The Hong Kong
Institute of Education
香 港 教 育 學 院

Appendix I:
PKM Presentation
Slides

EXPLORING A PERSONAL KNOWLEDGE MANAGEMENT MODEL OF PRE-SERVICE TEACHERS FOR EFFECTIVE LEARNING

by *Dr. Cheng Chi Keung, Eric*

Date: **17 December 2014 (Wed)**
Time: **12:30pm - 1:30pm**
Venue: **B4-1/F-37**
Medium: **English**

Abstract

This study examines the relationship between personal knowledge management competency of pre-service teachers and their perception of learning effectiveness. A self-developed questionnaire was designed to collect data from a cross sectional sample. Two hundred twenty-five pre-service teachers from the Hong Kong Institute of Education participated. Structural equation model was applied to explore the predictive power of PKM competency on their perception of learning. A four-factor PKM model, which consists of retrieving, organizing, analyzing, and collaboration skills, is empirically constructed. Pre-service teacher PKM competency is identified to be a predictor for learning effectiveness. Incorporation of PKM skills in teacher education curriculum is recommended to teacher education institutions for enhancing pre-service teacher PKM competency. This study validates an empirical PKM model for predicting their learning effectiveness by developing an instrument with validity and reliability.
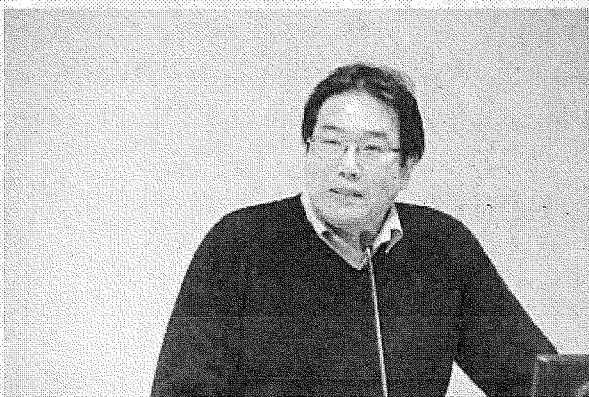
Eric is currently an associate professor in the Department of Curriculum and Instruction. His research publication covers the areas of knowledge management, school management and Learning Study. He has conducted externally funded research and development projects in the area of knowledge management in schools of Hong Kong.

Enquiries and Registration

Mr Alan Yeung
Tel: 2948 7743
Email: akiyeung@ied.edu.hk

Organized by
Faculty of Education and Human Development
Department of Curriculum and Instruction

The Hong Kong Institute of Education

**Exploring a PKM Model of Pre-service Teachers
For Effective Learning**

**Eric Cheng
Department of Curriculum and Instruction
17 Dec 2014**

- Why KM?
- What is Knowledge?
- What is Knowledge Management?
- What is Personal KM?
- Why is PKM related to learning?
- How to develop PKM?

Why KM?

Keeping deep knowledge from being lost

It is one thing to lose one key executive or long-time employee but when they are retiring at an escalating rate, the consequences can be very hard to overcome. With a plan and the right ECM software, an Illinois company safeguarded its business secrets and made itself more efficient in the process.

Sascha Otler
Technology
Partner
Management
Team Lead
Perceptive
Software

Feedback
E-mail Author

Article Info
Published: Apr 12, 2010
Categories: Management, ECM, Records Management, Retention, Workflow, Business Services, Federal, Financial Services

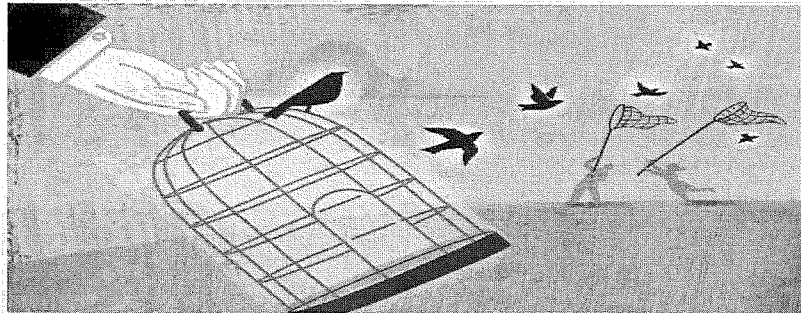Socialize This Article
Bookmark on del.icio.us
Add to Stumbleupon
Tweet this
Send to a Friend

Dig Deeper
• Read more about the experience of Illinois Mutual

The first baby boomer to file for Social Security benefits did so more than two years ago and the drum beat of boomers retiring has been growing louder ever since.

There are about 76 million baby boomers, those born between the years 1946 and 1964. According to Census Bureau data, 3,463,670 baby boomers or an average of 66,600 a week, will turn 62 in 2010 and so be eligible for Social Security.

With the escalating rates of retirement, companies are facing a widespread, comprehensive loss of knowledge. Add to that the hundreds of thousands of experienced workers whose positions were victims of the economic downturn and the result has been a brain drain that might set business back years.

There are techniques like shadowing and technologies like enterprise content management (ECM) that can be used to identify, capture, keep and share all of that experience for those companies that act.

Yet too few companies have come to recognize the issue and too many are just paying lip service to it, said knowledge management and technology expert Carl Frappaolo.
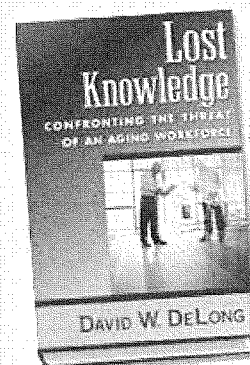
"If you recognize it, then do something about it," said

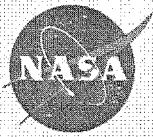Source : http://www.incontextmag.com/article/Keeping-deep-knowledge-from-being-lost

---

Knowledge lost threaten to organization survival

- ## Workforce changes
  - [Retirements, mid-career turnover, re-organizations, etc.] lead to knowledge loss which leads to decreased innovation and reduced efficiency/increased costs and reduced capacity for growth.

- ## How to Capture knowledge becomes important!

- ## Eight keys to more effective knowledge transfer
  - http://www.ericmackonline.com/ica/blogs/emonline.ns f/dx/knowledge-retention-a-framework-for-action

Lost Knowledge
CONFRONTING THE THREAT OF AN AGING WORKFORCE

DAVID W. DeLONG

NASA Lost Memory

- Loss of knowledge of manned space flight (putting a man on the moon)
  - Loss of Apollo Mission Documents, esp, the critical set of blue prints for the Saturn booster, the only rocket with enough thrust to send a manned lunar payload on its way
  - Loss of documents for landing on the moon

- Unlearned lessons from Challenger accident
  - NASA has a culture that is resistant to criticism and to change (mental model)
  - ineffective communication
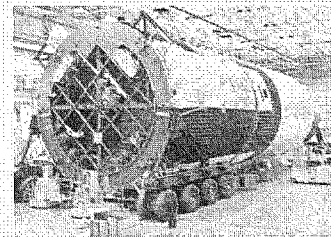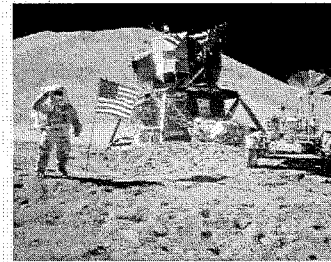
Petch, G. 1998. The cost of lost knowledge.
Knowledge Management Magazine, October.
http://www.kmmagazine.com.

What is knowledge?

| Knowledge	Positivist Perspective	Social Constructivism Perspective
Definition of Knowledge	• As an object • A justified true belief, • possess by people • "A collection of representations of the world, which is made up of a number of objects and events" (Chiva & Alegre 2005, p53).	• Socially constructed as a process, created by people • Not as a representation, but as constructing or creating acts (Vo, 2012) • "Neither universal nor abstract rather depends on context" (Chiva & Alegre 2005, p58)
Existing Form	• Visible, objective and rational • Explicit knowledge • Can be codified and stored	• Unseen, subjective and experience based. • Tacit knowledge • Shared through communication
Location of Knowledge	• Locates at written and verbal information recorded in video, audio, data based and documents	• Resides in knowledge individuals' minds and/or communities of practice
KM Strategies	Codification	Personalisation

Data, Information and Knowledge

- (Data)

- (Information)
  - Data in Context

- (Knowledge)
  - Information with Action
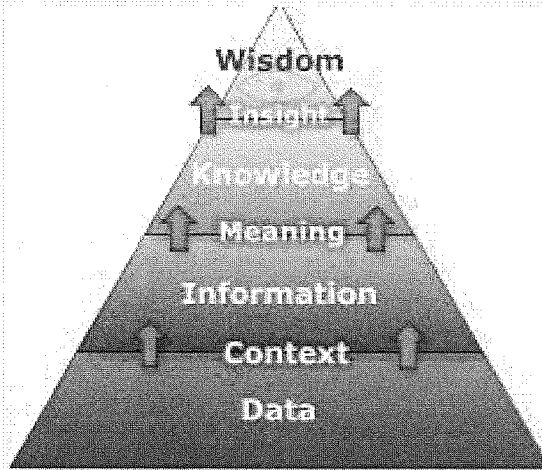
What is KM?

- KM is strategic management process that focuses on knowledge
  - Know How
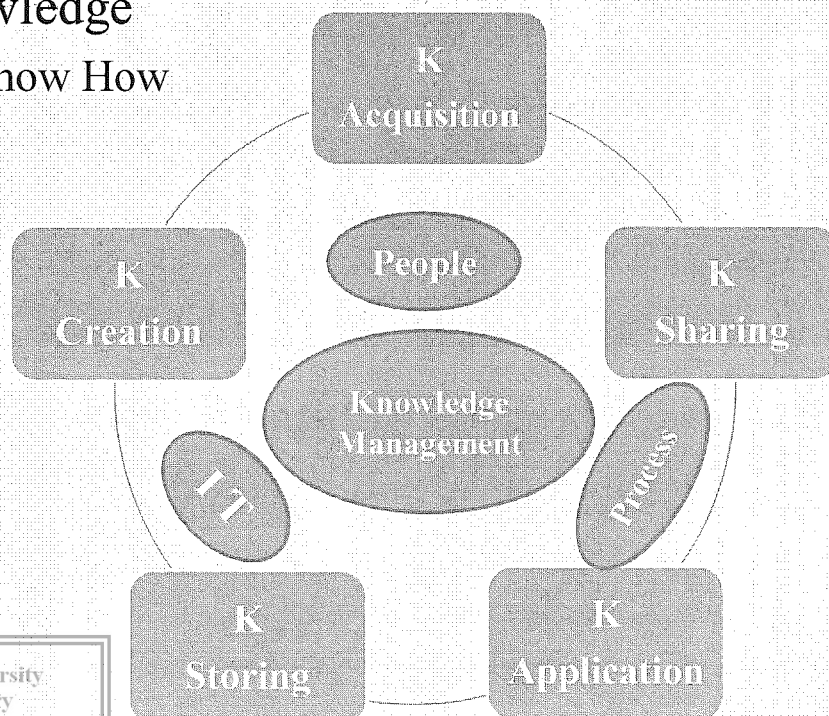
Why PKM

- Organization KM need individual support!
- Learners need learning skills to survive in the knowledge society!
  - Increasing the among of information do NOT automatically make learners more informed or knowledgeable.
  - If a learner cannot manage and meld the accumulation of information through their daily experience and study to construct knowledge in a systematic fashion, their learning will not be effective.
- To develop learners with this competency is an important lifelong education issue.
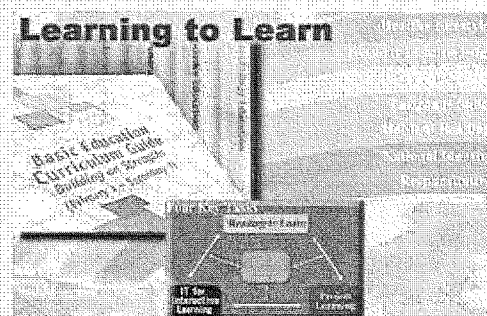
Why PKM?

- lifelong education issue have be address by proposing a *learning to learn* slogan in the Education policy document.
- The policy suggests that teachers should develop student learning competence for acquiring knowledge through various methods.
- How to develop pre-service teacher with this competency for teaching could be a significant research issues.

Personal Knowledge Management

- PKM is a conceptual framework to organize and integrate important information such that it becomes part of an individual's personal knowledge base (Frand & Hixon 1999).
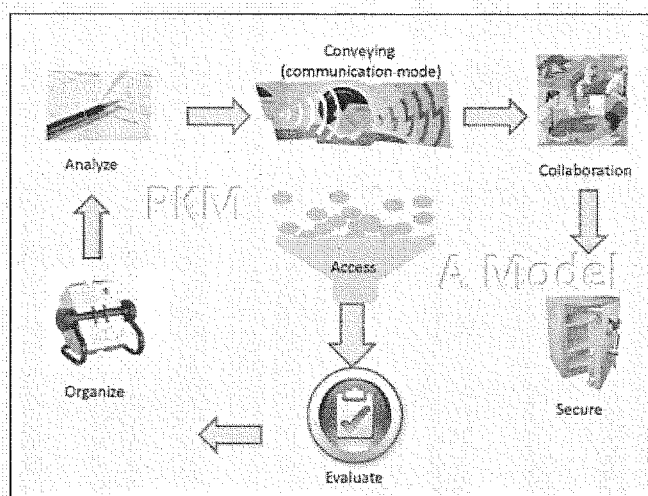
PKM could be injected into an educational framework for undergraduate education in order to bridge the gap between general education and other subject disciplines (Dorsey et al 2000).
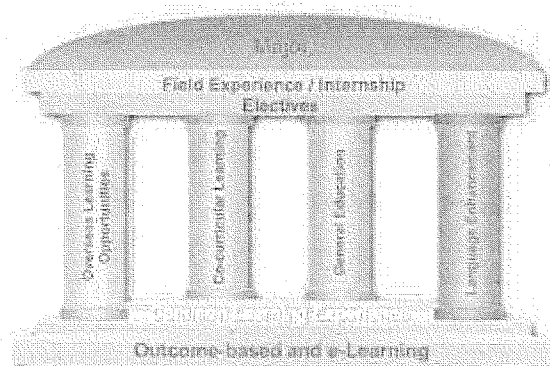
Aims of the Study

- *Investigate the relationships* of PKM skills of pre-service teacher and their knowledge acquisition.
- *Validate a set of instrument* for measuring PKM and knowledge acquisition.
- *Construct a PKM model* for pre-service teacher learning.
- *Discuss ways to enhance* PKM competency

Literature on PKM

- Conscious strategy
  - Frand & Hixon (1999)
- Information literacy, Skills based
  - Avery, Susan; Brooks, Randy; Brown, James; Dorsey, Paul; and O'Conner, Michael. (2001) & Dorsey P. (2000)
  - Skyrme, D.J., (1999)
  - Hyams. R. (2000)
- Problem solving activities with specific cognitive, information, social and learning Competencies,Compentency
  - Wright, K. (2005)
- Technology-centric view
  - Tsui E

Conceptual Framework for Measuring PKM Competency

Personal knowledge management (PKM) is conceptualized as a competency for knowledge acquisition

Dorsey et al. (2000)
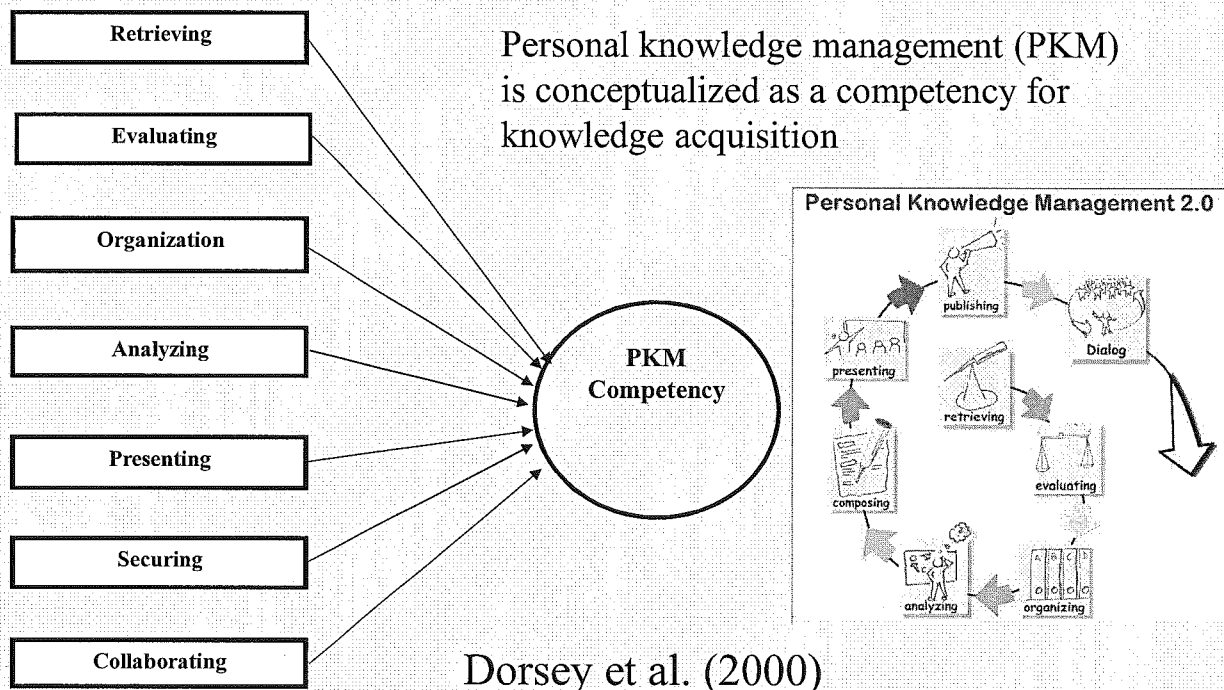
- Retrieving skill is the ability of learners to retrieve information from relational databases, electronic library databases, websites, threaded discussion groups, recorded chats, and moderated and unmoderated lists.
- Evaluating skill is the ability to make judgments on both the quality and relevance of information to be retrieved, organized, and analyzed.
- Organizing skill is the ability to make the information one's own by applying ordering and connecting principles that relate new information to old information.
- Collaborating skill is the ability to understand others' ideas, develop and follow through on shared practices, build win-win relationships, and resolve conflicts between these underlying principles.
- Analyzing skill is the ability to extract meaning from data and convert information into knowledge.
- Presenting skill is the ability to familiarize with the work of communications specialists, graphic designers, and editors.
- Securing skill is the ability to develop and implement practices that help to ensure the confidentiality, integrity and actual existence of information.

Knowledge Acquisition

- As dependent variable
- Conceptualized as *planning, effective instructing, managing classrooms and assessing pupils' learning*
- Education programs are designed to assist pre-service teachers in understanding these and many other pedagogical concepts, which will lead to effective planning and implementation of lessons in their classroom (Hansen 2001).

Research Methodology

- ***Survey***
  - Target at pre-service teachers
  - Cross sectional self administrated questionnaire
  - Quantitative analysis approach
- ***Self developed instrument***
  - Data analysis by SPSS
  - Factors analysis for constructed validity
  - Reliability Test
- ***Structural Equation Modeling***
  - Data analysis by Lisrel
  - Model and paths are confirmed
  - Relationship among variables were explored

Research Questions

- What is the empirical factor structure of PKM competency for a pre-service teacher?
- Is there any relationship between the PKM competency of pre-service teachers and their knowledge acquisition skills?

Content Validity of the instrument

- The statements representing these decision domains were adapted from Dorsey (2000), Skyrme (1999) and Hyams (2000).
- (1) retrieving information;
- (2) evaluating information;
- (3) organizing information;
- (4) collaborating around information;
- (5) analyzing information;
- (6) presenting information; and
- (7) securing information.

Content Validity of the instrument

- **Subscale 1 (PKM1): Retrieving**
- It is easy for me to retrieve teaching material from the internet.
- I will never search through the internet without targets.
- I know how to retrieve the teaching material of my subject effectively.
- **Subscale 2 (PKM2) Evaluating**
- I will clarify my information needs
- Review the value and the index of stored information on a regular basis
- I always judge the quality and relevance of various pieces of information to the problem at hand after retrieving from somewhere.
- **Subscale 3 (PKM3): Organization**
- I use ordering and connecting principles that relate new information to old information.
- I connect and organize information with electronic tools such as directories and folders, databases, web pages, and web portals.
- I always synthesis and analysis information

- **Subscale 4 (PKM4) Analyzing Information.**
- I can handle educational research data analyzing
- I can use MS Excel for statistical data analysis.
- I can interpret the hidden meaning of research information
- **Subscale 5 (PKM5): Presenting**
- I always consider the purpose of the presentation that related to audience for adjusting my presentation.
- I use graphs and tables to illustrate some complex idea and concepts.
- I will clarify the purpose of the presentation before presenting.
- **Subscale 6 (PKM6): Securing**
- I change my passwords regularly.
- I backup my documents and files regularly.
- I am able to frame tradeoffs regarding security in more complex information sharing relationships with others.
- **Subscale 7 (PKM7) Collaboration**
- I can share relevant information to other team members for completing the team tasks.
- I can conduct virtual meetings with other members via communicative software.
- Sharing information with team members can enhance team working effectiveness.

Samples

- 225 pre-service teachers of BEd Primary Students and BEd Secondary Students form Hong Kong Institute of Education.


Factor Analysis: Construct Validity

Dimension	Item		Factor 1	Factor 2	Factor 3	Factor 4
Collaborating	Q29	I can conduct virtual meetings with other members via communicative software.	.890			
	Q30	Sharing information with team members can enhance team working effectiveness.	.738			
	Q28	I can share relevant information to other team members for completing the team tasks.	.651			
	Q27	I am able to frame tradeoffs regarding security in more complex information sharing relationships with others.	.517			
	Q25	I change my passwords regularly.	.380			
	Q26	I backup my documents and files regularly.	.326			
Analyzing	Q22	I always consider the purpose of the presentation as it relates to audience for adjusting my presentation.		.769		
	Q21	I can interpret the hidden meaning of research information		.757		
	Q20	I can use MS Excel for statistical data analysis.		.680		
	Q24	I will clarify the purpose of the presentation before my presentation		.585		
Organizing	Q17	I connect and organize information with electronic tools such as directories and folders, databases, web pages, and web portals.			.839	
	Q18	I always synthesis and analysis information			.825	
	Q16	I use ordering and connecting principles that relate new information to old information.			.546	
Retrieving	Q10	It is easy for me to retrieve teaching material from the internet.				.822
	Q13	I will clarify my information needs				.702
	Q12	I know how to retrieve the teaching material of my subject effectively.				.638
	Q14	Review the value and the index of stored information on a regular basis				.310
Eigenvalue			7.599	1.500	1.058	1.001
% of Variance Explained			42.21%	8.33%	5.88%	5.55%

Result for the Structural Model

Table 2 Goodness of fit Statistics of the Structural Equation Model

χ^2	df	p-value	RMSEA	SRMR	CFI	NNFI	IFI
70.6	59	0.1433	0.031	0.044	0.99	0.98	0.99

Exogenous variables   Endogenous variables
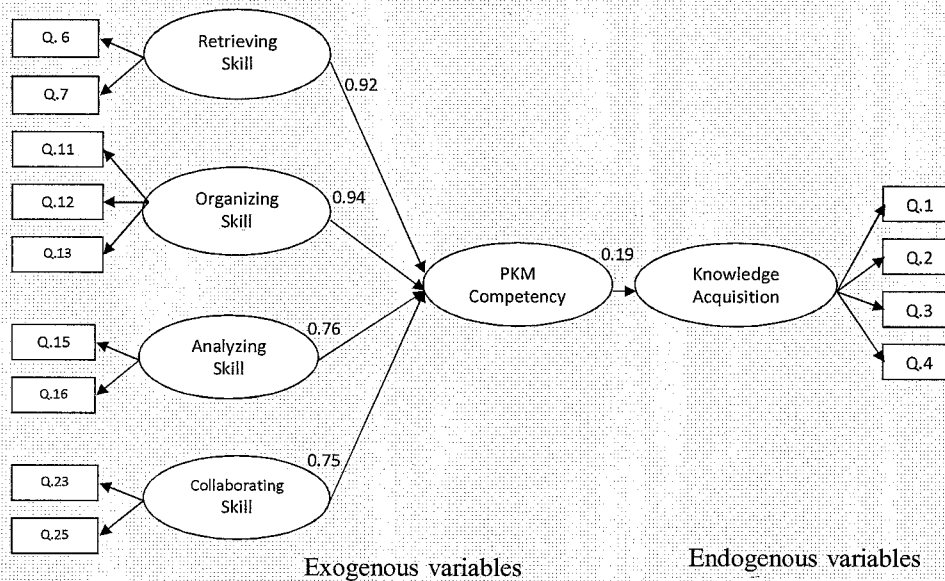
Findings

- The PKM competency model is validated.
- PKM skills mainly consisted of Retrieving, Organization, Analyzing and Collaborating skills.
- PKM competency is a predictor for knowledge acquisition
- Don't aware the *evaluating, presentation and securing skills* in exercising their PKM competency for acquiring knowledge.
- evaluation skill may be embedded in retrieving skill
- presentation skill and securing skill may not be included in the knowledge acquisition model.

Discussion

- Pre-service teachers do not aware the *evaluating, securing* and *presenting skills* in exercising their PKM competency.
  - may be the evaluation process is embedded in the information retrieval process.
  - Items for presenting skills are grouped to retrieving and analysis factors, they are aware their presentation, *the audience and the purpose of presentation* have been considered during the KM process in retrieving and analyzing the *information relevant to the presentation.*
  - They don't aware the importance of securing their works in their learning stage.
- Effective knowledge acquisition would be expected if those pre-service teachers who exercise their PKM skills proficiently.

Wright PKM Competency Model

Cognitive Problem-solving Competencies

Information Competencies

Social Competencies

Learning Competencies
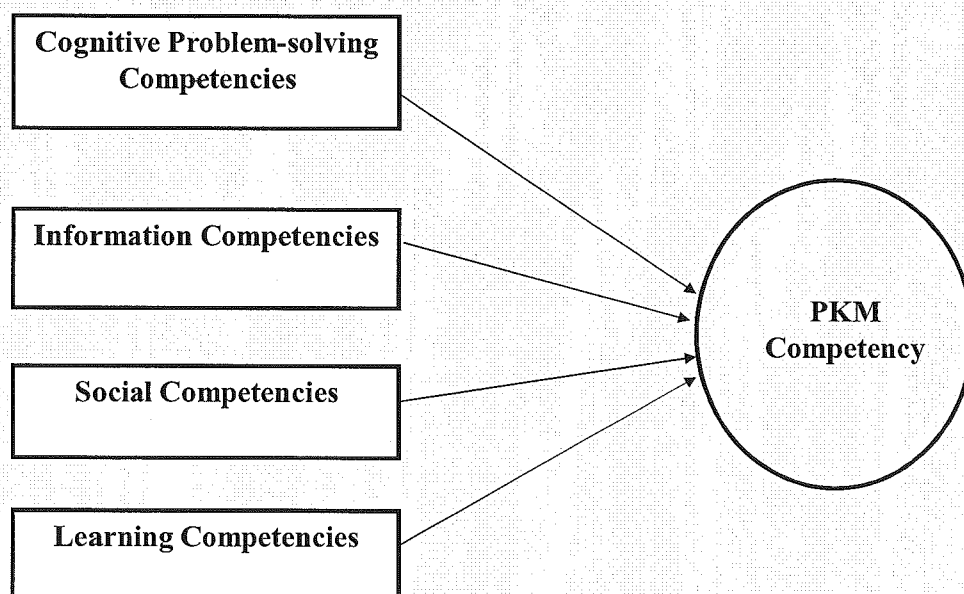
PKM Competency

Wright, K. (2005). Personal knowledge management: Supporting individual knowledge worker performance. *Knowledge Management & Practice 3*, 156-165.

Implications: Toward a PKM Curriculum

- PKM is a multiple competency that contribute to pre-service teachers' learning.
- Teacher educators should consider to inject PKM elements into the pre-service teacher training programme for enhance their learning.

PKM Curriculum

- Assigning collaborative tasks (Hauge & Wittek, 2003)
- Know how to apply statistical, search and collaboration software is compulsory skills for managing knowledge in a knowledge society
- Using e-learning activities (Pettenati, M.C., Cigognini, M.E. (2009)
- Integrate with collaborative action research into the pre-service teacher education curriculum.
- This could be significant assistance to pre-service teachers in retrieving, organizing, analyzing and collaborating information across all disciplines.

TDG Project
Developing Personal Knowledge Management Training Curriculum Guide and Resources

- Aims:
  - To develop a Personal Knowledge Management (PKM) curriculum guide and resources to teacher educators for nurturing pre-service teachers' PKM competencies and instructional design skills
- Deliverable:
  - This project intends to adopt Dorsey's PKM model to develop a curriculum guide and related resources that could be implemented in BEd programme of our Institute for developing pre-service teachers' PKM competencies.
- Activities:
  - The elements of PKM tools application, e-learning activities and collaborative action research will be developed and injected to the experiment courses (at least 8 courses from subject major, professional study, field experience and language courses) as an intervention to confirm the pre-service teachers' PKM competency framework.

The project team aims to achieve the following strategic targets:

1. To formulate and verify a set of e-learning activities that can enhance pre-service teachers PKM competencies;

2. To identify the PKM tools that could support instructional design;

3. To develop a PKM training guide for teacher educators; and

4. To disseminate the importance of PKM competencies in teacher education in the knowledge society.

2014-15 SEM 1
Infusing PKM Skills into Learning Study Course

- Learning study course involves several groups of pre-service teachers to work on the *design, implementation, testing, and improvement* of one research lessons through practising their PKM skills.
- They have to *retrieve, evaluate, organize the teaching materials*, to *analysis student learning difficulties* and to present their thinking throughout the course.
- Learn by *online video*
- *Communicate with me through whatap*
- The focus of the research lesson lies in a specific teacher-generated problem, goal, or vision of pedagogical practice, which is carefully planned in collaboration with classmates, observed by other classmates via *VBLC*, recorded for further analysis and reflection, and discussed by all classmates of the learning study course.
- During the course, pre-service teachers are taught the theories and practice of Learning Study and *PKM tools in tutorials*, and then work together in small subject groups through *collaboration tools* with support and guidance from the instructors to implement the Learning Study project.
- The training model of this project involves the development of participants' PKM skills by conducting cognitive, metacognitive, e-learning and collaborative learning activities.

Steps in a Lesson Study
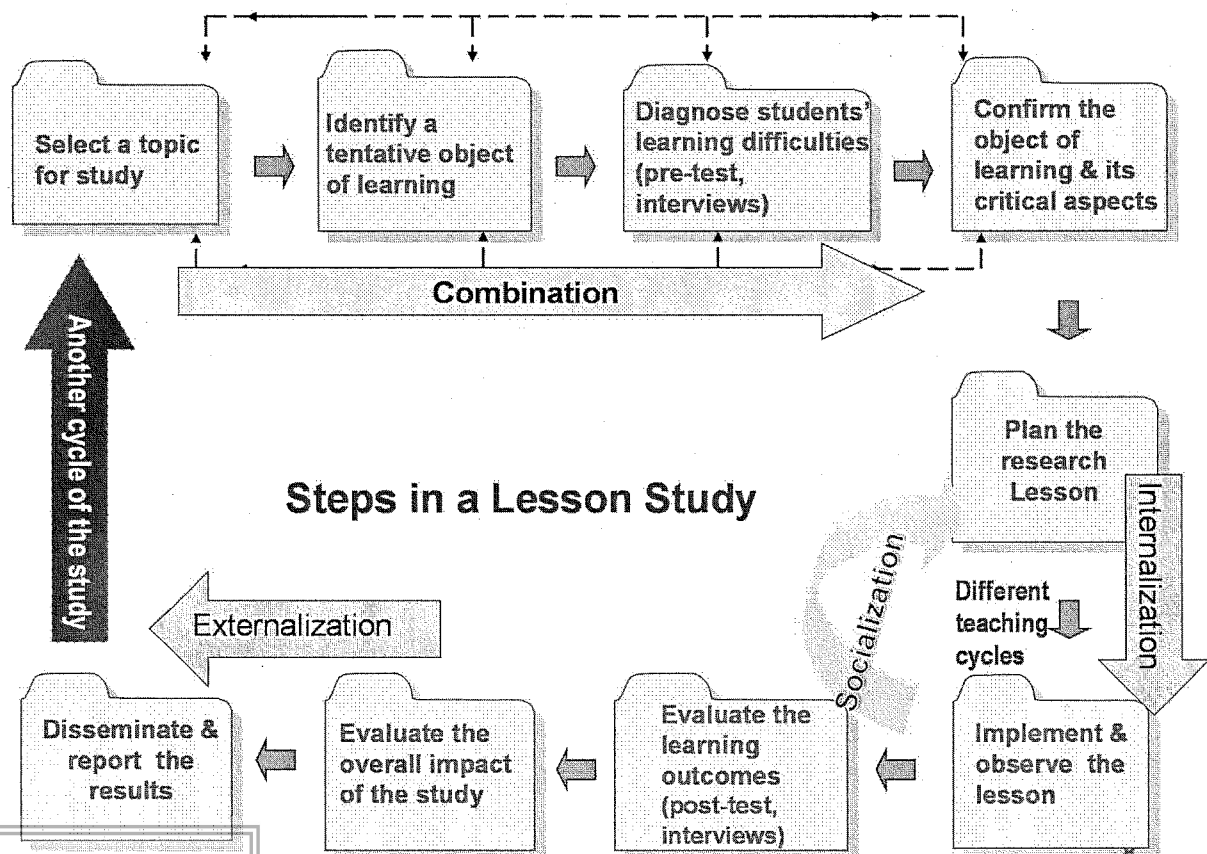
Evaluation of the effective of the course on developing their PKM

	N=40	Mean	SD	α	S Mean
retrieval	本科有助我從互聯網上擷取教學資料	4.40	.955	0.700	4.68
	我絕不會漫無目的地在互聯網上搜尋所需要的資料。	4.68	.859		
	本科有助我知道如何有效擷取我任教學科的教學資料。	4.75	.809		
evaluate	本科有助我能辨識擷取的資料對教學工作的適切性。	4.88	.757	0.869	4.46
	本科有助我會釐清擷取資料的可信性後才運用。	4.70	.939		
	本科有助我判別所擷取的資料對所要解決問題的適切度。	4.73	.716		
organize	本科有助我按時序邏輯把新舊資料整合。	4.65	.893	0.846	4.75
	本科有助我設定檔案分類原則把教學資料組織分類。	4.75	.776		
	本科有助我綜合新舊資料更新教學內容。	4.85	.736		
analyse	本科有助我掌握教學研究的資料分析技巧。	5.10	.672	0.576	5.00
	本科有助我進行統計分析。	5.03	.660		
	本科有助我解讀資料所穩藏的意思。	4.88	.686		
present	本科有助我考慮讀者的理解能力修改我要發表的見解。	4.83	.712	0.758	4.90
	本科有助我以圖表輔助解釋復雜的概念。	5.00	.641		
	本科有助我釐清發表見解的目的	4.90	.744		
secure	本科有助我更重視資訊保安	4.35	1.099	0.735	4.40
	我會按時為重要的文件作備份。	4.60	1.236		
	本科有助我權衡資訊安全及資訊共享的權限。	4.33	.917		
collaborate	本科有助我與同組同學傳達適切的資訊以完成我組的任務	4.90	.778	0.771	4.87
	本科有助我與運用通訊軟件與同組同學進行虛擬會議。	4.83	.675		
	本科有助我提高我所屬小組的協作成效。	4.90	.672		

Future Project Plan

- Develop *cognitive, metacognitive, e-learning and collaborative learning activities*.
- build innovative and effective instructional design mode which meet the needs of knowledge-construction, reflection and meta-cognition in the teacher education context.
- Try our PKM tools through the e-learning activities
  - search/index tools, meta-search tools, information capture and sharing tools, associative link tools and concept/mind mapping tools, email management, voice recognition, collaboration and synchronization and learning tools.
- using wiki and Google Docs to support and develop PKM skills.
- Delivery the activities by action research approach.
- Try out in different courses form others faculties.

End of Presentation.
Thank you.

Hong Kong Institute of Education
A Trial Course of Application of PKM
TLS3019 Management of School and Public Examination:
Semester I1, 2014-15

Students are required to form a group of 5-6 students and work on a presentation in the suggested topic of Management of School and Public Examination.

The aim of this assignment is to equip students with the knowledge of management of school and public examination in Hong Kong with the skills of Personal Knowledge Management (PKM).

	Tasks	Corresponding PKM skills
1	Forming group and choose form(s) of communication PKM Tools Upon submission of member lists from students (Table 1), Moodle Chatroom will be created to encourage them to make in-group communication.	Collaborating Capacity

2.	Presentation
	
	To share knowledge with other students, each group is required to give a 30-minute presentation on any of the suggested topics.
	
	Literature review on selected topics
	Each group is required to read around 3-5 articles about the selected topic; and organize their work in Table 2 as attached; submission made through Moodle as below.
	
	Suggested Topics
	Identify one practical issue in Hong Kong school and public examinations, and evaluate its mechanism and management for potential threats to validity.
	   1. To what extend the objectives of BCA are achieved in primary school in Hong Kong? Do you have any suggestions to improve the implementation of BCA?
	
	   2. To what extend the objectives of SBA are achieved in secondary school in Hong Kong? Do you have any suggestions to improve the implementation of SBA?
	
	   3. What are the common practices of managing school-based examination for promoting teaching and learning? Select a case school as an example to illustrate and comment on the assessment practices from the perspective of enhancing student learning.
	
	Discussion Forum
	To ensure students are acquainted with all topics above, and to provide platform for knowledge sharing, open forums are available for discussing all the above topics. Participation rate will be counted as assessment.
		Collaborating Capacity
		
		Knowledge capturing capacity; organizing capacity
		
		Collaborating Capacity; analytical capacity

Hong Kong Institute of Education
TLS3019 Management of School and Public Examination
Semester II, 2014-15

Table 1 Group Member List

No.	Name	Student ID
1.		
2.		
3.		
4.		
5.		
6.		

Our group will use _____ as the online communication platform.

Hong Kong Institute of Education
TLS3019 Management of School and Public Examination
Semester II, 2014-15

Table 2 Summary of Literature Review

No.	Title of the Literature	Author	Brief Description	Source
1.				
2.				
3.				
4.				
5.				

THE HONG KONG INSTITUTE OF EDUCATION

Teaching Development Grants

Developing Personal Knowledge Management Training Curriculum Guide and Resources

PKM Inventory

下面所有句子都是有關學員在學院內學習的描述，請按你的觀感圈選最接近你個人感受的答案。	完全不同意	不同意	略不同意	略同意	同意	完全同意
1. 從互聯網上擷取教學資料對我而言是輕而易舉的。	1	2	3	4	5	6
2. 我絕不會漫無目的地在互聯網上搜尋所需要的資料。	1	2	3	4	5	6
3. 我知道如何有效擷取我任教學科的教學資料。	1	2	3	4	5	6
4. 我能辨識擷取的資料對教學工作的適切性。	1	2	3	4	5	6
5. 我會釐清擷取資料的可信性後才運用。	1	2	3	4	5	6
6. 我能判別所擷取的資料對所要解決問題的適切度。	1	2	3	4	5	6
7. 我會按時序邏輯把新舊資料整合。	1	2	3	4	5	6
8. 我能設定檔案分類原則把教學資料組織分類。	1	2	3	4	5	6
9. 我會綜合新舊資料更新教學內容。	1	2	3	4	5	6
10. 我掌握教學研究的資料分析技巧。	1	2	3	4	5	6
11. 我能夠運用Excel軟件進行統計分析。	1	2	3	4	5	6
12. 我能夠解讀資料所穩藏的意思。	1	2	3	4	5	6
13. 我會考慮讀者的理解能力修改我要發表的見解。	1	2	3	4	5	6
14. 遇上要解釋復雜的概念時，我會以圖表輔助解釋。	1	2	3	4	5	6
15. 發表見解前，我會先釐清發表見解的目的。	1	2	3	4	5	6
16. 我會按時更改電郵信箱的密碼。	1	2	3	4	5	6
17. 我會按時為重要的文件作備份。	1	2	3	4	5	6
18. 與別人分享資訊時，我會權衡資訊安全及資訊共享的權限。	1	2	3	4	5	6
19. 我能夠與同組同學傳達適切的資訊以完成我組的任務。	1	2	3	4	5	6
20. 我能夠運用通訊軟件與同組同學進行虛擬會議。	1	2	3	4	5	6
21. 我認為交換資訊能提高我所屬小組的協作成效。	1	2	3	4	5	6

「問卷完，多謝作答！」