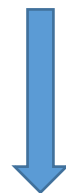


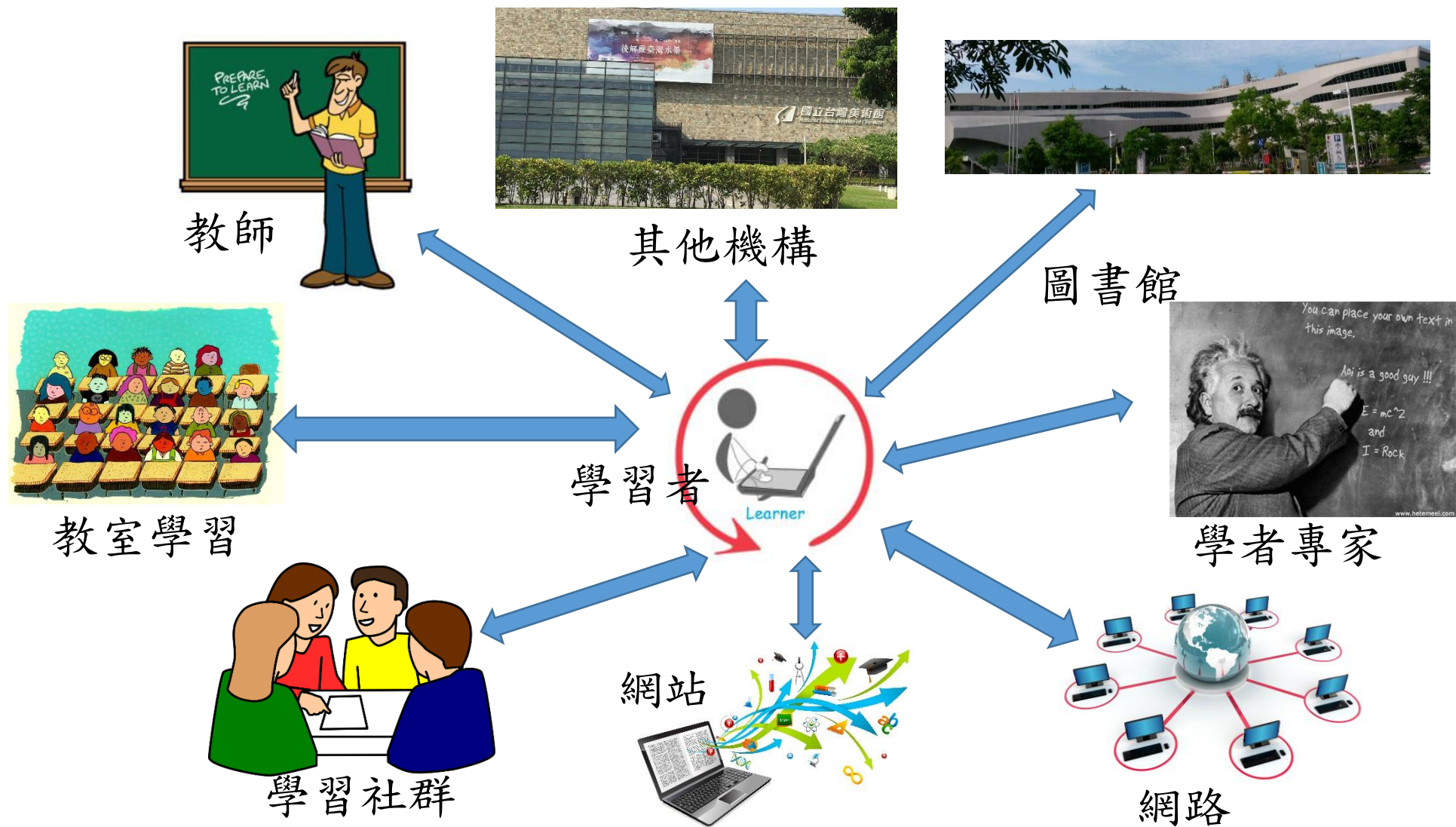
資訊素養教學概論

賴苑玲

以往的學習方式：以教師為中心



現在的學習方式：以學生為中心



學習趨勢

教師講
學生聽



提問、討論、
協作

單一教科書



多元教材

實體教室



虛擬教室
同步與非同步



- 培養學生自我導向學習
- 建立批判性思考與解決問題能力
- 養成終身學習習慣

何謂素養？

- 素養是一種讀與寫的能力（大美百科全書，1999），素養的傳統定義應用在印刷物上，而隨著外界環境的變化，大眾媒介除了印刷物以外，還有電視、錄影帶、VCD、E-book與網路資料。
- 素養是「理解以及和外界做有意義溝通所需要的能力」。
- 素養可界定為「knowledge × experience × power of judgment」（洪裕宏，2008），素養是為了「因應社會之複雜生活情境需求」（蔡清田，2014:13），學習是將知識、技能、態度與「生活情境」結合。

資訊素養

- 資訊素養是指個人知道「學習如何學習」，並具有尋找、組織、評估和利用各種資訊的能力（美國圖書館學會，1989）。
- 資訊素養可說是數種資訊能力的總集：
 - (1)傳統素養(Traditional Literacy)、
 - (2)媒體素養(Media Literacy)、
 - (3)電腦素養(Computer Literacy)、
 - 與(4)網路素養(Network Literacy)（McClure, 1994）。

資訊素養

內在

- 能思考
- 能釐清問題所在
- 能分析所需要的資訊是什麼
- 能正確解讀資訊
能分析、合成、組織有用的資訊

外顯

- 知道資訊資源的所在
知道如何獲取資訊
- 能夠用合適的方式將
組織及內化後的資訊
呈現出來
- 能利用資訊解決相關
的問題（吳美美，
1996）

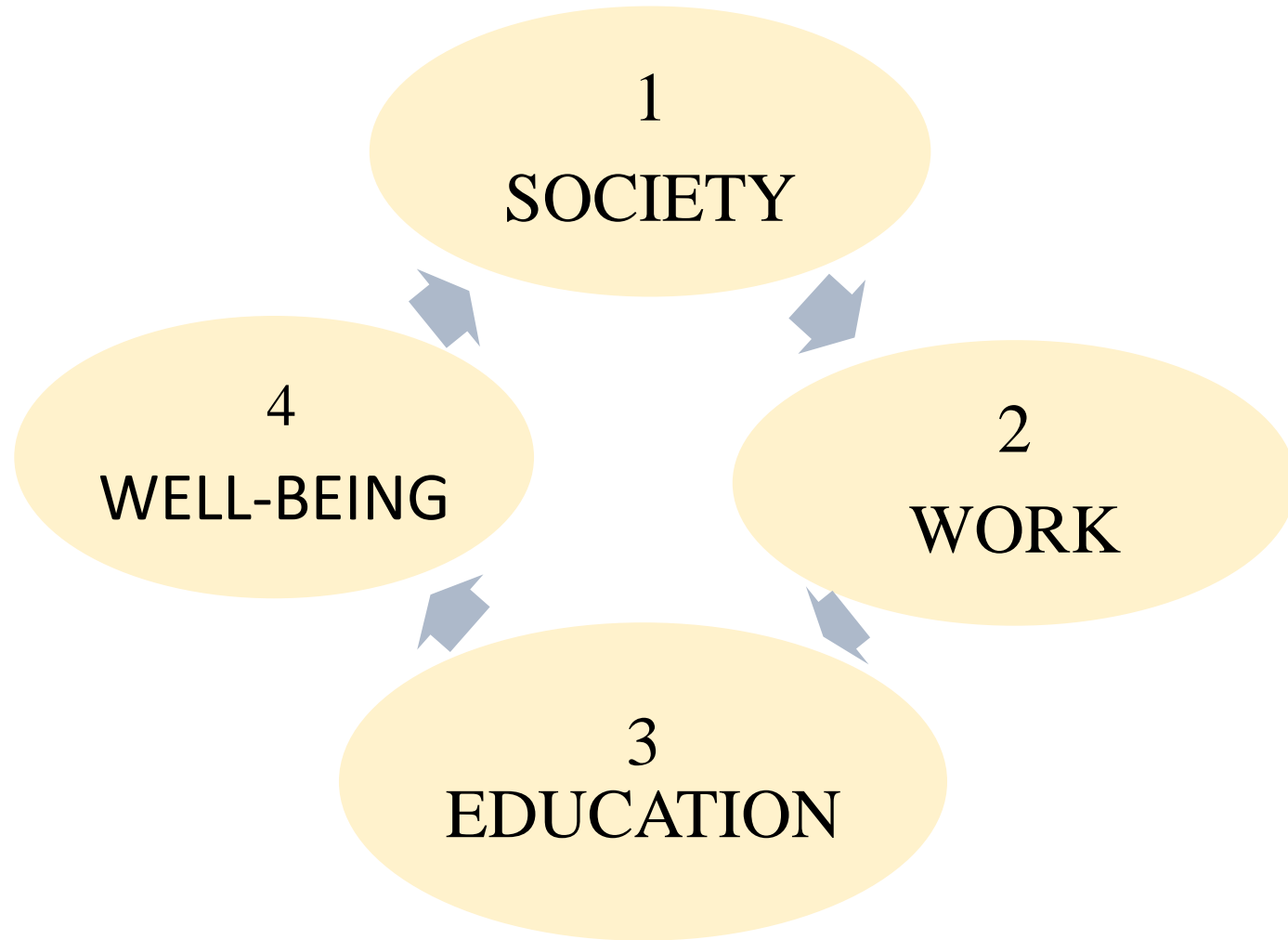
資訊素養

- 依據美國圖書館學會（American Library Association, ALA）的定義，是指一個人具備覺知何時需要資訊，並能有效地搜索、評估和使用所需資訊的能力。
- 一個有資訊素養的人能明確界定所需資訊的範疇，明訂所需資訊內容的廣度與深度，且能運用資訊科技工具或媒體有效率搜尋所需資訊，同時謹慎精準的評估資訊及周邊相關資源。
- 透過個人的理解與篩選資訊後，將有用資訊融入個人知識體系或儲存設備，最後能以有效且在合於資訊倫理與法律條件下，達成資訊使用與傳播的目的。

Information literacy

- Knowing when and why you need information, where to find it, and how to evaluate, use and communicate it in an ethical manner(Chartered Institute of Library Information Professionals, CILIP, 英國圖書館與資訊專業學會, 2012)
- Information literate people will demonstrate an awareness of how they gather, use, manage, synthesis and create information and data in an ethical manner and will have the information skills to do so effectively(The Society of College, National and University Libraries, SCONUL, 英國大學與國立圖書館協會, 2011)

IL Contexts from UNESCO, 2008

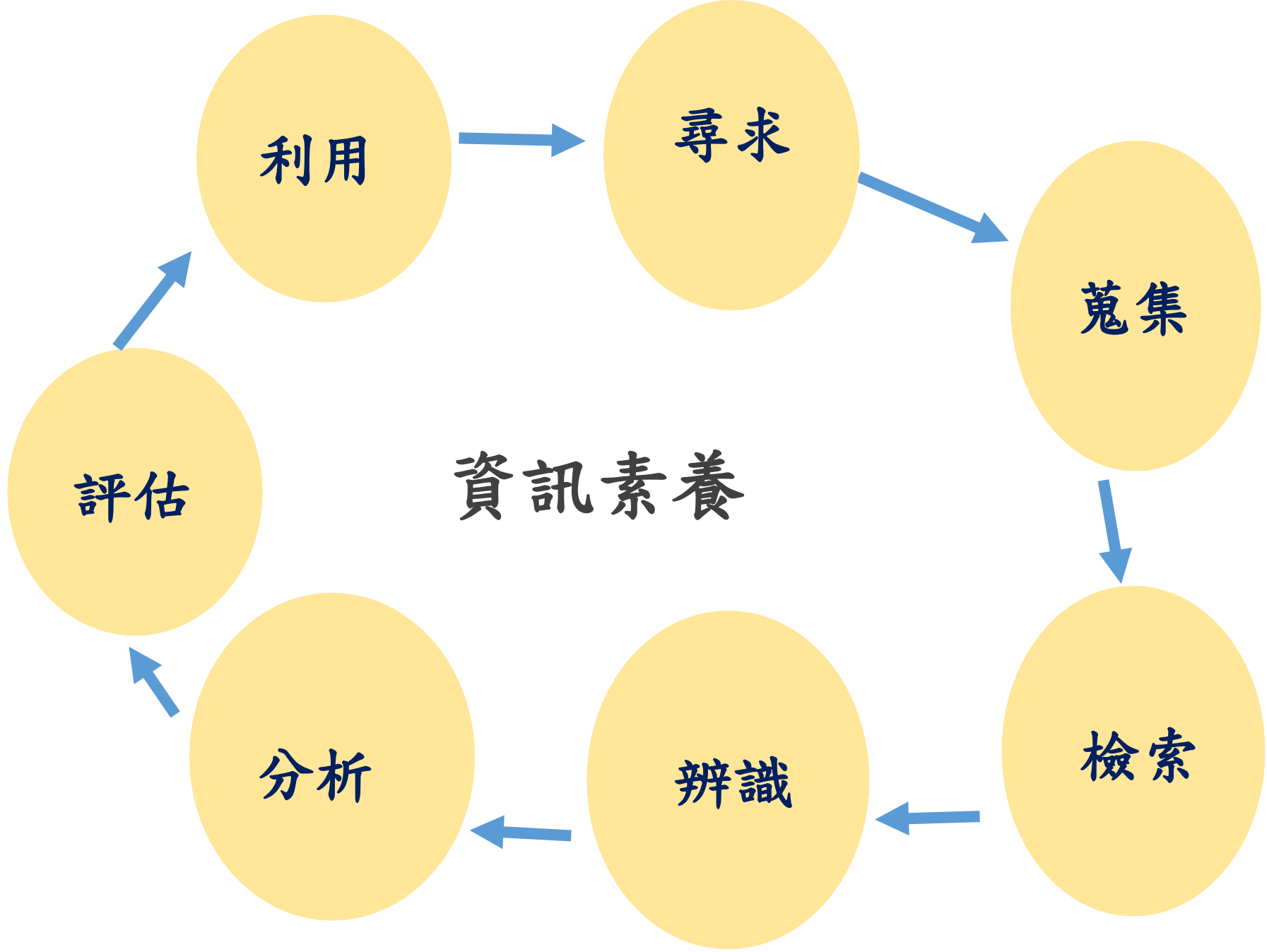


邁向資訊素養指標

(Towards Information Literacy Indicators)

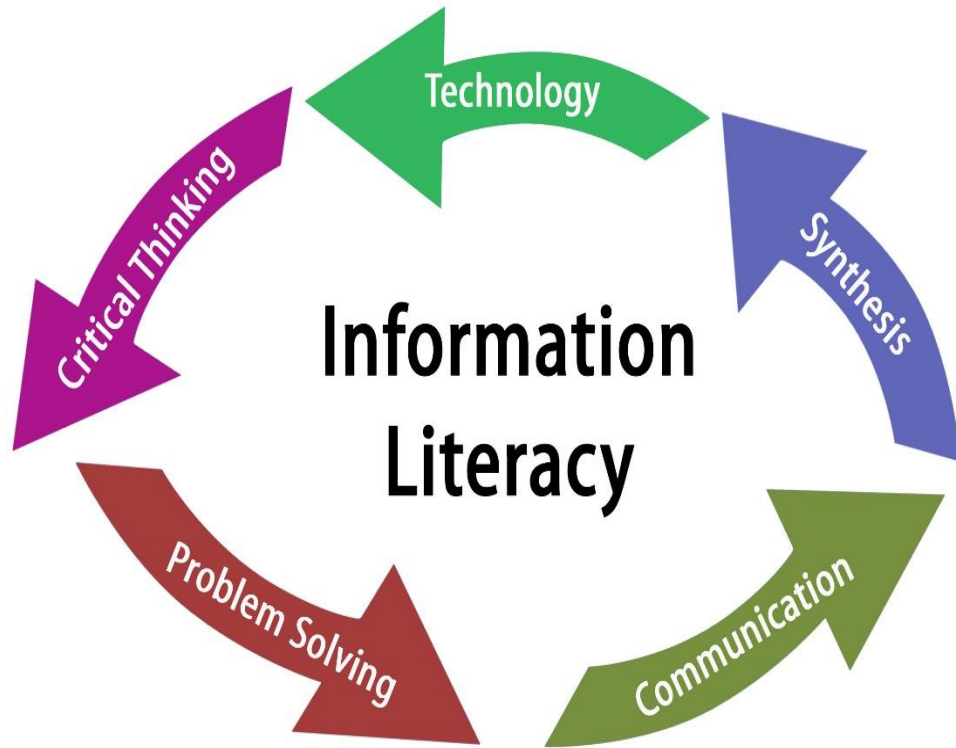
- 聯合國教科文組織於2008年出版，指出資訊素養與國家發展、人類建康與福祉、公民社會、各級教育、工作與經濟活動息息相關。
- 資訊素養包含的要素為：辨識資訊需求 (Recognize their information needs)、查詢並評估資訊的質與量 (Locate and evaluate the quality of information)、儲存與檢索資訊 (Store and retrieve information)、有效且有道德地使用資訊 (Make effective and ethical use of information) 以及應用資訊創造和交流知識 (Apply information to create and communicate knowledge) 。

資訊素養



Information literacy ≠ Information technology

- Information literacy focuses on content, communication, analysis, information searching and evaluation.
- Information technology focuses on a deep understanding of technology and graduated, increasingly skilled use of it. (ACRL, 2000)

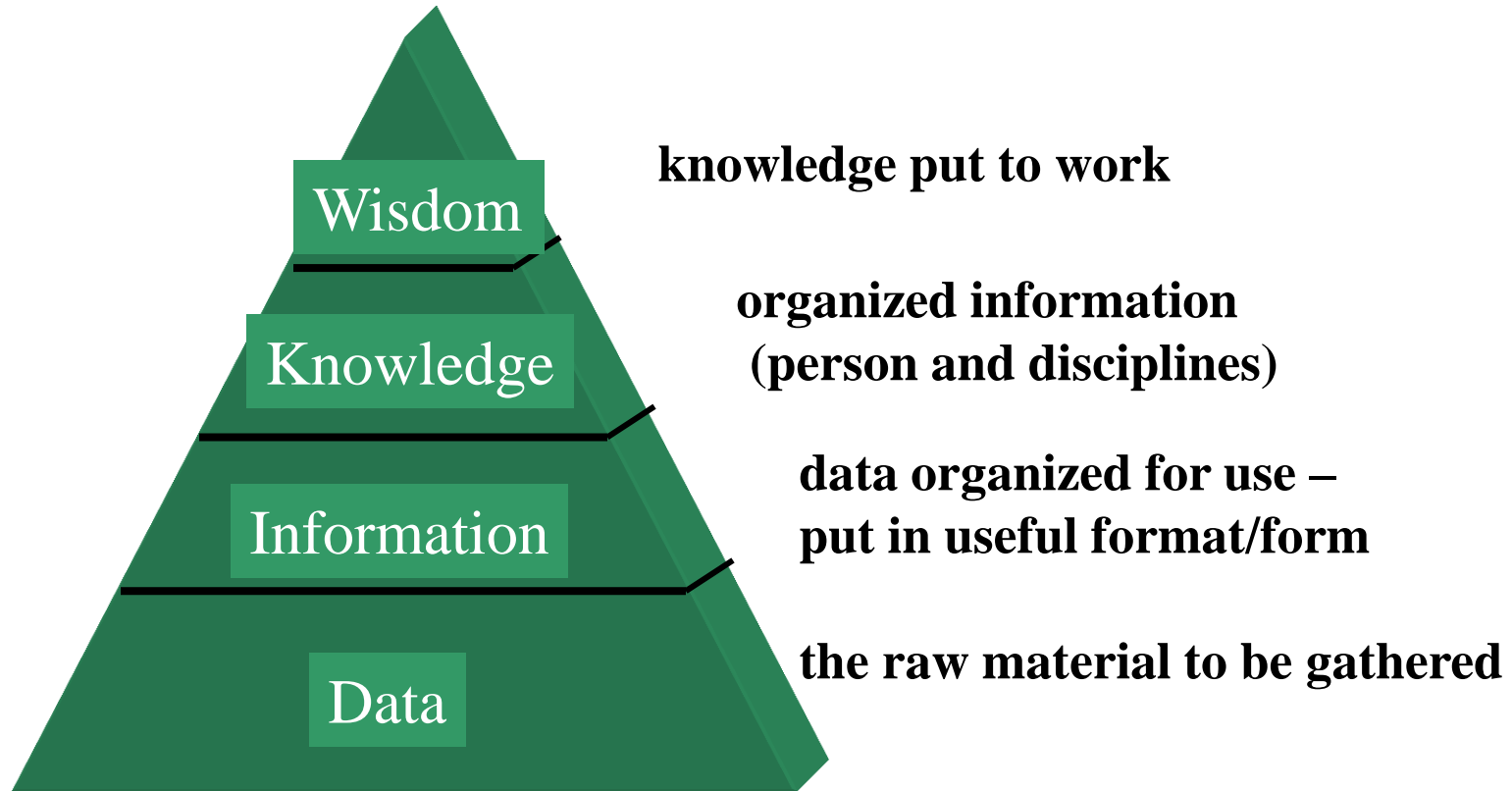


Download from
<http://library.avon.k12.ma.us/ahinfoliteracy.htm>



Download from dreamstime.com

資訊的提昇



資訊素養

- 資訊素養包括許多不同的活動與相關名詞如批判思考、媒體素養、資訊倫理、電腦素養、數位素養、網路素養、資訊資源素養、詮釋素養(metaliteracy)、全媒體素養(transliteracy)與研究素養。

資訊素養的意義

是人類各種基本知識素養的重要部分



是現代社會生活的要件

不僅從事學術的人需要，各行各業的人也都需要

資訊素養標準

- Information Literacy Standards for Student Learning (1998)
 - 解釋9個標準與指標使學生成為有資訊素養的人 (Information power: Building partnerships for learning)
- Standards for the 21st Century Learner (2009)
 - 是學習標準 (learning standards)
 - 確認學生學習的資訊素養角色以及學校圖書館媒體計畫必須提出多元的素養
- National School Library Standards for Learners, School Librarians, and School Libraries (AASL, 2017)

21世紀學習者的共同信念

- (1) 閱讀是通往世界的窗口
- (2) 探究提供學習的架構（技能、行動意向、責任感與自我評估策略）
- (3) 必須教導使用資訊的道德行為（負責任與安全的）
- (4) 科技技能是未來就業的重要需求
- (5) 平等取用是教育的主要元件

21世紀學習者的共同信念

- (6) 當資訊科技與資源產生變化，資訊素養的定義變得更複雜（數位、視覺、文本與科技）
- (7) 每個人的資訊需求會持續增加，因此需養成思考技能，使每個人能依據自己的學習方式學習（選擇評估與利用資訊）
- (8) 在社會情境下學習（經由面對面或透過科技學習與分享知識）
- (9) 圖書館是學習技能發展的重要地方(AASL, 2009)

建立合作夥伴關係

- 圖書教師與班級教師或科任教師組成核心小組共同設計、完成與評量探究式學習的課程與單元。
- 與家長、社群、博物館、學術/公共圖書館、基金會、商業等機構，藉由其專長與協助共同合作探究式學習的課程與單元。
- 與行政人員一起以便得到共同合作的支援。
- 在學生學習過程中取得新科技資訊。

閱讀的角色

- 提供正式與非正式教材教導閱讀策略
- 將閱讀策略融入課程單元
- 獲取與增進高品質、有閱讀興趣的圖書館藏與其他形式的閱讀資源
- 發展學習者在閱讀、寫作與聆聽方面的理解與興趣
- 培育學生在個人娛樂、知識與觀念上的閱讀
- 創造個人閱讀的環境
- 經由大聲朗讀、書談、展示、與作者對談或其他方式來鼓舞學習者閱讀小說和非小說作品
- 製造家長、家庭中的成員有閱讀的機會

提出多元素養

- 與教師合作將多元素養融入課程或單元中
- 指引學生與老師有最適當的學習任務
- 連結學習者在**不同形式**資訊世界中提升批判性思考
- 提供**不同形式**資訊的教材
- 熟悉新科技資訊
- 適應學習過程中的新技能、新科技與新的理解
- 以有效的方式鼓勵使用**多元形式**來呈現資料與資訊
- 為了有效率與創造力的學習需融入最新科技
- 在檢索、利用與創造**不同形式**的資訊時需遵守法律、道德與社會責任

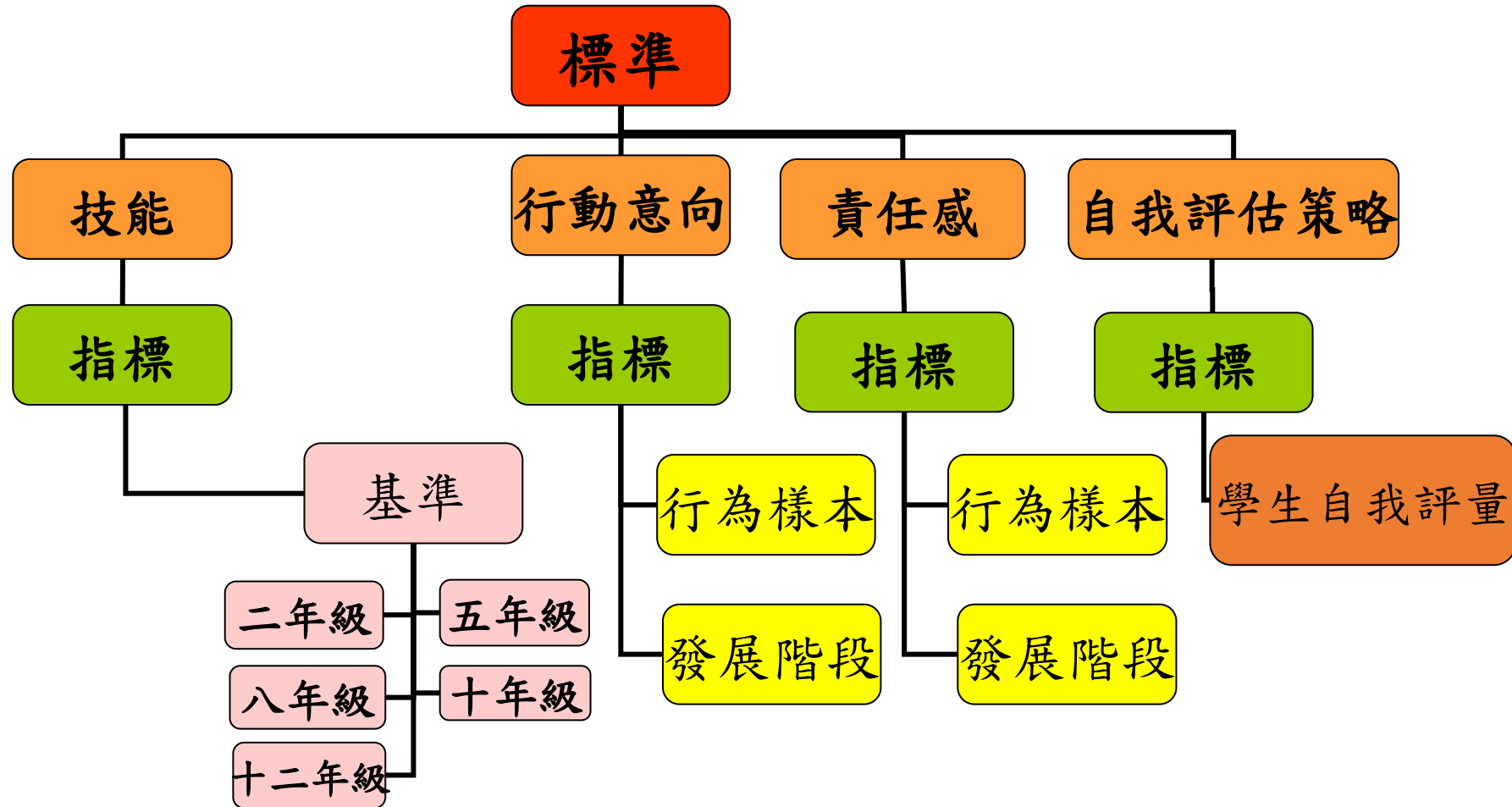
有效率的探究式學習實證

- 藉由應用、分析、評量與創造的學習活動，刺激學習者的批判性思考。
- 設計與資訊尋求過程有關連的學習任務。
- 在學習任務中建立學習者的先背知識。
- 提供學習者在資訊與資料蒐集的幫助。

學習評量

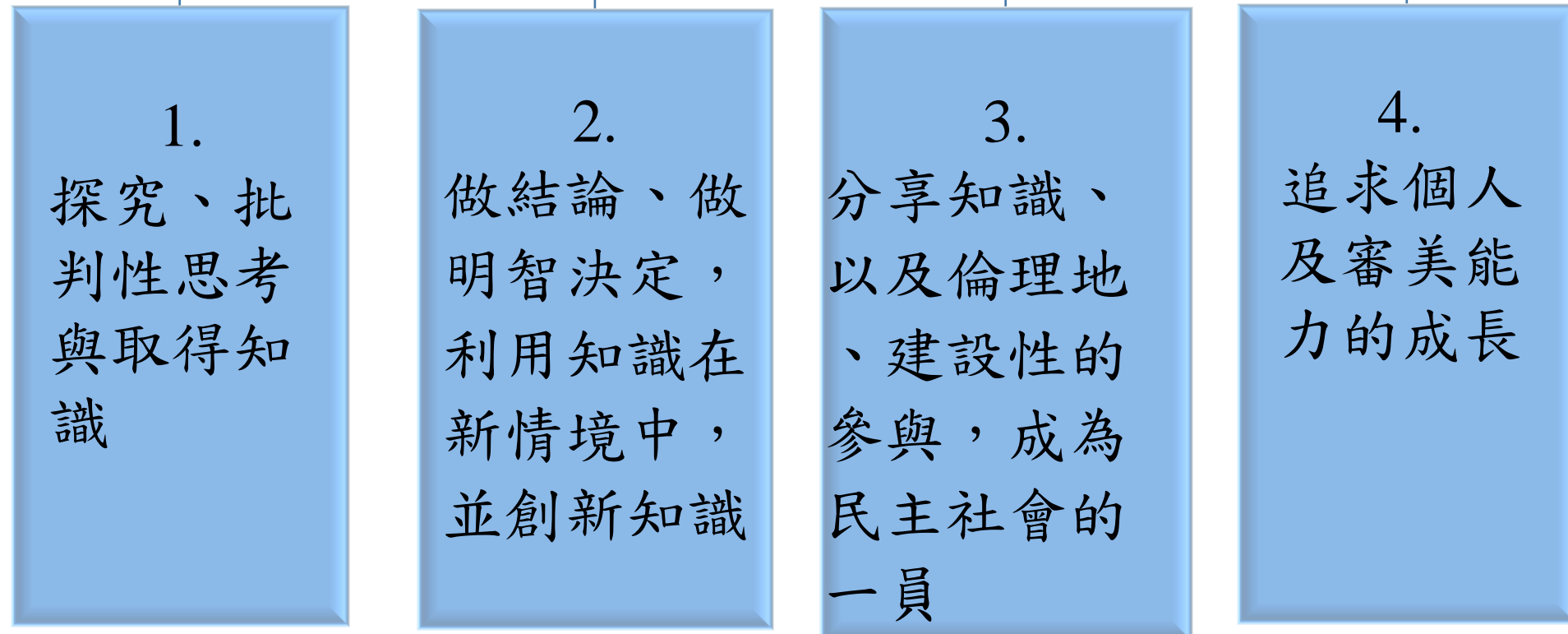
- 利用**形成性**評量讓學習者有機會修訂其作品。
- 與教師合作應用過程與成果的**總結性**評量。
- 利用**實作評量**如觀察、評量指標、檢核表、學習檔案、日誌、會議、自我提問。
- 建立對學生作品的評量指標，此指標可融入課程或非正式，包含批判性思考標準。

Standards for the 21st Century Learner



Standards for the 21st Century Learner

標準



AASL Standards Framework for Learners

思考是認知領域、創新是心理動能、分享是情意領域、
成長是發展

THINK
CREATE
SHARE
GROW



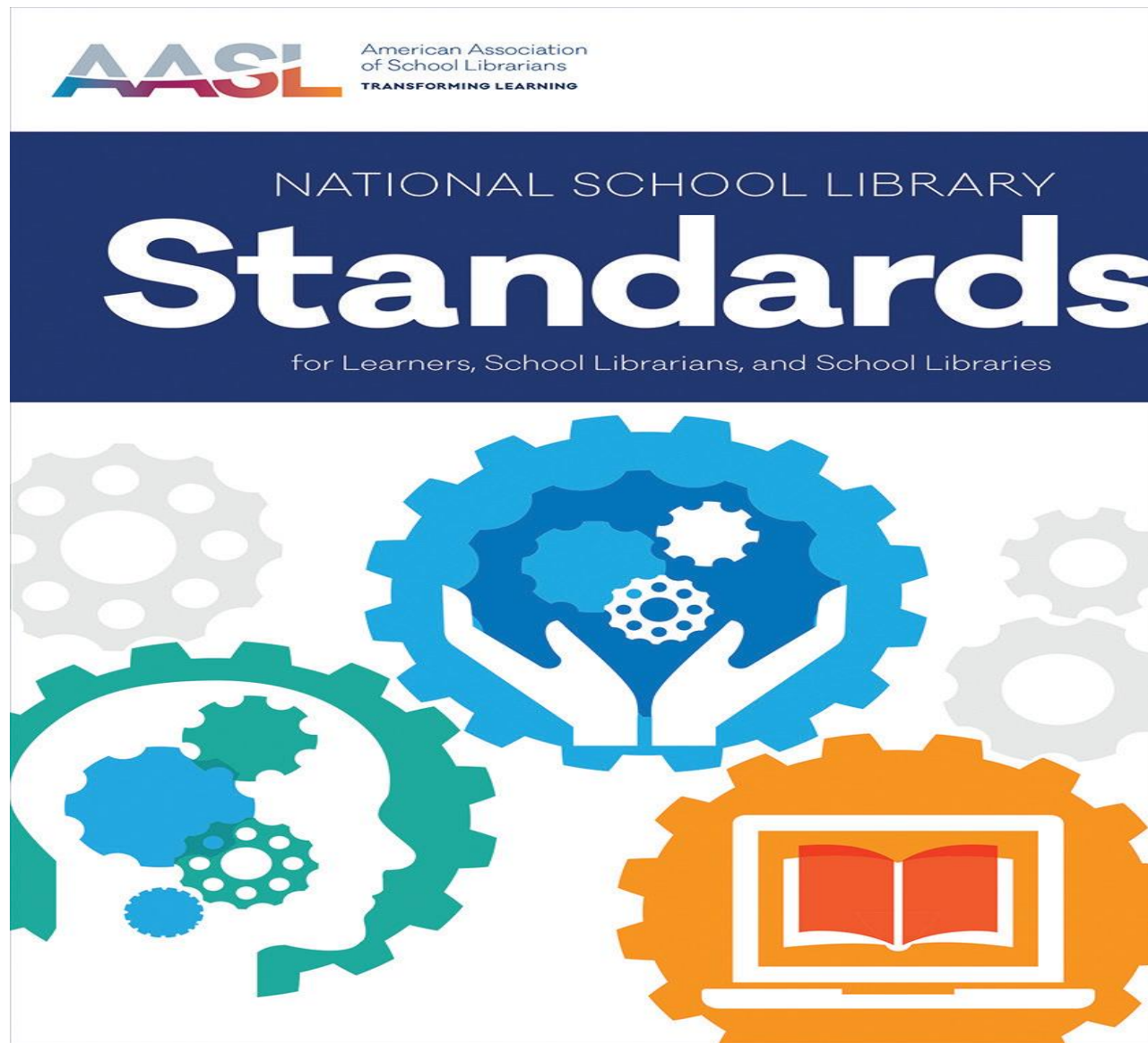
The standards recognize the five roles of the school librarian: Leader, instructional partner, information specialist, teacher, program administrator.(AASL, 2017)

Common Beliefs

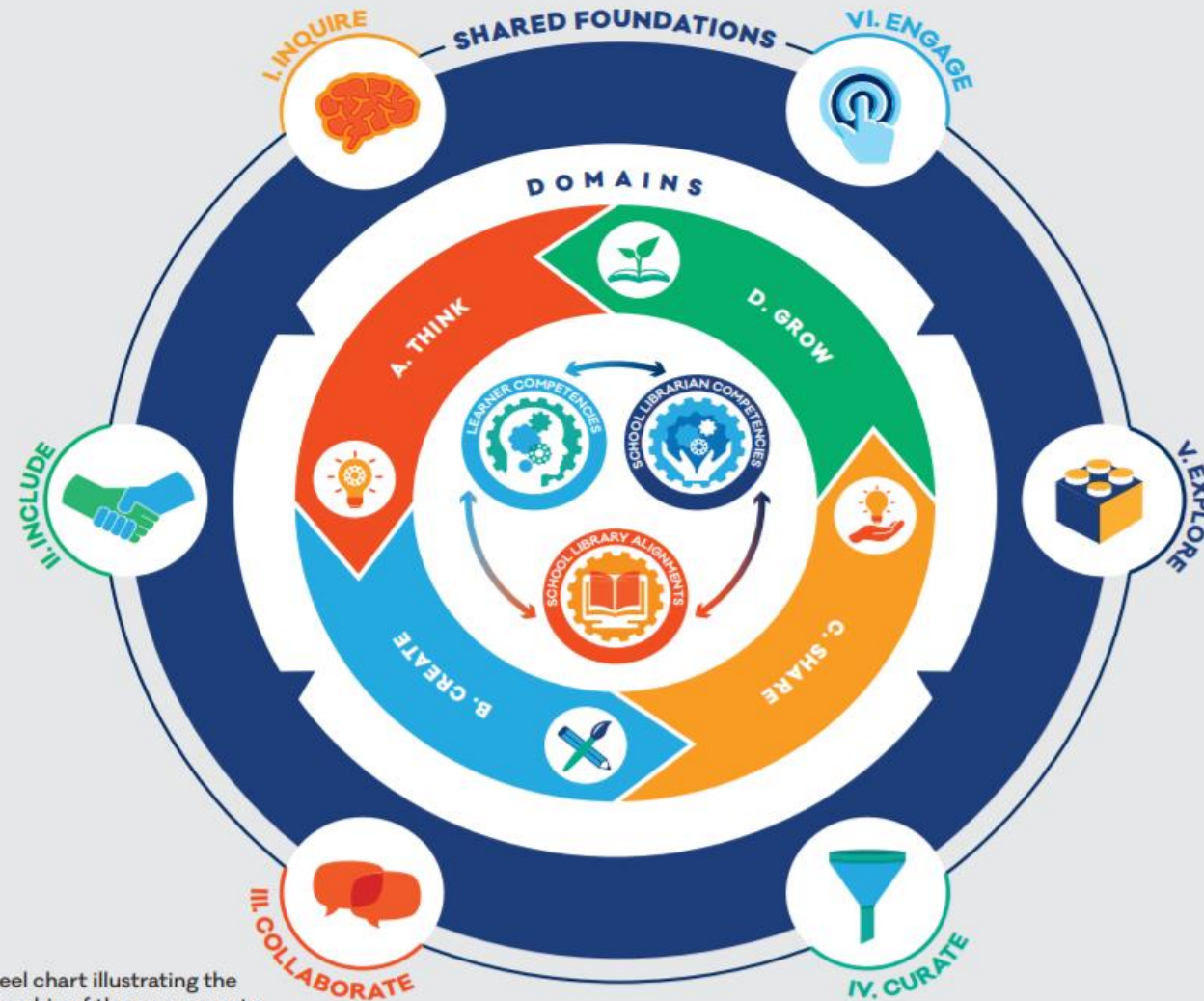
1. The school library is a unique and essential part of a learning community. 學校圖書館是學習社群的獨特且重要的組成部分
2. Qualified school librarians lead effective school libraries. 合格的圖書教師領導有效的學校圖書館
3. Learners should be prepared for college, career, and life. 學習者應該為大學、生涯規劃與生活做準備
4. Reading is the core of personal and academic competency. 閱讀是個人與學術能力的核心
5. Intellectual freedom is every learner's right. 知識自由是每位學習者的權力
6. Information technologies must be appropriately integrated and equitably available. 資訊科技必須適當的融入與公平的取用

(from <http://standards.aasl.org/beliefs/>)

AASL Standards Framework for Learners



AASL Standards Framework for Learners



A wheel chart illustrating the relationship of the components within the AASL Standards framework structure.

DOMAINS AND COMPETENCIES	I. INQUIRE 探究 Build new knowledge by inquiring, thinking critically, identifying problems, and developing strategies for solving problem	II. INCLUDE 包含 Demonstrate an understanding of and commitment to inclusiveness and respect for diversity in the learning community.	III. COLLABORATE 協作 Work effectively with others to broaden perspectives and work toward common goals.
A. THINK	Learners display curiosity and initiative by: 1. Formulating questions about a personal interest or a curricular topic. 2. Recalling prior and background knowledge as context for new meaning.	Learners contribute a balanced perspective when participating in a learning community by: 1. Articulating an awareness of the contributions of a range of learners. 2. Adopting a discerning stance toward points of view and opinions expressed in information resources and learning products. 3. Describing their understanding of cultural relevancy and placement within the global learning community.	Learners identify collaborative opportunities by: 1. Demonstrating their desire to broaden and deepen understandings. 2. Developing new understandings through engagement in a learning group. 3. Deciding to solve problems informed by group interaction
B. CREATE	Learners engage with new knowledge by following a process that includes: 1. Using evidence to investigate questions. 2. Devising and implementing a plan to fill knowledge gaps. 3. Generating products that illustrate learning.	Learners adjust their awareness of the global learning community by: 1. Interacting with learners who reflect a range of perspectives. 2. Evaluating a variety of perspectives during learning activities. 3. Representing diverse perspectives during learning activities.	Learners participate in personal, social, and intellectual networks by: 1. Using a variety of communication tools and resources. 2. Establishing connections with other learners to build on their own prior knowledge and create new knowledge

DOMAINS AND COMPETENCIES	I. INQUIRE Build new knowledge by inquiring, thinking critically, identifying problems, and developing strategies for solving problem	II. INCLUDE Demonstrate an understanding of and commitment to inclusiveness and respect for diversity in the learning community.	III. COLLABORATE Work effectively with others to broaden perspectives and work toward common goals.
C. SHARE	Learners adapt, communicate, and exchange learning products with others in a cycle that includes: <ol style="list-style-type: none"> 1. Interacting with content presented by others. 2. Providing constructive feedback. 3. Acting on feedback to improve. 4. Sharing products with an authentic audience. 	Learners exhibit empathy with and tolerance for diverse ideas by: <ol style="list-style-type: none"> 1. Engaging in informed conversation and active debate. 2. Contributing to discussions in which multiple viewpoints on a topic are expressed. 	Learners work productively with others to solve problems by: <ol style="list-style-type: none"> 1. Soliciting and responding to feedback from others. 2. Involving diverse perspectives in their own inquiry processes.
D. GROW	Learners participate in an ongoing inquiry-based process by: <ol style="list-style-type: none"> 1. Continually seeking knowledge. 2. Engaging in sustained inquiry. 3. Enacting new understanding through real-world connections. 4. Using reflection to guide informed decisions. 	Learners demonstrate empathy and equity in knowledge building within the global learning community by: <ol style="list-style-type: none"> 1. Seeking interactions with a range of learners. 2. Demonstrating interest in other perspectives during learning activities. 3. Reflecting on their own place within the global learning community. 	Learners actively participate with others in learning situations by: <ol style="list-style-type: none"> 1. Actively contributing to group discussions. 2. Recognizing learning as a social responsibility.

DOMAINS AND COMPETENCIES	IV. CURATE Make meaning for oneself and others by collecting, organizing, and sharing resources of personal relevance.	V. EXPLORE Discover and innovate in a growth mindset developed through experience and reflection.	VI. ENGAGE Demonstrate safe, legal, and ethical creating and sharing of knowledge products independently while engaging in a community of practice and an interconnected world.
A. THINK	Learners act on an information need by: <ol style="list-style-type: none"> 1. Determining the need to gather information. 2. Identifying possible sources of information. 3. Making critical choices about information sources to use. 	Learners develop and satisfy personal curiosity by: <ol style="list-style-type: none"> 1. Reading widely and deeply in multiple formats and write and create for a variety of purposes. 2. Reflecting and questioning assumptions and possible misconceptions. 3. Engaging in inquiry-based processes for personal growth. 	Learners follow ethical and legal guidelines for gathering and using information by: <ol style="list-style-type: none"> 1. Responsibly applying information, technology, and media to learning. 2. Understanding the ethical use of information, technology, and media. 3. Evaluating information for accuracy, validity, social and cultural context, and appropriateness for need.
B. CREATE	Learners gather information appropriate to the task by: <ol style="list-style-type: none"> 1. Seeking a variety of sources. 2. Collecting information representing diverse perspectives. 3. Systematically questioning and assessing the validity and accuracy of information. 4. Organizing information by priority, topic, or other systematic scheme. 	Learners construct new knowledge by: <ol style="list-style-type: none"> 1. Problem solving through cycles of design, implementation, and reflection. 2. Persisting through self-directed pursuits by tinkering and making. 	Learners use valid information and reasoned conclusions to make ethical decisions in the creation of knowledge by: <ol style="list-style-type: none"> 1. Ethically using and reproducing others' work. 2. Acknowledging authorship and demonstrating respect for the intellectual property of others. 3. Including elements in personal-knowledge products that allow others to credit content appropriately.

DOMAINS And COMPETENCIES	IV. CURATE Make meaning for oneself and others by collecting, organizing, and sharing resources of personal relevance.	V. EXPLORE Discover and innovate in a growth mindset developed through experience and reflection.	VI. ENGAGE Demonstrate safe, legal, and ethical creating and sharing of knowledge products independently while engaging in a community of practice and an interconnected world.
C. SHARE	Learners exchange information resources within and beyond their learning community by: 1. Accessing and evaluating collaboratively constructed information sites. 2. Contributing to collaboratively constructed information sites by ethically using and reproducing others' work. 3. Joining with others to compare and contrast information derived from collaboratively constructed information sites.	Learners engage with the learning community by: 1. Expressing curiosity about a topic of personal interest or curricular relevance. 2. Co-constructing innovative means of investigation. 3. Collaboratively identifying innovative solutions to a challenge or problem.	Learners responsibly, ethically, and legally share new information with a global community by: 1. Sharing information resources in accordance with modification, reuse, and remix policies. 2. Disseminating new knowledge through means appropriate for the intended audience.
D. GROW	Learners select and organize information for a variety of audiences by: 1. Performing ongoing analysis of and reflection on the quality, usefulness, and accuracy of curated resources. 2. Integrating and depicting in a conceptual knowledge network their understanding gained from resources. 3. Openly communicating curation processes for others to use, interpret, and validate.	Learners develop through experience and reflection by: 1. Iteratively responding to challenges. 2. Recognizing capabilities and skills that can be developed, improved, and expanded. 3. Open-mindedly accepting feedback for positive and constructive growth.	Learners engage with information to extend personal learning by: 1. Personalizing their use of information and information technologies. 2. Reflecting on the process of ethical generation of knowledge. 3. Inspiring others to engage in safe, responsible, ethical, and legal information behaviors.

資訊素養協作教學模式

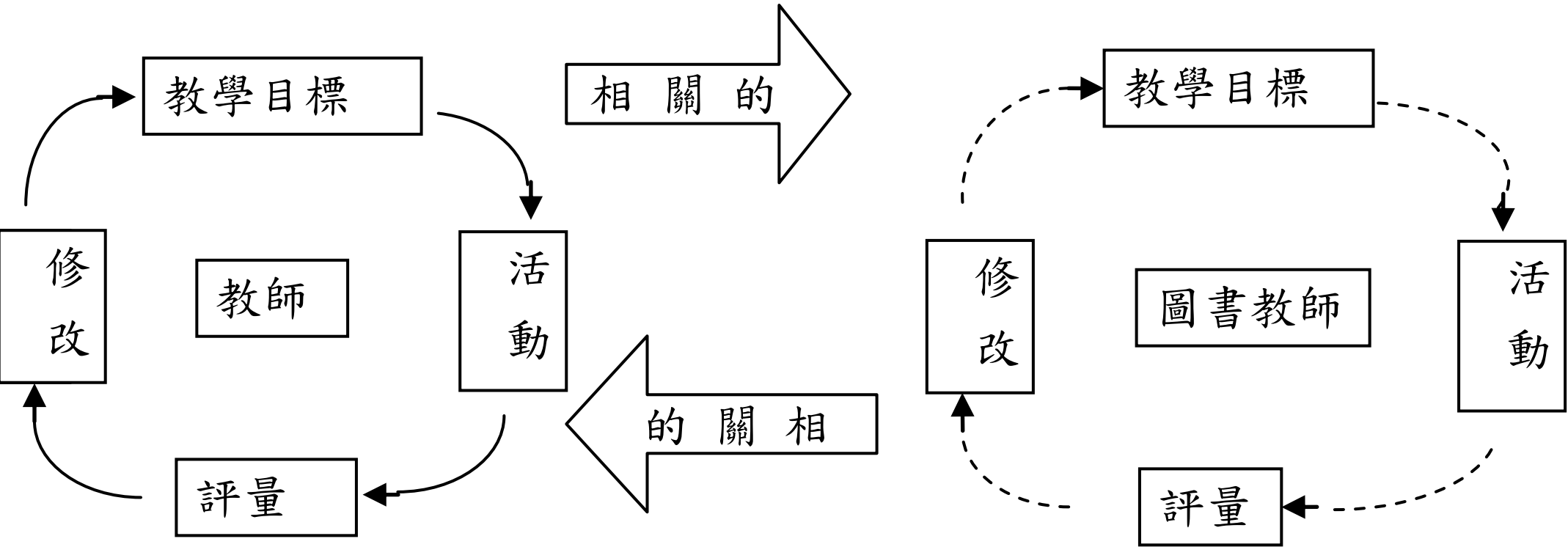
圖書教師和教師合作的模式

- 班級老師和圖書教師合作的關係，有下列四種類型（Eshpeter & Gray, 1989）：
 - 圖書教師只提供教師需求的資源
 - 圖書教師除了提供資源外，還會主動提供一些諮詢的服務
 - 班級教師負責學科的教學計畫，圖書教師負責資訊素養的教學
 - 班級教師和圖書教師共同進行整個單元的設計、包括目標、教學活動與評鑑工作

圖書教師和教師合作模式

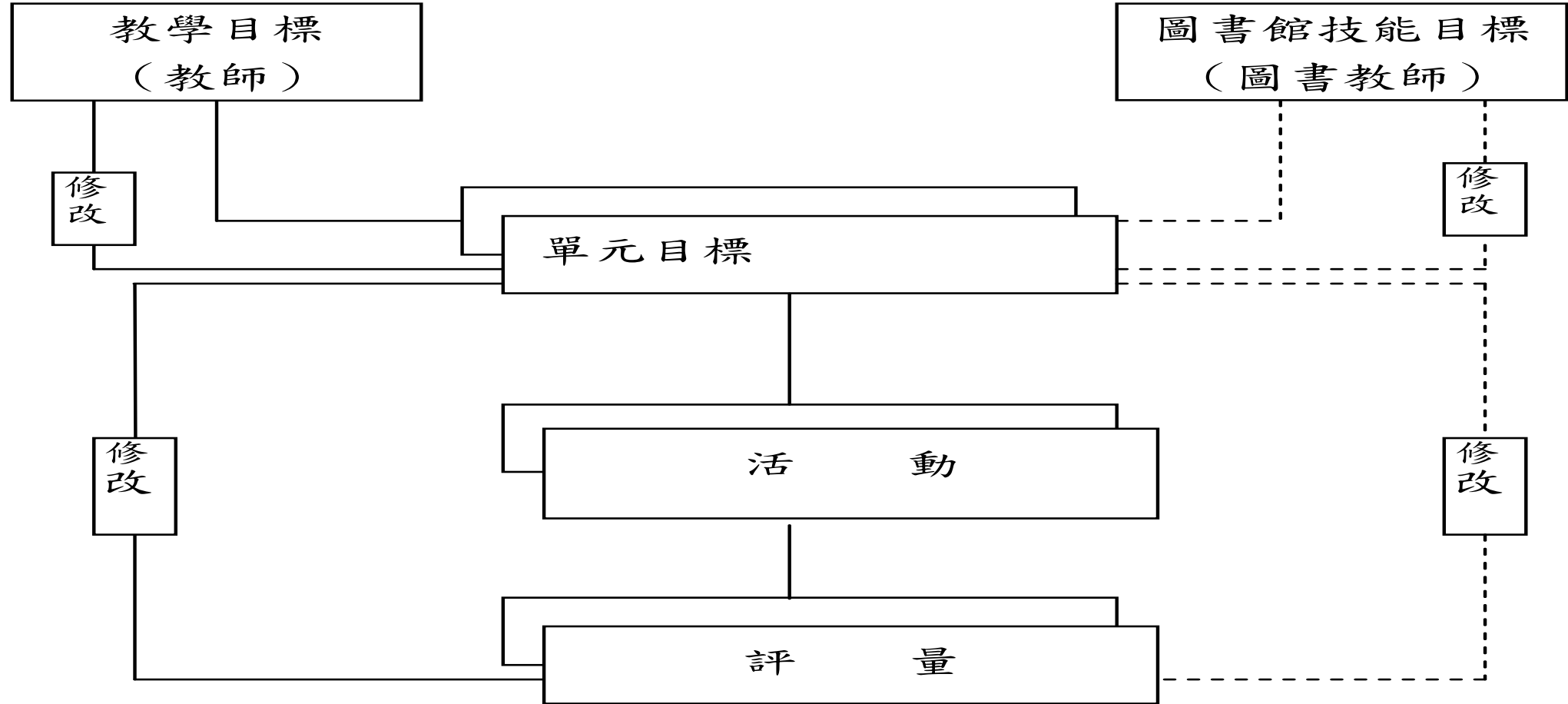
- 課程相關教學V.S課程統整教學
- 課程伙伴傳統方法V.S建構方法

課程相關教學 VS 課程統整教學



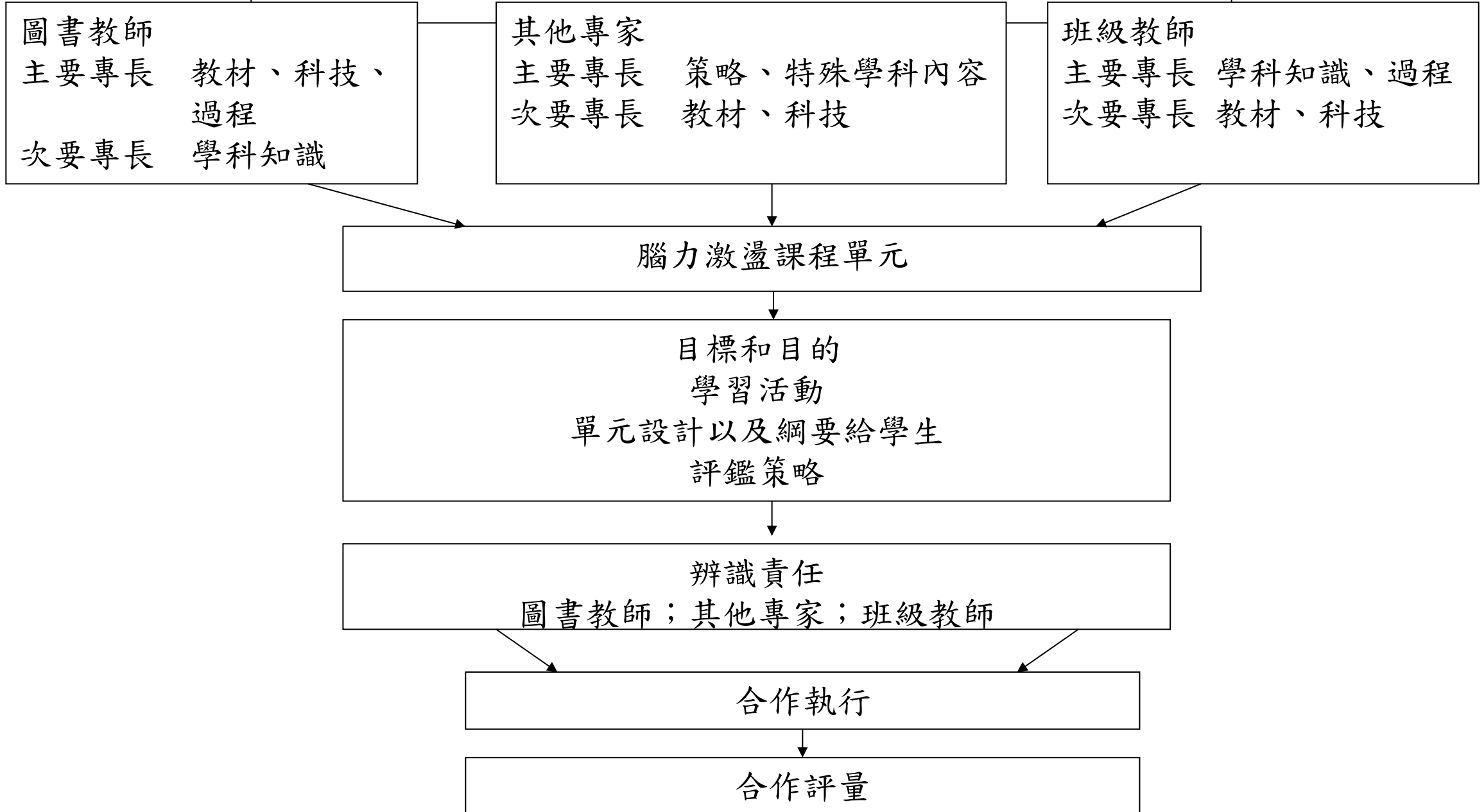
圖一 圖書館技能教學相關的模式

課程相關教學V.S課程統整教學

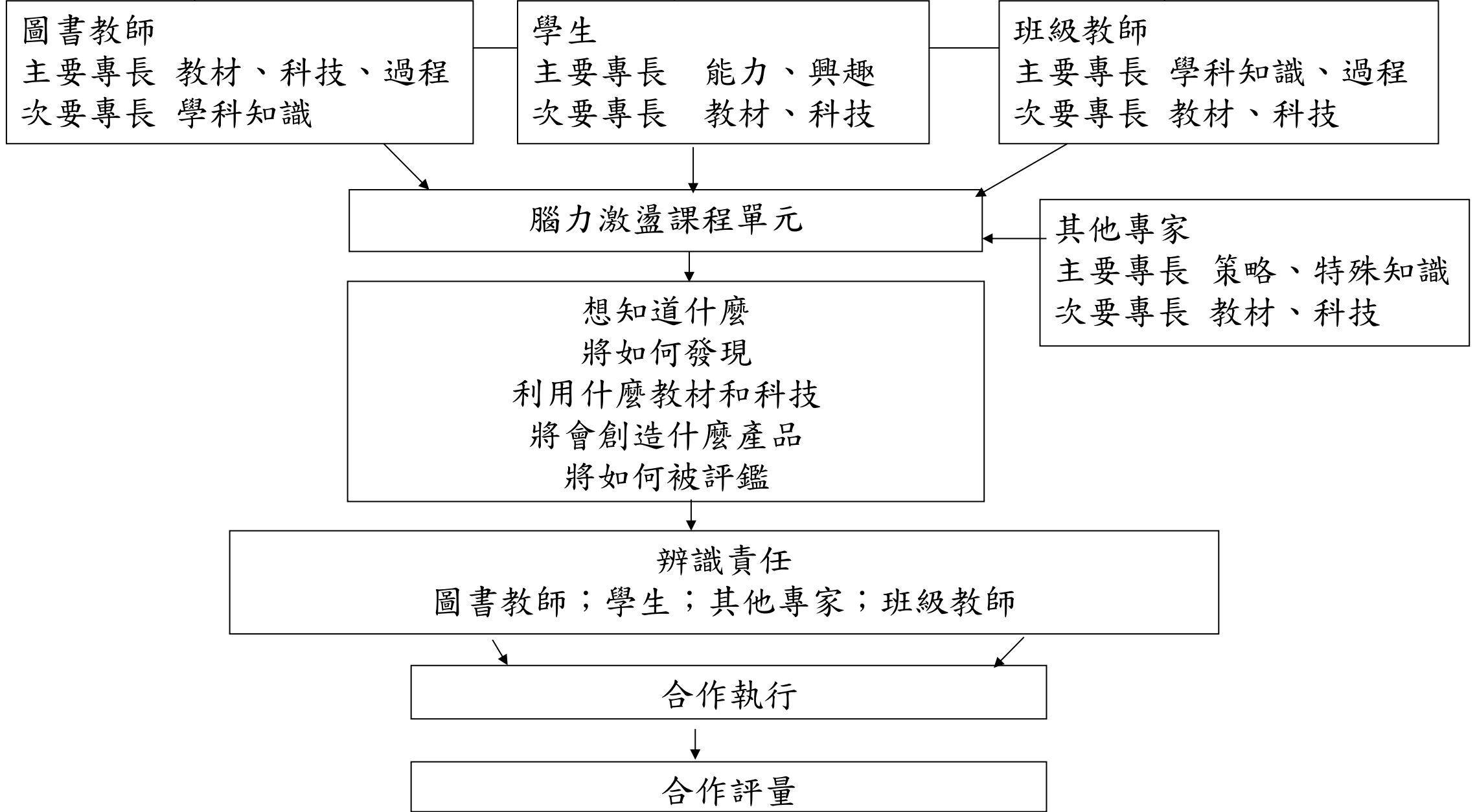


圖二 圖書館技能教學統整的模式(Walker & Montgomery, 1983, p.24)

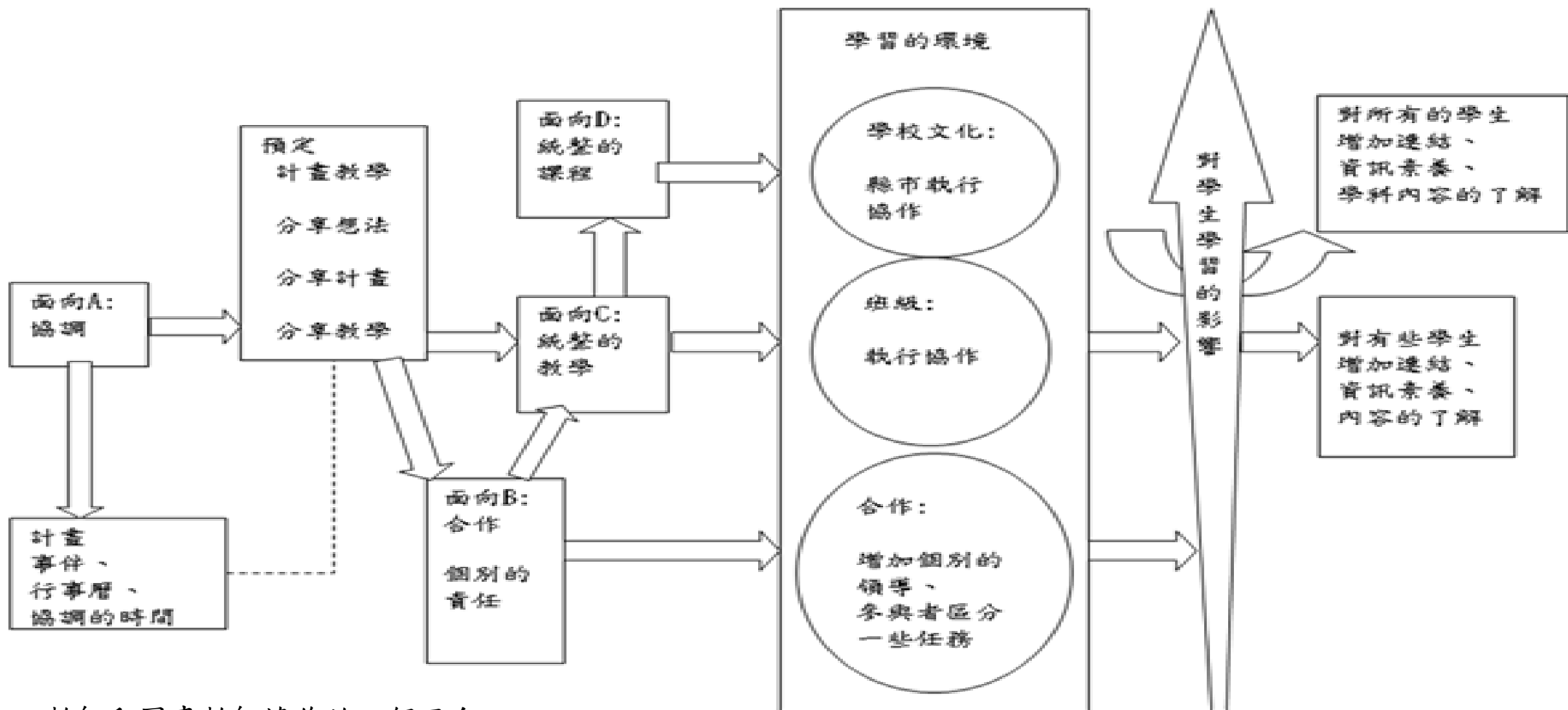
課程伙伴合作計畫（傳統方法）



課程伙伴合作計畫(建構方法)



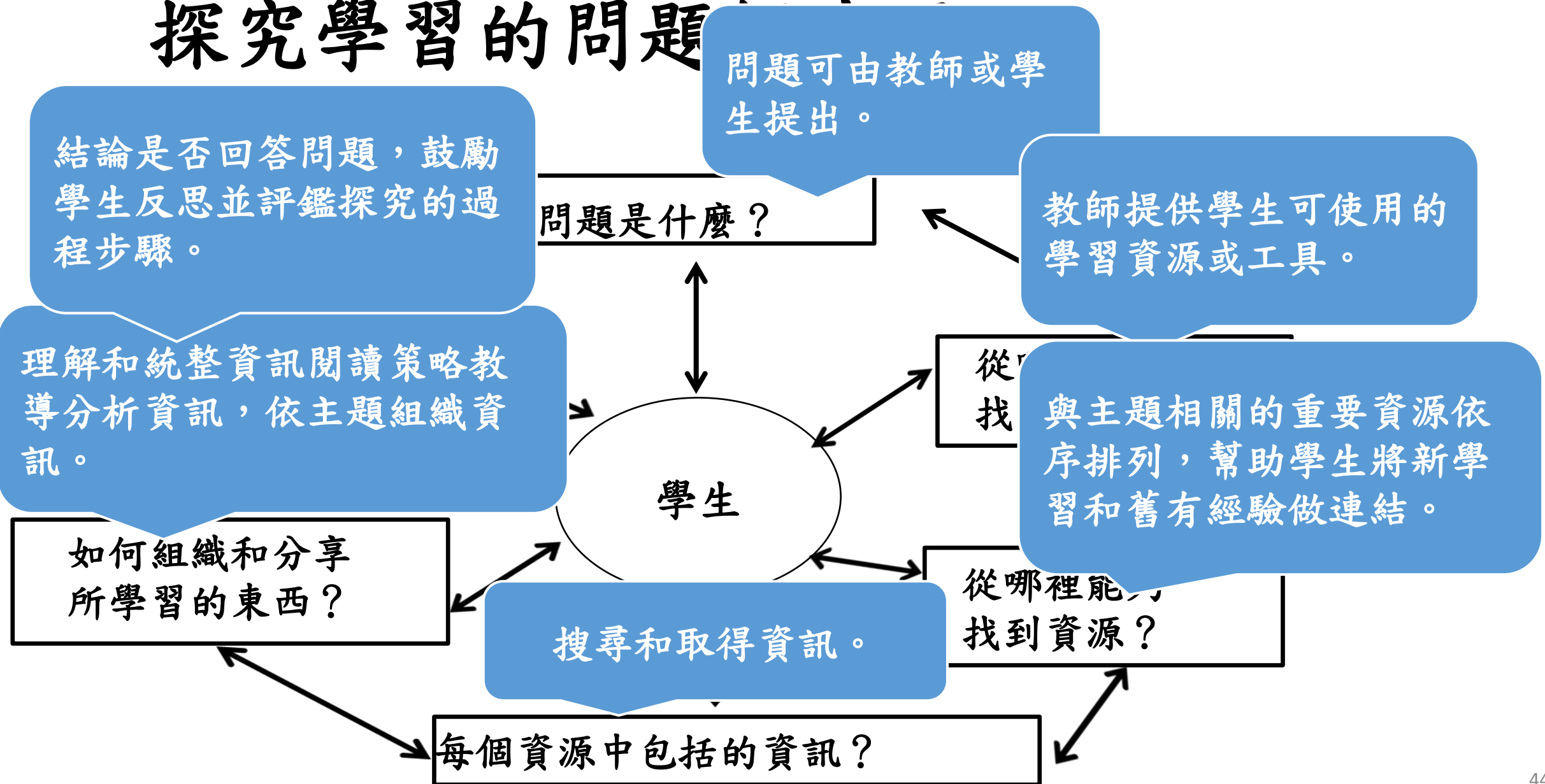
圖書教師和教師協作模式



教師和圖書教師協作的四個面向

修改自Montiel-Overall (2008), p.148.

探究學習的問題



探究式教學策略

探索的主題

決定探究的主題和形成問題或假設

搜尋和取得

從適切的資源取得與主題相關的資料

理解 資訊

扣住提問，摘錄每一筆取得資料的重點

統整 資訊

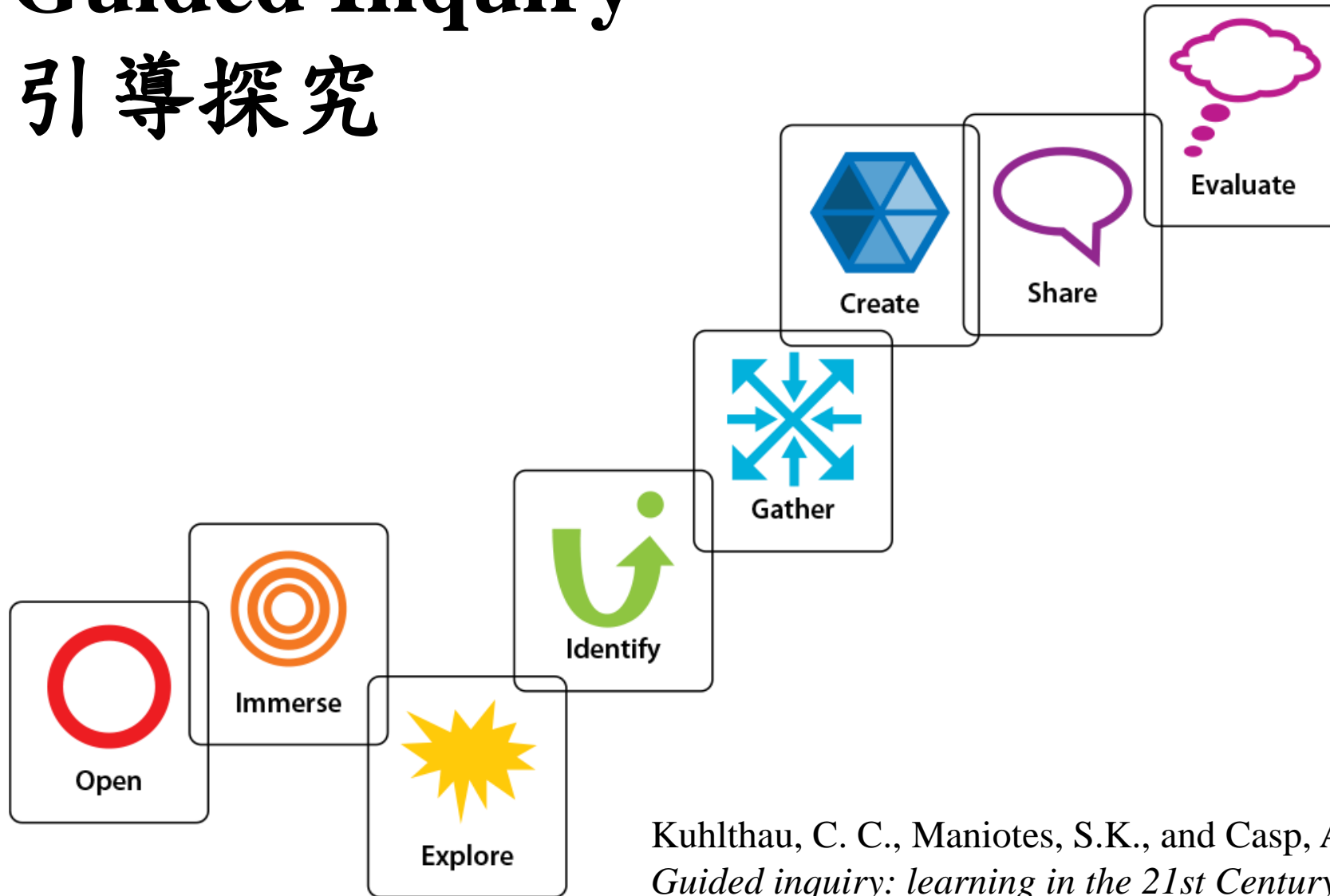
依據探究的主題，用自己的話統整資訊

分享 成果

能用創意的方式或報告，完整分享所學的新知識

Guided Inquiry

引導探究



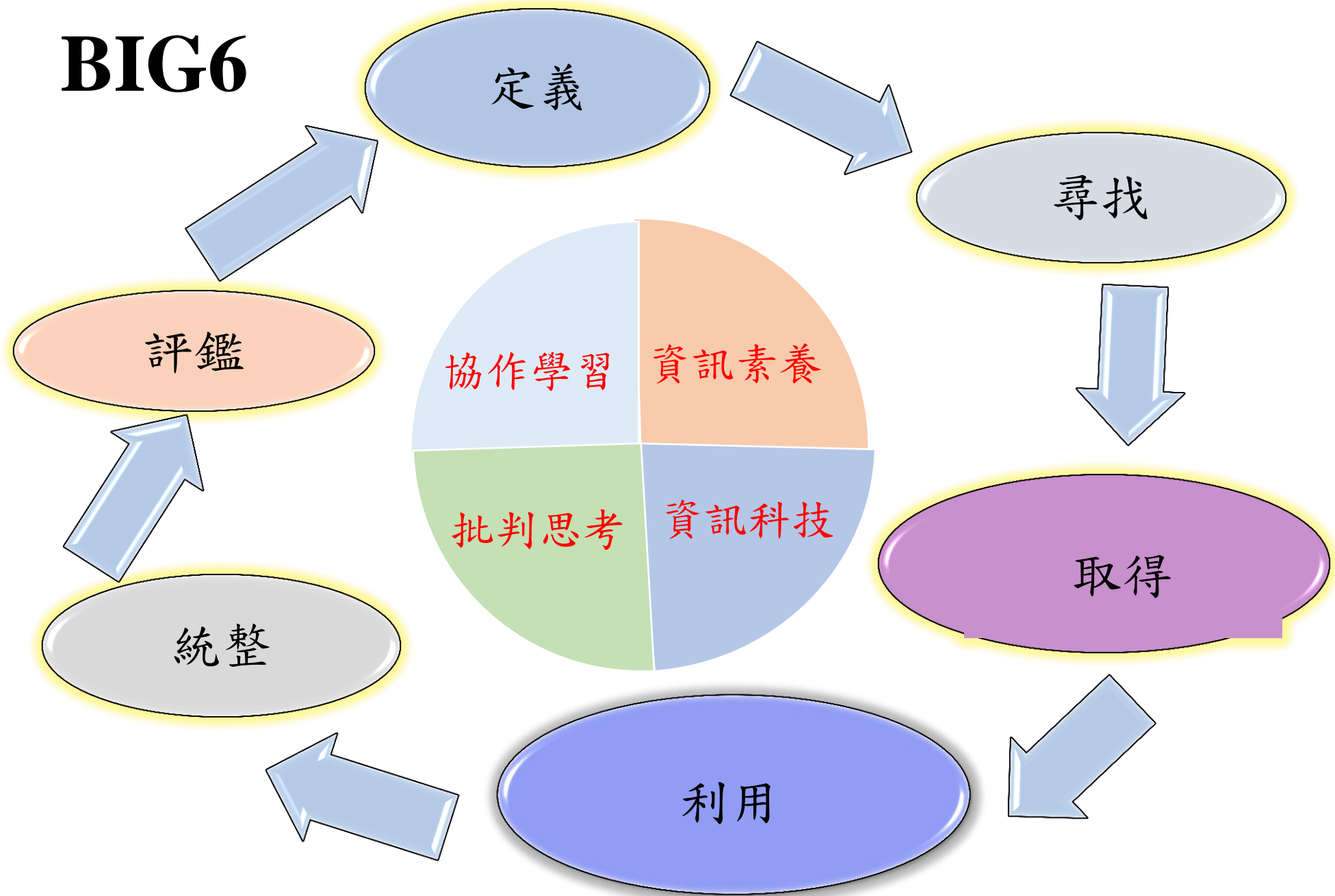
Kuhlthau, C. C., Maniotes, S.K., and Casp, A. K.(2015).
Guided inquiry: learning in the 21st Century. Santa Barbara,
CA: Libraries Unlimited.

Guided Inquiry Design® Framework

Open 開始	Invitation to inquiry 開始探究 Open minds 開放心胸 Stimulate curiosity 激發好奇心
Immerse 融入	Build background knowledge 建立背景知識 Connect to content 與內容連結 Discover interesting ideas 發現有興趣的觀點
Explore 探究	Explore interesting ideas 探究有興趣的觀點 Look around 瀏覽 Dip in 細想
Identify 辨識	Pause and ponder 暫停與沉思 Identify inquiry question 辨識探究問題 Decide direction 決定方向

<p>Gather 蒐集</p>	<p>Gather important information 蒐集重要資訊 Go broad 廣泛的資訊 Go deep 深入的資訊</p>
<p>Create 創作</p>	<p>Reflect on learning 學習省思 Go beyond facts to make meaning 超越事實資訊 且是有意義的資訊 Create to communicate 創作且傳播</p>
<p>Share 分享</p>	<p>Learn from each other 彼此互相學習 Share learning 分享學習 Tell your story 講述你的故事</p>
<p>Evaluate 評量</p>	<p>Evaluate achievement of learning goals 評量學習 目標的成果 Reflect on content 對內容的省思 Reflect on process 對過程的省思</p>

BIG6



(Eisenberg, 1999)



(Neuman, 2011)



Neuman, D.(2011). *Learning in Information-Rich Environments: I-LEARN and the Construction of Knowledge in the 21st Century*. New York: Springer.

資訊素養評量

Trails Assessment

- *Develop topic* (發展主題)
- *Identify potential sources* (辨識可能的資訊來源)
- *Develop, use, and revise search strategies* (發展、利用與修訂檢索策略)
- *Evaluate sources and information* (評估資料來源與資訊)
- *Recognize how to use information responsibly, ethically, and legally* (辨識如何負責任、依據倫理並依照法律的使用資訊)

TRAILS

- *Develop topic* (發展主題)

- Develop focus. Recognize the hierarchical relationships of broader and narrower topics. Identify individuals to help you focus a topic. Identify manageable topics based on the parameters of an assignment

如果你要選擇一個與健康有關的主題作為你的自然課報告，下列哪一個主題的廣度能夠讓你完成三頁的報告？

- (1) 學校不應該讓學生於午餐的選擇中有碳酸蘇打
- (2) 營養、飲食和運動對高中生是很重要的
- (3) 學校應該繼續要求學生上物理課

• *Identify potential sources* (辨識可能的資訊來源)

Understand the types of containers in which information is housed (ex: different types of libraries, books, databases, online catalogs, primary sources, etc.) and the types of information that can be found within each type of container. Understand the roles and limitations of differing types of information sources (encyclopedias, atlases, dictionaries, etc.) and finding tools (research databases, online catalogs, bibliographic citations, people, etc.). Select the most productive information sources and finding tools to address a given information need.

你的社會老師指定一項作業，要求你查詢並分析台灣選舉的資料。
以下哪項管道能提供你較正確資訊？

(1)教科書

(2)民意代表辦公室

(3)報紙

(4)政府官方網站；如：中選會資料庫網站

現在要做一個關於法國景點的報告，內容需要包含歷史背景和建築特色，請問哪一個主題適合在3頁以內的報告中完成？

- (1) 介紹歐洲的旅遊景點
- (2) 介紹西歐的旅遊及美食景點
- (3) 介紹法國的旅遊景點
- (4) 介紹巴黎鐵塔

你的科學老師指定一個奈米技術的研究主題，以下哪一個檢索工具可以幫助你了解其資訊，並且是具權威性的資訊來源？

- (1) 搜尋引擎；如google
- (2) 由圖書館提供的應用科學資料庫
- (3) 網路新聞

- *Develop, use, and revise search strategies* (發展、利用與修訂檢索策略)
 - Understand how to use a given type of information container in order to retrieve information (ex: index and table of contents in a book, an online catalog, etc.). Select search terms. Develop a search strategy for the topic appropriate to a given finding tool. Understand how to use Boolean operators. Revise search strategies when too few, too many, or irrelevant results are returned.

你剛閱讀完金庸寫的鹿鼎記，想知道更多關於他的資料，才能寫出5頁關於他的生平與作品造成的影響。你想要知道更多關於金庸的書籍，請問你在圖書館的目錄查詢中，應該要怎麼表示？

- (1) 作者搜尋：金庸
- (2) 主題搜尋：金庸
- (3) 書名搜尋：金庸

你的經濟學老師指定研究主題為千禧世代的行銷方式。他要求排除所有關於戰後嬰兒潮的相關文獻，請問你在搜尋引擎上應該怎麼結合檢索詞彙以達到最有效率的檢索？

(1)行銷給千禧時代的方式

(2)行銷給千禧時代的方式not 戰後嬰兒潮

(3)行銷and 千禧時代 not戰後嬰兒潮

(4)行銷and 千禧時代 or戰後嬰兒潮

- *Evaluate sources and information* (評鑑資料來源與資訊)

- Recognize bias. Differentiate between fact and opinion. Determine the accuracy, authority, coverage, currency, and relevancy of information and/or information sources.

下列哪一個句子最強烈支持「人們生活中對抗肥胖的一點小改變」？

(1)研究證明，經常走路的人可以降低體重

(2)想要減肥的人需要至少每週走路5次，每次30分鐘

(3)1995年的研究證明，在樓梯與手扶梯旁貼上「爬樓梯有益身體健康」的標示，能夠增加8-16%的樓梯使用率

(4)報名健身房並遵照健身教練的指示，可以很快瘦身

你在做一份有關「在小學移除飲料販賣機的影響」的報告，你找到一篇期刊文章證明了能量飲料對於學生在學習上能夠提供短期的正面能量影響，然後你發現這位科學家是某間能量飲料公司的員工，請問下列哪項敘述能反應出此項資源的可信性？

- (1) 這位作者是可信的，因為他是一位科學家
- (2) 這位作者是可信的，因為能量飲料能夠幫助學生保持清醒
- (3) 這位作者是可信的，因為這是刊登於期刊中的文章
- (4) 這位作者是不可信的，因為他是能量飲料公司的員工

- ***Recognize how to use information responsibly, ethically, and legally*** (辨識如何負責任、依據倫理並依照法律的使用資訊)
 - Recognize how to paraphrase correctly. Understand the concept of intellectual property (especially copyright, fair use, and plagiarism). Understand the concept of intellectual freedom. Create bibliographies and parenthetical citations according to an appropriate style manual.

你正在製作自己的個人網站，想要用圖片裝飾網站，從哪個管道可以合法取得？選出一個答案

- (1) CC0 免費圖庫搜尋引擎
- (2) Instagram
- (3) Google 圖片搜尋

在製作報告時，如果要使用相關照片，下列哪一項作法最適當？

- (1)在網路上直接下載使用
- (2)照片下載編修後使用
- (3)選擇熟人網頁上的照片使用
- (4)用自己拍攝的照片

謝謝聆聽
敬請指教