

簽 於 師範學院教育學系(所)

日期：114/02/27

主旨：檢陳本學系113學年度第2學期第1次系務會議紀錄1份(如附件)，請鑒核。

說明：旨揭會議業於114年2月27日以通訊方式召開完竣。

擬辦：奉核後，依規定辦理後續作業。

會辦單位：

決行層級：第二層決行

——批核軌跡及意見——

1. 師範學院 教育學系 助教 侯惠蘭 114/02/27 08:18:18(承辦)：
2. 師範學院 教育學系 系主任 張淑媚 114/03/07 10:01:26(核示)：
3. 師範學院 院長 陳明聰 114/03/07 15:41:40(決行)：

閱(代為決行)

4. 師範學院 教育學系 助教 侯惠蘭 114/03/10 09:25:13(承辦)：

裝

訂

線



國立嘉義大學教育學系 113 學年度第 2 學期第 1 次系務會議紀錄

- 一、時間：113 年 2 月 27 日(星期四)上午 10 時
- 二、方式：採通訊方式開會，信件於 114 年 2 月 21 日(星期五)下午 3 時發送，請老師們於 114 年 2 月 27 日(星期四)上午 10 時前回覆。
- 三、主席：張主任 淑媚 紀錄：侯惠蘭
- 四、發送對象：教育學系全體教師
依據本學系「系務會議設置要點」第五條規定：系務會議應有教師二分之一(含)以上之出席，並有實際出席教師二分之一以上同意，始得決議。

壹、主席報告：

各位老師好，本次會議在審查教師申請 113 年度學術專書專章獎勵案，因時間急迫，僅以電自郵件方式進行，請各位老師提供寶貴意見。

貳、上次會議決議執行情形：

- 1、不同意本校擬新聘一名專任教師負責執行國科會社會人文實踐計畫，歸屬教育學系。
- 2、通過博士班研究生黃意堯(學號: 1110646)以已發表期刊抵博士學位候選人資格考科。

參、提案討論：

*提案一

案由：本學系林樹聲老師申請 113 年度學術專書專章獎勵，提請審議。

說明：

- 1、依據本校研發處 113 年 11 月 7 日通知(如附件 P.1)及本校學術研究成果獎勵辦法辦理(如附件 P.2~5)，申請條件、程序如下：
 - (1)獎助前一年度國內外出版之專書及專章(出版日為 113 年 1 月 1 日至 12 月 31 日止)，且作者須以本校教師名義發表。
 - (2)申請人須檢附相關文件於每年 1 月 24 日前向系上提出，並經系相關會議初審後，於 2 月 27 日前將會議紀錄及相關文件資料送院辦理複審。
- 2、林樹聲老師 113 年度專章 1 篇申請學術專書專章獎勵，申請表及佐證資料請參考附件 P.6~44，是否同意推薦，請審議。

申請項目	申請人	專書(章)名稱	備註
專章	林樹聲	Comprehensive exploration of science education research within socioscientific contexts in Taiwan : Examining curriculum reform, research status, reflections and implications https://doi.org/978-3-031-3382-9 18	1.發表地：美國 2.出版日期：113 年 9 月 3.起迄頁碼：頁 333~354 4.申請表 1 份、專章資料 1 份(該專章封面影本、目錄影本、該篇專章本文內容)、出版合約書 1 份、出版單位之審查意見影本 1 份 5.如附件 P.6 -44

決議：同意推薦，送師院複審。本學系 22 位教師，1 位當事人迴避，本案有 18 位教師回覆同意(如回覆信件)，超過二分之一。

通 知

主旨：本校 113 年度「學術研究成果獎勵」，自即日起至 114 年 3 月 31 日（一）止受理教師申請，各項獎勵申請及審查流程如說明三，請查照轉知。

說明：

- 一、依據本校「國立嘉義大學學術研究成果獎勵辦法」辦理【如附件 1】。
- 二、獎勵對象係以本校名稱於 113 年度（註）已正式出版或展演之學術研究成果及獲頒之國內重要學術獎項。

三、各項獎勵申請及審查流程摘要如下：

（一）學術期刊論文：

- 1、線上申請後列印紙本申請書辦理：本校首頁→E 化校園→校務行政系統→教師職涯歷程檔案→研究成果→研究成果查詢維護→期刊論文→查詢或新增→選擇期刊題目→於期刊論文編輯作業頁面編輯後再點選「儲存並列印學術期刊論文獎勵申請表(含查詢)→點選期刊之學術評價→儲存→預覽申請表→送出申請表→完成【如附件 2】。
- 2、獎勵申請案經院長核章後，請於 114 年 3 月 31 日（一）前送達研究發展處申辦。

（二）學術專書及專章：

- 1、申請人須檢附「國立嘉義大學學術專書專章發表獎勵申請表」【如附件 3，該表單業已更新版本，請以本次提供新版格式填報】及各式書面審查資料（如教師著作等，請詳閱申請表說明並檢附所需附件，如未檢附相關資料或不全者，恕不受理）於 114 年 1 月 24 日(五)前向所屬系、所、學位學程或中心提出申請。
- 2、經系、所、學位學程或中心相關會議初審後，於 114 年 2 月 27 日(四)前將會議紀錄及相關文件資料送學院辦理複審。
- 3、經院級相關會議複審後（師資培育中心納入師範學院；語言中心納入人文藝術學院辦理），於 114 年 3 月 31 日(一)前將會議紀錄及相關文件資料送研究發展處（逾期恕不受理），俾利轉送本校學術審議小組會議辦理決審。

（三）藝術（設計）創作與展演：

- 1、申請人須檢附「國立嘉義大學教師藝術（設計）創作與展演獎勵申請表」【如附件 4】及各式審查資料向所屬系、所、學位學程或中心提出申請（請詳閱申請表說明並檢附所需附件，如未檢附相關資料或不全者，恕不受理）。
 - 2、獎勵申請案經院長核章後，請於 114 年 3 月 31 日（一）前送達研究發展處申辦。
- 四、檢附相關附檔詳如附件 1~4，或逕至本校雲端硬碟→NCYU_Public→研究發展處→1131107 學術研究成果獎勵通知附件

（<https://webhd.ncyu.edu.tw/share.cgi?ssid=97045a8002eb443c927448af61af7eff>）下載卓參。

- 五、本通知及相關附檔業已公告於本校首頁及研究發展處網頁，並傳送至各學院電子信箱，惠請各學院協助轉達所屬教師週知。

備註：113 年度獎勵申請案之出版、創作與展演日期係自 113 年 1 月 1 日起至 113 年 12 月 31 日止。

國立嘉義大學學術研究成果獎勵辦法

90年6月12日89學年度第7次行政會議通過
91年12月10日91學年度第3次行政會議修正通過
93年5月25日92學年度第6次行政會議修正通過
94年12月20日94學年度第4次行政會議修正通過
95年3月14日94學年度第7次行政會議修正通過
95年6月6日94學年度第10次行政會議修正通過
96年1月9日95學年度第4次行政會議修正通過
96年5月8日95學年度第7次行政會議修正通過
97年8月27日97學年度第1次校務基金管理委員會會議修正通過
97年9月9日97學年度第2次行政會議修正通過
99年1月12日98學年度第4次行政會議修正通過
99年3月1日98學年度第3次校務基金管理委員會會議修正通過
99年7月20日98學年度第8次行政會議修正通過
99年9月29日99學年度第1次校務基金管理委員會會議修正通過
103年10月13日103學年度第1次校務基金管理委員會會議修正通過
103年11月11日103學年度第3次行政會議修正通過
108年5月22日107學年度第4次校務基金管理委員會會議修正通過
108年7月9日107學年度第8次行政會議修正通過
109年5月19日108學年度第4次校務基金管理委員會會議修正通過
109年7月7日108學年度第8次行政會議修正通過
110年9月16日110學年度第1次校務基金管理委員會會議修正通過
110年9月28日110學年度第2次行政會議修正通過
111年9月27日111學年度第1次校務基金管理委員會會議修正通過
111年11月15日111學年度第3次行政會議修正通過
113年2月21日112學年度第3次校務基金管理委員會會議修正通過
113年4月9日112學年度第5次行政會議修正通過

第一條 國立嘉義大學(以下簡稱本校)為鼓勵本校專任(含專案)教師積極從事研究，提升學術研究水準，增進本校學術聲望，特訂定「國立嘉義大學學術研究成果獎勵辦法」(以下簡稱本辦法)。

第二條 本辦法之經費來源如下：

- 一、受贈收入。
- 二、場地設備管理收入。
- 三、推廣教育收入。
- 四、產學合作(含政府科研補助或委託辦理)收入。
- 五、投資取得之收益。

第三條 獎勵項目包括：

- 一、國內重要學術獎項獲獎人獎勵。

- 二、頂尖國際學術期刊論文獎勵。
- 三、學術期刊論文獎勵。
- 四、學術專書及專章獎勵。
- 五、藝術（設計）創作與展演獎勵。
- 六、優秀年輕學者嘉禾獎。

第一至五款獎勵以本校名稱於前一年度已正式出版或展演之學術研究成果及獲頒之國內重要學術獎項。

第六款以五年內學術研究成果與著作成果及獲頒之國內重要學術獎項。

第四條 國內重要學術獎項獲獎人獎勵，獎勵項目及金額如下：

- 一、國家科學及技術委員會傑出研究獎，獎勵 5 萬元。
- 二、國家科學及技術委員會吳大猷先生獎，獎勵 3 萬元。
- 三、中央研究院年輕學者研究成果獎，獎勵 3 萬元。

獎勵金核發由研究發展處依授獎單位來函辦理。

第五條 頂尖國際學術期刊論文獎勵

- (一)刊登於 Science、Nature 及 Cell 期刊，申請人屬通訊作者或第一作者，每篇發給 10 萬元；申請人非屬通訊作者或第一作者，依作者排序遞減獎勵，第二作者每篇 5 萬元，第三作者每篇 2 萬元，第四作者及之後序位每篇 1 萬元。
- (二)依本辦法第六條規定提出申請經審查通過之 SCIE 或 SSCI 期刊論文，且其 JCR 公告最新計算論文期刊所屬領域排名百分比 (R) 為前 25% 者。申請人屬通訊作者或第一作者，一人提出申請。符合頂尖國際學術期刊論文獎勵規定每篇獎勵 1 萬元。
經學術審議小組會議審查通過後辦理獎勵，且不列入學術期刊論文獎勵點數。

第六條 學術期刊論文獎勵，係指發表於該學院（師資培育中心納入師範學院；語言中心納入人文藝術學院辦理）教師升等著作第一級期刊，且為通訊作者或第一作者，得由校內一人申請本項獎勵。

一、同一篇論文通訊作者及第一作者皆為本校教師者，以通訊作者為優先獎勵對象。

二、論文獎勵金額或點數：

- (一)刊登於 Science Citation Index Expanded (SCI Expanded, SCIE) 或 Social Science Citation Index (SSCI) 期刊，依申請截止日時 Journal Citation Reports (JCR) 公告最新計算論文期刊所屬領域之排名百分比 (R) 計

點，對照表如下：

排名百分比 (R)	獎勵點數
$25% < R \leq 50%$	8
$50% < R$	6

(二) 刊登於 Taiwan Social Science Citation Index (TSSCI) 第一級及 Taiwan Humanities Citation Index (THCI) 第一級期刊，每篇獎勵 6 點。

(三) 刊登於 TSSCI 第二級、THCI 第二級、Engineering Village (EV)、Arts & Humanities Citation Index (A & HCI)、EconLit with full text (EconLit)、ABI/INFORM COMPLETE (ABI)、Financial Literature Index (FLI)、Modern Language Association International Bibliography (MLAIB)、Emerging Sources Citation Index (ESCI) 及第六條第一項第一款第一至二目以外之其他各學院教師升等著作第一級期刊，每篇獎勵 4 點。

(四) 第一目至第三目獎勵期刊之通訊作者或第一作者 1 人以上，依人數均分各該期刊規定之獎勵金額或點數。

三、各學院（師資培育中心納入師範學院；語言中心納入人文藝術學院辦理）應於每年二月底前，將學院前一年教師升等著作第一級論期刊名單提供研究發展處並公布於網頁。

第七條 學術專書及專章獎勵，係指由國內外學術性出版（發行）單位正式審查程序出版（或發行）之原創性著作，並檢附兩份以上出版（發行）單位審查意見書者。同一部專書及專章如有多位作者為本校教師，可由提報教師均分點數獎勵；專書及專章初版時若其中任一作者已提出申請，再版後不得再提出申請。

一、優良專書：獎勵 6-8 點。

二、傑出專書：經申請人所屬學院（師資培育中心納入師範學院；語言中心納入人文藝術學院辦理）提供外審建議名單，由學校聘任三位校外傑出學者審查通過者；獎勵 9-15 點。

三、專章：獎勵 2 點。

前項所稱正式審查程序，指經出版(或發行)單位之常設性出版委員會(或編輯委員會)以匿名方式送請二位以上學者專家進行審查，每位審查委員皆提供具體審查意見及修訂建議，並於著作人答覆、修訂後決議通過出版之程序。

獎勵之專書及專章不包括教科書、翻譯著作或已發表之論文彙編。

第八條 藝術（設計）創作與展演獎勵，係指教師本人參加國內外展演或比賽獲

首獎(期刊論文除外)，或於國家級、縣市級或國外同等級之音樂廳或展場展演者。

一、參與世界性展演或比賽獲首獎者，獎勵15點。世界性展演或比賽名單，由本校學術審議小組會議審議後公告實施。

二、參與國際性展演或比賽獲首獎者，獎勵12點。

三、參與全國性展演或比賽獲首獎者，獎勵10點。

四、於國家級或國外同等級之音樂廳或展場舉辦個人獨奏(唱)會、個展或音樂創作管弦樂作品一首者，獎勵8點。

五、於縣市級或國外同等級之音樂廳或展場舉辦個人獨奏(唱)會、個展或音樂創作室內樂類作品展演一首，獎勵6點。

六、於國家級、縣市級或國外同等級之音樂廳或展場聯合發表或展演具備下列條件之一者，獎勵4點。

(一) 藝術類：申請人應為三人以內之聯展。

(二) 音樂演奏類：申請人個人(含演奏或指揮者)演出時間在十分鐘以上。

(三) 音樂創作類：獨奏(唱)類作品一首。

第九條 優秀年輕學者嘉禾獎須為本校專任教師，且至申請當年度12月31日止，年齡45歲(含)以下者，女性45歲前曾有生育事實者，每生育一胎得延長2歲，但應檢附相關證明文件。

本項獎勵每年至多6人，獲獎者每人獲頒獎牌乙面及獎勵金10萬元，任職內以獎勵一次為限。

嘉禾獎審查要點由學術審議小組討論決議另定之。

第十條 本辦法各項獎勵申請及審查作業，每年另行公告通知。

第十一條 本辦法第三條各款之獎勵項目，如經確立有違反學術倫理或發表成果出現刊載國家名稱訛誤之情事，撤銷其獎勵，並追回獎勵金。

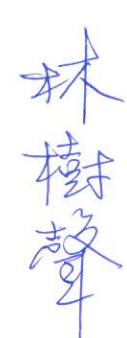
第十二條 獎勵點數獎勵金核發計算方式說明如下：依當年度學校提撥獎勵金額及各教師核准獎勵點數占全校教師核准獎勵總點數之比率，核撥獎勵金額。

第十三條 本辦法經校務基金管理委員會及行政會議通過，陳請校長核定後實施。

國立嘉義大學學術專書專章發表獎勵申請表

112.01.31 版

一、申請人填表

申請人姓名	林樹聲 Shu-Sheng Lin	填表日期	114年2月7日
		職稱	教授
服務單位	教育系數理教育碩士班		
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備註：

- 一、本案如獲推薦申請，本表經單位主管及院長核章後，請傳送至研究發展處申辦，並請將電子檔（docx 檔）請傳送至 eric678@mail.ncyu.edu.tw 研究發展處楊宗鑫，俾利辦理相關事宜。如未獲推薦，請逕留存於學系或學院存查。
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Dana L. Zeidler *Editor*

A Moral Inquiry into Epistemic Insights in Science Education

Personal and Global Perspectives
of Socioscientific Issues

With Contrib. by
Ly Do

 Springer

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Chapter 18

Comprehensive Exploration of Science Education Research within Socioscientific Contexts in Taiwan: Examining Curriculum Reform, Research Status, Reflections and Implications



Shu-Sheng Lin, Shiang-Yao Liu, and Ying-Shao Hsu

18.1 Science Education and Socioscientific Issues

After more than two decades of efforts by numerous science education scholars worldwide, the term ‘Socioscientific Issues’ (SSI) has become a widely recognized term in the field of science education. It represents a conceptual framework that fosters and guides the development of science education theory, research, and practice (Zeidler, 2015), gradually giving rise to the ‘SSI movement’ in the research domain of science education (Zeidler et al., 2005). Following the prevalence of “Science, Technology, and Society (STS) movement” in the 1990s, this signifies another wave of research trends in the global science education community. In relative terms, SSI places a stronger emphasis on epistemology, higher-order thinking skills, character development, and emotional and moral reasoning in students, in contrast to the focus of STS teaching and research (Zeidler & Keefer, 2003; Berkowitz & Simmons, 2003). Even today, many scholars continue to use SSI as a context or teaching material, publishing scientific teaching or related research in various journals. Taiwanese scholars, as members of the global community, are no exception to this trend.

In essence, SSI involves social controversies arising from the development and progress of science and technology (Stradling, 1984). The occurrence of controversy is precisely because any interest group involved in the issue will propose

S.-S. Lin (✉)

Department of Education, National Chiayi University, Chiayi City, Taiwan
e-mail: lin-s-s@mail.ncyu.edu.tw

S.-Y. Liu · Y.-S. Hsu

Graduate Institute of Science Education, National Taiwan Normal University,
Taipei City, Taiwan

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solutions that align with its own position and values. Due to the lack of clear evidence to prove which solution is superior and the absence of consensus on solutions, issues remain unresolved in a situation where each party holds its own views without compromise. Millar (1997) pointed out that technologies causing social controversies typically exhibit the following characteristics: (1) Experts lack consensus on whether the application of this science and technology in society will result in predominantly positive or negative outcomes. Predictions about the technology's consequences are probabilistic rather than absolute certainty. (2) Disputes over judgment involve incomplete and unclear evidence and data, leading to a lack of public consensus in discussions and debates.

In our lives, what kinds of SSI have occurred or are currently taking place? Issues such as climate change and global warming, the emergence of cloned individuals, the cultivation of genetically modified crops, embryonic stem cell research, the discharge of nuclear wastewater, energy utility, the construction of reservoirs, the invasion of exotic species, and more. These topics encompass global issues, transnational regional issues, as well as local issues specific to a particular country or region. Zeidler et al. (2003) pointed out that regardless of the type of SSI, each can serve as a case study, guiding students in exploration led by teachers. The entire teaching process can promote personal development in knowledge, ethics, and emotions related to the issues. It also stimulates interaction between teachers and students or peers, fostering an understanding of diverse perspectives and positions for resolving controversies. This, in turn, connects to dialogues across different disciplinary areas.

SSI occurs in our surroundings, and we cannot ignore their presence or disregard their impact on our lives and society. Therefore, strengthening students' abilities to face SSI through science education is a crucial goal in education (Kolsto, 2001) and a significant aspect in cultivating students' functional scientific literacy (Zeidler et al., 2019). In essence, we aspire to train students to approach SSI with rationality, engage in evidence-based discussions and negotiations, and embrace the social responsibility of future citizens by making decisions that benefit the public and are environmentally friendly to the Earth's ecology. However, engaging in rational thinking within the context of SSI poses a highly challenging task. We will further elaborate on this point in the upcoming section, "The Difficulties and Challenges in SSI-based Teaching."

Compared to science problem-solving with standardized answers and value-free science instruction, SSI shows characteristics such as ill-structured, open-ended questions, interdisciplinary nature, involvement of diverse and conflicting perspectives, and influence of emotions and values (Oulton et al., 2004; Levinson, 2006). Simultaneously, SSI aligns with the concept of situated learning, enabling students to confront real-life issues and connect school science with problems happening out of school, and apply acquired scientific knowledge and skills (Klosterman & Sadler, 2010; Sadler, 2009). Therefore, integrating SSI into science teaching and curriculum yields effects distinct from purely concept-based science instruction and learning, achieving the goal of fostering scientific literacy and cultivating responsible citizens in the broader sense.

The mentioned argument also aligns with the curriculum advocated by social reconstructionism in education. Stanley (1992) notes that this theory emphasizes that schools should guide students in understanding their connection to society, enabling them to contribute to societal improvement. It puts emphasis on the importance of continuously staying attentive to social issues, taking action to engage in social participation, actively contributing to problem-solving, and ultimately working towards creating a more equitable society. In other words, education in schools goes beyond assisting students in adapting to social life; it must also foster students' active discussion and participation in societal matters, prompting them to shoulder their social responsibilities (Groenke, 2009). Consequently, under the guidance of school teachers, building upon students' existing knowledge and abilities, engaging in collaborative inquiries into SSI within the classroom becomes a significant experience in teaching and learning. This approach aligns seamlessly with the advocated practices in the field of science education.

Previous studies have shown that using SSI as teaching topic and materials or contexts for science instruction can achieve various instructional and learning outcomes, which includes the construction of science knowledge and concepts related to the issue (e.g. Kiryak & Çalik, 2018; Sadler et al., 2016), attitudes toward science (e.g. Pelch & McConnell, 2017), inquiry skills (e.g. Eastwood et al., 2013; Lee & Brown, 2018), argumentation skills (Su & Lin, 2012; Evagorou & Osborne, 2013; Lin & Mintzes, 2010), decision-making and its quality (Gresch et al., 2013; Hsu & Lin, 2017), reflective judgment (Zeidler et al., 2009), moral or ethical reasoning (Lu & Lin, 2019), moral sensitivity (Fowler et al., 2009), informal reasoning (e.g. Chin & Wu, 2017a; Karpudewan & Roth, 2018), understanding of the nature of science (e.g. Eastwood et al., 2012; Khishfe, 2013; Lederman et al., 2014; Khishfe et al., 2017).

An important observation is that, among the aforementioned learning outcomes, there has been relatively limited scholarly research on improving the concept or variable of 'character'. Despite being identified by some scholars as a teaching goal achievable through SSI-based instruction (Choi et al., 2011; Lee et al., 2012a; Zeidler et al., 2019), it appears challenging to attain. Lee et al. (2013) demonstrated significant enhancement in the character and values of 132 ninth-grade students using the issue of Genetically Modified technology and seven class sessions (each lasting 45 min). They confined the assessment of character and values to three dimensions: ecological worldview, social and moral compassion, and socioscientific accountability. However, the cultivation of students' character is a long-term process influenced by various factors such as cultural influences and societal norms from different countries. It requires prolonged observation of students' discourse and behavior to comprehend their character development. While it might be plausible to improve students' character through one or two SSI teaching experiences, the sustainability of such improvements is a critical aspect that the education community is concerned about. Furthermore, the assessment of character not only involves the scope measurable by tools but also includes challenges related to setting assessment indicators and determining whether the assessment results genuinely reflect students' character. Therefore, the hypothesis that SSI promotes

students' character development still requires further extensive research for a deeper understanding.

As the SSI movement spreads and influences the research and teaching practices in science education worldwide, Taiwanese scholars are naturally not exempt from its impact. In the following sections, we explore the reforms in Taiwan's science education, the contributions of Taiwanese scholars to the global research on teaching with SSI as materials or contexts, and offer some reflections on the subject.

18.2 Socioscientific Issues and Curriculum Reform in Taiwan

Examining the status of SSI in science curriculum documents is crucial and necessary, reflecting opportunities for implementing issue-based teaching in science classrooms at the compulsory education stage. Taiwan's science curriculum has seen two waves of reform this century. The first reform refers to the curriculum guidelines for grades 1–9 promulgated in 2001, which subsequently triggered the reform of high school science subject curricula with the provisional version and the newly revised version released between 2006 and 2010. The second reform, the "Curriculum Guidelines of 12-year Basic Education–Natural Sciences," emerged in 2018. Understanding the evolution of SSI in these documents is essential for fostering issue-based teaching in science classrooms during compulsory education.

The 1–9 grades curriculum guidelines integrating natural sciences and life technology began to include the scientific literacy attributes as educational goals. Under the "Scientific Applications" attribute, for students in grades 7–9, one of the competence indicators is designated as incorporating "analysis of social issues related to science" into the learning outcomes. When detailed learning contents are listed in the appendixes of the curriculum document for references in lesson plans, there is a dedicated statement under the sub-topic "Ethics in Science" that emphasizes teaching students to think critically about science-related social issues through data collection or group discussions.

The high school science curriculum revised in 2010 was considered more in line with the concept and scope of basic education curriculum reform at that time (Li, 2010). Among science subjects, only biology curriculum guidelines explicitly required the inclusion of social, legal, and ethical issues related to the biological sciences in the teaching materials and proposed issue-based teaching strategies. High school compulsory biology was divided into basic biology and applied biology. The applied biology curriculum document addressed specific SSI topics, including genetically modified organisms, genetic screening, and biomass energy, which served as the basis for textbook development. In addition to biology, a teaching unit "complexities and dilemmas of environmental issues" was listed in the earth science elective course, but there was no description of relevant learning objectives and teaching strategies.

The latest science curriculum, spanning grades 3–12, underscores scientific inquiry at all learning stage, extending to the creation of a mandatory high school course, “Natural Science Inquiry and Practice.” In the curriculum guidelines document, the specific term “socioscientific issues” has appeared on page one, in the first chapter “fundamental rationale.” The integration of science-related social issues into learning content and learning performance has become evident throughout the document. Especially in the descriptions of the “Natural Science Inquiry and Practice” course, it is emphasized that students should learn systematic knowledge, interdisciplinary dialogue and critical thinking through these daily-life oriented issues. This reflects Taiwan’s ongoing emphasis on issue-based teaching in science education at the compulsory education stage, and teachers are thus compelled to create relevant teaching materials, marking a significant evolution to align with the changing educational landscape.

18.3 The Contributions of Taiwanese Scholars to Research on Socioscientific Instruction or Contexts

Taiwanese science education scholars not only publish papers in English in international journals but also use their native language, Chinese, as a medium for journal article publication. Similar to the publication practices in various countries worldwide, these articles, after undergoing anonymous review and acceptance, are published in academic journals by Taiwan’s academic institutions, associations, or publishing companies. Examples include journals like the “Contemporary Journal of Science Education,” “Curriculum and Instruction,” and “Journal of Research in Education Sciences”....etc. The papers published in these journals are included in the traditional Chinese literature database “Hwa-I.”

Using the Chinese term “社會性科學議題” (Socioscientific Issues) as a keyword, we searched the “Hwa-I” database for journal articles published from January 2000 to September 2023. The search yielded a total of 40 articles. After thorough reading and screening, four non-empirical studies were excluded. The remaining 36 articles were empirical studies related to SSI-based instruction or SSI context. The authors then employed content analysis and inductive methods to categorize these empirical articles based on their research objectives, resulting in five major categories (Fig. 18.1).

The first category is “Teachers’ instruction,” focusing on describing and interpreting the professional states and changes of teachers in SSI instruction. This includes the adjustment and change of professional knowledge and strategies among secondary school teachers during SSI teaching (Genetically modified food; GMO) (Lin, 2006), the transformation of roles among an elementary school teacher in SSI teaching (GMO) (Lin, 2007), the differences between expert and novice instructors at the college level guiding students in SSI argumentation (The use of cosmetics) (Hung et al., 2010), and the similarities and differences in elementary school

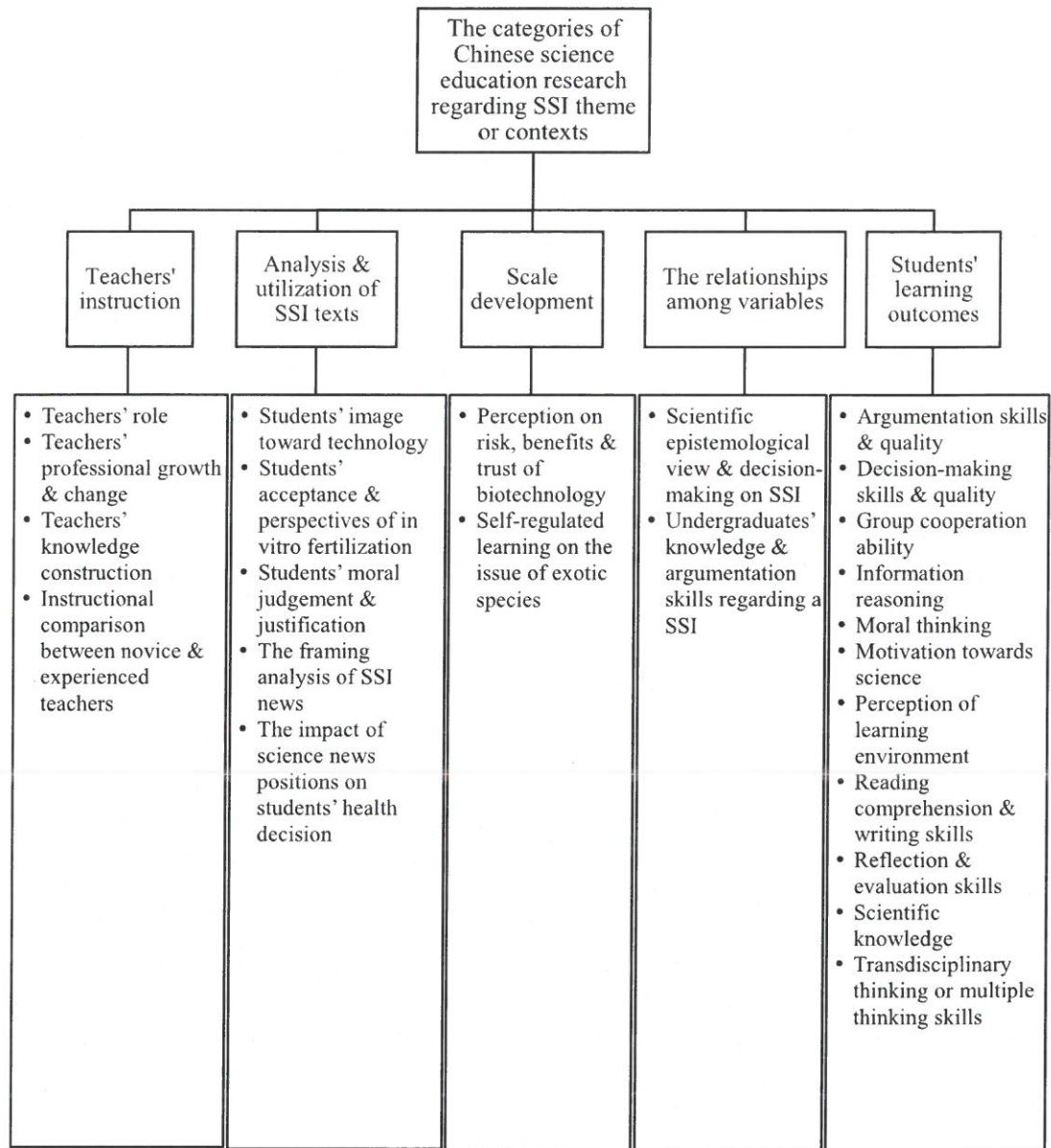


Fig. 18.1 Classification of Chinese science education research regarding SSI theme or context in Taiwan

teachers' construction of subject-specific teaching knowledge for SSI instruction (The establishment of Ma-Gao national park) (Lin & Chin, 2012).

The second category is "Analysis and utilization of SSI texts." Researchers explore into how news represents SSI (Chen & Lee, 2017), investigate university students' construction of impressions toward technology through SSI news (Huang & Jian, 2008), examine the differences between students and experts in monitoring science news (Huang, 2008), survey university students' understanding and monitoring of SSI news output (Huang, 2017), and explore changes in the stance and decision-making of female university students before and after reading SSI news on hormone-replacement therapy (Lin et al., 2014). Additionally, studies investigate

the viewpoints and thoughts of non-science major university students facing a SSI (Undergraduates' acceptance and perspectives of in vitro fertilization) (Lin & Hsin, 2017), as well as the moral judgment and justifications of high school students facing SSIs (Regenerative medicine, GMO, and animal experiments) (Lu & Lin, 2019).

In the third category, "SSI scale development," a scale named "Perception on Risks, Benefits and Trust of Biotechnology" (Chin, 2015) for high school students consists of 24 items distributed across six dimensions, covering knowledge perception, relevance to daily life, issue importance, benefits, trust in risk management, and risk assessment. The scale effectively explains 65.414% of the variance, with high reliability ($\alpha > 0.70$) in each dimension. The overall alpha coefficient for the scale is .89 ($N = 450$), demonstrating its robustness in assessing students' perceptions of biotechnology.

Another scale in this category is the "A Scale for Self-Regulated Learning on the Issue of Exotic Species" (Lin, 2021), administered to elementary school students. This scale consists of 15 items distributed across three dimensions: "Driving force for SSI learning" (4 items), "Action strategies" (8 items), and "Reflection on learning gains" (3 items). The overall internal consistency (Cronbach's α) for the scale was 0.86 ($N = 406$), with individual subscales ranging from 0.63 to 0.85. The complete set of items accounts for 52.38% of the variance. Confirmatory factor analysis, based on responses from an additional 666 elementary students, confirms the data's good fit to the three-factor structure of the scale.

"The relationships among variables" in SSI contexts, providing insights into the direction and strength of relationships between different variables. This type of research helps measure whether changes in one variable are associated with changes in another. Examples include examining the correlation between college students' scientific epistemological views and their decision-making on socio-scientific issue choices (The Establishment of a mountain cable car & global warming) (Liu et al., 2007), and exploring understandings and argumentation on genetically modified organisms among college students and their correlation (Lin et al., 2010).

The fifth category primarily focuses on exploring "Students' learning outcomes" after SSI-based Instruction, such as knowledge, emotions, high-order thinking abilities, or skills among students after exposure to different SSI-based instructions. This category constitutes the largest number of studies, totaling 22 articles. In addition to enhancing students' knowledge about the issues, the examined learning outcomes include argumentation ability and quality (Lin & Huang, 2009; Lee et al., 2012a, b; Su & Lin, 2012; Yang et al., 2017), moral reasoning (Lin, 2012), decision-making ability and quality (Fang & Hsu, 2017; Lin & Hsu, 2017; Cheng et al., 2021; Wu et al., 2021; Zhang et al., 2023), reflection and evaluation skills (Zhang & Hsu, 2021a), decision-making sub-skills (issue identification, criterion establishment, evidence collection) (Wu et al., 2017), informal reasoning (Chin & Wu, 2017a), transdisciplinary or multiple thinking skills (Lin & Li, 2018; Chang et al., 2022), changes in perspective and positions (Lin & Chin, 2018; Chin & Hu, 2018), reading comprehension and writing (Xia & Chin, 2021; Chin et al., 2010), learning motivation and group collaboration abilities (Chin & Hu, 2016), and classroom environment awareness (Chin & Wu, 2017b).

Regarding studies on “Students’ Learning Outcomes” after SSI-based instruction in the fifth category, we further summarize relevant findings, insights, and reflections.

Firstly, some studies adopt SSI related to transnational issues, involving controversies such as international cooperation between nations, political negotiation, economic competition, ecological destruction and biological survival, ethical norms, and the formation of laws and regulations. Examples include global warming (Lin & Chin, 2018) and cloning (Chin et al., 2010). Other studies select local SSIs, addressing disputes involving the preservation of traditional culture, local economic development, challenges in environmental conservation, and the labor rights of marginalized communities. Examples of local SSIs include the construction of high-speed railways (Lin & Huang, 2009), the celebration of Ma Zu’s birthday (Su & Lin, 2012), reservoir site selection (Fang & Hsu, 2017), hillside development (Chin & Hu, 2016), Hakka community traditional holy pig competition (Xia & Chin, 2021), and mining in indigenous territories (Chang et al., 2022), among others. Compared to global or international issues, these local topics are more closely connected to students’ lives, aligning with their existing life knowledge and experiences, and are more likely to engage students in classroom participation and discussions.

Secondly, various teaching strategies have been employed to guide students in learning within SSI contexts or through SSI-based instruction in these studies. These strategies include questioning, demonstration, small group or whole-class discussions, cooperative learning, debates, role-playing, public hearings, case analysis, and more. In addition to instructional strategies, teachers often provide teaching scaffoldings for student learning, guiding students in their learning process and assisting them in realizing their potential to accomplish various learning tasks (Lin et al., 2012, 2022). All kinds of instructional or learning scaffolding also play a crucial role in SSI-based instruction.

These studies have explored different scaffolding approaches to enhance students’ learning experiences in diverse contexts. Chin et al. (2010) introduced the “Guided TAPing (Toulmin’s Argument Pattern) cell” to improve elementary students’ expression of arguments in a cloning context, revealing improved informal reasoning but still weaknesses in providing backings. Su and Lin’s (2012) study demonstrated that elementary students, instructed with both oral and writing scaffoldings in the context of “Mazu’s birthday celebration, promoting heavy industry, and replacing manual labor with robots,” generated at least two additional valid rebuttals compared to those receiving only oral scaffoldings. However, both groups demonstrated enhanced argumentation skills. Lin and Chin (2018) employed ‘Reading-and-Writing worksheets’ as scaffolding to facilitate elementary students’ discussions and revisions of proposed plans for polar bear protection, highlighting group collaborative efforts that led to consensus and improved decision-making quality. Wu et al. (2021) focused on high school students facing the context of utilization of nuclear power, discovering that open-ended question prompts significantly

improved decision-making performance in a computer-supported collaborative learning environment. Zhang and Hsu (2021a) developed an SSI-based decision-making curriculum (coastline protection) with metacognition prompts, engaging high school students in deep reflection, especially regarding trade-off analysis. Xia and Chin (2021) successfully applied the “Question-Answer-Relationship” strategy as a teaching scaffold, improving reading comprehension and argumentation ability in elementary students across contexts of animal experiments and traditional “holy pig” competition ritual.

Together, these studies provide valuable insights into the effectiveness of various scaffolding methods across different educational levels and subjects within the context of SSI-based instruction.

Thirdly, the experimental teaching durations in these studies ranged from 4 to 18 h. Almost all studies indicated significant improvement in learning outcomes for the experimental group, either significantly outperforming the control group or comparison group. For studies with relatively short teaching interventions (e.g., 2 weeks with 2 h each week), we believe that incorporating delayed assessments into the evaluation could better demonstrate the sustained and persistent impact of instructional interventions on students’ learning outcomes. This approach could provide stronger support for the depth of the instructional impact on students, showcasing learning retention and transfer, rather than just the effects of short-term teaching.

Fourthly, implications and reflection on these studies, aspects that future research can continue to explore include:

1. Attention to affective assessment

Compared to assessments in the cognitive and skills domains, fewer studies assess students’ changes in the affective domain within SSI contexts. After undergoing SSI-based instruction, do students’ attitudes and sense of responsibility in participating in discussions or solving SSIs change? Does their level of concern and attention to SSIs alter? Can SSI-based instruction sustain students’ motivation and interest in science learning continuously? What kind of technological integration into SSI teaching and curriculum design is needed to further enhance students’ willingness and motivation to learn?

2. Further enhancement of many higher-order thinking skills

Since SSIs involve complex and ill-structured problems, and most of them exist in a science-in-the-making state (Kolsto, 2001), evidence for problem resolution is often insufficient or undetermined. Therefore, when students engage in SSI exploration, teachers need to guide them in collecting and analyzing various data, interpreting, evaluating, weighing, and utilizing diverse scientific evidence, and ultimately making informed decisions. In other words, the process of engaging students in SSI argumentation or decision-making requires a considerable range of epistemic abilities related to evidence interpretation, assessing the credibility and validity of evidence, weighing evidence, and other factors. These aspects are less explored and merit further in-depth investigation in the future.

3. The lack of tracking students' learning progression

The current limitation lies in the lack of tracking students' learning progression in most SSI-based instructions. Typically, only one or two SSIs are utilized to assess students' learning outcomes. However, the development of higher-order thinking skills related to facing and discussing SSIs, such as argumentation, decision-making, evidence evaluation, and the ability to support or counter arguments using evidence, requires continuous cultivation and repeated practice. These skills need time to internalize as part of students' capabilities, enabling them to demonstrate learning transfer in various contexts. To address this, it is crucial to provide students with diverse SSIs for learning while concurrently undertaking long-term tracking of their changes in higher-order thinking skills.

18.4 Two Cases of SSI-Based Instruction

The problem-solving within SSI is complex, encompassing discussions of diverse perspectives and involving dialogue and negotiation within the democratic process. Therefore, when teachers implement SSI-based instruction, they often design instructional scaffolds to guide student learning (Erman et al., 2022; Zhang & Hsu, 2021b). Simultaneously, adopting strategies of deliberative democracy and dialogue allows students to simulate experiencing future SSI decision-making scenarios in society. The following are two specific cases of SSI-based instruction respectively developed by the second and the third author in this chapter in their research: one integrates a technology-assisted learning scaffold, while the other employs the method of deliberative democracy dialogue.

18.4.1 Case 1: *Guardians of the Coastline*

In the first case, the researchers designed e-learning SSI activities called as "Guardians of the Coastline: focus on designing e-learning SSI activities (called as "Guardians of the Coastline: Planning for the Future") which guided students to collaboratively choose an appropriate option through three phases of the decision-making process summarized from the literature (Fang et al., 2019; Lee & Grace, 2012). The SSI scenario required students to solve a SSI about sand lose along with a coastline by choosing coastal engineering. Coastline management is a SSI because people with diverse perspectives on sustainability, human safety, or economic development can often barely reach a consensus on what coastal engineering the government should adopt. The first phase was required students to recognize the issues to formulate the decision-making space and to collect the necessary information and

evidence to identify the possible perspectives about the issue. Then, they were guided to formulate at least five criteria for coastline protection. The second phase helped students weigh the criteria, analyze each given option's pros and cons, and recognize the dilemma to stimulate students to consider the decision via trade-off analysis and make their decision with justification. Seeking a consensus might evoke students' negotiation on the inconsistencies to reach the complementarity convincing those who disagreed with their decision in the group. The third phase was related to continually differentiating the features via multiple methods, especially monitoring and regulating the quality of the decision-making process. To promote students' regulation learning in their decision-making process, a peer-review task was designed to guide students to critique the decision made by another group, and debate or reflect on the quality of the decision. Through the processes of debate and reflection, students had more opportunities to monitor and regulate their decision-making and then to simultaneously improve their decision-making ability.

The study used a single-group pre-and post-test design to explore the influence of SSI-based learning on students' decision-making ability. The SSI-based learning was designed with scaffolds such as an animation for evidence-based decision-making (Fig. 18.2), peer collaboration, and e-learning prompts. A total of 172 10th-grade students participated in the study. The remarkable findings revealed that students' decision-making ability significantly improved in these three phases. Students could consider at least two aspects to make their decision, use a compensatory method to weigh four coastline-protected engineering techniques, and monitor and evaluate the quality of their own decision. However, the content analysis of students' responses to worksheets in the groups indicated that students' understanding of the compensatory method was not satisfactory. Although they reported a preference for employing the compensatory method in decision-making tasks, 15 groups made mistakes while applying the method, such as failing to weigh the criteria or confusing the compensatory method with the deletion method. This finding suggests that more learning supports for students to develop their decision making strategies are needed.

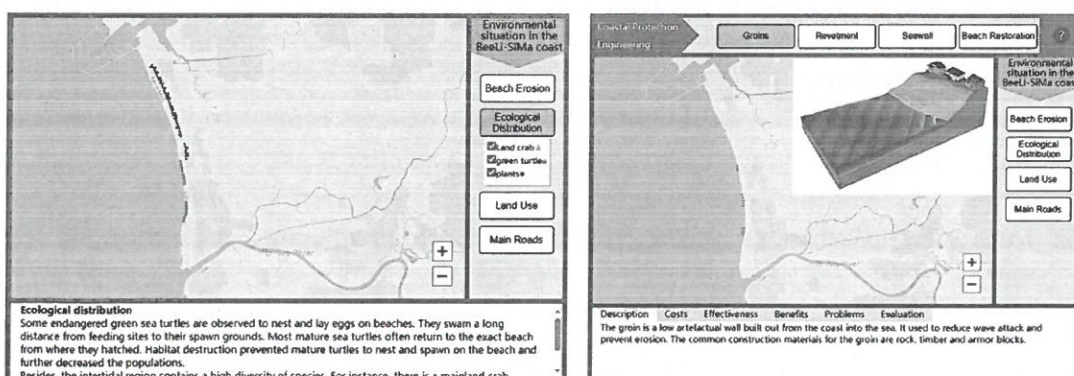


Fig. 18.2 An animation for evidence-based decision making

18.4.2 Case 2: Facilitating Students' Deliberative Dialogues on Energy-Related Issues

The energy-related topics were selected as teaching materials for the second SSI-based teaching case. The issue originated from a referendum on four initiatives held in Taiwan in December 2021, two of which were related to the construction of power plants. The referendum seems to have fueled public demand for scientific evidence on the governance of social issues, especially energy issues related to people's livelihood.

Drawing on prior research (e.g., Dawson & Carson, 2020; Suwono et al., 2021), the goal of this SSI teaching unit was set to engage students in developing thinking skills and citizenship values through argumentation and decision-making on SSI. World Café is a well-known strategy for democratic deliberation allowing participants to share opinions through dialogues for social change (Carson, 2011). Design principles by founders Juanita Brown and David Isaacs include: (1) set the context; (2) create hospitable space; (3) explore meaningful questions; (4) encourage everyone's contribution; (5) cross-pollinate and connect diverse perspectives; (6) listen together for patterns, insights, and deeper questions; and (7) harvest and share collective discoveries (Brown & Isaacs, 2005, p. 40). World Café adapts for learning activities in various settings, including small classrooms, designed as highly interactive events of varying durations (Cassidy & Fox, 2013). Only a few recent studies in the field of science education have utilized the World Café approach to socioscientific inquiry-based learning (Baek et al., 2022) and to practice negotiation of science-related ethical dilemmas (Kali et al., 2019). Therefore, this case study integrating World Café activities into the SSI teaching model, using energy-related topics for deliberative dialogues.

This teaching unit lasted 3 weeks (2 lesson hours per week). The first week's lesson allowed the teacher to clarify the context, and students explored questions of interest. Using the Kahoot platform, the teacher engaged students in an energy knowledge quiz and led them to explore Taiwan's power system and energy sources through review quiz questions, focusing on rising electricity prices and the importance of caring about energy issues. Students then worked in groups to search for information and formulate discussion topics for the second week. The 100-min class in the second week was highly interactive, with seats arranged in a group discussion format in a small classroom setting. Students rotated in three rounds of conversations with 4–6 classmates. Each group designated a representative as the table host responsible for introducing the discussion topic and facilitating the conversation, while other members participated in different rounds at other tables. Finally, in the third week, group representatives shared discussion results with the whole class, following the design principle of "harvest and share collective discoveries." Students conducted peer evaluations on each group's presentation and filled out the argumentation questionnaire.

This SSI teaching unit, incorporating World Café design principles, was tested with three 10th-grade classes (15–16 years old). Effectiveness was assessed by comparing students' argumentation performance before and after teaching.

Qualitative data analysis of group discussions suggested the first week's lesson was a critical stage that affected students' argumentation performance. The teacher utilized the knowledge quiz to lead students to review energy background concepts and problematic situations. Only with sufficient background knowledge of energy issues can students engage in meaningful group discussions and ask deeper questions for follow-up deliberative dialogues. For example, in class A, students proposed six topics, covering a variety of energy sources such as nuclear, wind, solar, and even human power (biking). Two other topics were related to policy, including raising electricity rates and limiting the number of automobiles in a household. In class B, one group asked a question about why we care about energy issues, while other groups explored different opinions on nuclear power, green energy facilities, biomass energy, and electric vehicle tax exemption. In contrast, most groups in class C struggled with complete questions, probably because about one-third of the students missed the knowledge quiz. Further dialogue analysis in each round of group discussion may provide concrete evidence for integrating SSI instruction with World Café.

18.5 The Challenges of SSI-Based Instruction

Numerous empirical studies published in journals on SSI-based instruction or science teaching within SSI contexts, including the research conducted in Taiwan mentioned above, consistently show positive teaching outcomes. Teachers have successfully facilitated student learning, and instances of failure are rare. However, these findings do not necessarily guarantee the success of in-service science teachers in their classroom practices. After all, each science teacher possesses unique professional abilities and skills and faces different students, situations, teaching environments, and resources. Therefore, the implementation of SSI-based instruction in practice can give rise to various potential difficulties and challenges. Overcoming these challenges is a crucial aspect that must be addressed in the promotion of SSI-based instruction. Only by doing so can the practical implementation of SSI-based science teaching become more likely and have a broader impact on students' science learning.

18.5.1 Challenge 1: Duration of Mutual Support Partnerships in Science Teaching Research

In the field of science teaching research, the researcher themselves or teams composed of scholars and teachers form the backbone supporting science teachers in implementing SSI-based instruction. The research team, led by the researcher, not only provides timely professional advice to science teachers but also offers encouragement both spiritually and practically. These aspects are made possible due to

financial support from institutional grants for research. This kind of “mutual support partnership” exists because of this support (Lin, 2022).

Although we know professional growth communities are crucial and essential for individual teacher development (e.g. Akerson et al., 2009; Clair et al., 2023; Vangrieken et al., 2017), most science teachers are often left to work independently in educational settings, without specific scholars or teacher groups to assist them. Therefore, when practicing unfamiliar teaching methods for the first time, teachers often experience anxiety and uncertainty, fearing that they may not perform correctly or effectively. Thus, they must engage in continuous trial and error, making adjustments to eventually achieve better outcomes. During this trial-and-error process, having a team as a supportive backbone can enhance teachers’ confidence in implementing SSI-based instruction. The success of promoting SSI-based instruction becomes more feasible. However, when scholars are unable to secure continued financial support, such mutual support partnerships may disappear, potentially leading to a decrease in teachers’ willingness to promote SSI-based instruction.

18.5.2 Challenge 2: Limited Integration of SSIs in Science Textbooks

In SSI-based instruction research, the SSIs commonly used are often not included in the original school curriculum. This means that the science textbooks adopted by schools do not cover these SSIs, making them almost exclusively supplementary materials outside the school curriculum or extended materials related to specific units. For science education in Taiwan, the problem lies in the fact that the national curriculum guidelines for the natural sciences explicitly allow schools to implement issue-based teaching, and the actual implementation of SSI-based instruction is legal. However, due to the heavy reliance on textbooks in school teaching, if SSIs are not included in the textbooks, the opportunities for science teachers to practice SSI-based instruction are reduced. Moreover, if teachers face pressures related to the curriculum pace, limited class time, and the student-centered nature of SSI-based instruction requiring more time, the likelihood and willingness of science teachers to incorporate SSIs in the classroom become even lower.

Furthermore, while activity design and development are undoubtedly part of a science teacher’s professional performance, it is an acknowledged time-consuming and mentally consuming task. Many science teachers have additional responsibilities beyond teaching, such as mentoring, administrative work, and collaboration with national or local education initiatives, collaboration with national or local education initiatives, which encompass specific programs, projects, or actions aimed at addressing and promoting certain educational goals or improvements. These additional responsibilities demand extra effort from science teachers. Requesting them to implement SSI-based instruction under such circumstances creates a dilemma in their willingness to engage in teaching.

18.5.3 Challenge 3: Time Needed for Teachers and Students to Adapt to Teaching, Learning, and Open-Ended Assessment

For both teachers and students, SSI-based instruction, learning, and assessment differ significantly from the predominant focus on knowledge, concepts, and problem-solving in traditional teaching methods. This is especially true during activities involving SSI argumentation or decision-making processes. In essence, SSI-based instruction brings about a fundamental shift in science teaching and learning practices (Zeidler et al., 2011), moving away from the ‘comfort zone’ of familiar teaching habits and approaches.

Teachers must develop their beliefs, value and pedagogical content knowledge (PCK) specific to SSI-based instruction. Moreover, through the implementation of SSI-based instruction, they need to adjust and refine their PCK to address previously unencountered teaching challenges. This includes navigating open-ended assessments that require reasoned arguments without standard answers, and transitioning roles to facilitate students in engaging in value-oriented dialogue, argumentation, or decision-making activities (Bossér et al., 2015).

Similarly, students’ learning experiences diverge from traditional approaches. They must take a more active role in learning, moving beyond passive listening, pursuing standard answers, and focusing only on individual learning. Lee et al. (2019) emphasize that learning SSI often demands students to transition across different scientific learning cultures. This involves a shift in learning styles from passive engagement to actively participating in discussions, collaborative work, evidence-seeking, and argumentation with peers.

Particularly in Taiwanese classrooms, where student participation may not be as prominent, teachers need to design effective strategies, such as incorporating oral encouragement or providing incentives, to overcome the “culture of silence” among students. This facilitates meaningful dialogue and interaction between teacher and students or among students in SSI-based instruction. Adapting to these changes for both teachers and students is a gradual process, requiring not only time but also consistent practice to become proficient and familiar.

18.5.4 Challenge 4: Navigating the Complex Rational Thinking in SSI Decision Making

In the process of conducting SSI-based instruction in science teaching, we often train students to first understand the controversies in the issues, identify the stakeholders involved, and explore perspectives on resolving disputes. Then, they proceed to collect data and find evidence. Afterward, we require them to develop criteria and evaluating strategies, rely on evidence, weigh the importance and appropriateness of different perspectives, and finally make decisions. This is what is

known as a systematic and rational thinking process (Hsu & Lin, 2017; Gresch et al., 2013; Gresch & Bögeholz, 2013).

However, rational thinking is not an easy task, especially in the context of SSI. Firstly, as mentioned earlier in this article, many SSI involve scientific and technological developments that are still in the science-in-the-making stage. Therefore, the evidence provided for us to base our conclusions on is still insufficient, incomplete or even lacking. Secondly, prior studies have already told us that SSI argumentation, decision-making, and moral thinking are influenced by many factors, such as students' knowledge of the issues, communication and expressive abilities, and the SSI scenarios (Topcu et al., 2010). One of important factors is personal emotions and values (Powell et al., 2021; Rundgren et al., 2016).

In other words, rational thinking cannot work perfectly when facing SSI, especially when making decisions related to the survival, life, medical and treatment experiences. Emotional factors, particularly, cannot be ignored or excluded (Lin, 2012). In other words, the consideration of making decisions in SSI does not solely rely on evidence and personal rational thinking; it must also consider personal psychological feelings, projection and attachment of emotions, empathy, and the impact of personal values. Therefore, while science teaching put emphasis on students' rational thinking, if emotional considerations can also be taken into consideration, more humane decisions should be made. This increases the complexity of educating students in rational thinking. Whether teachers can grasp this in the classroom becomes another challenge.

18.6 Conclusion

In summary, empirical studies by Taiwanese scholars on SSI-based instruction or SSI contexts, published in Chinese journals, encompass five categories: "Teachers' instruction, Analysis and utilization of SSI texts, SSI scale development, The relationships among variables, and Students' learning outcomes," all of which are noteworthy. These findings enhance our understanding of research related to SSI themes or contexts, suggesting directions for further exploration. They also shed light on the potential for diverse designs and scaffolding approaches in SSI-based instruction, influencing the learning outcomes of Chinese-speaking students. For future research, exploration can be continued in areas such as strengthening students' affective assessment, focusing on higher-order thinking skills related to epistemology, and tracking students' learning progression. When considering teaching practices, the recognition that SSI-based instruction can improve students' cognition, affect, and abilities brings to light the importance of overcoming the aforementioned challenges. Collaborative efforts from scholars and teachers are essential to make further progress in the practical implementation and promotion of SSI-based instruction.

References¹

- Akerson, V. L., Cullen, T. A., & Hanson, D. L. (2009). Fostering a community of practice through a professional development program to improve elementary teachers' views of nature of science and teaching practice. *Journal of Research in Science Teaching*, 46(10), 1090–1113. <https://doi.org/10.1002/tea.20303>
- Baek, S., Shin, H., & Kim, C. J. (2022). Development of a climate change SSIBL-STEAM program aligned to the national curriculum for SSI elementary school in Korea. *Asia-Pacific Science Education*, 8(1), 109–148.
- Berkowitz, M. W., & Simmons, P. (2003). Integrating science education and character education. In D. L. Zeidler (Ed.), *The role of moral reasoning on socioscientific issues and discourse in science education* (pp. 117–138). Kluwer Academic Publishers.
- Bossér, U., Lundin, M., Lindahl, M., & Linder, C. (2015). Challenges faced by teachers implementing socio-scientific issues as core elements in their classroom practices. *European Journal of Science and Mathematics Education*, 3(2), 159–176.
- Brown, J., & Isaacs, D. (2005). *The world café*. Berrett-Koehler Press.
- Carson, L. (2011). Designing a public conversation using the World Café method. *Social Alternatives*, 30(1), 10–14.
- Cassidy, A., & Fox, J. (2013). Modified world café discussion model for conference and course settings. In *Collected essays on learning and teaching Vol. 6: Learning without boundaries* (pp. 99–104). Society for Teaching and Learning in Higher Education.
- *Chang, H.-C., Lowsing, L., & Lee, H. (2022). Place-based socioscientific teaching and learning practice in indigenous elementary schools. *Contemporary Journal of Science Education*, 30(S), 403–424. https://doi.org/10.6173/CJSE.202212/SP_30.0002
- *Chen, Y.-C., & Lee, S.-T (2017). The framing analysis of SSI news-examples of gene-modification news. *Contemporary Journal of Science Education*, 25(S), 439–462. <https://doi.org/10.6173/CJSE.2017.25S.02>
- *Cheng, T.-S., Lin, J.-W., Lee, Y.-Y., & Lin, C.-H. (2021). The impacts of socioscientific issue modeling curriculum for preservice teachers' decision making on highway route selection. *Contemporary Journal of Science Education*, 29(3), 219–243. [https://doi.org/10.6173/CJSE.202109_29\(3\).0002](https://doi.org/10.6173/CJSE.202109_29(3).0002)
- *Chin, C.-C. (2015). High school students' perception on risks, benefits and trust of biotechnology: A scale development study. *Contemporary Journal of Science Education*, 23(3), 241–264. <https://doi.org/10.6173/CJSE.2015.2303.02>
- *Chin, C.-C., & Hu, F.-J. (2016). If learning science is like this- Elementary students' change in knowledge, motivation, and cooperative skills through socioscientific issues-based learning. *Education Journal*, 44(2), 101–126.
- *Chin, C.-C., & Hu, F.-J. (2018). Action research on mudslide-module instruction in grade-five level-students' change in decision making, reasoning, and environmental ethic belief. *Contemporary Journal of Science Education*, 26(1), 51–70. [https://doi.org/10.6173/CJSE.201803_26\(1\).0003](https://doi.org/10.6173/CJSE.201803_26(1).0003)
- *Chin, C.-C., & Wu, C.-Y. (2017a). Elementary students' change in informal reasoning through the SSI Instruction: Their decisions on energy choice under the different conditions. *Contemporary Journal of Science Education*, 25(1), 21–46. <https://doi.org/10.6173/CJSE.2017.2501.02>
- *Chin, C.-C., & Wu, C.-Y. (2017b). Elementary students' perception of socioscientific issue-based learning environment- Perspectives of personal learning motivation, group cooperative ability, and the classroom environment. *Education Journal*, 45(1), 71–97.
- *Chin, C.-C., Yang, W.-C., & Tuan, H.-L (2010). A study on informal reasoning of sixth graders through guided TAPing integrated with clone issue. *Curriculum & Instruction Quarterly*, 13(1), 209–232. <https://doi.org/10.6384/CIQ.201001.0209>

¹* in Chinese with English abstract.

- Choi, K., Lee, H., Shin, N., Kim, S., & Krajcik, J. (2011). Re-conceptualization of scientific literacy in South Korea for the 21st century. *Journal of Research in Science Teaching*, 48(6), 670–697. <https://doi.org/10.1002/tea.20424>
- Clair, T. L. S., Wheeler, L. B., Maeng, J. L., & Bell, R. L. (2023). Mixed-methods analysis of science teacher educator professional development: a five-year longitudinal study. *Professional Development in Education*, 49(2), 273–296. <https://doi.org/10.1080/19415257.2020.1787191>
- Dawson, V., & Carson, K. (2020). Introducing argumentation about climate change socioscientific issues in a disadvantaged school. *Research in Science Education*, 50, 863–883. <https://doi.org/10.1007/s11165-018-9715-x>
- Eastwood, J. L., Sadler, T. D., Zeidler, D. L., Lewis, A., Amiri, L., & Applebaum, S. (2012). Contextualizing nature of science instruction in socioscientific issues. *International Journal of Science Education*, 34(15), 2289–2315. <https://doi.org/10.1080/09500693.2012.667582>
- Eastwood, J. L., Sadler, T. D., Sherwood, R. D., & Schlegel, W. N. (2013). Students' participation in an interdisciplinary, socioscientific issues based undergraduate human biology major and their understanding of scientific inquiry. *Research in Science Education*, 43, 1051–1078. <https://doi.org/10.1007/s11165-012-9298-x>
- Erman, E., Pare, B., Susiyawati, E., Martini, M., & Subekti, H. (2022). Using scaffolding set to help student addressing socio-scientific issues in biochemistry classes. *International Journal of Instruction*, 15(4), 871–888. <https://doi.org/10.29333/iji.2022.15447a>
- Evagorou, M., & Osborne, J. (2013). Exploring young students' collaborative argumentation within a socioscientific issue. *Journal of Research in Science Teaching*, 50(2), 209–237. <https://doi.org/10.1002/tea.21076>
- Fang, S.-C., & Hsu, Y.-S. (2017). Exploring university students' group and individual socioscientific decision making with web-based instruction. *Contemporary Journal of Science Education*, 25(4), 391–412. <https://doi.org/10.6173/CJSE.2017.2504.04>
- Fang, S.-C., Hsu, Y.-S., & Lin, S.-S. (2019). Conceptualizing socioscientific decision making from a review of research in science education. *International Journal of Science and Mathematics Education*, 17(3), 427–448. <https://doi.org/10.1007/s10763-018-9890-2>
- Fowler, S. R., Zeidler, D. L., & Sadler, T. D. (2009). Moral sensitivity in the context of socioscientific issues in high school science students. *International Journal of Science Teacher Education*, 31(2), 279–296. <https://doi.org/10.1080/09500690701787909>
- Gresch, H., & Bögeholz, S. (2013). Identifying non-Sustainable courses of action: A prerequisite for decision-making in education for sustainable development. *Research in Science Education*, 43, 733–754. <https://doi.org/10.1007/s11165-012-9287-0>
- Gresch, H., Hasselhorn, M., & Bögeholz, S. (2013). Training in decision-making strategies: An approach to enhance students' competence to deal with socio-scientific issues. *International Journal of Science Education*, 35(15), 2587–2607. <https://doi.org/10.1080/09500693.2011.617789>
- Groenke, S. L. (2009). Social reconstructionism and the roots of critical pedagogy: Implications for teacher education in the neoliberal era. In S. L. Groenke & J. A. Hatch (Eds.), *Critical pedagogy and teacher education in the neoliberal era*. Springer. https://doi.org/10.1007/978-1-4020-9588-7_1
- Hsu, Y.-S., & Lin, S.-S. (2017). Prompting students to make socioscientific decisions: Embedding metacognitive guidance in an e-Learning environment. *International Journal of Science Education*, 39(7), 964–979. <https://doi.org/10.1080/09500693.2017.1312036>
- *Huang, C.-J. (2008). Trying to construct real-time science learning in a technical society: A study of the differences between students and experts when monitoring science news. *Contemporary Journal of Science Education*, 16(1), 105–124. <https://doi.org/10.6173/CJSE.2008.1601.03>
- *Huang, C.-J. (2017). The general education as a way to cultivate a civil society: A media literacy course related to science news as an example. *Curriculum & Instruction Quarterly*, 20(1), 45–72. [https://doi.org/10.6384/CIQ.201701_20\(1\).0003](https://doi.org/10.6384/CIQ.201701_20(1).0003)

- *Huang, C.-J., & Jian, M.-J. (2008). "What have scientists created?"-students' image toward technology when they read science news reports. *Contemporary Journal of Science Education*, 16(4), 415–438. <https://doi.org/10.6173/CJSE.2008.1604.05>
- *Hung, J.-F., Lin, U.-L., & Wei, T.-T (2010). The analysis and comparison of students' argumentation in inexperienced and experienced teachers' classroom. *Contemporary Journal of Science Education*, 18(3), 205–227. <https://doi.org/10.6173/CJSE.2010.1803.02>
- Kali, Y. Van, Horne, K., Watkins, D., Jacobs, J. K., Penuel, W. R., & Sumner, T. (2019, April). *Ethical dilemmas and deliberative dialogue as means for increasing students' science capital: A World Café inspired design*. Paper presented at the annual meeting of the American Educational Research Association, Toronto.
- Karpudewan, M., & Roth, W. M. (2018). Changes in primary students' informal reasoning during an environment-related curriculum on socioscientific issues. *International Journal of Science and Mathematics*, 16(3), 401–419. <https://doi.org/10.1007/s10763-016-9787-x>
- Khishfe, R. (2013). Transfer of nature of science understandings into similar contexts: Promises and possibilities of an explicit reflective approach. *International Journal of Science Education*, 35(17), 2928–2953. <https://doi.org/10.1080/09500693.2012.672774>
- Khishfe, R., Alshaya, F. S., BouJaoude, S., Mansour, N., & Alrudiyan, K. I. (2017). Students' understandings of nature of science and their arguments in the context of four socioscientific issues. *International Journal of Science Education*, 39(3), 299–334. <https://doi.org/10.1080/09500693.2017.1280741>
- Kiryak, Z., & Çalik, M. (2018). Improving grade 7 students' conceptual understanding of water pollution via common knowledge construction model. *International Journal of Science and Mathematics*, 16(6), 1025–1046. <https://doi.org/10.1007/s10763-017-9820-8>
- Klosterman, M. L., & Sadler, T. D. (2010). Multi-level assessment of scientific content knowledge gains associated with socioscientific issues-based instruction. *International Journal of Science Education*, 32(8), 1017–1043. <https://doi.org/10.1080/09500690902894512>
- Kolsto, S. D. (2001). Scientific literacy for citizenship: Tools for dealing with the science dimension of controversial socioscientific issues. *Science Education*, 85(3), 291–310. <https://doi.org/10.1002/sce.1011>
- Lederman, N. G., Antink, A., & Bartos, S. (2014). Nature of science, scientific inquiry, socioscientific issues arising from genetics: A pathway to developing a scientifically literate citizenry. *Science & Education*, 23(2), 285–302. <https://doi.org/10.1007/s11191-012-9503-3>
- Lee, E. A., & Brown, M. J. (2018). Connecting inquiry and values in science education. *Science & Education*, 27(1–2), 63–79. <https://doi.org/10.1007/s11191-017-9952-9>
- Lee, Y. C., & Grace, M. (2012). Students' reasoning and decision making about a socioscientific issue: A cross-context comparison. *Science Education*, 96(5), 787–807. <https://doi.org/10.1002/sce.21021>
- Lee, H., Chang, H., Choi, K., Kim, S.-W., & Zeidler, D. L. (2012a). Developing character and values for global citizens: Analysis of pre-service science teachers' moral reasoning on socioscientific issues. *International Journal of Science Education*, 34(6), 925–953. <https://doi.org/10.1080/09500693.2011.625505>
- *Lee, J.-W., Su, M.-C., Huang, P.-H., Liu, C.-C., & Kao, H.-L. (2012b). A study of adopting the scientific reading and writing model to promote elementary pupils' argumentation ability. *Contemporary Journal of Science Education*, 20(6), 483–514. <https://doi.org/10.6173/CJSE.2012.2006.01>
- Lee, H., Yoo, J., Choi, K., Kim, S.-W., Krajcik, J., Herman, B. C., & Zeidler, D. L. (2013). Socioscientific issues as a vehicle for promoting character and values for global citizens. *International Journal of Science Education*, 35(12), 2079–2113. <https://doi.org/10.1080/09500693.2012.749546>
- Lee, H., Lee, H., & Zeidler, D. L. (2019). Examining tensions in the socioscientific issues classroom: Students' border crossings into a new culture of science. *Journal of Research in Science Teaching*, 57(5), 672–694. <https://doi.org/10.1002/tea.21600>

- Levinson, R. (2006). Towards a theoretical framework for teaching controversial socio-scientific issues. *International Journal of Science Education*, 28(10), 1201–1224. <https://doi.org/10.1080/09500690600560753>
- *Li, K.-C. (2010). On the 95 guidelines and the 99 guidelines of high school. *Educational Resources and Research*, 92, 1–24. [https://doi.org/10.6209/JORIES.202203_67\(1\).0010](https://doi.org/10.6209/JORIES.202203_67(1).0010).
- *Lin, S.-S. (2006). Interpretative research on the roles of the science teacher in instruction of a controversial issue in science and technology-A case study. *Contemporary Journal of Science Education*, 14(3), 237–255. <https://doi.org/10.6173/CJSE.2006.1403.01>.
- *Lin, S.-S. (2007). The professional change of an experienced science teacher: A case study of the instruction of the issue of genetically modified food. *Contemporary Journal of Science Education*, 15(3), 241–264. <https://doi.org/10.6173/CJSE.2007.1503.01>.
- *Lin, S.-S. (2012). Fostering the sixth grade students' moral thinking through the instruction of controversial issues in science classroom. *Contemporary Journal of Science Education*, 20(5), 435–459. <https://doi.org/10.6173/CJSE.2012.2005.03>.
- *Lin, S.-S. (2021). A scale for self-regulated learning on the issue of exotic species. *Contemporary Journal of Science Education*, 29(4), 351–373. [https://doi.org/10.6173/CJSE.202112_29\(4\).0003](https://doi.org/10.6173/CJSE.202112_29(4).0003).
- *Lin, S.-S. (2022). Preparing science teachers to design and implement socioscientific decision making instruction: Researcher's and teachers' experiences. In Y.-S. Hsu, R. Tytler, & P. J. White (eds.), *Innovative approaches to socioscientific issues and sustainability education- Linking research to practice* (pp. 159–178). Springer. https://doi.org/10.1007/978-981-19-1840-7_10.
- *Lin, S.-S., & Chin, C.-C. (2012). The comparison of the novice and experienced teachers' knowledge construction about socioscientific instruction before and after actual implementation. *Contemporary Journal of Science Education*, 20(1), 41–68. <https://doi.org/10.6173/CJSE.2012.2001.03>.
- *Lin, T.-W., & Chin, C.-C. (2018). The change of sixth graders' recognition and position after socioscientific issues-based instruction-The case of global warming. *Contemporary Journal of Science Education*, 26(4), 283–303. [https://doi.org/10.6173/CJSE.201812_26\(4\).0001](https://doi.org/10.6173/CJSE.201812_26(4).0001).
- *Lin, S.-Y., & Hsin, M.-C. (2017). A study on undergraduates' acceptance and perspectives of in vitro fertilization. *Contemporary Journal of Science Education*, 25(S), 463–484. <https://doi.org/10.6173/CJSE.2017.25S.03>.
- *Lin, S.-P., & Hsu, Y.-S. (2017). A teaching research on improvements of eleventh graders' decision-making abilities and climate change adaptability literacy. *Contemporary Journal of Science Education*, 25(S), 413–437. <https://doi.org/10.6173/CJSE.2017.25S.01>.
- *Lin, S.-S., & Huang, P.-H. (2009). Students' constructing argumentation about a socioscientific issue-The differences between sixth graders with different levels of academic achievement. *Contemporary Journal of Science Education*, 17(2), 111–133. <https://doi.org/10.6173/CJSE.2009.1702.02>.
- *Lin, C.-I., & Li, Y.-Y. (2018). Sustainability interdisciplinary education for facilitating undergraduate students' holistic thinking and conflict resolution competencies: A study on education for ocean sustainability. *Contemporary Journal of Science Education*, 26(1), 1–27. [https://doi.org/10.6173/CJSE.201803_26\(1\).0001](https://doi.org/10.6173/CJSE.201803_26(1).0001).
- Lin, S.-S., & Mintzes, J. J. (2010). Learning argumentation skills through instruction in socioscientific issues: The effect of ability level. *International Journal of Science and Mathematics Education*, 8(6), 993–1017. <https://doi.org/10.1007/s10763-010-9215-6>
- *Lin, T.-J., Lin, S.-S., & Chen, Y.-C. (2010). University students' knowledge and argumentation skills concerning a socioscientific issue. *Contemporary Journal of Science Education*, 18(3), 229–252. <https://doi.org/10.6173/CJSE.2010.1803.03>.
- Lin, T.-C., Hsu, Y.-S., Lin, S.-S., Changlai, M. L., Yang, K.-Y., & Lai, T.-L. (2012). A review of empirical evidence on scaffolding for science education. *International Journal of Science and Mathematics Education*, 10(2), 437–455. <https://doi.org/10.1007/s10763-011-9322-z>

- *Lin, J.-W., Lin, C.-H., & Chen, M.-R. (2014). The impact of science news positions on different age levels women's health decision-An example of hormone-replacement therapy. *Contemporary Journal of Science Education*, 22(3), 281–306. <https://doi.org/10.6173/CJSE.2014.2203.03>.
- Lin, T.-C., Tang, K.-Y., Lin, S.-S., Changlai, M. L., & Hsu, Y.-S. (2022). A co-word analysis of selected science education literature: Identifying research trends of scaffolding in two decades (2000–2019). *Frontiers in Psychology*, 13, 844425–844439. <https://doi.org/10.3389/fpsyg.2022.844425>
- *Liu, S.-Y., Lee, L.-C., & Tsai, C.-C. (2007). Scientific epistemological view and decision-making on socioscientific issues. *Contemporary Journal of Science Education*, 15(3), 335–356. <https://doi.org/10.6173/CJSE.2007.1503.03>.
- *Lu, J.-D., & Lin, S.-S. (2019). Exploring high school students' moral judgment and justifications in socioscientific contexts. *Contemporary Journal of Science Education*, 27(3), 147–166. [https://doi.org/10.6173/CJSE.201909_27\(3\).0001](https://doi.org/10.6173/CJSE.201909_27(3).0001).
- Millar, R. (1997). Science education for democracy: What can the school curriculum achieve? In R. Levinson & J. Thomas (Eds.), *Science today—Problem or crisis?* (pp. 87–101). Routledge.
- Oulton, C., Dillon, J., & Grace, M. M. (2004). Reconceptualizing the teaching of controversial issues. *International Journal of Science Education*, 26(4), 411–423. <https://doi.org/10.1080/0950069032000072746>
- Pelch, M. A., & McConnell, D. A. (2017). How does adding an emphasis on socioscientific issues influence student attitudes about science, its relevance, and their interpretations of sustainability? *Journal of Geoscience Education*, 65, 203–214. <https://doi.org/10.5408/16-173.1>
- Powell, W. A., Newton, M. H., & Zeidler, D. L. (2021). Impact of socioscientific issues on middle school students' character and values for global citizenship. In *Socioscientific issues-based instruction for scientific literacy development* (pp. 56–91). <https://doi.org/10.4018/978-1-7998-4558-4.ch003>
- Rundgren, C. J., Eriksson, M., & Rundgren, S.-N. C. (2016). Investigating the intertwinement of knowledge, value, and experience of upper secondary students' argumentation concerning socioscientific issues. *Science & Education*, 25, 1049–1071. <https://doi.org/10.1007/s11191-016-9859-x>
- Sadler, T. D. (2009). Situated learning in science education: socio-scientific issues as contexts for practice. *Studies in Science Education*, 45, 1–42. <https://doi.org/10.1080/03057260802681839>
- Sadler, T. D., Romine, W. L., & Topçu, M. S. (2016). Learning science content through socio-scientific issues-based instruction: a multi-level assessment study. *International Journal of Science Education*, 38(10), 1622–1635. <https://doi.org/10.1080/09500693.2016.1204481>
- Stanley, W. B. (1992). *Curriculum for utopia: Social reconstructionism and critical pedagogy in the postmodern era*. State University of New York.
- Stradling, R. (1984). The teaching of controversial issues: an evaluation. *Educational Reviews*, 36(2), 121–129. <https://doi.org/10.1080/0013191840360202>
- *Su, Y.-C., & Lin, S.-S. (2012). Improving sixth graders' argumentation skills through scaffolding instruction in socioscientific contexts. *Contemporary Journal of Science Education*, 20(4), 343–366. <https://doi.org/10.6173/CJSE.2012.2004.03>
- Suwono, H., Rofi'Ah, N. L., Saefi, M., & Fachrunnisa, R. (2021). Interactive socio-scientific inquiry for promoting scientific literacy, enhancing biological knowledge, and developing critical thinking. *Journal of Biological Education*, 57(1), 1–16. <https://doi.org/10.1080/00219266.2021.2006270>
- Topcu, M. S., Sadler, T. D., & Yilmaz-Tuzun, O. (2010). Preservice science teachers' informal reasoning about socioscientific issues: The influence of issue context. *International Journal of Science Education*, 32(18), 2475–2495. <https://doi.org/10.1080/09500690903524779>
- Vangrieken, K., Meredith, C., Packer, T., & Kyndt, E. (2017). Teacher communities as a context for professional development: A systematic review. *Teaching and Teacher Education*, 61, 47–59. <https://doi.org/10.1016/j.tate.2016.10.001>

- *Wu, J.-I., Hsu, Y.-S., Zhang, W.-X., & Fang, S.-C. (2017). The influence of the online learning module on the multi-perspective decision-making of high school students. *International Journal on Digital Learning Technology*, 9(3), 69–94. <https://doi.org/10.3966/2071260X2017070903004>
- *Wu, J.-I., Zhang, W.-X., & Hsu, Y.-S. (2021). The effects of question-prompt scaffolding designs on students' decision-making on socioscientific issues. *Curriculum & Instruction Quarterly*, 24(4), 199–227. [https://doi.org/10.6384/CIQ.202110_24\(4\).0008](https://doi.org/10.6384/CIQ.202110_24(4).0008)
- *Xia, Y.-L., & Chin, C.-C. (2021). The effect of question-answer-relationship strategy on the argumentation and reading comprehension abilities of the sixth graders through infusing socioscientific issue texts. *Contemporary Journal of Science Education*, 29(3), 191–217. [https://doi.org/10.6173/CJSE.202109_29\(3\).0001](https://doi.org/10.6173/CJSE.202109_29(3).0001)
- *Yang, C.-S., Tung, Y.-Y., Chen, S.-R., & Wang, K.-H. (2017). The effect of argumentation-based inquiry instruction and course in socioscientific context on 7th grade students' achievements, argumentation skills and scientific literacy. *Contemporary Journal of Science Education*, 25(S), 485–500. <https://doi.org/10.6173/CJSE.2017.25S.04>
- Zeidler, D. (2015). Socioscientific issues. In R. Gunstone (Ed.), *Encyclopedia of Science Education*. Springer. https://doi.org/10.1007/978-94-007-2150-0_314
- Zeidler, D. L., & Keefer, M. (2003). The role of moral reasoning and the status of socioscientific issues in science education. In D. L. Zeidler (Ed.), *The role of moral reasoning on socioscientific issues and discourse in science education* (pp. 7–40). Kluwer Academic Publishers.
- Zeidler, D. L., Osborne, J., Erduran, S., Simon, S., & Monk, M. (2003). The role of argument during discourse about socioscientific issues. In D. L. Zeidler (Ed.), *The role of moral reasoning on socioscientific issues and discourse in science education* (pp. 97–116). Kluwer Academic Publishers.
- Zeidler, D. L., Sadler, T. D., Simmons, M. L., & Howe, E. V. (2005). Beyond STS: A research-based framework for socioscientific issues education. *Science Education*, 89(3), 357–377. <https://doi.org/10.1002/sce.20048>
- Zeidler, D. L., Sadler, T. D., Applebaum, S., & Callahan, B. E. (2009). Advancing reflective judgment through socioscientific issues. *Journal of Research in Science Teaching*, 46(1), 74–101. <https://doi.org/10.1002/tea.20281>
- Zeidler, D. L., Applebaum, S. M., & Sadler, T. D. (2011). Enacting a socioscientific issues classroom: Transformative transformations. In T. D. Sadler (Ed.), *Socioscientific issues in the classroom* (pp. 277–305). Springer. https://doi.org/10.1007/978-94-007-1159-4_16
- Zeidler, D. L., Herman, B. C., & Sadler, T. D. (2019). New directions in socioscientific issues research. *Disciplinary Interdisciplinary Science Education Research*, 1, 11. <https://doi.org/10.1186/s43031-019-0008-7>
- *Zhang, W.-X., & Hsu, Y.-S. (2021a). Senior high school students' reflection and evaluation of decision-making process regarding a socioscientific issue. *Contemporary Journal of Science Education*, 29(2), 113–135. [https://doi.org/10.6173/CJSE.202106_29\(2\).0002](https://doi.org/10.6173/CJSE.202106_29(2).0002)
- Zhang, W.-X., & Hsu, Y.-S. (2021b). The interplay of students' regulation learning and their collective decision-making performance in a SSI context. *International Journal of Science Education*, 43(11), 1746–1778. <https://doi.org/10.1080/09500693.2021.1933250>
- *Zhang, W.-X., Hsu, Y.-S., Ho, Y.-T., & Liu, C.-C. (2023). Effects of a SSI-based learning module on students' decision-making abilities. *Journal of Research in Education Sciences*, 68(1), 167–198. [https://doi.org/10.6209/JORIES.202303_68\(1\).0006](https://doi.org/10.6209/JORIES.202303_68(1).0006)

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Shiang-Yao Liu, Graduate Institute of Science Education, National Taiwan Normal University, Taiwan

Ying-Shao Hsu, Graduate Institute of Science Education, National Taiwan Normal University, Taiwan

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If the Author is in material breach of any of the Applicable Laws or otherwise in material breach of accepted ethical standards in research and scholarship, or becomes the subject of any comprehensive or selective sanctions issued in any applicable jurisdiction (e.g. being subject to the OFAC sanctions list) or if, in the opinion of the Publisher, at any time any act, allegation or conduct of or about the Author prejudices the production or successful exploitation of the Contribution and the Work or brings the name and/or reputation of the Publisher or the Work into disrepute, or is likely to do so, then the Publisher may terminate this Agreement in accordance with the Clause "**Termination**".

- 7.3 The Publisher reserves the right to amend and/or require the Author to amend the Contribution at any time to remove any actual or potential breach of the above warranties and representations or otherwise unlawful part(s) which the Publisher or its internal or external legal advisers identify at any time. Any such amendment or removal shall not affect the warranties and representations given by the Author in this Agreement.

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- 8.1 The Author, or each co-author, is entitled to purchase for their personal use the Work and other books published by the Publisher at a discount of 40% off the list price, for as long as there is a contractual arrangement between the Author and the Publisher and subject to any applicable book price law or regulation. The copies must be ordered from the affiliated entity of the Publisher (Springer Nature Customer Service Center GmbH or Springer Nature Customer Service Center LLC, respectively). Resale of such copies is not permitted.
- 8.2 The Publisher shall provide the electronic final published version of the Work to the Author, provided that the Author has included their e-mail address in the manuscript of the Contribution.

9. Consideration

- 9.1 The Parties agree that the Publisher's agreement to its contractual obligations in this Agreement in respect of its efforts in considering publishing and promoting the Contribution and the Work is good and valuable consideration for the rights granted and obligations undertaken by the Author under this Agreement, the receipt, validity and sufficiency of which is hereby acknowledged by the Author. The Parties expressly agree that no royalty, remuneration, licence fee, costs or other moneys whatsoever shall be payable to the Author.
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10. New Editions

- 10.1 The Publisher has the sole right to determine whether to publish any subsequent edition of the Work containing an updated version of the Contribution, but only after reasonable consultation with the Author. Once notified by the Publisher that an update of the Contribution is deemed necessary, the Author agrees to deliver an updated manuscript in accordance with the terms of the Clause "**The Author's Responsibilities**" and the other relevant provisions of this Agreement, together with the material for any new illustrations and any other supporting content including media enhancements, within a reasonable period of time (as determined by the Publisher) after such notification. Substantial changes in the nature or size of the Contribution require the written approval of the Publisher at its sole discretion. The terms of this Agreement shall apply to any new edition of the Work that is published under this "**New Editions**" Clause.

incapacity) to submit an updated manuscript that meets the terms of this Agreement within the above stated period, then the Publisher is entitled to revise, update and publish the content of the existing edition or to designate one or more individuals (which, where co-authors have entered into this Agreement, may be one or more of the co-authors) to prepare this and any future editions provided that the new editions shall not contain anything that is a derogatory use of the Author's work that demonstrably damages the Author's academic reputation. In such case, the Author shall not participate in preparing any subsequent editions. The Author agrees that the Publisher shall be entitled but not obliged to continue to use the name of the Author on any new editions of the Work together with the names of the person or persons who contributed to the new editions. Should the Author or the Author's successors object to such continuing use then they must notify the Publisher in writing when first contacted by the Publisher in connection with any new edition.

11. Termination

- 11.1 In addition to the specific rights of termination set out in the Clause "**The Publisher's Responsibilities**" and the Clause "**The Author's Responsibilities**", either Party shall be entitled to terminate this Agreement forthwith by notice in writing to the other Party if the other Party commits a material breach of the terms of the Agreement which cannot be remedied or, if such breach can be remedied, fails to remedy such breach within 45 days of being given written notice to do so.
- 11.2 Termination of this Agreement, howsoever caused, shall not affect:
- (a) any subsisting rights of any third party under any licence or sub-licence validly granted by the Publisher prior to termination and the Publisher shall be entitled to retain its share of any sum payable by any third party under any such licence or sub-licence;
 - (b) except where stated otherwise in this Agreement, any claim which either Party may have against the other for damages or otherwise in respect of any rights or liabilities arising prior to the date of termination;
 - (c) the Publisher's right to continue to sell any copies of the Work which are in its power, possession or control as at the date of expiry or termination of this Agreement for a period of six months on a non-exclusive basis.

12. General Provisions


- 12.1 This Agreement, and the documents referred to within it, constitute the entire agreement between the Parties with respect to the subject matter hereof and supersede any previous agreements, warranties, representations, undertakings or understandings. Each Party acknowledges that it is not relying on, and shall have no remedies in respect of, any undertakings, representations, warranties, promises or assurances that are not set forth in this Agreement. Nothing in this Agreement shall exclude any liability for or remedy in respect of fraud, including fraudulent misrepresentation. This Agreement may be modified or amended only by agreement of the Parties in writing. For the purposes of modifying or amending this Agreement, "in writing" requires either a written document signed by both the Parties or an electronic confirmation by both the Parties with DocuSign or a similar e-signature solution. Any notice of termination and/or reversion and, where applicable, any preceding notices (including any requesting remediable action under the Clause "**Termination**") must be provided in writing and delivered by post, courier or personal delivery addressed to the physical address of the relevant Party as set out at the beginning of this Agreement or any replacement address notified to the other Party for this purpose. All such notices shall become effective upon receipt by the other Party. Receipt is deemed to have taken place five working days after the respective notice was sent by post or left at the address by courier or personal delivery. If the Publisher is the terminating Party the notice need only be provided to the address of the Corresponding Author. If the Author is the terminating Party a copy of the notice must also be sent to the Publisher's Legal Department located at Heidelberger Platz 3, 14197 Berlin, Germany.
- 12.2 Nothing contained in this Agreement shall constitute or shall be construed as constituting a partnership, joint venture or contract of employment between the Publisher and the Author. No Party may assign this Agreement to third parties but the Publisher may assign this Agreement or the rights received hereunder to its affiliated companies. In this Agreement, any words following the terms "include", "including", "in particular", "for example", "e.g." or any similar expression shall be construed as

illustrative and shall not limit the sense of the words preceding those terms.

- 12.3 If any difference shall arise between the Author and the Publisher concerning the meaning of this Agreement or the rights and liabilities of the Parties, the Parties shall engage in good faith discussions to attempt to seek a mutually satisfactory resolution of the dispute. This Agreement shall be governed by, and shall be construed in accordance with, the laws of Switzerland. The courts of Cham, Switzerland shall have the exclusive jurisdiction.
- 12.4 A person who is not a party to this Agreement (other than an affiliate of the Publisher) has no right to enforce any terms or conditions of this Agreement. This Agreement shall be binding upon and inure to the benefit of the successors and assigns of the Publisher. If one or more provisions of this Agreement are held to be unenforceable (in whole or in part) under applicable law, each such provision shall be deemed excluded from this Agreement and the balance of the Agreement shall remain valid and enforceable but shall be interpreted as if that provision were so excluded. If one or more provisions are so excluded under this Clause then the Parties shall negotiate in good faith to agree an enforceable replacement provision that, to the greatest extent possible under applicable law, achieves the Parties' original commercial intention.

The Corresponding Author signs this Agreement on behalf of any and all co-authors.

Signature of Corresponding Author:



[Shu-Sheng Lin]

Date: May. 08, 2024

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(a) the Author's own personal, self-maintained website over which the Author has sole operational control; and/or

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2. Author's Accepted Manuscript:

The "Author's Accepted Manuscript" ("AAM") is defined as the version of the Contribution following any peer review and acceptance, but prior to copy-editing and typesetting, by or on behalf of the Publisher.

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(a) the Author's own, personal, self-maintained website over which the Author has sole operational control; and/or

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These terms shall also be applicable to the Author.

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4. Any linking, collection or aggregation of reused Contributions from the same Work is strictly prohibited.

A moral inquiry into epistemic insights in science education: Personal and global perspectives of socioscientific issues

Name of chapter	Comprehensive exploration of science education research within socioscientific contexts in Taiwan: Examining curriculum reform, research status, reflections and implications
Name of Author/s	Shu-Sheng Lin, et al.
Reviewer 1	
Please comment and make recommendations on the aspects of the draft chapter	
<p>The content makes a contribution from Taiwan to the field of socioscientific studies of the world. It is written in a fluent language, but it needs much more literature support especially for the sections of introduction and discussion.</p> <ul style="list-style-type: none"> • The sentences such as “are definitely not”, “Nearly all of them” are very assertive and need to be supported with literature or be softened. • The author should explain the method section in more detail. • About the data collection and analysis, more detailed information should be given about how selected papers were analyzed, and what it was aimed to reveal in the analysis. • It would be appropriate to reveal the theory and necessity of the study in light of a more literature-supported manner. • Providing more descriptive information about data collection tools and analysis, and writing the discussion section in line with the findings and supported by the literature will make the work more qualified. • The discussion is not supported by the literature sufficiently, mostly not parallel to the findings. Discussion part can be rewritten in these lines. • It may not be appropriate to start a paragraph with “In other words”. • It would be appropriate to include a conclusion section. • In-text references should be changed in accordance with APA 7. 	

A moral inquiry into epistemic insights in science education: Personal and global perspectives of socioscientific issues

Name of chapter	Comprehensive exploration of science education research within socioscientific contexts in Taiwan: Examining curriculum reform, research status, reflections and implications
Name of Author/s	Shu-Sheng Lin, et al.
Reviewer2	
Please comment and make recommendations on the aspects of the draft chapter	
<p>The article make a great contribution from Taiwan to the field of science education, especially to the studies related to socioscientific issues.</p> <ul style="list-style-type: none"> ● This study aimed to examine the contributions of Taiwanese scholars to the Chinese-language science education literature on socioscientific issues (SSI). Research in this field can be broadly categorized into five areas: teachers' instruction, analysis and utilization of SSI texts, SSI scale development, relationships among variables, and students' learning outcomes. Among these, studies on students' learning outcomes following SSI-based instruction are the most prevalent, with a particular focus on affective assessment, various higher-order thinking skills, and tracking students' learning progression. These findings highlight potential directions for future research. ● The literature review should incorporate relevant studies on SSI beyond Chinese-language journal papers. ● The data analysis process used to identify themes should be described in greater detail. ● Five themes emerged from the data analysis. These should be discussed in detail and in relation to relevant research to highlight the contributions of this study. ● The list and format of citations needed to be checked. 	

來源: shumei1967 <shumei1967@mail.ncyu.edu.tw>

收信: gimse <gimse@mail.ncyu.edu.tw>

日期: Fri, 21 Feb 2025 15:11:28

標題: **Re: 113-2-1系務會議，請於2/27(四)上午10時前回覆**

同意推薦 淑媚

-----Original message-----

From: gimse <gimse@mail.ncyu.edu.tw>

To: 姚姚老師 <rfyau@mail.ncyu.edu.tw>, 小樹老師 <lin-s-s@mail.ncyu.edu.tw>, 均伊老師 <jychen@mail.ncyu.edu.tw>, 林志鴻老師 <chuck@mail.ncyu.edu.tw>, 林明煌老師 <lin5053@mail.ncyu.edu.tw>, 姜得勝老師 <winnerchiang@mail.ncyu.edu.tw>, 陳聖謨老師 <csmo@mail.ncyu.edu.tw>, 黃芳銘老師 <fmh@mail.ncyu.edu.tw>, 許家驊老師 <jhs@mail.ncyu.edu.tw>, 洪如玉老師 <hungruyu@mail.ncyu.edu.tw>, 劉文英老師 <wenying_1@yahoo.com>, 黃秀文老師 <euge@mail.ncyu.edu.tw>, 張淑媚老師 <shumei1967@mail.ncyu.edu.tw>, 王清思老師 <chingsze@mail.ncyu.edu.tw>, 陳佳慧老師1 <chiahuic1225@gmail.com>, 陳佳慧老師2 <chiahuic@mail.ncyu.edu.tw>, 劉馨琄老師 <hsinchun@mail.ncyu.edu.tw>, 黃繼仁老師 <hchiren@mail.ncyu.edu.tw>, 陳美瑩老師_1 <mei-ying.chen@g.ncyu.edu.tw>, 陳美瑩老師_2 <meiying2005_tw@yahoo.com.tw>, 陳美瑩老師_3 <mei-ying.chen@mail.ncyu.edu.tw>, 教育系(大學部) <educat@mail.ncyu.edu.tw>, 教育系(研究所) <giee@mail.ncyu.edu.tw>, 何宣甫老師 <hfho@mail.ncyu.edu.tw>, 王瑞堦老師 <gloriawang2004@mail.ncyu.edu.tw>, 陳珊華老師 <shanhua@mail.ncyu.edu.tw>, 葉連祺老師 <yehlc@mail.ncyu.edu.tw>, 楊正誠老師 <yccjason@mail.ncyu.edu.tw>

Date: Fri, 21 Feb 2025 15:09:07

Subject: 113-2-1系務會議，請於2/27(四)上午10時前回覆

各位老師教安：

本次會議係審查林樹聲老師申請113年度學術專書專章獎勵案，因時間急迫，僅以電子郵件方式進行，請各位老師提供寶貴意見。並請於2月27日(星期四)上午10時前回傳，謝謝各位老師。

提案一

案由：本學系林樹聲老師申請113年度學術專書專章獎勵，提請審議。

說明：林樹聲老師113年度專章1篇申請學術專書專章獎勵，申請表及佐證資料請參考附件P.6~44，是否同意推薦，請審議。

決議選項：

- (1)、同意推薦
- (2)、修正後同意推薦
- (3)、其他意見：

決議：(1, 2, or 3)：_____

來源: euge <euge@mail.ncyu.edu.tw>

收信: gimse <gimse@mail.ncyu.edu.tw>

日期: Tue, 25 Feb 2025 14:31:45

標題: **Re: 113-2-1系務會議，請於2/27(四)上午10時前回覆**

(1) 、同意推薦

黃秀文敬上

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To: 姚姚老師<rfyau@mail.ncyu.edu.tw>, 小樹老師<lin-s-s@mail.ncyu.edu.tw>, 均伊老師<jychen@mail.ncyu.edu.tw>, 林志鴻老師<chuck@mail.ncyu.edu.tw>, 林明煌老師<lin5053@mail.ncyu.edu.tw>, 姜得勝老師<winnerchiang@mail.ncyu.edu.tw>, 陳聖謨老師<csmo@mail.ncyu.edu.tw>, 黃芳銘老師<fmh@mail.ncyu.edu.tw>, 許家驊老師<jhs@mail.ncyu.edu.tw>, 洪如玉老師<hungruyu@mail.ncyu.edu.tw>, 劉文英老師<wenying_1@yahoo.com>, 黃秀文老師<euge@mail.ncyu.edu.tw>, 張淑媚老師<shumei1967@mail.ncyu.edu.tw>, 王清思老師<chingsze@mail.ncyu.edu.tw>, 陳佳慧老師1<chiahuic1225@gmail.com>, 陳佳慧老師2<chiahuic@mail.ncyu.edu.tw>, 劉馨琄老師<hsinchun@mail.ncyu.edu.tw>, 黃繼仁老師<hchiren@mail.ncyu.edu.tw>, 陳美瑩老師_1<mei-ying.chen@g.ncyu.edu.tw>, 陳美瑩老師_2<meiying2005_tw@yahoo.com.tw>, 陳美瑩老師_3<mei-ying.chen@mail.ncyu.edu.tw>, 教育系(大學部)<educat@mail.ncyu.edu.tw>, 教育系(研究所)<giee@mail.ncyu.edu.tw>, 何宣甫老師<hfho@mail.ncyu.edu.tw>, 王瑞堦老師<gloriawang2004@mail.ncyu.edu.tw>, 陳珊華老師<shanhua@mail.ncyu.edu.tw>, 葉連祺老師<yehlc@mail.ncyu.edu.tw>, 楊正誠老師<yccjason@mail.ncyu.edu.tw>

Date: Fri, 21 Feb 2025 15:09:07

Subject: 113-2-1系務會議，請於2/27(四)上午10時前回覆

各位老師教安：

本次會議係審查林樹聲老師申請113年度學術專書專章獎勵案，因時間急迫，僅以電子郵件方式進行，請各位老師提供寶貴意見。並請於2月27日(星期四)上午10時前回傳，謝謝各位老師。

提案一

案由：本學系林樹聲老師申請113年度學術專書專章獎勵，提請審議。

說明：林樹聲老師113年度專章1篇申請學術專書專章獎勵，申請表及佐證資料請參考附件P.6~44，是否同意推薦，請審議。

決議選項：

(1) 、同意推薦

(2) 、修正後同意推薦

(3) 、其他意見：

決議：(1, 2, or 3)：__(1)__

來源: 林志鴻 <chuck@mail.ncyu.edu.tw>

收信: gimse <gimse@mail.ncyu.edu.tw>

日期: Mon, 24 Feb 2025 17:49:53

標題: [校外信件] Re: 113-2-1系務會議，請於2/27(四)上午10時前回覆

(1)、同意推薦

Best Regards,

Chih-Hung Lin (林志鴻)

Professor

Master Program in Mathematics and Science Education, Department of Education, National Chiayi University

No.85 Wenlong Vil., Minxiong Township, Chiayi County 62103, Taiwan

Tel:+886-5-2068366/ Fax:+886-5-2263531

Web-site: <http://chuckncyu.wordpress.com/>

gimse <gimse@mail.ncyu.edu.tw> 於 2025年2月21日 週五 下午3:10寫道：

各位老師教安：

本次會議係審查林樹聲老師申請113年度學術專書專章獎勵案，因時間急迫，僅以電子郵件方式進行，請各位老師提供寶貴意見。並請於2月27日(星期四)上午10時前回傳，謝謝各位老師。

提案一

案由：本學系林樹聲老師申請113年度學術專書專章獎勵，提請審議。

說明：林樹聲老師113年度專章1篇申請學術專書專章獎勵，申請表及佐證資料請參考附件P.6~44，是否同意推薦，請審議。

決議選項：

- (1)、同意推薦
- (2)、修正後同意推薦
- (3)、其他意見：

決議：(1, 2, or 3)：_____

來源: 美瑩 陳 <meiying2005_tw@yahoo.com.tw>

收信: gimse <gimse@mail.ncyu.edu.tw>

日期: Mon, 24 Feb 2025 12:03:54

標題: [校外信件] Re: 113-2-1系務會議，請於2/27(四)上午10時前回覆

同意, 陳美瑩

在 2025年2月21日 星期五 下午03:12:46 [GMT+8] · gimse<gimse@mail.ncyu.edu.tw> 寫道：

各位老師教安：

本次會議係審查林樹聲老師申請113年度學術專書專章獎勵案，因時間急迫，僅以電子郵件方式進行，請各位老師提供寶貴意見。並請於2月27日(星期四)上午10時前回傳，謝謝各位老師。

提案一

案由：本學系林樹聲老師申請113年度學術專書專章獎勵，提請審議。

說明：林樹聲老師113年度專章1篇申請學術專書專章獎勵，申請表及佐證資料請參考附件P.6~44，是否同意推薦，請審議。

決議選項：

- (1)、同意推薦
- (2)、修正後同意推薦
- (3)、其他意見：

決議：(1, 2, or 3)：_____

來源: shanhua <shanhua@mail.ncyu.edu.tw>

收信: gimse <gimse@mail.ncyu.edu.tw>

日期: Mon, 24 Feb 2025 10:40:27

標題: **Re: 113-2-1系務會議，請於2/27(四)上午10時前回覆**

(1) 、同意推薦

陳珊華

國立嘉義大學教育學系

教育行政與政策碩士班教授

62103嘉義縣民雄鄉文隆村85號

PhD. Chen, Shan-Hua

National Chiayi University, Professor

2018-2019 Fulbright Senior Scholar (UCLA)

No.85, Wunlong Village, Minsyong Township, Chiayi County 621, Taiwan

Tel:(+886)5-2068171

-----Original message-----

From: gimse <gimse@mail.ncyu.edu.tw>

To: 姚姚老師 <rfaq@mailto:ncyu.edu.tw>, 小樹老師 <lin-s-s@mailto:ncyu.edu.tw>, 均伊老師 <jychen@mailto:ncyu.edu.tw>, 林志鴻老師 <chuck@mailto:ncyu.edu.tw>, 林明煌老師 <lin5053@mailto:ncyu.edu.tw>, 姜得勝老師 <winnerchiang@mailto:ncyu.edu.tw>, 陳聖謨老師 <csmo@mailto:ncyu.edu.tw>, 黃芳銘老師 <fmh@mailto:ncyu.edu.tw>, 許家驊老師 <jhs@mailto:ncyu.edu.tw>, 洪如玉老師 <hungruyu@mailto:ncyu.edu.tw>, 劉文英老師 <wenying_1@yahoo.com>, 黃秀文老師 <euge@mailto:ncyu.edu.tw>, 張淑媚老師 <shumei1967@mailto:ncyu.edu.tw>, 王清思老師 <chingsze@mailto:ncyu.edu.tw>, 陳佳慧老師1 <chiahuic1225@gmail.com>, 陳佳慧老師2 <chiahuic@mailto:ncyu.edu.tw>, 劉馨琄老師 <hsinchun@mailto:ncyu.edu.tw>, 黃繼仁老師 <hchiren@mailto:ncyu.edu.tw>, 陳美瑩老師_1 <mei-ying.chen@g.ncyu.edu.tw>, 陳美瑩老師_2 <meiying2005_tw@yahoo.com.tw>, 陳美瑩老師_3 <mei-ying.chen@mailto:ncyu.edu.tw>, 教育系(大學部) <educat@mailto:ncyu.edu.tw>, 教育系(研究所) <giee@mailto:ncyu.edu.tw>, 何宣甫老師 <hfho@mailto:ncyu.edu.tw>, 王瑞堦老師 <gloriawang2004@mailto:ncyu.edu.tw>, 陳珊華老師 <shanhua@mailto:ncyu.edu.tw>, 葉連祺老師 <yehlc@mailto:ncyu.edu.tw>, 楊正誠老師 <yccjason@mailto:ncyu.edu.tw>

Date: Fri, 21 Feb 2025 15:09:07

Subject: 113-2-1系務會議，請於2/27(四)上午10時前回覆

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決議選項：

(1) 、同意推薦

(2) 、修正後同意推薦

(3) 、其他意見：

決議：(1, 2, or 3) : _____

來源: jychen <jychen@mail.ncyu.edu.tw>

收信: gimse <gimse@mail.ncyu.edu.tw>

日期: Mon, 24 Feb 2025 09:51:52

標題: **Re: 113-2-1系務會議，請於2/27(四)上午10時前回覆**

(1) 、同意推薦

均伊

-----Original message-----

From: gimse <gimse@mail.ncyu.edu.tw>

To: 姚姚老師 <rfyau@mail.ncyu.edu.tw>, 小樹老師 <lin-s-s@mail.ncyu.edu.tw>, 均伊老師 <jychen@mail.ncyu.edu.tw>, 林志鴻老師 <chuck@mail.ncyu.edu.tw>, 林明煌老師 <lin5053@mail.ncyu.edu.tw>, 姜得勝老師 <winnerchiang@mail.ncyu.edu.tw>, 陳聖謨老師 <csmo@mail.ncyu.edu.tw>, 黃芳銘老師 <fmh@mail.ncyu.edu.tw>, 許家驊老師 <jhs@mail.ncyu.edu.tw>, 洪如玉老師 <hungruyu@mail.ncyu.edu.tw>, 劉文英老師 <wenying_1@yahoo.com>, 黃秀文老師 <euge@mail.ncyu.edu.tw>, 張淑媚老師 <shumei1967@mail.ncyu.edu.tw>, 王清思老師 <chingsze@mail.ncyu.edu.tw>, 陳佳慧老師1 <chiahuic1225@gmail.com>, 陳佳慧老師2 <chiahuic@mail.ncyu.edu.tw>, 劉馨琄老師 <hsinchun@mail.ncyu.edu.tw>, 黃繼仁老師 <hchiren@mail.ncyu.edu.tw>, 陳美瑩老師_1 <mei-ying.chen@g.ncyu.edu.tw>, 陳美瑩老師_2 <meiying2005_tw@yahoo.com.tw>, 陳美瑩老師_3 <mei-ying.chen@mail.ncyu.edu.tw>, 教育系(大學部) <educat@mail.ncyu.edu.tw>, 教育系(研究所) <giee@mail.ncyu.edu.tw>, 何宣甫老師 <hfho@mail.ncyu.edu.tw>, 王瑞堦老師 <gloriawang2004@mail.ncyu.edu.tw>, 陳珊華老師 <shanhua@mail.ncyu.edu.tw>, 葉連祺老師 <yehlc@mail.ncyu.edu.tw>, 楊正誠老師 <yccjason@mail.ncyu.edu.tw>

Date: Fri, 21 Feb 2025 15:09:07

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決議選項：

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- (2) 、修正後同意推薦
- (3) 、其他意見：

決議：(1, 2, or 3)：_____

來源: rfyau <rfyau@mail.ncyu.edu.tw>

收信: gimse <gimse@mail.ncyu.edu.tw>

日期: Sun, 23 Feb 2025 21:25:09

標題: **Re: 113-2-1系務會議，請於2/27(四)上午10時前回覆**

姚如芬選 (1)

謝謝

-----Original message-----

From: gimse <gimse@mail.ncyu.edu.tw>

To: 姚姚老師 <rfyau@mail.ncyu.edu.tw>, 小樹老師 <lin-s-s@mail.ncyu.edu.tw>, 均伊老師 <jychen@mail.ncyu.edu.tw>, 林志鴻老師 <chuck@mail.ncyu.edu.tw>, 林明煌老師 <lin5053@mail.ncyu.edu.tw>, 姜得勝老師 <winnerchiang@mail.ncyu.edu.tw>, 陳聖謨老師 <csmo@mail.ncyu.edu.tw>, 黃芳銘老師 <fmh@mail.ncyu.edu.tw>, 許家驊老師 <jhs@mail.ncyu.edu.tw>, 洪如玉老師 <hungruyu@mail.ncyu.edu.tw>, 劉文英老師 <wenying_1@yahoo.com>, 黃秀文老師 <euge@mail.ncyu.edu.tw>, 張淑媚老師 <shumei1967@mail.ncyu.edu.tw>, 王清思老師 <chingsze@mail.ncyu.edu.tw>, 陳佳慧老師1 <chiahuic1225@gmail.com>, 陳佳慧老師2 <chiahuic@mail.ncyu.edu.tw>, 劉馨琄老師 <hsinchun@mail.ncyu.edu.tw>, 黃繼仁老師 <hchiren@mail.ncyu.edu.tw>, 陳美瑩老師_1 <mei-ying.chen@g.ncyu.edu.tw>, 陳美瑩老師_2 <meiying2005_tw@yahoo.com.tw>, 陳美瑩老師_3 <mei-ying.chen@mail.ncyu.edu.tw>, 教育系(大學部) <educat@mail.ncyu.edu.tw>, 教育系(研究所) <giee@mail.ncyu.edu.tw>, 何宣甫老師 <hfho@mail.ncyu.edu.tw>, 王瑞堦老師 <gloriawang2004@mail.ncyu.edu.tw>, 陳珊華老師 <shanhua@mail.ncyu.edu.tw>, 葉連祺老師 <yehlc@mail.ncyu.edu.tw>, 楊正誠老師 <yccjason@mail.ncyu.edu.tw>

Date: Fri, 21 Feb 2025 15:09:07

Subject: 113-2-1系務會議，請於2/27(四)上午10時前回覆

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決議選項：

- (1)、同意推薦
- (2)、修正後同意推薦
- (3)、其他意見：

決議：(1, 2, or 3)：_____

來源: jhs <jhs@mail.ncyu.edu.tw>

收信: gimse <gimse@mail.ncyu.edu.tw>

日期: Sat, 22 Feb 2025 13:11:44

標題: (回覆致謝) 惠蘭姐您好：Re: 113-2-1系務會議，請於2/27(四)上午10時前回覆

(回覆致謝) 惠蘭姐您好：

非常感謝您的通知說明及辛勞協助，了解了，個人都同意照案通過，(1) 同意推薦，不好意思辛苦您了，再次非常感謝您的大力辛勞協助，敬祝順心如意！健康平安！天天快樂！

許家驊老師 敬謝

-----Original message-----

From: gimse <gimse@mail.ncyu.edu.tw>

To: 姚姚老師 <rfaq@mail.ncyu.edu.tw>, 小樹老師 <lin-s-s@mail.ncyu.edu.tw>, 均伊老師 <jychen@mail.ncyu.edu.tw>, 林志鴻老師 <chuck@mail.ncyu.edu.tw>, 林明煌老師 <lin5053@mail.ncyu.edu.tw>, 姜得勝老師 <winnerchiang@mail.ncyu.edu.tw>, 陳聖謨老師 <csmo@mail.ncyu.edu.tw>, 黃芳銘老師 <fmh@mail.ncyu.edu.tw>, 許家驊老師 <jhs@mail.ncyu.edu.tw>, 洪如玉老師 <hungruyu@mail.ncyu.edu.tw>, 劉文英老師 <wenying_1@yahoo.com>, 黃秀文老師 <euge@mail.ncyu.edu.tw>, 張淑媚老師 <shumei1967@mail.ncyu.edu.tw>, 王清思老師 <chingsze@mail.ncyu.edu.tw>, 陳佳慧老師1 <chiahuic1225@gmail.com>, 陳佳慧老師2 <chiahuic@mail.ncyu.edu.tw>, 劉馨琄老師 <hsinchun@mail.ncyu.edu.tw>, 黃繼仁老師 <hchiren@mail.ncyu.edu.tw>, 陳美瑩老師_1 <mei-ying.chen@g.ncyu.edu.tw>, 陳美瑩老師_2 <meiying2005_tw@yahoo.com.tw>, 陳美瑩老師_3 <mei-ying.chen@mail.ncyu.edu.tw>, 教育系(大學部) <educat@mail.ncyu.edu.tw>, 教育系(研究所) <giee@mail.ncyu.edu.tw>, 何宣甫老師 <hfho@mail.ncyu.edu.tw>, 王瑞堦老師 <gloriawang2004@mail.ncyu.edu.tw>, 陳珊華老師 <shanhua@mail.ncyu.edu.tw>, 葉連祺老師 <yehlc@mail.ncyu.edu.tw>, 楊正誠老師 <yccjason@mail.ncyu.edu.tw>

Date: Fri, 21 Feb 2025 15:09:07

Subject: 113-2-1系務會議，請於2/27(四)上午10時前回覆

各位老師教安：

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案由：本學系林樹聲老師申請113年度學術專書專章獎勵，提請審議。

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決議選項：

- (1)、同意推薦
- (2)、修正後同意推薦
- (3)、其他意見：

決議：(1, 2, or 3)：_____

來源: hfho <hfho@mail.ncyu.edu.tw>

收信: gimse <gimse@mail.ncyu.edu.tw>

日期: Sat, 22 Feb 2025 12:51:00

標題: **Re: 113-2-1系務會議，請於2/27(四)上午10時前回覆**

超級無敵同意推薦

宣甫

-----Original message-----

From: gimse <gimse@mail.ncyu.edu.tw>

To: 姚姚老師 <rfyau@mail.ncyu.edu.tw>, 小樹老師 <lin-s-s@mail.ncyu.edu.tw>, 均伊老師 <jychen@mail.ncyu.edu.tw>, 林志鴻老師 <chuck@mail.ncyu.edu.tw>, 林明煌老師 <lin5053@mail.ncyu.edu.tw>, 姜得勝老師 <winnerchiang@mail.ncyu.edu.tw>, 陳聖謨老師 <csmo@mail.ncyu.edu.tw>, 黃芳銘老師 <fmh@mail.ncyu.edu.tw>, 許家驊老師 <jhs@mail.ncyu.edu.tw>, 洪如玉老師 <hungruyu@mail.ncyu.edu.tw>, 劉文英老師 <wenying_1@yahoo.com>, 黃秀文老師 <euge@mail.ncyu.edu.tw>, 張淑媚老師 <shumei1967@mail.ncyu.edu.tw>, 王清思老師 <chingsze@mail.ncyu.edu.tw>, 陳佳慧老師1 <chiahuic1225@gmail.com>, 陳佳慧老師2 <chiahuic@mail.ncyu.edu.tw>, 劉馨琄老師 <hsinchun@mail.ncyu.edu.tw>, 黃繼仁老師 <hchiren@mail.ncyu.edu.tw>, 陳美瑩老師_1 <mei-ying.chen@g.ncyu.edu.tw>, 陳美瑩老師_2 <meiying2005_tw@yahoo.com.tw>, 陳美瑩老師_3 <mei-ying.chen@mail.ncyu.edu.tw>, 教育系(大學部) <educat@mail.ncyu.edu.tw>, 教育系(研究所) <giee@mail.ncyu.edu.tw>, 何宣甫老師 <hfho@mail.ncyu.edu.tw>, 王瑞堦老師 <gloriawang2004@mail.ncyu.edu.tw>, 陳珊華老師 <shanhua@mail.ncyu.edu.tw>, 葉連祺老師 <yehlc@mail.ncyu.edu.tw>, 楊正誠老師 <yccjason@mail.ncyu.edu.tw>

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決議選項：

- (1)、同意推薦
- (2)、修正後同意推薦
- (3)、其他意見：

決議：(1, 2, or 3)： 1

來源: yehlc <yehlc@mail.ncyu.edu.tw>

收信: gimse <gimse@mail.ncyu.edu.tw>

日期: Fri, 21 Feb 2025 23:57:45

標題: **Re: 113-2-1系務會議，請於2/27(四)上午10時前回覆**

同意推薦

教育系葉連祺敬覆

-----Original message-----

From: gimse <gimse@mail.ncyu.edu.tw>

Date: Fri, 21 Feb 2025 15:09:07

Subject: 113-2-1系務會議，請於2/27(四)上午10時前回覆

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- (2)、修正後同意推薦
- (3)、其他意見：

決議：(1, 2, or 3) : _____

來源: winnerchiang <winnerchiang@mail.ncyu.edu.tw>

收信: gimse <gimse@mail.ncyu.edu.tw>

日期: Fri, 21 Feb 2025 17:14:34

標題: 姜得勝Re: 113-2-1系務會議，請於2/27(四)上午10時前回覆

惠蘭助教您好：

請依規定處理，我沒意見！

祝 平安

姜得勝 敬上

國立嘉義大學教育學系所

-----Original message-----

From: gimse <gimse@mail.ncyu.edu.tw>

To: 姚姚老師 <rfyau@mail.ncyu.edu.tw>, 小樹老師 <lin-s-s@mail.ncyu.edu.tw>, 均伊老師 <jychen@mail.ncyu.edu.tw>, 林志鴻老師 <chuck@mail.ncyu.edu.tw>, 林明煌老師 <lin5053@mail.ncyu.edu.tw>, 姜得勝老師 <winnerchiang@mail.ncyu.edu.tw>, 陳聖謨老師 <csmo@mail.ncyu.edu.tw>, 黃芳銘老師 <fmh@mail.ncyu.edu.tw>, 許家驊老師 <jhs@mail.ncyu.edu.tw>, 洪如玉老師 <hungruyu@mail.ncyu.edu.tw>, 劉文英老師 <wenying_1@yahoo.com>, 黃秀文老師 <euge@mail.ncyu.edu.tw>, 張淑媚老師 <shumei1967@mail.ncyu.edu.tw>, 王清思老師 <chingsze@mail.ncyu.edu.tw>, 陳佳慧老師1 <chiahuic1225@gmail.com>, 陳佳慧老師2 <chiahuic@mail.ncyu.edu.tw>, 劉馨琄老師 <hsinchun@mail.ncyu.edu.tw>, 黃繼仁老師 <hchiren@mail.ncyu.edu.tw>, 陳美瑩老師_1 <mei-ying.chen@g.ncyu.edu.tw>, 陳美瑩老師_2 <meiying2005_tw@yahoo.com.tw>, 陳美瑩老師_3 <mei-ying.chen@mail.ncyu.edu.tw>, 教育系(大學部) <educat@mail.ncyu.edu.tw>, 教育系(研究所) <giee@mail.ncyu.edu.tw>, 何宣甫老師 <hfho@mail.ncyu.edu.tw>, 王瑞堦老師 <gloriawang2004@mail.ncyu.edu.tw>, 陳珊華老師 <shanhua@mail.ncyu.edu.tw>, 葉連祺老師 <yehlc@mail.ncyu.edu.tw>, 楊正誠老師 <yccjason@mail.ncyu.edu.tw>

Date: Fri, 21 Feb 2025 15:09:07

Subject: 113-2-1系務會議，請於2/27(四)上午10時前回覆

各位老師教安：

本次會議係審查林樹聲老師申請113年度學術專書專章獎勵案，因時間急迫，僅以電子郵件方式進行，請各位老師提供寶貴意見。並請於2月27日(星期四)上午10時前回傳，謝謝各位老師。

提案一

案由：本學系林樹聲老師申請113年度學術專書專章獎勵，提請審議。

說明：林樹聲老師113年度專章1篇申請學術專書專章獎勵，申請表及佐證資料請參考附件P.6~44，是否同意推薦，請審議。

決議選項：

- (1)、同意推薦
- (2)、修正後同意推薦
- (3)、其他意見：

決議：(1, 2, or 3)：_____

來源: wen-ying Liou <wenying_l@yahoo.com>

收信: gimse <gimse@mail.ncyu.edu.tw>

日期: Fri, 21 Feb 2025 17:05:30

標題: [校外信件] Re: 113-2-1系務會議，請於2/27(四)上午10時前回覆

Hello ·

同意推薦。

劉文英
1140221

在 2025年2月21日 星期五 下午03:09:27 [GMT+8] · gimse<gimse@mail.ncyu.edu.tw> 寫道：

各位老師教安：

本次會議係審查林樹聲老師申請113年度學術專書專章獎勵案，因時間急迫，僅以電子郵件方式進行，請各位老師提供寶貴意見。並請於2月27日(星期四)上午10時前回傳，謝謝各位老師。

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決議選項：

- (1)、同意推薦
- (2)、修正後同意推薦
- (3)、其他意見：

決議：(1, 2, or 3) : _____

來源: chingsze <chingsze@mail.ncyu.edu.tw>

收信: gimse <gimse@mail.ncyu.edu.tw>

日期: Fri, 21 Feb 2025 16:33:09

標題: **Re: 113-2-1系務會議，請於2/27(四)上午10時前回覆**

(1) 同意

-----Original message-----

From: gimse <gimse@mail.ncyu.edu.tw>

To: 姚姚老師 <rfyau@mail.ncyu.edu.tw>, 小樹老師 <lin-s-s@mail.ncyu.edu.tw>, 均伊老師 <jychen@mail.ncyu.edu.tw>, 林志鴻老師 <chuck@mail.ncyu.edu.tw>, 林明煌老師 <lin5053@mail.ncyu.edu.tw>, 姜得勝老師 <winnerchiang@mail.ncyu.edu.tw>, 陳聖謨老師 <csmo@mail.ncyu.edu.tw>, 黃芳銘老師 <fmh@mail.ncyu.edu.tw>, 許家驊老師 <jhs@mail.ncyu.edu.tw>, 洪如玉老師 <hungruyu@mail.ncyu.edu.tw>, 劉文英老師 <wenying_1@yahoo.com>, 黃秀文老師 <euge@mail.ncyu.edu.tw>, 張淑媚老師 <shumei1967@mail.ncyu.edu.tw>, 王清思老師 <chingsze@mail.ncyu.edu.tw>, 陳佳慧老師1 <chiahuic1225@gmail.com>, 陳佳慧老師2 <chiahuic@mail.ncyu.edu.tw>, 劉馨琄老師 <hsinchun@mail.ncyu.edu.tw>, 黃繼仁老師 <hchiren@mail.ncyu.edu.tw>, 陳美瑩老師_1 <mei-ying.chen@g.ncyu.edu.tw>, 陳美瑩老師_2 <meiying2005_tw@yahoo.com.tw>, 陳美瑩老師_3 <mei-ying.chen@mail.ncyu.edu.tw>, 教育系(大學部) <educat@mail.ncyu.edu.tw>, 教育系(研究所) <gice@mail.ncyu.edu.tw>, 何宣甫老師 <hfho@mail.ncyu.edu.tw>, 王瑞堦老師 <gloriawang2004@mail.ncyu.edu.tw>, 陳珊華老師 <shanhua@mail.ncyu.edu.tw>, 葉連祺老師 <yehlc@mail.ncyu.edu.tw>, 楊正誠老師 <yccjason@mail.ncyu.edu.tw>

Date: Fri, 21 Feb 2025 15:09:07

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決議選項：

- (1)、同意推薦
- (2)、修正後同意推薦
- (3)、其他意見：

決議：(1, 2, or 3)：_____

王清思 教授

國立嘉義大學教育學系

(05) 2263411 ex. 1811

Jessica Ching-Sze Wang

Professor

Department of Education

National Chiayi University, Taiwan

來源: lin5053 <lin5053@mail.ncyu.edu.tw>

收信: gimse <gimse@mail.ncyu.edu.tw>

日期: Fri, 21 Feb 2025 15:42:40

標題: **Re: 113-2-1系務會議，請於2/27(四)上午10時前回覆**

同意

林明煌

-----Original message-----

From: gimse <gimse@mail.ncyu.edu.tw>

To: 姚姚老師 <rfyau@mail.ncyu.edu.tw>, 小樹老師 <lin-s-s@mail.ncyu.edu.tw>, 均伊老師 <jychen@mail.ncyu.edu.tw>, 林志鴻老師 <chuck@mail.ncyu.edu.tw>, 林明煌老師 <lin5053@mail.ncyu.edu.tw>, 姜得勝老師 <winnerchiang@mail.ncyu.edu.tw>, 陳聖謨老師 <csmo@mail.ncyu.edu.tw>, 黃芳銘老師 <fmh@mail.ncyu.edu.tw>, 許家驊老師 <jhs@mail.ncyu.edu.tw>, 洪如玉老師 <hungruyu@mail.ncyu.edu.tw>, 劉文英老師 <wenying_1@yahoo.com>, 黃秀文老師 <euge@mail.ncyu.edu.tw>, 張淑媚老師 <shumei1967@mail.ncyu.edu.tw>, 王清思老師 <chingsze@mail.ncyu.edu.tw>, 陳佳慧老師1 <chiahuic1225@gmail.com>, 陳佳慧老師2 <chiahuic@mail.ncyu.edu.tw>, 劉馨琄老師 <hsinchun@mail.ncyu.edu.tw>, 黃繼仁老師 <hchiren@mail.ncyu.edu.tw>, 陳美瑩老師_1 <mei-ying.chen@g.ncyu.edu.tw>, 陳美瑩老師_2 <meiying2005_tw@yahoo.com.tw>, 陳美瑩老師_3 <mei-ying.chen@mail.ncyu.edu.tw>, 教育系(大學部) <educat@mail.ncyu.edu.tw>, 教育系(研究所) <giee@mail.ncyu.edu.tw>, 何宣甫老師 <hfho@mail.ncyu.edu.tw>, 王瑞堦老師 <gloriawang2004@mail.ncyu.edu.tw>, 陳珊華老師 <shanhua@mail.ncyu.edu.tw>, 葉連祺老師 <yehlc@mail.ncyu.edu.tw>, 楊正誠老師 <yccjason@mail.ncyu.edu.tw>

Date: Fri, 21 Feb 2025 15:09:07

Subject: 113-2-1系務會議，請於2/27(四)上午10時前回覆

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案由：本學系林樹聲老師申請113年度學術專書專章獎勵，提請審議。

說明：林樹聲老師113年度專章1篇申請學術專書專章獎勵，申請表及佐證資料請參考附件P.6~44，是否同意推薦，請審議。

決議選項：

- (1)、同意推薦
- (2)、修正後同意推薦
- (3)、其他意見：

決議：(1, 2, or 3) : _____

來源: hungruyu <hungruyu@mail.ncyu.edu.tw>

收信: gimse <gimse@mail.ncyu.edu.tw>

日期: Fri, 21 Feb 2025 15:40:28

標題: **Re: 113-2-1系務會議，請於2/27(四)上午10時前回覆**

敬啟者

(1)同意

謝謝

洪老師上

Ruyu HUNG, Ph.D / Distinguished Professor in Philosophy of Education / orcid.org/0000-0002-8583-8456

Department of Education / National Chiayi University, Taiwan / Tel (O): +886-5-2068219

Personal Website: <https://sites.google.com/view/ruyu-hung/>

Fulbright Senior Research Award

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-----Original message-----

From: gimse <gimse@mail.ncyu.edu.tw>

To: 姚姚老師 <rlyau@mail.ncyu.edu.tw>, 小樹老師 <lin-s-s@mail.ncyu.edu.tw>, 均伊老師 <jychen@mail.ncyu.edu.tw>, 林志鴻老師 <chuck@mail.ncyu.edu.tw>, 林明煌老師 <lin5053@mail.ncyu.edu.tw>, 姜得勝老師 <winnerchiang@mail.ncyu.edu.tw>, 陳聖謨老師 <csmo@mail.ncyu.edu.tw>, 黃芳銘老師 <fmh@mail.ncyu.edu.tw>, 許家驊老師 <jhs@mail.ncyu.edu.tw>, 洪如玉老師 <hungruyu@mail.ncyu.edu.tw>, 劉文英老師 <wenying_1@yahoo.com>, 黃秀文老師 <euge@mail.ncyu.edu.tw>, 張淑媚老師 <shumei1967@mail.ncyu.edu.tw>, 王清思老師 <chingsze@mail.ncyu.edu.tw>, 陳佳慧老師1 <chiahuic1225@gmail.com>, 陳佳慧老師2 <chiahuic@mail.ncyu.edu.tw>, 劉馨瑀老師 <hsinchun@mail.ncyu.edu.tw>, 黃繼仁老師 <hchiren@mail.ncyu.edu.tw>, 陳美瑩老師_1 <mei-ying.chen@g.ncyu.edu.tw>, 陳美瑩老師_2 <meiying2005_tw@yahoo.com.tw>, 陳美瑩老師_3 <mei-ying.chen@mail.ncyu.edu.tw>, 教育系(大學部) <educat@mail.ncyu.edu.tw>, 教育系(研究所) <giee@mail.ncyu.edu.tw>, 何宣甫老師 <hfho@mail.ncyu.edu.tw>, 王瑞堦老師 <gloriawang2004@mail.ncyu.edu.tw>, 陳珊華老師 <shanhua@mail.ncyu.edu.tw>, 葉連祺老師 <yehlc@mail.ncyu.edu.tw>, 楊正誠老師 <yccjason@mail.ncyu.edu.tw>

Date: Fri, 21 Feb 2025 15:09:07

Subject: 113-2-1系務會議，請於2/27(四)上午10時前回覆

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說明：林樹聲老師113年度專章1篇申請學術專書專章獎勵，申請表及佐證資料請參考附件P.6~44，是否同意推薦，請審議。

決議選項：

- (1)、同意推薦
- (2)、修正後同意推薦
- (3)、其他意見：

決議：(1, 2, or 3) : _____

來源: Hsin-Chun Liu <hsinchun@mail.ncyu.edu.tw>

收信: gimse <gimse@mail.ncyu.edu.tw>

日期: Fri, 21 Feb 2025 15:30:49

標題: **Re: 113-2-1系務會議，請於2/27(四)上午10時前回覆**

敬啟者

(1)、同意推薦

敬請查收，謝謝。

-----Original message-----

From: gimse <gimse@mail.ncyu.edu.tw>

To: 姚姚老師 <rfyau@mail.ncyu.edu.tw>, 小樹老師 <lin-s-s@mail.ncyu.edu.tw>, 均伊老師 <jychen@mail.ncyu.edu.tw>, 林志鴻老師 <chuck@mail.ncyu.edu.tw>, 林明煌老師 <lin5053@mail.ncyu.edu.tw>, 姜得勝老師 <winnerchiang@mail.ncyu.edu.tw>, 陳聖謨老師 <csmo@mail.ncyu.edu.tw>, 黃芳銘老師 <fmh@mail.ncyu.edu.tw>, 許家驊老師 <jhs@mail.ncyu.edu.tw>, 洪如玉老師 <hungruyu@mail.ncyu.edu.tw>, 劉文英老師 <wenying_1@yahoo.com>, 黃秀文老師 <euge@mail.ncyu.edu.tw>, 張淑媚老師 <shumei1967@mail.ncyu.edu.tw>, 王清思老師 <chingsze@mail.ncyu.edu.tw>, 陳佳慧老師1 <chiahuic1225@gmail.com>, 陳佳慧老師2 <chiahuic@mail.ncyu.edu.tw>, 劉馨琄老師 <hsinchun@mail.ncyu.edu.tw>, 黃繼仁老師 <hchiren@mail.ncyu.edu.tw>, 陳美瑩老師_1 <mei-ying.chen@g.ncyu.edu.tw>, 陳美瑩老師_2 <meiying2005_tw@yahoo.com.tw>, 陳美瑩老師_3 <mei-ying.chen@mail.ncyu.edu.tw>, 教育系(大學部) <educat@mail.ncyu.edu.tw>, 教育系(研究所) <gice@mail.ncyu.edu.tw>, 何宣甫老師 <hfho@mail.ncyu.edu.tw>, 王瑞堦老師 <gloriawang2004@mail.ncyu.edu.tw>, 陳珊華老師 <shanhua@mail.ncyu.edu.tw>, 葉連祺老師 <yehlc@mail.ncyu.edu.tw>, 楊正誠老師 <yccjason@mail.ncyu.edu.tw>

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(1)、同意推薦

(2)、修正後同意推薦

(3)、其他意見：

決議：(1, 2, or 3)：_____

來源: yccjason <yccjason@mail.ncyu.edu.tw>

收信: gimse <gimse@mail.ncyu.edu.tw>

日期: Fri, 21 Feb 2025 15:12:36

標題: **Re: 113-2-1系務會議，請於2/27(四)上午10時前回覆**

您好
同意推薦
謝謝
楊正誠

-----Original message-----

From: gimse <gimse@mail.ncyu.edu.tw>

To: 姚姚老師 <rfyau@mail.ncyu.edu.tw>, 小樹老師 <lin-s-s@mail.ncyu.edu.tw>, 均伊老師 <jychen@mail.ncyu.edu.tw>, 林志鴻老師 <chuck@mail.ncyu.edu.tw>, 林明煌老師 <lin5053@mail.ncyu.edu.tw>, 姜得勝老師 <winnerchiang@mail.ncyu.edu.tw>, 陳聖謨老師 <csmo@mail.ncyu.edu.tw>, 黃芳銘老師 <fmh@mail.ncyu.edu.tw>, 許家驊老師 <jhs@mail.ncyu.edu.tw>, 洪如玉老師 <hungruyu@mail.ncyu.edu.tw>, 劉文英老師 <wenying_1@yahoo.com>, 黃秀文老師 <euge@mail.ncyu.edu.tw>, 張淑媚老師 <shumei1967@mail.ncyu.edu.tw>, 王清思老師 <chingsze@mail.ncyu.edu.tw>, 陳佳慧老師1 <chiahuic1225@gmail.com>, 陳佳慧老師2 <chiahuic@mail.ncyu.edu.tw>, 劉馨琄老師 <hsinchun@mail.ncyu.edu.tw>, 黃繼仁老師 <hchiren@mail.ncyu.edu.tw>, 陳美瑩老師_1 <mei-ying.chen@g.ncyu.edu.tw>, 陳美瑩老師_2 <meiying2005_tw@yahoo.com.tw>, 陳美瑩老師_3 <mei-ying.chen@mail.ncyu.edu.tw>, 教育系(大學部) <educat@mail.ncyu.edu.tw>, 教育系(研究所) <giee@mail.ncyu.edu.tw>, 何宣甫老師 <hfho@mail.ncyu.edu.tw>, 王瑞堦老師 <gloriawang2004@mail.ncyu.edu.tw>, 陳珊華老師 <shanhua@mail.ncyu.edu.tw>, 葉連祺老師 <yehlc@mail.ncyu.edu.tw>, 楊正誠老師 <yccjason@mail.ncyu.edu.tw>

Date: Fri, 21 Feb 2025 15:09:07

Subject: 113-2-1系務會議，請於2/27(四)上午10時前回覆

各位老師教安：

本次會議係審查林樹聲老師申請113年度學術專書專章獎勵案，因時間急迫，僅以電子郵件方式進行，請各位老師提供寶貴意見。並請於2月27日(星期四)上午10時前回傳，謝謝各位老師。

提案一

案由：本學系林樹聲老師申請113年度學術專書專章獎勵，提請審議。

說明：林樹聲老師113年度專章1篇申請學術專書專章獎勵，申請表及佐證資料請參考附件P.6~44，是否同意推薦，請審議。

決議選項：

- (1)、同意推薦
- (2)、修正後同意推薦
- (3)、其他意見：

決議：(1, 2, or 3)：_____