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中文摘要：

集約農業改變了土壤的物理與化學特性，進而影響微生物族群結構，例如降低土壤微生物多樣性及導致關鍵物種消失。土壤微生物在營養元素循環、土壤性質調控、作物產量以及環境永續性中具有重要作用。有機質肥料的施用被認為是相較於化學肥料更為永續的農業管理策略，能提供養分來源並提升土壤微生物的豐富度與活性。本研究以長期施用不同有機質肥料的溫室試驗田為研究對象，分析不同肥料對土壤微生物族群結構及酵素活性的影響。試驗設置六種有機質肥料處理：牛糞堆肥、豬糞堆肥、雞糞堆肥、大豆粕堆肥、豌豆苗殘體堆肥及輪施管理（包含上述五種肥料交替施用）。結果顯示，連續施用不同堆肥多年後，土壤微生物多樣性及豐度受影響程度不一。施用大豆粕堆肥顯著降低土壤 pH 值至極酸範圍，並導致微生物活性、族群數量及酵素活性下降；而施用豬糞堆肥則顯著提升微生物活性及族群數量。堆肥施用增加了土壤細菌的豐富度與多樣性，其中變形菌門（Proteobacteria）為優勢菌群；真菌則以子囊菌占主導地位（75-90%）。此外，擔子菌比例與土壤碳累積具有相關性，可作為碳累積過程的定量及定性指標。研究結果確立了堆肥有機質種類及土壤 pH 值為影響土壤細菌與真菌族群結構的主要環境因子，為土壤管理及永續農業提供科學依據。

關鍵字：次世代定序、微生物族群、土壤酵素、磷脂脂肪酸。

**英文摘要：**

Intensive agriculture alters soil physical and chemical properties, leading to changes in microbial community structure, including reduced biodiversity and the loss of key species. Soil microorganisms are vital for nutrient cycling, soil quality, crop productivity, and environmental sustainability. Organic fertilizers are recognized as a sustainable alternative to chemical fertilizers, enhancing soil microbial diversity and activity. This study examined the long-term effects of organic fertilizers on soil microbial communities and enzyme activities in a greenhouse experiment. Six treatments were evaluated: cattle dung compost, hog dung compost, chicken dung compost, soybean meal compost, pea residue compost, and a rotation of these fertilizers. Results demonstrated that prolonged compost application had varied effects on microbial diversity and abundance. Soybean meal compost reduced soil pH to highly acidic levels, significantly decreasing microbial activity, population size, and enzyme activity. In contrast, hog dung compost enhanced microbial activity and population size. Compost application increased bacterial richness and diversity, with Proteobacteria as the dominant group. The fungal community was primarily composed of Ascomycota (75-90%), while the ratio of Ascomycota to Basidiomycota correlated with soil carbon accumulation, serving as a potential indicator for carbon dynamics. This study identifies compost type and soil pH as key factors shaping microbial communities, offering insights for improving sustainable soil management practices.

Key words: Next Generation Sequencing, microbial community, soil enzyme, PLFA

## 基質金屬蛋白酶-1 在人類肋膜間皮細胞中的促纖維化作用

陳偉玲

### 中文摘要：

結核性肋膜纖維化(TBPF)是結核性肋膜積液(TBPE)所引起的後遺症，會導致不可逆的肺部功能障礙，以及嚴重的發病率和死亡率。

上皮-間質轉化 (EMT) 是指上皮標誌物的喪失和向間質細胞轉化的過程，這一過程在多種炎症和纖維化疾病中被認為是一個關鍵環節。基質金屬蛋白酶 (MMPs) 已被證實在多種細胞類型中為誘導 EMT 的因子。然而，MMP-1 如何調控肋膜纖維化發展的具體機制尚未釐清。

經 Western blot 分析結果顯示，MTBRa 以濃度依賴的方式顯著促進 MMP-1 蛋白的表現。此外，JNK 的磷酸化在 MTBRa 刺激後 5 分鐘內顯著增加。使用 JNK siRNA 沉默 JNK 基因有效抑制了 MMP-1 的表現。進一步地，使用重組人類 MMP-1 刺激人類肋膜間皮細胞 (HPMCs) 會誘導間皮間質轉化(MMT)，其特徵是 E-cadherin 的表現下降和  $\alpha$ -平滑肌肌動蛋白 ( $\alpha$ -SMA) 的表現上升。

綜上所述，透過 JNK 活化驅動的 MMP-1 表現介導 MTBRa 誘導 HPMC 進行 MMT，此結果顯示 MMP-1 在 TBPF 相關發炎和纖維化中扮演著重要的角色，可能成為 TBPE 的潛在治療策略。

關鍵字： $\alpha$ -平滑肌肌動蛋白、基質金屬蛋白酶、間皮-間質轉化、肋膜間皮細胞、結核性肋膜積液、結核性肋膜纖維化。

**英文摘要：**

Tuberculous pleural fibrosis (TBPF), induced by inflammation associated with tuberculous pleural effusion (TBPE), can result in irreversible thoracic dysfunction and severe morbidity and mortality.

The epithelial-to-mesenchymal transition (EMT), characterized by the loss of epithelial markers and transformation into mesenchymal cells, has been recognized as a critical process in variety of inflammatory and fibrotic disorders. Matrix metalloproteinases (MMPs) are well known for inducing EMT in several cell types. However, the specific mechanism by which MMP-1 regulates pleural fibrosis progression has not been previously reported.

The results of this study demonstrated that MTBRa significantly upregulated the expression of MMP-1 in a dose-dependent manner, as confirmed by western blotting. Additionally, phosphorylation of JNK was significantly increase within 5 minutes of MTBRa stimulation. Silencing of JNK using JNK siRNA effectively attenuated MMP-1 expression. Furthermore, treatment of human pleural mesothelial cells (HPMCs) with recombinant human MMP-1 induced mesothelial-to-mesenchymal transition (MMT), characterized by a decrease in E-cadherin expression and an increase in alpha-smooth muscle actin ( $\alpha$ -SMA) expression.

In conclusion, elevated MMP-1, driven by JNK activation, mediates MTBRa-induced MMT in PMCs, playing a pivotal role in TBPE-related inflammation and fibrosis and could be a potential therapeutic target for TBPE.

Key words: alpha-smooth muscle actin, matrix metalloproteinases, mesothelial-to-mesenchymal transition , pleural mesothelial cells, tuberculous pleural effusions, tuberculous pleural fibrosis

### 中文摘要：

牛樟(*Cinnamomum kanehirae* Hayata)為樟科(Lauraceae)肉桂屬(*Cinnamomum*)之常綠喬木，別名樟牛。牛樟的枝葉經過蒸餾過程可以製成牛樟精油，本研究以台灣本土特有牛樟木為試驗材料，取其莖葉材料經蒸餾萃取以製成牛樟精油，並探究其精油對臨床常見致病菌，如 *Bacillus subtilis*(ATCC11774)枯草桿菌，*Escherichia coli*(ATCC25922)大腸桿菌，*Pseudomonas aeruginosa*(ATCC19429)綠膿桿菌，*Staphylococcus aureus*(ATCC6538)金黃色葡萄球菌等之抑菌能力，同時比較商品化牛樟精油之抑菌能力，及芳樟醇(Linalool)、乙酸芳樟醇(Linalyl acetate)、香葉醇(Geraniol)及香茅醇(Citronellol)等化學成分之抑菌活性，以使牛樟精油作為天然抗菌之依據。研究結果顯示，不同農家所蒸餾萃取之牛樟精油對於臨床常見致病菌如 *Bacillus subtilis*, *Escherichia coli*, *Pseudomonas aeruginosa*, *Staphylococcus aureus* 等，均具有良好之抗菌活性，其最低抑菌濃度(MIC)介於 0.1-0.6 mg/L。市售商品化牛樟精油之抑菌活性結果進行比較時，發現不同品牌牛樟精油對上述致病菌亦具有良好之抑菌能力，其最低抑菌濃度(MIC)介於 0.2-0.8 mg/L。再以芳樟醇(Linalool)、乙酸芳樟醇(Linalyl acetate)、香葉醇(Geraniol)及香茅醇(Citronellol)等成分進行抑菌活性結果顯示，此四種成分對於 *Bacillus subtilis*, *Escherichia coli*, *Pseudomonas aeruginosa*, *Staphylococcus aureus* 等 4 種致病菌均具有抑菌能力，其最低抑菌濃度(MIC)介於 0.1-0.4 mg/L，其中牛樟精油主要成分芳樟醇(Linalool)之抑菌能力最強，對於上述 4 株致病菌之最低抑菌濃度(MIC)均為 0.1 mg/L，顯示其具有良好之抑菌活性。由研究結果顯示，不同牛樟精油之抑菌活性推測與其芳樟醇(Linalool)及香葉醇(Geraniol)之含量有正相關。

關鍵字：牛樟精油、抑菌能力、枯草桿菌、大腸桿菌、綠膿桿菌、金黃色葡萄球菌。

**英文摘要：**

*Cinnamomum kanehirae* Hayata is an evergreen tree of the genus *Cinnamomum* in the family Lauraceae, also known as camphor cow. The leaves and branches of *Cinnamomum kanehirae* can be distilled to make essential oil. This study used the native *Cinnamomum kanehirae* wood of Taiwan as the experimental material, extracted its stems and leaves through distillation to make essential oil, and explored the effects of its essential oil on common clinical pathogens, such as *Bacillus subtilis* (ATCC11774), *Escherichia coli* (ATCC25922), *Pseudomonas aeruginosa* (ATCC19429), *Staphylococcus aureus* (ATCC6538) and the antibacterial ability of commercial cinnamon essential oil was compared. The antibacterial activity of linalool, linalool acetate, geraniol and citronellol makes cinnamon essential oil a natural antibacterial. The results of the study showed that the essential oils extracted from different farmers have good antibacterial activity against common clinical pathogens such as *Bacillus subtilis*, *Escherichia coli*, *Pseudomonas aeruginosa*, *Staphylococcus aureus* and their minimum inhibitory concentration (MIC) is between 0.1-0.6 mg/L. When comparing the antibacterial activity results of commercially available essential oils, it was found that different brands of essential oils also had good antibacterial ability against the above pathogens, with the MIC ranging from 0.2-0.8 mg/L. The antibacterial activity of linalool, linalool acetate, geraniol and citronellol was tested and the results showed that these four ingredients had a significant antibacterial effect on *Bacillus subtilis*, *Escherichia coli*, *Pseudomonas aeruginosa*, *Staphylococcus aureus*, and their MIC is between 0.1-0.4 mg/L. Among them, linalool, the main component of cinnamon essential oil, has the best antibacterial effect. The strongest ability, the MIC for the above 4 pathogenic bacteria is 0.1 mg/L, indicating that it has good antibacterial activity. The results of the study showed that the antibacterial activity of different Anthocyanin essential oils was positively correlated with the contents of linalool and geraniol.

Key words: *Cinnamomum kanehirae* essential oil, antibacterial ability, *Bacillus subtilis*, *Escherichia coli*, *Pseudomonas aeruginosa*, *Staphylococcus aureus*

中文摘要：

學生在臨床實習中需要學習許多新的醫學知識和技能，這需要時間和努力去建構。然而這種學習壓力可能對護理科學生產生不小的負擔，尤其會產生焦慮、憂鬱、壓力的狀況。透過有效的對應策略，學生可以提高自己面對臨床的信心。正念減壓是一種以正念冥想為基礎的減壓法，可緩解高壓力族群的身心壓力與焦慮，改善睡眠品質、慢性疲勞並提升專注力。本研究的目的是在探討正念減壓介入對於 Z 世代護生臨床實習之焦慮、憂鬱、壓力成效。

本研究採隨機臨床實驗研究設計，以北部某五專護理學生為收案研究對象，共 74 人，招募願意參與研究之護理科實習學生，採隨機分派方式，分為實驗組 35 人與對照組 39 人，實驗組參加正念減壓課程 8 周，由正念減壓認證教師帶領正念減壓課程，每週一次，每次 2 小時，連續 8 週；對照組學生接受班級導師的每周 line 關懷訊息照顧。研究工具包括心理幸福感狀況量表、焦慮憂鬱壓力測量表、心理韌性量表，資料以 SPSS20.0 for Windows 進行分析。

本研究結果顯示，實習期間進行的正念介入措施在憂鬱、焦慮與壓力 (DASS-21) 方面具有顯著效果。統計分析發現，從實習前到實習中的時間點，實驗組學生的焦慮與壓力指標顯著降低，顯示正念介入能有效減緩實習過程中的心理壓力與焦慮反應。在復原力 (RS) 方面，分析結果顯示兩組學生在實習前與實習後一個月的比較上有顯著差異，尤其在個人勝任與自我接納的復原力次量表上，實驗組學生的復原力顯著提升，顯示正念介入可能有助於增強學生的心理韌性。此外，在心理幸福感方面，統計結果顯示正念介入的效果主要體現在實習前到實習後一個月的時間點，顯示該措施可能有助於長期提升學生的心理幸福感，而這種影響可能在實習結束後持續發揮作用。

基於研究結果，本研究建議在實習期間系統性導入正念介入措施，如正念冥想、呼吸練習與覺察訓練，以幫助學生管理實習期間的壓力與焦慮。同時，應在實習後持續提供支持性策略，如心理健康講座、團體討論與個別輔導，以促進復原力與心理幸福感的長期提升。

關鍵字：臨床實習、正念減壓、焦慮、憂鬱、壓力。

**英文摘要：**

Students need to learn a lot of new medical knowledge and skills during clinical internships, which requires time and effort. However, this kind of learning pressure may put a considerable burden on nursing students, especially anxiety, depression, and stress. Through effective coping strategies, students can improve their confidence in facing clinical situations. Mindfulness-based stress reduction is a stress-reduction method based on mindfulness meditation. It can relieve the physical and mental stress and anxiety of high-stress people, improve sleep quality, chronic fatigue, and enhance concentration. The purpose of this study is to explore the effectiveness of mindfulness-based stress reduction intervention on anxiety, depression, and stress in clinical practice of nursing students.

This study adopted a randomized clinical experimental research design. Nursing students from a fifth-level college in the north were selected as the research subjects. A total of 60 people were recruited. Nursing intern students who were willing to participate in the study were randomly assigned and divided into an experimental group of 30 people and a control group. 30 people, the experimental group participated in the mindfulness-based stress reduction course for 8 weeks. The mindfulness-based stress reduction course was led by a certified mindfulness-based stress reduction teacher, once a week, 2 hours each time, for 8 consecutive weeks; the students in the control group received weekly line care messages from the class instructor take care of. Research tools include the General Health Status Scale, Anxiety and Depression Stress Scale, and Mental Resilience Scale. The data were analyzed using SPSS20.0 for Windows.

Regarding resilience (RS), the analysis showed a significant difference between the two groups when comparing the pre-internship and one-month post-internship periods. Specifically, students in the experimental group exhibited significant improvements in the subscales of personal competence and self-acceptance, suggesting that mindfulness interventions may help enhance students' psychological resilience.

Additionally, in terms of psychological well-being, the statistical results indicated that the effects of mindfulness interventions were primarily observed from the pre-internship to the one-month post-internship period. This finding suggests that such interventions may contribute to the long-term improvement of students' psychological well-being, with effects that could persist beyond the internship period.

Based on the research findings, this study suggests systematically introducing mindfulness interventions during the internship period, such as mindfulness meditation, breathing exercises, and awareness training, to help students manage stress and anxiety during their internships. At the same time, supportive strategies should continue to be provided after the internship, such as

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mental health workshops, group discussions, and individual counseling, to promote long-term improvements in resilience and psychological well-being.

Key words: clinical internship, Mindfulness-based stress reduction, anxiety, depression, stress

### 中文摘要：

服務學習將服務與課程的學習結合，強調做中學。由師生針對慢性精神科病房設計的服務學習活動，成為住院病人實際支持與行動的力量。目前國內外服務學習內容多以協助角色為主，較缺乏以護生主導、針對慢性精神障礙病人需求來設計的服務學習團體活動之經驗探討，故本研究目的在探討護生於精神科慢性病房服務學習之經驗。本研究方法分兩階段，第一階段：本研究護生具備基礎精神科護理學理及接受精神科互動技巧課程後，於兩個精神科慢性病房，設計 96 位住院病人之服務學習活動，共計 45 位師生參與。第二階段：採描述性現象學研究法，以台灣北部某專科學校護理科高年級學生為對象，採立意取樣，運用深度訪談收集 12 位參與者經驗敘述，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) 七大步驟分析法進行。結果發現護生表達於精神科慢性病房服務學習可讓其 1. 翻轉對精神科病患的刻板印象、2. 投入在活動中，享受病患的笑容、3. 感受有趣的活動設計，能提升病患專注力及 4. 透過病人互動經驗得到成就感等四大主題。結論：無論護生有無精神科實習經驗，經過服務學習實際與精神科慢性病房病人之互動，對於精神科病人及自我成長皆有明顯之正向經驗。本研究結果有助於未來協助護生在精神科慢性病房服務學習設計及教學之參考。

關鍵字：慢性思覺失調症、服務學習、影響。

**英文摘要：**

Service learning combines service with course learning, emphasizing learning by doing. At present, there is a lack of research on the service-learning experience of nursing students in chronic psychiatric wards at home and abroad, so the purpose of this study is to explore the service-learning experience of nursing students in chronic psychiatric wards. In this research, after the nursing students have basic psychiatric nursing theory and received psychiatric interaction skills related courses, they designed service-learning activities for 96 inpatients from two chronic psychiatric wards. By simulating an empowerment-oriented creative night market, patients could increase their sense of self-control and happiness through the transaction of virtual tokens. Patients with good functions were also invited to serve as stall owners to unleash their potential. A total of 40 students and 5 teachers participated. This study adopted descriptive phenomenological methods. Under ethical considerations, the senior nursing students of a senior college in northern Taiwan were selected as objects, and we took purpose sampling and used in-depth interviews to collect the experience of 12 participants. The trustworthiness of the study was examined using Lincoln and Guba (1985) principles. Colaizzi (1978) analysis method was adopted for data analysis. The results revealed that nursing students expressed four themes in service learning experience in chronic psychiatric wards: 1. Overturning the stigma of psychiatric patients; 2. Engaging in activities and enjoying the patient's smile; 3. Feeling interesting activity design can improve patients' concentration; 4. Interacting with patients experience a sense of accomplishment. In conclusion, regardless of whether nursing students have psychiatric practice experience or not, interaction with patients in chronic psychiatric wards through service learning experience has a positive impact on patients and self-growth. The results of this research can be used as a reference for assisting nursing students in service learning design and teaching in chronic psychiatric wards in the future.

Key words: nursing students, service learning, experience, chronic psychiatric ward

## 探討護生運用數位平台學習的心流經驗及學習成效

孫惠玲

### 中文摘要：

在後疫情時代，護理人員缺乏已是全球危機，五專護理科是培育基礎護理人才的重要基地。然而，學生英語口說能力有兩極化的現象，逐年建構數位口說平台結合年度檢測活動及寒暑假作業要求，期待能提升學生英語口說能力。本計畫擬探討護生在數位平台學習的經驗及學習成效。以護理科學生為母群體，採質量混合研究設計，運用「心流經驗量表」及英語口說成績，採方便性取樣，172 位參與，研究結果發現護生使用 MyET 學習的心流經驗均屬於中等程度，層面得分以明確的目標且能立即的回饋得分較高，渾然忘我得分較低。性別、MyET 學習的心流經驗、校外學習英語、英語系國家旅遊經驗、獲取英文證照、喜歡英語及成績對口說英語學習成效皆有正向影響，因此，未來教學時須注意學生英語學習經驗，鼓勵校外學習、旅遊及獲取證照，皆可能提高學生學習動力，增加對英語的喜好，進而提升其學習英語的成效。

關鍵字：心流經驗、學習滿意度、學習成效、護生。

**英文摘要：**

In the post-epidemic era, nursing staff shortage is a global crisis. The five-year program for the nursing students is an important base for cultivating basic nursing talents. However, students' English speaking ability is polarized. The digital speaking platform is constructed year by year, combined with annual testing activities and homework requirements during winter and summer vacation, and is expected to improve students' English speaking skills. For purpose of the study, 172 nursing students from a college of North Taiwan were participated. The data for the study were gained through the use of questionnaires. The research results show that the flow experience of nursing students using MyET learning is moderate level, with higher scores for clear goals and immediate feedback and lower scores for complete immersion. Gender, flow experience in MyET learning, learning English outside of school, travel experience in English-speaking countries, obtaining English certificates, liking English and grades all have a positive impact on oral English learning outcomes. Therefore, in future teaching, attention should be paid to students' English learning experience. Encouraging off-campus learning, traveling and obtaining certificates may increase students' motivation to learn, increase their liking for English, and thus improve their English learning outcomes.

Key words: flow experience, learning performance, nursing students

## 會談機器人於提升護理學生臨床推理能力之學習成效

林麗妮

### 中文摘要：

本研究主要探討會談機器人輔助學習對護理學生臨床推理能力的成效。臨床推理能力是確保護理品質的關鍵，學生需具備分析、判斷與決策護理過程的能力。本研究發現專科護理科學生於判讀檢驗數據及結合學理方面的能力需加強，而機器人輔助學習被認為有助於提升問題解決能力。本研究採用實驗組（使用會談機器人輔助學習）與對照組（傳統教學）的設計，並結合概念圖教學法和案例分析進行小組討論。研究重點評估學生的學習成效、期末成績與臨床推理能力。臨床推理能力包括察覺臨床線索、確認臨床問題、決定與採取行動、以及評價與反思等四個層面。結果顯示，實驗組在期末成績、整體臨床推理能力及學習成效方面均優於對照組，並且在臨床推理的各層面表現也明顯較好。本研究結果表示會談機器人作為輔助學習工具，對提升護理學生的臨床推理能力及學習成效具有顯著效果，可作為護理教育創新的教學方法。

關鍵字：會談機器人、輔助學習、臨床推理能力。

**英文摘要：**

This study primarily investigates the effectiveness of chatbot-assisted learning in enhancing the clinical reasoning abilities of nursing students. Clinical reasoning is a critical competency for ensuring quality nursing care, as students must possess the ability to analyze, judge, and make decisions throughout the nursing process. The study found that nursing students, particularly those in specialized programs, require improvement in interpreting diagnostic data and integrating theoretical knowledge. Chatbot-assisted learning was considered beneficial for enhancing problem-solving skills.

The research adopted an experimental group (using chatbot-assisted learning) and a control group (traditional teaching) design, combining concept mapping and case analysis for group discussions. The main focus of the study was to evaluate students' learning outcomes, final grades, and clinical reasoning abilities. Clinical reasoning was assessed across four dimensions: recognizing clinical cues, identifying clinical problems, deciding and taking actions, and evaluating and reflecting.

The results indicated that the experimental group outperformed the control group in final grades, overall clinical reasoning abilities, and learning outcomes. Moreover, the experimental group showed significantly better performance in all dimensions of clinical reasoning. The findings suggest that chatbot-assisted learning is a highly effective tool for enhancing nursing students' clinical reasoning abilities and learning outcomes, and can serve as an innovative teaching method in nursing education.

Key words: Chatbot, Assisted Learning, Clinical Reasoning

## 台灣幼兒職前教師志願服務對公民參與的影響機制

徐碧君

### 中文摘要：

本研究旨在探討台灣幼兒職前教師志願服務與公民參與態度之關聯性，並探究社會正義、社會連結、社會責任和合作學習在此關係的影響作用。本研究以台灣幼兒職前教師為對象，評估其對公民參與及相關影響因素的看法。研究者設計問卷涵蓋六個構面：志願服務、社會正義、社會連結、社會責任、合作學習和公民參與。本研究採用偏最小平方法，檢定問卷內容並仔細評估問卷在測量模式與結構模式的參數穩健性。本研究所得結果除了驗證研究假設與理論模式，並對台灣幼兒職前教師教育培訓工作提供相關理論啟示與教學建議。

關鍵字：公民參與、幼兒職前教師、志願服務、影響機制。

**英文摘要：**

This study investigates the relationship between voluntary service and civic engagement among preservice preschool teachers in Taiwan. It also examines the roles of social justice, social connectedness, social responsibility, and cooperative learning in this context. A study was conducted in Taiwan to assess the opinions of preservice preschool teachers regarding civic engagement and its related determinants. A questionnaire consisting of six critical dimensions was used: voluntary service, social justice, social connectedness, social responsibility, cooperative learning, and civic engagement. The survey responses were analyzed using the partial least squares method to evaluate the questionnaire's latent constructs in the measurement framework. The statistical evaluation confirmed the reliability of this measurement model. Subsequently, a structural path analysis was conducted to investigate the anticipated interconnections. The results showed that voluntary service has a positive influence on both social justice and social connectedness, while social justice and social connectedness also mutually influence each other. Social justice also promotes social responsibility, and social connectedness positively influences social responsibility. Social justice and social connectedness both contribute positively to cooperative learning, and social responsibility and cooperative learning predict civic engagement. These findings emphasize the complex network of factors that shape civic engagement in pre-service preschool teachers, providing valuable insights for enhancing early childhood education practices.

Key words: Civic engagement; Preservice preschool teachers; Taiwan; Voluntary service

## 幼兒園多元文化故事角設計對教師多元文化素養影響之研究

周佩諭

### 中文摘要：

多元文化教育以文化多樣性為核心，從文化知識分享到不同族群觀點的詮釋與理解，發展人與人之間跨文化能力達到文化共融，也促成多元化的幼兒園多元文化課程發展案例。本研究以幼兒園三位教保服務人員實施多元文化故事角-一籃一書的教學活動，從教師佈題、幼兒與教師共同發展的歷程，促進教師在多元文化教育的意識與思維增能，型塑教師的多元文化素養為研究結果。

關鍵字：多元文化素養、多元文化教育、多元文化故事角、教保服務人員。

**英文摘要：**

That preschool multicultural education is rooted in local culture and achieves the goal of constructing young children's cultural identity. Multicultural education takes cultural diversity as its core, from sharing cultural knowledge to interpreting and understanding the perspectives of different ethnic groups, developing cross-cultural abilities among people to achieve cultural integration, and also promoting diversified preschool multicultural curriculum development cases.

This study uses 3 preschool educators to implement the multicultural story-telling corner activity that promote their awareness and belief in multicultural education. As a result the multicultural literacy are be developed from preschool educators.

Key words: Multicultural Literacy, Multicultural Education, Multicultural Story-telling Corner preschool educator.

## 探討動植物蛋白質和油脂飽和度對植物肉醬乳化質地的影響

王正方

### 中文摘要：

植物肉產品賦予消費者對於替代性肉類食品的新體驗，透過彙整高齡消費者觀點，研發具有便利性和高蛋白質特色，適合高齡長者日常烹調料理使用的醬料，方便搭配各種主食和料理質地調整。為了尋找更適合的感官與搭配的加工方式，本研究首先比較動植物性蛋白質和奶油、棕櫚油和橄欖油等不同油脂飽和度對植物肉醬乳化品質之影響，分別測定儲藏前後水分含量、乳化性質、組織質地及感官品評的變化。依據乳化性質、色澤和感官品質的比較，最終選擇蛋黃/橄欖油的配方組合來試製兩種口味醬料的產品。包裝型態選擇鋁箔材質的殺菌軟袋，殺菌溫度 85°C，維持 2 min，可符合商業殺菌的標準。消費者對於食品的感官體驗是購買意願的關鍵性因素，感官品評之結果均顯示產品達可接受的程度。本研究的結果有助於對開發銀髮友善食品有興趣的相關從業人員，提供優質的抗老相關產品。

關鍵字：乳化、蛋白質、油脂飽和度、植物肉。

**英文摘要：**

Plant-based meat products give consumers a new experience in alternative meat products. By gathering the opinions of elderly consumers, we develop sauces that are convenient and high in protein, suitable for the elderly in their daily cooking, and can be easily paired with a variety of dishes. Adjust the texture of staple food and dishes. In order to find a more suitable sensory and matching processing method, this study first compared the effects of animal and plant protein and different oil saturations such as butter, palm oil and olive oil on the emulsification quality of plant-based meat sauce, and measured the moisture content, emulsification and emulsification quality of plant-based meat sauce before and after storage. Changes in properties, tissue texture and sensory evaluation. Based on the comparison of emulsification properties, color and sensory quality, the egg yolk/olive oil formula combination was finally selected to trial-produce two flavors of sauce products. The packaging type is a sterilization soft bag made of aluminum foil. The sterilization temperature is 85°C and maintained for 2 minutes, which can meet the standards of commercial sterilization. Consumers' sensory experience of food is a key factor in purchase intention. The results of sensory evaluation show that the product is acceptable. The results of this study will help relevant practitioners who are interested in developing foods that are friendly to the elderly and provide high-quality anti-aging related products.

Key words: Emulsification, Protein, Oil Saturation, Plant-based Meat

### 中文摘要：

本計畫為利用福氏完全佐劑(FCA)誘導小鼠建立類風濕性關節炎(RA)模型，以評估 HUPA 治療 RA 的能力及其可能機轉。RA 是慢性自身免疫性疾病，臨床病徵是滑膜炎、血管翳、軟骨侵蝕和骨質破壞，但其生理/病理學上致病原因迄今仍有許多未解之謎。隨著 RA 病程進展，患者出現關節疼痛、水腫、畸形/殘疾、器官衰退與精神障礙，目前仍為全球醫藥難解課題之一。鑒於 RA 的發生及病程發展，多與關節內發炎環境的存在及惡化有關，治療策略之一是抑制發炎反應以阻止 RA 病理進展。長柄千層塔是臺灣民間沿用已久之止痛與治療跌打損傷的草藥，HUPA 是主要活性成分之一，除了阿茲海默氏症外，已有多位學者報導其具有鎮痛作用。本計畫利用 FCA 誘導 C57BL/6 小鼠建立 RA 實驗模型評估 HUPA 抗 RA 發炎的作用與病程進展。實驗結果顯示，HUPA 100  $\mu\text{g}/\text{kg}$  顯著降低關節組織中 IL-6、IL-1 $\beta$ 、TNF- $\alpha$  及 NO 的含量，進而減緩患部或全身性發炎反應。組織切片中觀查，除了 Sham 組的關節細胞為正常狀態（未受損），各組（誘導）中的則產生嚴重程度不一的慢性發炎、絨毛增生及肉芽腫皮膚炎，但在心臟、腎臟及脾臟中未發現組織異常，冀能針對本計畫之結果提供後續開發之參考。

關鍵字：類風濕性關節炎、石杉鹼甲、福氏完全佐劑、抗發炎作用。

**英文摘要：**

This project aims to establish a rheumatoid arthritis (RA) model in mice induced by Freund's complete adjuvant (FCA). To evaluate the efficacy of Huperzine A (HupA) in treating RA. RA is a chronic autoimmune disease with clinical symptoms of synovitis, pannus, cartilage erosion and bone destruction, but its physiological/pathological causes are still many unsolved mysteries. As the course of RA worsens, patients will experience joint pain, edema, deformity/disability, organ decline, and mental disorders, which are still one of the most difficult problems in global medicine. In view of the occurrence and development of RA, it is generally believed that it is related to the existence and deterioration of the inflammatory environment in the joint, and inhibiting the inflammatory response can effectively prevent the pathological progress of RA. *Lycopodium serratum* var. *longipetiolatum* is a Taiwan folk herbal medicine with excellent analgesic effect and used to treat bruises. HUPA is one of active ingredients of this plant. In addition to Alzheimer's disease, many scholars reported it also has best analgesic effect. The experimental results showed that HUPA 100 µg/kg significantly reduced the levels of IL-6, IL-1β, TNF-α, and NO in joint tissues, thereby alleviating local or systemic inflammatory responses. Observations from tissue sections revealed that, apart from the Sham group, where joint cells remained in a normal (undamaged) state, other induced groups exhibited varying degrees of chronic inflammation, villous hyperplasia, and granulomatous dermatitis. However, no tissue abnormalities were detected in the heart, kidneys, or spleen. It's hoped that the results of this project can provide a reference for future development.

Key words: Rheumatoid arthritis, HUPA, Freund's complete adjuvant, anti-inflammatory effect

### 中文摘要：

從最適萃取條件確認後並以 HPLC 得到最佳產率為 0.58g/g (異硫脲酸丙烯酯, Allyl isothiocyanate, AITC) 為基礎研究原料。根據文獻報導指出山葵萃取能降低黑色素細胞生成, 減少頭皮皮屑之生成與增生膠原蛋白等功效, 但如能將其開發載體之應用且能更有效深入皮膚被其吸收應具有極高應用性。

而常見的載體系統有奈米乳液、微乳液、微脂粒、固態奈米脂質 (Solid-Lipid Nanoparticles, SLNs) 以及奈米結構脂質載體 (Nanostructure Lipid Carriers, NLCs) 等, 後兩者都因構造組成與人體肌膚組織相似而獲得重視。哪種載體系統適合哪種有效成分皆不相同也具有開發研究價值。這也是本計畫系列研究中的規劃方向。因此今年的研究計畫將延續萃取條件並導向化妝品應用開發, 開發新技術-奈米結構脂質(NLCs)載體包覆異硫脲酸丙烯酯(AITC), 分別使用 Cetyl Palmitate 與 Miglyol®812 (Caprylic/Capric triglyceride), 比較三種不同界面活性(1) Plantacare®810 (Caprylyl/capryl glucoside) (2) Poloxamer®188(Pluronic® F68) (3) Tween80 (Polysorbate 80), 利用高壓均質乳化法(500bar/5cycles)製備, 主要討論探討利用不同條件下之製備方法, 觀察其安定性、最佳包覆效果, 並評估不同包覆配方之經皮穿透效果。

關鍵字：山葵萃取液、異硫脲酸酯、奈米結構脂質載體、經皮吸收。

**英文摘要：**

This project aims to conduct a series of studies on the extraction and development of Taiwan native wasabi plants. After confirming the optimal extraction conditions and obtaining a yield of 0.58g/g (allyl isothiocyanate, AITC) based on High-Performance Liquid Chromatography (HPLC), it serves as the fundamental research material. According to literature reports, wasabi extracts can reduce melanocyte generation, decrease dandruff formation, and inhibit collagen proliferation on the scalp. If these extracts can be applied as carriers and effectively absorbed into the skin, they hold significant potential for various applications.

Common carrier systems include nanoemulsions, microemulsions, microlipid particles, Solid-Lipid Nanoparticles (SLNs), and Nanostructure Lipid Carriers (NLCs). The latter two are particularly valued due to their similarity in structure to human skin tissues. Different carrier systems are suitable for various active ingredients, making them worthy of research and development.

This constitutes the planned direction of this research series. Therefore, this year's research plan will continue the extraction conditions and focus on the development for cosmetic applications. A new technology involving Nanostructure Lipid Carriers (NLCs) encapsulating allyl isothiocyanate (AITC) will be explored using Cetyl Palmitate and Miglyol® 812 (Caprylic/Capric triglyceride) as carriers. Three different surfactants, namely (1) Plantacare® 810 (Caprylyl/capryl glucoside), (2) Poloxamer® 188 (Pluronic® F68), and (3) Tween80 (Polysorbate 80), will be compared. The preparation will be carried out using a high-pressure homogenization method (500 bar/5 cycles). The primary focus will be on investigating the preparation methods under different conditions, observing their stability and optimal encapsulation efficiency, and evaluating the transdermal penetration effects of different encapsulation formulations.

Key words: Nanostructure Lipid Carriers (NLCs) 、Ally Isothiocyanate、Wasabi japonica Matsum Extract

**中文摘要：**

腺苷是一種廣泛分布在人體的嘌呤核苷。腺苷透過 A<sub>2A</sub> 受體亞型刺激膠原蛋白的產生，而且還能增加真皮纖維原母細胞中新的 DNA 合成以及隨後的蛋白質合成，因此被視為具有增加皮膚彈性和減少皺紋的效果，但由於其溶解度低影響其功效。近年來深共熔溶劑受到許多關注，因其製備相對簡單，而且能夠產生液體形式的活性藥物成分並提高生體可用率。因此本研究預定探討以氯化膽鹼、抗壞血酸組成的深共熔溶劑增加腺苷的溶解度，結果顯示本研究利用碳酸氫膽鹼，丙二酸和水以 1:2:1 的比例建立深共熔系統溶解腺苷，其溶解度達到 0.75%，pH5.5，並以此開發一腺苷精華液處方。

**關鍵字：**腺苷，深共熔溶劑，藥物傳輸。

**英文摘要：**

Adenosine is a purine nucleoside widely distributed in the human body. It stimulates collagen production through the A2A receptor subtype and enhances the synthesis of new DNA and subsequent protein synthesis in dermal fibroblasts. As a result, adenosine is considered effective in improving skin elasticity and reducing wrinkles. However, its low solubility limits its efficacy. In recent years, deep eutectic solvents (DES) have attracted significant attention due to their relatively simple preparation, ability to generate liquid forms of active pharmaceutical ingredients, and potential to enhance bioavailability. This study aims to investigate the use of a deep eutectic solvent composed of choline chloride and ascorbic acid to improve the solubility of adenosine. The results demonstrated that a DES system comprising choline bicarbonate, malonic acid, and water in a 1:2:1 molar ratio successfully dissolved adenosine, achieving a solubility of 0.75% at pH 5.5. Based on this, an adenosine serum formulation was developed.

Key words: Adenosine, Deep eutectic solvents, drug delivery

## 探尋視力檢測新模式的可能性

謝仲威

### 中文摘要：

本研究旨在探討，辨別清晰或模糊視標的能力是否能用來評估視力的高低。目前的視力檢測雖然有儀器輔助，但最終的視力結果仍依賴個人主觀回報，這可能因理解能力的不同導致結果不準確，甚至可能受到刻意誤導。因此，我們需要開發一種更客觀的視力評估方法。

研究中，我們使用霧視法（Fogging）模擬低於 1.0 的視力，透過佩戴度數不足的眼鏡來調整視力到特定水平。參與者共有 64 人，平均年齡為 24.2 歲，他們的最佳矯正視力均達到小數視力 1.0，屈光度範圍從等價球面 +0.00D 到 -12.25D。測試以高斯模糊（Gaussian Blur）製造不同清晰度的視標，分為三個等級：無模糊（0px）、弱模糊（1px）和強模糊（2px），並將不同等級的視標兩兩配對，讓參與者從中選出較清晰的一個。同時，記錄他們的回應時間和正確率。

結果顯示，視力值為 0.05 時，參與者對視標的判斷速度比視力值為 0.3 時慢，平均回應時間相差 207 毫秒。而在正確率方面，視力值為 0.05 時的正確率為 92%，視力值提升到 0.3 時，正確率增加至 98%。這說明當視力提高時，參與者對模糊程度差異的判斷速度和準確度也會隨之提升。然而，是否能根據回應時間和正確率的數據匹配來預測視力值，仍需要進一步的研究和驗證。

關鍵字：模糊、視力值、客觀、近視。

**英文摘要：**

This study aims to investigate whether the ability to distinguish between clear and blurred visual targets can be used as a tool to assess visual acuity. While current vision tests are supported by instruments for refraction, the final visual acuity results still rely on subjective reports. These results may vary due to differences in comprehension or may even be intentionally misreported. Therefore, it is necessary to develop an evaluation method that objectively estimates visual acuity.

In this study, we used the fogging method to simulate visual acuity levels below 1.0 by providing participants with underpowered corrective lenses to achieve specific visual acuity levels. A total of 64 participants were included, with an average age of 24.2 years. All participants had a best-corrected visual acuity of 1.0 (decimal notation), and their refractive errors ranged from an equivalent spherical diopter of +0.00D to -12.25D. The test stimuli were created using Gaussian blur to produce varying levels of target clarity. These were categorized into three levels: no blur (0px), mild blur (1px), and strong blur (2px). Pairs of targets with different blur levels were presented, and participants were asked to select the clearer target. Response time and accuracy were recorded during the test.

The results showed that participants with a visual acuity of 0.05 responded more slowly than those with a visual acuity of 0.3 when distinguishing between targets. The average response time difference was 207 milliseconds. In terms of accuracy, participants with a visual acuity of 0.05 achieved a 92% accuracy rate, which increased to 98% at a visual acuity of 0.3. These findings suggest that higher visual acuity is associated with faster response times and greater accuracy in identifying differences in target clarity. However, whether response time and accuracy data can be used to predict visual acuity levels requires further investigation and validation.

Key words: Blur, Visual acuity, Objective, Myopia

### 中文摘要：

台灣常見的有應公信仰，因為「鬼有所歸而不為厲」，因此民眾多半會掩骼埋胔並立祠祭祀。信徒對此崇奉祭祀。但也有民眾抱著「路邊小廟不要拜」的心理。即使是對生死與墓葬存有許多禁忌，尤其是人口高度密集的北台灣仍可發現在都會區仍存在一些墓葬與祠廟共存的現象。究竟是什麼原因讓都會區的民眾沒有因為高度開發與人口密集而排斥這些墓廟，甚至這些墓廟成為當地民眾的信仰寄託。本案研究對象新竹萬士爺廟，其墓葬的完善保存與墓廟的楹聯，透過其殯葬文書推論出萬士爺的墓葬不僅不構成對於民眾的隔閡與恐懼，甚至可說深受當地信眾的認同與依賴。再來是透過深度訪談並歸納三個傳說：自行選址傳說、醫藥治病傳說、施工稟報傳說，都是反映萬士爺的靈感並協助周邊的民眾進而加深與當地的連結。最後筆者田野調查萬士爺廟的神格化，採用 12 項指標來檢視，發現本案有達標 75% 程度，顯示與當地信眾息息相關，也透過庇佑鄰里協助民眾而獲得當地百姓的愛戴。一般人認為死亡和墓葬都是可怕的，透過本案研究，萬士爺廟雖是有應公信仰，但不會因墓葬而和民眾產生隔閡與禁忌。正是透過傳說和民眾持續互動，也藉由靈感庇佑而成為當地百姓的信仰中心，也將持續努力從有應公慢慢升格成神的道路上。

關鍵字：有應公、墓葬、傳說、神格化。

**英文摘要：**

It is common in Taiwan to believe in Ying Gong, because "ghosts have returned and will not be punished", so most people will bury their bodies and build temples to offer sacrifices. Believers worship this. But there are also people who have the mentality of "Don't worship at small roadside temples." Even though there are many taboos about life, death and burials, especially in northern Taiwan where the population is highly dense, it can still be found that some tombs and temples coexist in urban areas. What is the reason why people in urban areas do not reject these tomb temples due to high development and dense population, and even these tomb temples have become the place of faith for local people. The object of this case is the Wanshiye Temple in Hsinchu. The perfect preservation of its tombs and the couplets in the tomb temple. Through its funeral documents, it can be inferred that Wanshiye's tomb not only does not cause isolation and fear for the people, it can even be said to be deeply loved by local believers. Identity and dependence. Next, three legends were summarized through in-depth interviews: the legend of self-selection of sites, the legend of medical treatment, and the legend of construction reports. They all reflect Wan Shiye's inspiration and help the surrounding people to deepen their connection with the local area. Finally, the author conducted field research on the deification of Wanshiye Temple and used 12 indicators to examine it. It was found that this case met 75% of the standards, showing that it is closely related to local believers and has gained the love of local people by blessing neighbors and helping people. Most people think that death and tombs are terrible. Through the study of this case, it is found that although Wanshiye Temple has public beliefs, it will not create barriers and taboos with the public because of tombs. It is through the continuous interaction with the people through legends and the blessing of inspiration that it has become the center of belief for the local people. It will also continue to work hard on the road to slowly upgrade from a righteous man to a god.

Key words: You-ying-going, Tombs, Legends, Deifications

中文摘要：

殯葬管理條例自民國 97 年 7 月公布後，明定了殯葬事業的相關規範及措施，亦奠定了殯葬專業的地位。工會依法對會員勞動權益、勞雇協商、集體勞資爭議、勞動條件維持或維便等，均具有法定的位階與權利。殯葬職業工會則對維護殯葬、殯儀從業人員勞動權益的維護與維持之重要性，顯而可得。依工會法之規定，工會應置理事長一人，對外代表工會。為更利瞭解現有殯葬職業工會於法制上理事長之產生，本研究試由釋字第 733 號析論職業團體理事長產生方式，進而探究殯葬工會的理事長產生方式及現有的法規、人民團體法、憲法等相關規範之設定與限制、人民結社自由、比例原則等議題。

(一)人民團體法第 17 條第 2 項「…由理事就常務理事中選舉一人為理事長，其不設常務理事者，就理事中互選之。…」之規定，是否侵害人民受憲法保障之基本權利？該基本權利為何？

(二)本案限制人民團體選舉理事長方式之規範，是否合憲？

關鍵字：結社自由、比例原則。

**英文摘要：**

The Mortuary Service Administration Act, which were promulgated in July of the 97th year of the Republic of China (2008), established specific regulations and measures for the funeral industry and solidified the professional status of funeral services. Labor unions, in accordance with the law, possess statutory ranks and rights concerning member labor rights, labor-employer negotiations, collective labor disputes, and the maintenance or improvement of labor conditions. The importance of funeral professional labor unions in safeguarding the labor rights of funeral and mortuary personnel is evident.

According to the provisions of the Labor Union Act, a labor union should have one chairman to represent the union externally. To better understand the process of chairman appointment within existing funeral professional labor unions according to legal standards, this study attempts to analyze the method of appointing chairmen for occupational organizations as outlined in Interpretation No. 733 and explore issues related to the chairman appointment process in funeral unions, the establishment of existing legal regulations, the Civil Associations Act, the Constitution, restrictions, freedom of association, and the proportional representation principle.

(1) Does Article 17, Paragraph 2 of the Civil Associations Act, which states, "...the chairman shall be elected by the directors from among the executive directors, and if there are no executive directors, the directors shall elect among themselves..." infringe upon the basic rights protected by the Constitution? What is this basic right?

(2) Are the regulations in this case that restrict the election of the chairman of people's groups in compliance with the Constitution?

Key words: freedom of association, proportionality.

### 中文摘要：

背景：ACP 已是全球趨勢，為維護老人的權益，應於意識清楚時提供機會讓他們表達對未來的照護計畫，因此，是否願意接受預立醫療照護諮商(ACP)至關重要。在台灣啟動生死議題的討論與對話並不容易，據此，在執行預立醫療照護諮商前，若能藉由科技輔助提供事前準備服務，更能促進 ACP 有效執行。本研究以聊天機器人協助進行 (Pre-ACP) 衛教溝通，藉以探討運用聊天機器人於社區長者接受預立醫療照護諮商意願

方法：本研究採單組前後測研究設計，針對台灣北部 5 個社區長照單位之長者為收案對象。介入方案為接受「小預人型機器人 ACP 輔助衛教活動」1 次 90 分鐘，於介入前後以結構式問卷進行資料收集，並以成對樣本 t 檢定進行資料分析。

結果：84 位長輩於接受人型機器人 ACP 輔助衛教活動，對預立醫療照護諮商知識、人機信任，以及決策平衡皆有顯著提升，對體驗衛教機器人學習「預立醫療照護諮商」感到滿意。另外，在學習投入度部分，參與者覺得這教學活動非常意義且重要。未來願意參與 ACP 的平均分數為 7.64(滿分為 10 分)，顯示「小預人型機器人 ACP 輔助衛教活動」是一個有效的執行方案。

結論：藉由精心設計符合長輩需求的新興科技，有助於為複雜的醫療照顧及禁忌的生死議題，提供一個友善的溝通橋樑，間接促進 ACP 執行成效，本研究成果期能提供實務推動之參考。

關鍵字：聊天型機器人、預立醫療照護諮商、社區老人。

**英文摘要：**

**Background:** ACP is a global trend. To protect the rights of the elderly, they should be given the opportunity to express their future care plans when they are conscious. Therefore, whether they are willing to accept advance care consultation (ACP) is crucial. It is not easy to initiate discussions and dialogues on life and death issues in Taiwan. Therefore, if advance preparation services can be provided with the assistance of technology before implementing advance care consultation, it will promote the effective implementation of ACP. This study used a chatbot to assist in pre-ACP health education communication to explore the use of chatbots in the willingness of community elders to receive pre-ACP consultation.

**Methods:** This study adopted a single-group pre-test and post-test design, targeting elderly people in five community long-term care units in northern Taiwan. The intervention program was to receive a 90-minute " Robot-assisted health education activity". Data were collected using a structured questionnaire before and after the intervention, and data were analyzed using paired sample t-test.

**Results:** The 84 elders who received the " Robot-assisted health education activity" had significant improvements in advance medical care consultation knowledge, human-machine trust, and decision-making balance. Satisfied with the experience of learning ACP using the health education robot. In addition, in terms of learning engagement, participants felt that this teaching activity was very meaningful and important. The average score of willingness to participate in ACP in the future was 7.64 (out of 10 points), indicating that " Robot-assisted health education activity " is an effective implementation plan.

**Conclusion:** By carefully designing emerging technologies that meet the needs of the elderly, it is helpful to provide a friendly communication bridge for complex medical care and taboo life and death issues, and indirectly promote the effectiveness of ACP implementation. The results of this study can provide a reference for practical promotion.

**Key words:** Advance care planning (ACP), ACP robot-assisted health education activity, Community-Dwelling Elderly

### 中文摘要：

國際上人口老化速度加快，人口老化是全球共同的挑戰。根據聯合國的推估，2019年時，全球有17個國家或地區高齡人口比率超過20%；到2030年時，全球將有51個國家或地區的高齡人口比率超過20%。聯合國最新出版的全球高齡人口報告中，列出從2019年至2050年間全球高齡人口比率成長最快的國家與地區，臺灣僅次於南韓與新加坡，名列全球第三(United Nations, 2019)。

情緒智商、工作負荷和工作滿意度是現代工作中引起高度關注的議題。我國高齡人口的增加、平均餘命的延長，長照需求人數不斷增加，在照顧服務員的供需不平衡情況下，探討照顧服務員的情緒智商、照顧負擔和生活滿意度之間的關聯性是本研究的目標。

本研究實證檢驗並測試照顧服務員的情緒智商如何影響長者照護服務環境中的照顧負擔和生活滿意度。研究模型和假設是透過文獻綜述制定的。採用常用信度和效度較高的情緒智商、照顧負擔和生活滿意度量表編製問卷並檢驗假設。研究樣本是從台灣十家長照機構不同區域的照顧服務員名單中隨機抽取的。本研究納入333名研究對象，透過自填問卷收集資料。相關分析、結構方程式等分析方法用於資料分析和假設檢定。本研究試圖評估情緒智商對照顧負擔和生活滿意度的影響在照顧老年長者的照顧服務員。在研究這些問題時，提出了一個概念模型開發和測試了從多個長期照護服務機構收集的數據在台灣，根據測試結果，在長期照護服務機構情境中建構了老年人照顧者EI-CB-LS關係新模型構。結果顯示支持EI水平高的照顧者與照顧負擔呈顯著負相關。支持照顧負擔水平高的照顧者與生活滿意度呈顯著負相關。期許未來透過教育加強對從事老人照顧工作的學生在情緒智商的發展，使照顧服務員的照顧負擔降低，能增加生活滿意度。

關鍵字：情緒智商、照顧負擔、生活滿意度、照顧服務員。

**英文摘要：**

The rate of population aging is accelerating internationally, and population aging is a common global challenge. According to United Nations estimates, in 2019, there were 17 countries or regions in the world where the elderly population ratio exceeded 20%; by 2030, there will be 51 countries or regions in the world where the elderly population ratio exceeded 20%. The latest report on the global elderly population published by the United Nations lists the countries and regions with the fastest growing elderly population ratio in the world from 2019 to 2050. Taiwan ranks third in the world after South Korea and Singapore(United Nations, 2019).

Emotional intelligence, care burden, and satisfaction with life are issues of great concern in modern work. With the increase in Taiwan's elderly population, the extension of average life expectancy, and the increasing number of people in need of long-term care, under the imbalance of supply and demand of caregivers, it is the purpose of this study to explore the correlation between the emotional intelligence, care burden, and satisfaction with life of caregivers.

This study empirically examined and tested how caregivers' emotional intelligence influences care burden and life satisfaction in an elder care service setting. The research model and hypotheses were developed through literature review. The emotional intelligence, care burden and life satisfaction scales with high reliability and validity were used to develop questionnaires and test hypotheses. The research sample was randomly selected from the lists of caregivers in different areas of ten long-term care institutions in Taiwan. This study included 333 subjects and collected data through self-administered questionnaires. Analytical methods such as correlation analysis and structural equation analysis were used for data analysis and hypothesis testing. This study sought to evaluate the impact of emotional intelligence on care burden and life satisfaction among caregivers caring for older elders. In studying these issues, a conceptual model was developed and tested with data collected from multiple long-term care service agencies in Taiwan. Based on the test results, a new model of the EI-CB-LS relationship of elderly caregivers in the context of long-term care service agencies was constructed. The results showed that support for caregivers with high EI levels was significantly negatively correlated with caregiving burden. Support for caregivers with high levels of care burden was significantly negatively correlated with life satisfaction.

It is hoped that in the future, through education, the emotional intelligence of students engaged in elderly care can be strengthened, so that the care burden of caregivers can be reduced and their life satisfaction can be increased.

Key words: emotional intelligence, care burden, and satisfaction with life, elderly caregivers

## 戰後新竹軟式網球發展歷史初探(1945-1973)

陳建森

### 中文摘要：

自 1994 年軟式網球成為亞洲運動會正式比賽項目以來，軟式網球就成了臺灣在亞洲運動會奪牌的重要項目。然而卻少有人瞭解軟式網球在臺灣發展的歷史。日治時期，軟式網球在臺灣各地熱烈的發展，許多高等中學都將軟式網球視為學校發展的重點項目，每年在臺灣舉辦中等學校軟式網球賽，獲勝的選手可以到日本參加明治神宮體育大會，並且在臺灣成為眾人注目的焦點。本研究主要探討新竹軟式網球運動，在戰後初期發展的情形，由於當年在戰後從事軟式網球運動的前輩，多數已不在世，僅餘少數耆老現今則年歲已高。本研究以歷史研究法以及訪談法，去分析戰後新竹軟式網球發展的情形，藉由耆老的口述，以及文獻分析的方法，重現戰後新竹軟式網球運動的樣貌。就某種意義而言，通過本篇論文的學術研究探討，除了可瞭解戰後到 1973 年將近 30 年間，新竹軟式網球運動發展的過程，也可透過這個過程，反應出此一時期新竹從事軟式網球者在當時社會的處境，並試圖還原當時的歷史影像，這是本研究的主要動機與目的。

研究結果得知：戰後新竹市從 1945 年第一屆臺灣省運動會就派員參加男、女網球賽，是最早參與網球賽的縣市。雖然新竹是最早參與臺灣省運動會網球賽的隊伍，可惜成績並不出色。一直到 1960 年第 15 屆臺灣省運動會，才第一次打進決賽，並在林建成與官大進兩位選手連贏 5 組對手後，贏得冠軍。林建成在新竹指導許多後進，其中女子選手劉玉蘭後來成為臺灣女子軟式網球與網球的雙料球后，這一段新竹軟式網球發展過程，也影響了臺灣網球運動數十年的發展。

關鍵字：林建成、劉玉蘭、臺灣省運動會。

**英文摘要：**

Taiwan's key medal-winning sports at the Games. Nevertheless, few people are aware of the history of soft tennis in Taiwan. During the Japanese colonial period, soft tennis was enthusiastically promoted all over Taiwan. Many high schools considered soft tennis a core sport, and every year a national high school soft tennis tournament was held in Taiwan. The winners would go on to compete at the Meiji Jingu Sports Meet in Japan, becoming local celebrities upon their return.

This study focuses on the development of soft tennis in Hsinchu during the early postwar period. Because most of the pioneers who played soft tennis right after the war are no longer with us—leaving only a few remaining elders now of advanced age—this research adopts historical methods and interviews to analyze the evolution of soft tennis in Hsinchu. By gathering oral histories from senior players and examining archival documents, it aims to reconstruct the postwar landscape of soft tennis in the city. In doing so, not only does this scholarly investigation shed light on nearly thirty years of Hsinchu soft tennis history—from the postwar era to 1973—it also reveals the social circumstances of those who played the sport at that time, striving to restore the historical imagery of the period. This forms the primary motivation and objective of the research.

Findings indicate that, starting with the first Taiwan Provincial Games in 1945, Hsinchu City was one of the earliest municipalities to send athletes for both men's and women's tennis competitions. Although Hsinchu was a pioneer in participating at the Provincial Games, its performance initially fell short of expectations. It was not until the 15th Taiwan Provincial Games in 1960 that Hsinchu reached the finals for the first time. With Lin Jian-cheng and Guan Da-jin scoring five consecutive victories, the team clinched the championship. Lin Jian-cheng went on to mentor many younger players in Hsinchu, including Liu Yu-lan, who later became the undisputed queen of both women's soft tennis and tennis in Taiwan. This phase of Hsinchu's soft tennis development also had a lasting influence on Taiwan's tennis scene for decades to come.

Key words: Lin Jian-cheng, Liu Yu-lan, Taiwan Provincial Games