思覺失調症、現象學研究。

英文摘要：

The purpose of this phenomenological study was to discuss chronic schizophrenia patient's experience toward stigma. The patients' recruitment criteria were supposed to meet some certain conditions -- aged 20 to 60, suffering from schizophrenia for 2 years and over, and scoring above 50 in perceived psychiatric stigma scale (PPSS) (Han & Chen,2008), which is scored between 25 to 100. Higher-scoring patients perceive stronger stigma. 3 out of purposive sample of 5 meet the subject recruitment criteria, who are at the age of 42 to 50 and score 59 to 82 in PPSS. Data were collected with a semi-structured interview guide. The interviews were tape recorded and then transcribed. The content of the interviews was analyzed and categorized using Colaizzi's (1978) phenomenological method. The trustworthiness of the study was examined using Lincoln and Guba (1985) principles. Three major themes were found, including seeking ways of letting off some steam, making myself stronger, and avoiding harmful situations. These results can help people understand more about schizophrenia patients so that related strategies can be developed, and thus may help them achieve the all-round development.

Key words: Stigma, schizophrenia, phenomenological study.

中文摘要：

研究背景：傳統大班授課容易缺乏主動學習的意願(McKeachie & Svinicki,2006)，尤其學習低成就學生，易出現放棄的態度。若要學生下課後記憶保留率達到 50%，則需透過小組討論(Edgar Dale，1946)。

研究目的：於「產科護理學」課程實施合作學習教學法進行研究，以了解學生「學習動機與態度」、「合作技巧與同儕互動」、「學習成效」及「學習經驗」。

研究方法：以五專專四年級 92 位學生為研究對象(實驗組 48 位、對照組 44 位)，實驗組介入四週合作學習法，包含「團體成就競賽」、「即時反饋與討論」及「小組繪圖法」，對照組則為傳統教學法，量表使用臺灣教育部所編制的「學生分組合作學習成效量表」進行調查，統計部分以 SPSS 25.0 統計軟體為工具，質性則以內容分析法進行分析。

研究結果：實驗組在學習動機與態度、合作技巧與同儕互動平均皆高於對照組且達顯著差異，但學業成績則無明顯差異，達顯著差異之評量單元乃透過「團體成就競賽」介入。在前後測比較中，實驗組後測亦高於前測且皆達顯著差異，對照組則無。三種合作學習方法中，學生評價最高分為「即時反饋與討論」，最低分為「團體成就競賽」。質性方面，學生經驗包含「增加趣味提升專注」、「幫助記憶統整複習」、「促進交流解決問題」、「自我檢視學習成效」。

討論：合作學習方法可增加學習動機與態度、合作技巧與同儕互動但在學業成績沒有顯著差距等研究結果與過去研究相似。「即時反饋與討論」最受學生青睞，可見學習樂趣是學生對課程喜歡很重要的元素。「團體成就競賽」雖評價較低，但可促進學習成效，可能小組競賽雖可產生參與感與認同感達到知識整合，但相對會帶來壓力。建議之後課程可以適度增加「團體成就競賽」，以提升整體成效。

關鍵字：合作學習法、產科、學習成效。

英文摘要：

Background: Traditional large class teaching is prone to lack of willingness to actively learn, and the attitude of giving up is easy to appear in the classroom. If the students' memory retention rate after class reaches 50%, group discussion is required (Edgar Dale, 1946)

Purpose: The study was to implement cooperative learning pedagogy in the course of "Obstetric Nursing" to understand students' "learning motivation and attitude", "cooperative skills and peer interaction", "learning effectiveness" and "learning experience".

Methods: 48 subjects in the experimental group and 44 subjects in the control group were the research objects. The experimental group was involved in a four-week cooperative learning method, including "Team Achievement Contest", "real-time feedback and discussion" and "group drawing method", while the control group used the traditional teaching method. The "Student Group Cooperative Learning Effectiveness Scale" developed by the Ministry of Education of Taiwan was used for investigation and SPSS 25.0 was used for statistics, and the qualitative analysis was carried out by content analysis method.

Results: The experimental group was significantly higher than the control group in terms of learning motivation, attitude, cooperation skills, and peer interaction, but there was no significant difference in academic performance. In the comparison before and after the test, the post-test in the experimental group was also higher than the pre-test and both reached significant differences, but not in the control group. The highest rating is "Instant Feedback and Discussion", and the lowest is "Group Achievement Contest". Qualitative experience includes "increasing interest and improving concentration", "helping memory, integration and review", "promoting communication and problem solving", and "self-examination of learning effectiveness".

Discussion: "Real-time feedback and discussion" is the most popular among students. It can be seen that learning fun is an important element for students. Although the "Team Achievement Contest" has a low rating, it can promote learning effectiveness. It is suggested that "group achievement competition" can be appropriately added to the course to improve the overall effect.

Key words: cooperative learning method, obstetrics, learning effectiveness.

中文摘要：

本研究目的在於結合 STEAM 融入零至二歲托育活動設計之個案研究，以台北市一間私立托育中心作為研究場域，以適齡適性托育活動準則及評鑑指標為規準，設計適合嬰幼兒學習之 STEAM 托育活動，運用生活經驗設計具有簡單因果邏輯關係之科學與美學變化活動，豐富不同月齡階段嬰幼兒之五感學習經驗，並經由訪談托育人員、觀察嬰幼兒的學習反應，以及蒐集相關表單回饋紀錄，修正與調整托育活動內容。本研究結果發現如下：

1. STEAM 融入零至二歲托育活動設計，依照不同月齡嬰兒可設計個別操作、小組合作等不同教學模式的活動，符合適齡適性托育活動與評鑑指標外，也能兼顧科學與美感變化，增進嬰兒學習成效。
2. STEAM 融入零至二歲托育活動設計實例，減輕托育人員活動設計壓力，對活動內容產生興趣，提升與嬰兒互動的機會，增加口語與非口語的引導反應。
3. STEAM 融入零至二歲托育活動設計有助於提升托育人員托育活動設計專業成長，引發部分托育人員有多產性的構想應用在托育活動設計。

關鍵字：STEAM、托育活動設計、適齡適性、托育人員。

英文摘要：

The purpose of this study is a case study of STEAM education integration into the design of child-care activities. A public child-care center in New North City as a research field, and to design suitable for infants and young children based on the criteria and evaluation indicators of age-appropriate child-care activities. For enrich the learning experience of infants and young children at different age stages, this study adopt STEAM education to design day-life experience into all kinds of learning activities. Through the observation of infant and young children's learning response, and collect feedback from childcare providers, to revise and adjust the contents of the child-care activities. The results as follow:

1. The STEAM education integration into the 0-2-years old childcare activities was according to different learning model and appreciate-age learning characteristic. In addition to fit the evaluation indicators, it can also take into science and aesthetics for the learning effect.
2. The STEAM education integration into the 0-2-years old childcare activities was reduced the childcare activities pressure of childcare providers that generate interest in activity content, improve opportunities for interaction with infants, and increase oral and non-verbal guided responses.
3. The STEAM education integration into the 0-2-years old childcare activities was enhance the professional growth of childcare providers, especially at productivity ideas of activities designed.

Key words: STEAM Education, Child-care activities designed, Appropriated curriculum, Childcare providers.

中文摘要：

近年科技進步發展，許多產業技術與實務上相互結合，在餐飲教育演化日益求新求變，然而會展設計規畫課程教學上面臨材料、空間、經費等不足及新冠肺炎疫情等問題，而且缺乏有效引導以跨領域的思維帶入新的領域，本計畫以落實 STEAM(科學、科技、工程、藝術與數學)教育，同時落實 6E 教學模式以培養及啟發學生設計、美感與探究能力，並進一步利用輔助工具資訊 AR(Augmented Reality 增強現實境界)/VR(Virtual Reality 虛擬實境境界)工具，讓學生在課堂中與虛擬情境實質接觸，並且結合會展設計規畫教學的觀點，進行教學活動設計。

在教學活動中探究會展設計估畫結合空間、環境、技術、材料、科技、設計、美感及施工管理的過程等，有效解決學生面臨會展設計規劃困境及空間利用之處理，本計畫主要優點(1)提高空間利用率(2)提升學生造型及審美觀(3)有效觀察人流心理及動向(4)提高現場安全性(5)有效降低施工困難度及成本考量(6)提高布局合理性(7)避免使用禁用材料等。

對於本研究的課程所利用虛擬實境設備學習，確實可以利用該設備來建構空間，並且讓學生在虛擬實境空間得到設計觀念，應用新興科技虛擬實境設備，確實讓學生提起極高興趣學習，對於一門課程教學，學習態度及興趣是取決學生自身有無學習興趣進而主動學習，在本研究確實明顯證明。

受測學生利用虛擬實境設備來取代空間取得，間接得到學習空間的設計，並且做好設計草本筆記紀錄等學習態度方式，對於未來的學習，有關於在空間上的學習課或是在空間活動學習活動，虛擬實境的學習在傳統學習影響頗大，也是將來有助於空間、教育、會議、傳播等學習應用。

關鍵字：科技、AR/VR、教學、STEAM、6E、空間、學習。

英文摘要：

In recent years, the development of science and technology has combined many industrial technologies and practices, and the evolution of catering education is increasingly seeking innovation and change. However, there are problems in the teaching of exhibition design courses, such as insufficient materials, space, and funding, and other practical problems, and in practice. Lack of effective guidance and cross-field thinking is brought into new areas. The curriculum of this project is under the implementation of STEAM (science, technology, engineering, art and mathematics) education, and the 6E teaching model is implemented to cultivate and inspire students to design, aesthetics and inquiry Ability to further use the auxiliary tool information AR (Augmented Reality)/VR (Virtual Reality) tools to allow students to have physical contact in the virtual environment in the classroom. The whole design of teaching activities is carried out based on the viewpoint of auxiliary exhibition design teaching. Explore the process of combining space, environment, technology, materials, technology, design, aesthetics and construction management in exhibition design in teaching, and relatively solve students' difficulties in design and space utilization. The main advantages of this course (1) space utilization (2) Modeling and aesthetics (3) Psychology and trends of the flow of people (4) On-site safety (5) Construction difficulty and cost considerations (6) Reasonable layout (7) Avoid using prohibited materials, etc.

For the study of the virtual reality equipment used in the course of this study, it is indeed possible to use the equipment to construct the space, and let the students get design concepts in the virtual reality space, and the application of the emerging technology virtual reality equipment really makes the students very interested in learning , for the teaching of a course, the learning attitude and interest are determined by the students' interest in learning and then active learning, which is indeed clearly proved in this study.

The tested students use virtual reality equipment to replace the space acquisition, indirectly obtain the design of the learning space, and do a good job of designing draft notes and other learning attitudes. For future learning, there are learning courses in the space or 4 activities in the space. Learning activities, virtual reality learning has a great influence on traditional learning, and it will also contribute to learning applications such as space, education, conferences, and communication in the future.

Key words: technological, AR/VR, STEAM, 6E, space, learning.

民宿早餐菜單設計指標分析之研究

陳家蓁

中文摘要：

近年來隨著在地觀光旅遊的興起，臺灣地區旅遊住宿的需求量大增，進而加速了民宿產業的蓬勃發展。相對於早期的民宿經營方式，大多是利用自宅空閒房間與設施把民宿當成是副業在經營，而現今的民宿業者在面對激烈的民宿競爭市場，已將以往傳統的民宿轉變成別具特色的民宿，提供包括整體設計風格、在地食材體驗，及提供特色的餐點與供餐服務以提升其競爭力。因此，本研究將針對民宿餐廳菜單設計評估指標作為研究主題，透過「模糊德菲法(FDM)」，建構與分析民宿餐廳菜單設計評估之指標，以作為民宿及餐飲產業管理者行銷經營之參考。

關鍵字：民宿、菜單設計、評估指標。

英文摘要：

In recent years with the rise of the sightseeing tour, the demand for a significant increase in tourist accommodation in Taiwan, thereby accelerating the thriving B & B industry. B & B with respect to the earlier operation, mostly from the house is the use of spare rooms and facilities in the B & B as a sideline business, and today's B & B industry in the face of fierce competition in the market B & B, has been in the past to change the traditional distinctive Bed and Breakfast Bed and Breakfast offers including overall design, the experience on the ground ingredients, and offers specialty meals and meal service to enhance their competitiveness. Therefore, this study will focus on B & B Restaurant menu design evaluation indicators as a research subject, through the "fuzzy Delphi method (FDM)". The construction and analysis of restaurant menus and Breakfast assessment of index design to serve as a bed and breakfast and catering industry marketing manager reference management.

Key words: Bed and breakfast, menu design, evaluation index

中文摘要：

由於「COVID-19 冠狀病毒」仍在全球蔓延且尚未有清除的可能，對餐飲業造成不同程度的衝擊影響。社區高齡共餐活動亦停辦或調整作業方式以避免發生社區感染，但是部分長者有餐食處理和保存問題，而送餐單位有無法送餐時的便利備用餐食需求。本研究針對市場的「銀髮友善食品」，針對三芝、淡水和北投社區的高齡者(65 歲以上)和孝親族(65 歲以下)為研究和調查對象，評估長者對套餐組合之感官接受度，探討高齡者對銀髮友善食品的體驗價值。研究採取問卷調查的方式進行研究，總計回收有效問卷 435 份，依體驗價值的四大構面：「消費者投資回報率」、「服務優越性」、「美感」和「趣味性」，並以 SPSS 統計分析軟體進行統計。研究結果發現 (1) 許多長者認為銀髮友善食品讓用餐有物超所值的感覺，線上購物和食品保存期限能讓長者可以安心選購和食用，感到心情放鬆及忘了煩惱，因此體驗價值對購買意願有顯著影響。在新冠肺炎疫情三級防疫措施下，長者及其照顧者有較高的銀髮友善食品購買意願。(2) 性別、年齡及可支配所得等人口統計變數，在影響消費者購買意願上有顯著影響。(3) 女性之購買意願比男性高，41~60 歲及每月所得為 30,001 元~60,000 元之民眾有較高的購買意願，因此「人口統計變數」對「疫情期間推出銀髮友善食品」之購買意願有顯著影響。銀髮友善食品的「服務優越性」和「趣味性」構面仍有改善的空間。

關鍵字：社區共餐、銀髮友善食品、體驗價值、購買意願、新冠肺炎。

英文摘要：

In the decision-making process of modern consumers, in addition to having a rational purpose, they are also perceptual and enjoyable. Therefore, the price and function of the product are basic considerations for customer. The key element of customer behavior is an impressive consumption experience. "Eatender" is aimed at products using Taiwan's domestically produced raw materials. After the inspection of production quality management, nutritional function, texture characteristics, packaging size and meal preparation, the selected local excellent foods are based on the food friendly of the elderly. Starting from the concept of, let the whole family easily enjoy delicious, nutritious and convenient friendly meals, creating a sense of dietary happiness. The main purpose of this study is to investigate the impact of the experience value of Eatender on the purchase intention under the epidemic situation of new crown pneumonia. Consumers have to consider the time, money, inner feelings, and the benefits gained in the consumption process compared to the conditions they paid, resulting in different experiences due to different personal evaluations. Based on the four dimensions of experience value: "Consumer Return on Investment", "Service Excellence", "Aesthetics" and "Playfulness", we will examine the impact of consumers on the purchase of related foods. It is planned to take the elderly as the research object in the congregate meals, and conduct the research by questionnaire survey. With SPSS statistics analysis software analyze the data and to obtain the following results. (1) Many elders thought that eatender makes meals worthwhile. Online shopping and long shelf life of foods allow elders to buy and eat with peace of mind, feel relaxed and forget their worries. Therefore, experience value is important for purchases. Under the Level 3 epidemic alert of COVID-19, the elderly and their caregivers have a higher willingness to buy eatender. (2) Demographic variables such as gender, age, and disposable income have a significant impact on consumers' purchasing intentions. (3) Women are more willing to buy than men, and people aged from 41 to 60 and whose monthly income is from NT\$ 30,001 to 60,000 have a higher willingness to buy. The "demographic variables" have a significant impact on the purchase intention of "eatender launched during the epidemic". The results of this study can provide suggestions and references for the development of eatender in the catering industry.

Key words: geriatric diets, softened foods, steam heating, enzyme.

Predict, discuss and read: Incorporate DRTA into collaborative reading to enhance comprehension

黃琬婷

中文摘要：

語言及文字為人類溝通的主要媒介，而閱讀則是學習的重要工具。學生多習慣圖畫式書籍閱讀，在閱讀以文字為主的文章較不感興趣，且當學生在閱讀需要讀者進一步去詮釋文字背後意涵的文本時，常因缺乏適切的閱讀理解策略而導致無法理解文章的困境。基於此，本研究擬教導學生 DRTA 閱讀理解策略及合作閱讀策略教學，期望藉由引導學生透過小組合作閱讀討論併用預測、閱讀和查證等技巧等方式，以提升學生的閱讀理解能力。研究者進行的行動研究，以本校護理科五專三年級為研究對象，採用「故事體」及「說明文」兩種文體為核心設計閱讀教材及融入 DRTA 閱讀理解策略與教學過程中。本研究以前、後測閱讀理解測驗之量化來分析該策略對於學生閱讀理解的學習成效，另外輔以小組課堂上討論及課後小組訪談等質性資料，進一步分析小組閱讀及 DRTA 閱讀策略對於學生閱讀理解過程之影響。

關鍵字：合作閱讀、DRTA 閱讀理解策略、閱讀理解力、預測。

Predict, discuss and read: Incorporate DRTA into collaborative reading to enhance
comprehension

黄琬婷

英文摘要：

The quasi-experimental study explored the effect of incorporating DRTA (Directed reading teaching activity) into collaborative reading as an instructional method in English as a Foreign Language reading class. A pre-post design was employed to compare the intervention class with a traditionally taught class in order to establish whether the adopted method lead to greater comprehension of a text. The quantitative data indicated the intervention led to better performance on reading comprehension and written recall but no significant difference found between groups on vocabulary recall. The qualitative analysis, aiming to investigate participants' perceptions toward the collaborative reading and discourse patterns, was based on the interactive dialogue of three selected focus groups, followed by stimulated recall sessions using the recorded collaborative dialogue as a stimuli and semi-structured group interviews. It was revealed that the defining characteristics of effective learning communities were group heterogeneity and familiarity, which contributing to peer-mediated learning frequently manifested on two aspects: peer-scaffolding and co-construction of meaning.

Key words: collaborative reading, DRTA, reading comprehension, peer-mediated learning, interactive dialogue, prediction

微脂粒包覆異硫脲酸丙烯酯(AITC)之製備與經皮穿透研究

陳觀彬

中文摘要：

本計畫去年之研究成果，得到最佳萃取條件並以 HPLC 確認最佳產率為 0.58g/g (異硫脲酸丙烯酯, Allyl isothiocyanate, AITC)。然而許多文獻指出山葵萃取液可降低黑色素細胞生成，增加皮膚的保濕性與減少皮膚之皺紋生成，如果能應用於化妝品原物料產業上具有極高應用性。

隨著社會的進步和發展，化妝品已經成為人們生活不可或缺的日用品，與此同時，人們對化妝品的質量、效能和安全要求越來越高。含有植物提取物的化妝品在許多的功效上獨霸一方如祛斑美白、抗衰老、保濕和抗皺等，深受國內外消費者喜愛，因此植物提取物在化妝品中的應用每年不斷增加。

因此今年的研究計畫將延續去年萃取條件並導向化妝品應用開發，開發新技術-微脂粒(liposome) 作為傳送載體，期待有新的應用價值。在化妝品效能研究中，微脂粒包覆技術的應用確實是可以看到非常好的研究成果。因此本研究計畫也利用微脂粒包覆並進行功能性評估之研究。主要討論探討利用不同條件下與不同微脂粒之形成與製備方法，觀察其安定性、最佳包覆效果，並評估不同微脂粒包覆配方之經皮穿透效果。

關鍵字：山葵萃取液、異硫氰酸酯、微脂粒、包覆率。

英文摘要：

The findings of this study last year led to optimal extraction conditions and the optimal yield was confirmed by HPLC as 0.58g/g (Allyl isothiocyanate, AITC). However, many literatures have pointed out that horseradish extract can reduce the generation of melanocytes, increase the skin moisture and reduce the formation of skin wrinkles, and it has a very high application if it can be applied to the cosmetics raw material industry.

With the progress and development of the society, cosmetics has become an indispensable daily necessities for people's life. At the same time, people have higher and higher requirements on the quality, efficacy and safety of cosmetics. Cosmetics containing plant extracts have many functions, such as freckle whitening, anti-aging, moisturizing and anti-wrinkle, etc., which are deeply loved by consumers at home and abroad. Therefore, the application of plant extracts in cosmetics keeps increasing every year.

Therefore, this year's research plan will continue the extraction conditions of last year and apply for cosmetics and develop new technologies - Liposome as transfer carriers. We hope to apply for new chips. In the study of cosmetics efficiency, I can apply micro - fat packing technology and find good research results. Therefore, this research plan also applies micro - fats and apply for functional assessment. This paper discusses the formation and preparation methods of different Liposome under different conditions, observe the stability and best packing effect, and evaluate the penetrating effect of different Liposome packing recipes.

Key words: Wasabi japonica Matsum Extract 、 Ally Isothiocyanate 、 liposome 、 Encapsulation efficiency

中文摘要：

利用斑馬魚評估益母草苷等植物活性成分對黑色素形成的作用及其可能機制。雖然黑色素生成作用是針對紫外線輻射的防禦機制，但黑色素過度生成可能導致不良的色素沉著和不雅的美妝問題。黑色素細胞將已合成的黑色素經由樹突轉移至角質形成細胞而使皮膚變黑。因此，「抑制黑色素生成」或「清除過多的黑色素」一直是美容行業的主要美白策略。目前，許多具有抑制黑色素合成作用的天然植物性化合物例如麴酸、對苯二酚、熊果苷與抗壞血酸等，多已被用為皮膚增白劑或添加劑；然而，這些成分對皮膚的滲透效率不盡理想，且長期使用容易引發發炎或細胞毒性。因此，開發無刺激性且相對有效的美白藥物以治療人類皮膚色素沉著疾病已呈現出其重要性。益母草與薏苡都是著名的美白植物；石斛 *Dendrobium nobile*（或鐵皮石斛 *D. officinale* 等植物）是珍稀中藥材，近代藥理學實驗發現具有優良抗氧化作用；本研究的目的是利用斑馬魚作為實驗物種，篩選能夠具有抑制黑色素的天然物成分。結果顯示代號 C 有效成分對斑馬魚胚胎具有抑制黑色素之功效且無胚胎毒性，而且能夠有效降低黑色素生成。

關鍵字：黑色素生成、黑色素、酪胺酸酶、胚胎毒性、植物性成分。

英文摘要：

Zebrafish were used to evaluate the effects of botanical ingredients on the melanogenesis and its possible mechanisms. Although melanogenesis is a defense mechanism against ultraviolet radiation, excessive production of melanin might lead to poor pigmentation and indecent beauty hindrance problems. Melanocytes transfer the synthesized melanin to keratinocytes via dendrites to darken the skin. Therefore, the “inhibition of melanogenesis” or “clearance of excessive melanin” has been a major issue in the beauty industry. Currently, many natural compounds that inhibit melanin synthesis, such as kojic acid, hydroquinone, arbutin and ascorbic acid, have been used as skin whitening agents or additives. However, the penetration efficiency of these ingredients to the skin is not ideal, and after long-term use, it is easy to cause cytotoxicity and inflammation. Therefore, the development of non-irritating and relatively effective whitening drugs to treat human skin pigmentation diseases has revealed its importance. *Leonurus japonicus* and *Coix lacryma-jobi* are both well-known whitening plants. *Dendrobium nobile* (or *D. officinale* etc) is a rare and precious Chinese medicinal material. Modern pharmacological experiments have found it has excellent antioxidant activities. The purpose of this study is to use zebrafish as an experimental species to screen natural compounds that can inhibit melanin. The results show that the active ingredient code C has the effect of inhibiting melanin in zebrafish embryos without embryotoxicity, and can effectively reduce the production of melanin.

Key words: Melanogenesis, Melanin, Tyrosinase, Embryonic Toxicity, Botanical ingredient.

中文摘要：

基於現代人因工作壓力等各種不明原因造成睡眠障礙，許多研究已證實精油與色彩應用改變都能使人減壓放鬆較好入睡，目前有相當多的研究理論探討睡眠障礙，但針對科學的數據的實際參考不多，大多以匹茲堡睡眠量表來檢測，未經過科學研究數據的參考值。

本計畫透過半結構式訪談，了解現代人因手機使用性高及作息不正常，又因工作壓力、焦慮，而導致多數人有睡眠障礙的問題。淺眠、不易入睡、失眠等等，本實驗透過牛角撥筋穴道來幫助安定焦慮的心情、緩解緊繃的身體來幫助更好入睡。由多項睡眠生理檢查 (polysomnography, PSG)及智慧睡墊監測(smart cushion monitoring, AI+nFOPT®)測得在透過牛角撥筋後，是有幫助睡眠品質提升，但持續度會隨時間而失去作用，由此可得知，如果持續對身體的經絡做深層的牛角撥筋按摩，對於身體除有放鬆經絡外，對睡眠的幫助是有相當的益處。

關鍵字：經絡、鬆經、睡眠障礙、多項睡眠生理檢查。

英文摘要：

Modern people actively return to the natural wind under the concept of health care, for "the natural energy provided by aromatherapy plants" gradually attach importance to and love. The sense of smell is the only one of the five senses that doesn't go through a stopover and doesn't go directly to the amygdala. The amygdala is the center of the brain's emotions. Good smells bring positive energy, and smell can affect mood changes and behavior.

Through semi-structured interviews, we will understand that modern people have high mobile phone usage and abnormal work and rest. Due to work stress and anxiety, most people have sleep disorders. Light sleep, difficult to fall asleep, insomnia. Wait, this experiment helps to calm the anxious mood and relieve the tense body through the horn plucking acupuncture points. Helps you fall asleep better. Monitored by multiple sleep physiological examinations (polysomnography, PSG) and smart sleep pads (Smart cushion monitoring, AI+nFOPT® measured to help sleep after passing through the horn of the tendon.) The quality increases, but the duration will lose its effect over time, from which it can be known if the menstrual period continues on the body. Doing a deep horn massage is quite helpful for the body in addition to relaxing the meridians. The benefits.

Key words: color emotion, essential oil, sm.

居家照顧服務員菸害防制之需求評估

黃素妃

中文摘要：

研究背景：隨著老年人口增加，照顧服務員的需求殷切。由於居家服務員是長期照顧服務領域中最主要的第一線服務提供者，鮮少研究關注在服務歷程中的菸害。本研究擬探討居服員對服務過程中暴露在二手菸或三手菸的看法，以期未來規劃符合個別需求的健康促進計畫。

研究設計與方法：以 Q 研究法進行資料蒐集與分析，分兩階段進行，首先，以立意取樣方式，深度訪談 14 位曾於居家服務過程中暴露在菸害的居服員，透過內容分析瞭解其暴露在二手菸與三手菸的危害有何看法、曾經採用的自我保護措施、理由與建議，並萃取出 39 個 Q 陳述句。接著另招募 51 名曾暴露菸害的居服員以一對一的方式進行資料收集，透過 PQMethod 軟體進行資料分析。因素分析採主成分分析法，以特徵值和陡坡圖擇定最適切因素量。

結果：研究結果發現居服員菸害暴露的看法可分為五種類型，總解釋變異量達 51%。所有參與者皆認同暴露在二手菸的工作環境下，會增加罹癌的機率，但各類型的特徵分別為：型 I:認為吸菸是案主個人的問題，不太在乎案主或照顧者在執行照顧過程中吸菸，也不會不斷勸說案主戒菸。型 II: 認同職場菸害會危害健康，無法接受案主(同住者)吸菸。型 III:強調能理解案主吸菸的理由，但怕拒菸會被督導貼標籤，期待能服務契約中明訂相關規定。型 IV:積極鼓勵案主(同住者)戒菸。型 V:採取避免二手菸傷害的，被動自我保護行動。

實務運用：研究結果提供居家服務職前訓練及在職訓練課程設計之參考，並且對長照政策提出實證的建議，助益推動並建構無菸職場。

關鍵字：二手菸、居家照顧服務員、無菸職場。

英文摘要：

Abstract:

Background: With the increase of elder population, the need for caring attendants become more urgent. Home care aides are the main providers of first line service in long term caring service field, and not so many researches will tailor the health promotion project according to their needs. Due to the second-hand smoking harm exposure during the service process, to construct and extend the smoking prevention implementation into the long term caring service field, this project intends to develop the home service smoking prevention intervention under the basis of empirical research, combine the integrated behavior change formula.

Research design and methods: The data collection and analysis were carried out by the Q research method, which was carried out in two stages. First, the convenience sampling method was used to conduct in-depth interviews with 14 home care aides who had been exposed to smoke hazards during the home service process. What are their views on the harm of exposure to second-hand and third-hand smoke, the self-protection measures they have taken, reasons and suggestions, and 39 Q statements are extracted. Then another 51 home care aides who had been exposed to smoke were recruited to collect data on a one-to-one basis and analyze the data through the PQMethod software. The factor analysis adopts the principal component analysis method, and selects the most suitable factor quantity by eigenvalue and steep slope map.

Results: The results of the study found that the perceptions of the smoke exposure of the home care aides could be divided into five types, and the total explained variance amounted to 51%. All participants agreed that exposure to second-hand smoke in the workplace increases the risk of developing cancer, but the characteristics of each type are: Type I: Believes that smoking is a personal problem of the client, and does not care much about the client or caregiver smoking during the execution of care will not continue to persuade the client to quit smoking. Type II: Acknowledging that workplace smoking is harmful to health and unacceptable for the client (the co-resident) to smoke. Type III: Emphasizes understanding of the client's reasons for smoking, but is afraid that refusal to smoke will be supervised and labelled, and expects to be able to specify the relevant provisions in the service contract. Type IV: Actively encourage clients (cohabitants) to quit smoking. Type V: Take passive self-protection actions to avoid secondhand smoke damage.

Practical application: This research result tends to provide home care aides health promotion project, to support and assist them to accomplish smoke free family policy of service

case, and to expand the innovation promotion of smoking prevention work in long term caring service field.

Key words: Home care aides, Smoking prevention intervention, Secondhand smoking.

Characterization of Organic-Inorganic Composite Perovskite Photovoltaic Cells Manufactured via Light-Solidified 3D Printing Processes.

陳明雄

中文摘要：

這項研究是延續前一年的計畫成果，將前一年以丙烯腈丁二烯苯乙烯 (ABS) 樹脂 SLA 光固化 3D 列印技術所成功製造出來的有機-無機鹵化鈣鈦礦型光伏電池的最佳原型樣品，樣品夾層結構包含以鈣鈦礦化合物(CH₃NH₃PbI₃)與碳-60 衍生物-ICBA 或共軛結構硫化物-P3HT 的混合組合，用儀器分析來表徵樣品的特性和結構。取樣的樣品有兩組，一組是 I-V 性能最高者，另一組是性能最低者。所用的儀器包括 X 射線衍射 (XRD)、掃描電子顯微影像 (SEM)、穿透射電子顯微影像(TEM)、以及紫外光-可見光(UV-VIS)光譜分析儀。XRD 顯示兩組樣品都未呈現明顯的晶格結構，但是可以偵測到極微量屬於鹵化鈣鈦礦的碘元素。SEM 和 TEM 都顯示兩組樣品的表面與內部(深度 10 μm)都是非晶相(amorphous)結構，但是 TEM 圖譜則顯示 I-V 性能最高與最低樣品有所不同，另外 UV-VIS 光譜分析則顯示了樣品的吸光能量區是在合理範圍的。

關鍵字：SLA 3D 列印、鈣鈦礦有機-無機鹵化鉛鈣鈦礦光伏電池、X 射線衍射 (XRD)、紫外可見光(UV-VIS)光譜分析、掃描電子顯微顯影圖 (SEM)、透射電子顯微顯影圖 (TEM)、鈣鈦礦化合物(CH₃NH₃PbI₃)、碳-60 衍生物-ICBA。

Characterization of Organic-Inorganic Composite Perovskite Photovoltaic Cells
Manufactured via Light-Solidified 3D Printing Processes.

陳明雄

英文摘要：

This research is a continuation of the previous year's project. The prototype samples-organic-inorganic halide perovskite photovoltaics successfully fabricated by the acrylonitrile butadiene styrene (ABS) resin SLA photocuring 3D printing technology in the previous year. The samples with sandwich layer structure contains a mixed combination of perovskite compound ($\text{CH}_3\text{NH}_3\text{PbI}_3$) and carbon-60 derivative-ICBA or conjugated sulfide derivative-P3HT. The characteristics and structure of the sample are characterized by instrumental analysis. Two groups of samples were taken, one with the highest I-V performance and the other with the lowest. Instruments used included X-ray diffraction (XRD), scanning electron microscopy (SEM), transmission electron microscopy (TEM), and ultraviolet-visible (UV-VIS) spectrometers. XRD showed that both samples showed no obvious lattice structure, but a very small amount of iodine, belonging to halide perovskites, could be detected. Both SEM and TEM show that the surface and interior (10 μm depth) of the two samples are both amorphous structures, but the TEM pattern shows that the IV performance is different between the highest and lowest samples. The UV-VIS spectral analysis shows that the absorbance energy region of the sample is reasonable.

Key words: SLA 3D printing, perovskite organic-inorganic lead halide perovskite photovoltaic cells, X-ray diffraction (XRD), ultraviolet-visible light (UV-VIS) spectroscopic analysis, scanning electron microscopy (SEM), transmission Electron Micrograph (TEM), Perovskite Compound ($\text{CH}_3\text{NH}_3\text{PbI}_3$), Carbon-60 Derivative-ICBA.

洪清芬與嘉義女子軟式網球運動(1947~1980)

陳建森

中文摘要：

軟式網球與棒球是日治時期最受台灣人喜愛的運動項目，因為受到太平洋戰爭影響，軟式網球發展停頓了一陣子。戰後軟式網球運動迅速恢復活力，在臺灣各地展開各式的比賽。其中臺灣省運動會是軟式網球比賽最盛大的舞台。

嘉義縣女子軟式網球隊，從 1964 年起到 1977 年在臺灣省運動會及臺灣區運動會共得了 9 面金牌

及 2 面銅牌的成績，是所有嘉義人的驕傲，這份榮耀洪清芬居功至偉。回顧戰後嘉義縣參加臺灣省運動會與臺灣區運動會的過程，從 1947 年到 1977 年 30 年間，洪清芬是嘉義縣代表隊不可或缺的隊員，他見證了嘉義縣軟式網球運動的興敗。

亞洲杯軟式網球賽，是 1960 年代台灣在亞洲重要的運動賽會，在中華民國與中華人民共和國爭奪中國正統的時代背景下，由台灣、韓國、日本所發起的亞洲杯軟式網球賽，是國人很重視的一項賽會。亞洲杯軟式網球賽共舉辦了 9 屆，其中女子組的比賽只舉行了 8 屆。

本研究以歷史研究法以訪談法，去分析洪清芬一生與戰後嘉義軟式網球運動發展的關係，就某種意義而言，通過本篇論文的學術研究資源，除了可窺知 1947 年到 1977 年這 30 年間，洪清芬在軟式網球的成就，也可透過洪清芬的軟式網球奮鬥過程，提供生活在臺灣這片土地的民眾，瞭解這個時期的歷史文化淵源，這是本研究的主要動機與目的。

研究得知：1931 年出生的洪清芬，就讀嘉義女中時開始接觸軟式網球運動，1947 年他 16 歲時就代表嘉義縣參加臺灣省運動會，直到 1977 年他才退下嘉義縣軟式網球代表隊。常達 30 年的軟式網球選手生涯，其中洪清芬入選了 2 次亞洲杯軟式網球賽國手，1967 年他首次入選亞洲杯軟網賽國手時，已經 36 歲了，是臺灣參加亞洲杯女子軟式網球賽年紀最大的選手。洪清芬的軟式網球運動生涯說明了，戰後初期，臺灣的女子軟式網球運動，選手的運動生涯期相當長，除了選手個人球技與實力過人之外，缺乏競爭對手也是重要因素，而後隨著許多學校投入年輕選手培育行列後，臺灣的女子軟式網球運動，開始有了質變與量變。

關鍵字：洪清芬、軟式網球、亞洲杯軟式網球賽。

英文摘要：

Soft tennis and baseball were the most popular sports among Taiwanese during the period of Japanese Taiwan. The development of soft tennis stopped for a while due to the Pacific War but recovered rapidly after the war and there were all kinds of tennis competitions around Taiwan. Among the competitions, the National Game is the biggest competition stage for the soft tennis sport.

From 1964 to 1977, the female soft tennis team of Chiayi had won nine gold medals and two bronze medals in the National Games. These achievements made all the people from Chiayi proud and this glory was mainly a result of the performance of Hong Qing-Fen. From 1947 to 1977, Hong Qing-Fen was an irreplaceable team member during these thirty years and she witnessed the ups and downs of the soft tennis sport in Chiayi.

Asian Championships was a very important sport event in the 1960s. Under the background of Cross-Strait relations between People's Republic of China and Republic of China, the Asian Championships which were held by Taiwan, Korea and Japan were taken very seriously by the countrymen. The Asian Championships were held nine times but the female competitions were held only eight times.

This research will apply an interviewing approach and historical research to analyze the relationship between the life of Hong Qing-Fen and the development of soft tennis in Chiayi after the Pacific War. At some point, by going through this research, we can not only discover the achievement of Hong Qing-Fen in soft tennis from 1947 to 1977 but also understand the history of the time period. This is the main purpose of the research.

According to research: Hong Qing-Fen was born in 1931. She started to play soft tennis when studying in the National Chia-Yi Girls' Senior High School. In 1947, she represented Chia-Yi to compete in the National Game at the age of 16. She did not retire until 1977. Being a tennis player for 30 years, Hong Qing-Fen was chosen for the national team twice. In 1967, she was chosen for the national team at the age of 36 and became the oldest player in the national team. The soft tennis career of Hong Qing-Fen tells us that the career life of female players was quite long during the first period of post-war. Except for the extraordinary skills a player has, lack of opponents was also an important reason. As more and more schools joined the task of cultivating young talents, the female soft tennis players increased and performed better.

Key words: Hong Qing-Fen, Soft Tennis, Asia Soft Tennis Championship.