The Student's Workplace Learning Program as a Strategy to Enhance Knowledge Worker Competency: An Alternative Way to Build Learning Organization

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***Abstract*—This research intends to study on knowledge worker competency development which effected from students who work in company through the university workplace learning program. The new leadership roles and skills of managers and leaders according to learning organization principle will be focused. Data were collected from knowledge workers using questionnaires and telephone interviews. The result found that students' coming can stimulate knowledge workers to use and develop their competencies. Competency area that most used and developed is coaching and mentoring which result in knowledge worker's planning, prioritizing, conducting, monitoring, communicating, and leading skills. The co-learner and model for learning, advocate for learning process and projects, and engage in systems thinking were also used and developed at high level. The study can initial conclude that university workplace learning program is the one of an alternative strategy to drive companies to become learning organization in people perspective.**

***Index Terms*—Learning organization, workplace learning, competency, knowledge worker.**

I. Introduction

In globalization era, the organizations need to be developed to become the learning organization (LO) for continuous improvement and maintain the competitive advantage in market. Knowledge worker is one of key mechanism to build learning organization. Senge [1] claims that without individuals learn, no organizational learning occurs. People or human development in this era focused on competency however they cannot bring out from their task/jobs because of time consuming and the routine work [2]. Hence, organization should find new strategy and methodology to enhance their employee especially their workers who use knowledge in working.

Workplace/work-based learning is learning about work through work of workplace learning programs, which has become popular nowadays. As in the workplace tasks and activities, students learn new skills, find out more about careers and future employment opportunities as well as practice skills. Students have learnt in the classroom and learning news one in the workplace [3]. In higher education (HE), many colleges and universities in many countries obtain workplace/work-based learning program in curriculums [4]-[6]. The educational institutes send students to attend in the real workplace to enhance students' working experiences. Academic staffs aware that workplace learning helps promote concrete experiences more than classroom learning. Therefore, Modern Management and Information Technology (MMIT) at College of Arts, Media and Technology (CAMT), Chiang Mai University (CMU) in Chiang Mai, Thailand is one of curriculum that has cooperative education program involved workplace/ work-based learning format. The MMIT program aims to develop student's competency and experience through apprenticeship in company for 12 months. During the apprenticeship period student must do after action review (AAR) to reflect and review their work as well as working on the professional project (project for develop company working process). In this case, companies assign a senior employee 'knowledge worker' (manager or leader) to be the advisor of each student. This collaboration encourages students learning how to learn and develop them to be a good future workforce. Many competencies of manager/leader are required in this situation.

This research uses the new leadership roles and skills of managers and leaders which is part of people subsystem to build LO as the main framework. The main aims to study how knowledge worker (managers/leaders) use and/or develop their competencies through university workplace learning program.

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II. Literature Review

To get the better understanding on the methodology framework, this section presents theories namely learning organization, competency of knowledge worker and workplace/work-based learning

A. Learning Organization (LO)

The classic explanation of LO from Senge (1990, pp.3) is "organizations where people continually expand the capacity to produce the results they truly desire, where new and expansive patterns of thinking are nurtured, where collective aspirations are set free, and where people are continually learning how to learn together". Gavin (2000, pp.11) claimed that "A learning organization is an organization skilled at creating, acquiring, interpreting, transferring, and retaining knowledge, and at purposefully modifying its behavior to reflect new knowledge and insights". In other words, a learning organization emphasizes the contributions of human resources in learning how to learn and develop themselves to become an essential mechanism for organization development.

The development of LO composes of many subsystems. The 5 major subsystems are learning, organization, people, knowledge, and technology subsystems [7]. Each subsystem can also be divided in many issues. *Learning subsystem* includes levels and types of learning, and skills for organizational learning. *Organization subsystem* covers vision, culture, strategy, and structure. *People subsystem* includes managers and leaders, employees, customers, business partners and alliances, suppliers and venders, and community. *Knowledge subsystem* consists of acquisition, creation, storage, analysis and data mining, transfer and dissemination, application and validation. *Technology subsystem* focuses on technology for managing knowledge and for enhancing learning. To build up LO, the organization needs to develop these related subsystems simultaneously. Another aspect should consider when building LO is the level of learning which can be divided into three levels: individual, group, and organization [8]. The level of learning normally starts from individual level because organization cannot build body of knowledge by itself. It needs to use individual knowledge and competence to be organizational knowledge.

There are many perspectives on LO evaluation such as the level of learning in organization, LO assessment and LO evaluation. The learning level in organization is separated into 3 levels: individual, group, and organization [9], [10]. LO assessment focuses on learning such as learning climate, continuous learning, systems that capture and share learning, applying learning in the workplace, and strategic leadership for learning [11]-[13]. LO evaluation underline on five disciplines of Senge (1990) such as inquiry and dialogue, team learning, shared vision, personal mastery, mental model, and systematic thinking [14], [15].

B. Competency of Knowledge Worker

Competency is trendy during last two to three decades because of higher competition, shorter product life cycle, and rapid changes. Organizations were forced to do cost management and downsizing in order to maintain the same or higher productivity with fewer people.

Many theorists define 'competency' differently. Boyatzis (1982) reported competency is "an underlying characteristic of a person which results in effective and/or superior performance in a job" [16]. Spencer and Spencer describe competency as "an underlying characteristic of an individual that is causally related to criterion-referenced effective and/or superior performance in a job or situation" [17]. Competency in this content consists of five characteristics: motives, traits, self-concept, knowledge and skills. Wickramasinghe [18] describes competency as "a measurable characteristic of a person that is related to effective performance in a specific job, organization or culture. These characteristics are defined in terms of behaviors. This is because competencies are behavioral which can be developed." In addition some researches, competency can describe in simple words as knowledge, skill and/or abilities [19], [20].

From these definitions can be concluded that "Competency" is the personal characteristic and group of behaviors that consists of motives, traits, skills, self-image or social role, and a body of knowledge. It contributes to personal superior performance and success in life.

Organization consists of knowledge workers who use knowledge to deal with their tasks [21]. Competency management will help knowledge worker to developed themselves and make them aware which knowledge necessary for their task and organization target [22]. In the development of knowledge worker competency, the organization must focus how to teach smart people how to learn for helping talented employees develop more productive responses [23]. Knowledge worker especially managers and leaders are very importance for developing LO. Many LO researches and books refer that organizational learning related to managers and leaders competency. The examples of those competencies are such as mentoring and coaching [11], learning and encouraging others to learn [9], organization leading for continuous learning [2]. These competencies can summarize into a group of new leadership roles and skills of managers and leaders which is a part of people subsystem that contributes organization to be LO [7]. New leadership roles and skills include 12 competency areas as follow.

1) instructor, coach and mentor;
2) knowledge manager;
3) co-learner and model for learning;
4) architect and designer;
5) coordinator;
6) advocate for learning process and projects;
7) build shared vision;
8) coordinate multiple, task-focused teams;
9) acknowledge and test mental models;
10) engage in systems thinking;
11) encourage creativity, innovation, and risk taking;
12) conceptualize and inspire learning and action

C. Workplace/Work-Based Learning

Organizational development needs skillful people with knowledge and attitude for problem solving, critical thinking, response change, working in culturally-diverse teams, building and applying knowledge. Therefore only classroom learning is insufficient. Workplace learning/Work-based learning or sometimes in the field of education called Work-integrated learning is "an educational and training approach in which competence development is given a central position, and in which prior and experiential learning, formal learning, informal learning and non-formal learning complement each other in the progress toward formal recognized and accredited qualification by the higher education and training institution" [24]. In other words, workplace learning is a category of university programs that bring together the universities and work organizations to create special learning opportunities in workplaces [25]. Hence, many universities in this era try to integrate workplace/work-based learning program in the curriculum to practice students to have higher practical skill to confront work [26].

Modern Management and Information Technology (MMIT) is the curriculum at College of Arts, Media and Technology (CAMT), Chiang Mai University (CMU), Thailand. The curriculum focuses on preparing undergraduate students by interdisciplinary programs using modern management and information technology applications aim at increasing supervisory competencies to make the school-to-work-transition. This curriculum uses

cooperative education program which is one of workplace/work-based learning format as a key learning strategy to help students gain practical work experience and apply theoretical knowledge to workplace.

This program student must go to work in company for 12 months. During this period they have to do after action review (AAR) every month through presentations and reports. This activity set for student to reflect and review their experienced on jobs/tasks. The areas under discussion are what they planned, what happen, what they get, and what to do next. Another activity is the student assessment on behavior and work performance. University lecturer will go to the student workplace (company) to assess 4 times since start until finish student apprenticeship. Moreover, during apprenticeship students must do a professional project to develop their job/task in organization. The objective is to let students get the concrete experiences in the real work situation. Students' knowledge will be transformed from tacit to be explicit on the workplace learning cooperation. These activities really need contribution from staff in such company. In this case, mentors have to use and/or develop their competency to response and contribute student learning.

III. Methodology

The study emphasized on how student in workplace learning program can contribute knowledge worker to develop competencies following LO direction. To this researcher develops questionnaire by focuses on knowledge worker's competency development in the aspect of new leadership roles and skills. The questionnaire was created by grounded on the new leadership roles and skills of managers and leaders [7] of Marquardt (2011). The questionnaire designs to be closed and open ended questions for easy to answer and completely of data collection. Data was collected from 17 mentors in 9 companies who participated in MMIT workplace learning program. Interviewed by telephone was conducted with some mentors for supplementary information. Data was analyzed both quantitative and qualitative. Descriptive statistic was applied for show the percentage of knowledge worker's competency used and/or development. The qualitative analysis was exploited for describe and summarize each competency area following the new leadership roles and skills of managers and leaders.

IV. Result and Analysis

The analysis result of knowledge worker's competency used and/or development consequence from workplace learning program shows in Table I. The competencies were categorized into 12 areas. Each area shows the percentage of competency use or no use. In case of use, researcher separated the use level into three simple levels include low, medium, and high (1, 2, 3) respectively. The results in accordance with competency area are as follow.

1) *Instructor, coach and mentor*: The result found that 100% of sample group use this area of competency and most of them use this skill at medium to high level to train student. The skills most uses are planning, scheduling, conducting, and monitoring student's work. Findings are many mentors endeavor to seek and research on new knowledge increasing from their existing knowledge and experienced. IT and new technology are main knowledge topic to enhancing (most mentors are mangers in no IT area such as planning, HR, and QC/QA).
2) *Knowledge manager*: most of sample group (82.35%) used this competency area in the medium to nearly high skill's level. Student's mentor must consider and give an example to student to make them understand how to collect and present data to executive level. Many mentors also encourage students to do IT tasks for presentation to team and organization. However, some mentors (17.65%) notice that they don't use any skills in this area because students already have sufficient skill in data/information management. They have no need or any support from mentor.

TABLE I: Competency Used of Managers and Leaders Affected by University Workplace Learning Program

Competency area	The used of competencies (%) *N = 17*		*In case* **Yes***; How much the level of competency used? (%)*		
	No	**Yes**	*1**	*2**	*3**
1) Instructor, coach and mentor	0.00	100.00	0.00	68.75	31.25
2) Knowledge manager	17.65	82.35	7.14	57.14	35.71
3) Co-learner and model for learning	11.76	88.24	0.00	78.57	21.43
4) Architect and designer	23.53	76.47	9.09	63.64	27.27
5) Coordinator	29.41	70.59	18.18	54.55	27.27
6) Advocate for learning process and projects	11.76	88.24	21.43	64.29	14.29
7) Build shared vision	29.41	70.59	18.18	54.55	27.27
8) Coordinate multiple, task-focused teams	23.53	76.47	0.00	81.82	18.18
9) Acknowledge and test mental models	17.65	82.35	8.33	75.00	16.67
10) Engage in systems thinking	11.76	88.24	0.00	90.91	9.09
11) Encourage creativity, innovation, and risk taking	18.75	81.25	16.67	58.33	25.00
12) Conceptualize and inspire learning and action	23.53	76.47	25.00	50.00	25.00

Remark ** 1*= low, *2* = medium, *3* = high; some questions that have no answer, researcher cut off the data from calculation.

3) *Co-learner and model for learning*: a lot of sample group (88.24%) uses this competency area because they see student as a new comer. Student still need help and support from skilled worker or expert. Therefore mentor is very necessary to be a co-learner and model for student to do a good job. Mentor uses various techniques to practice student to this competency area. For example; mentors convince student by discuss on case study in company or the topic related to Asean Economic Community (AEC) situation that can affected to business in nearly future. Some mentors invited student in weekly meeting and explain work to student together with organization working team. There are few mentors (11.76%) didn't use this kind of competency area because they see that students already have effort to learning by themselves.
4) *Architect and designer*: 76.47% of mentors use of this competency because they aware that students need someone help in designing work direction and

environment to achieve work target. First, mentors attempt to recognize and assess student's potential such as learning and working skill, intention, and willingness. After that they will design training method to fit with student. Some mentors encourage student to think and design work method by student themselves and monitoring after implement. Some of mentors teach student design work plan by use timing as a constraint to prioritize jobs/tasks.

5) *Coordinator*: 70.59% of sample group use this competency to coordinate within and between departments for support student to work with others. Moreover mentors also teach student coordination skill: communication with others. However some managers/leaders (29.41%) think they don't use this kind of competency because student can adapted themselves well into team and others department without any help from mentor.
6) *Advocate for learning process and projects*: most mentors (88.24%) use this competency because students must do professional project according to university compulsory. Most mentor endeavor to help student design their project, and force student to learn how to planning and do their work as well as possible. Mentors also focus on knowledge transfer before and during practice in the real work situation. Some mentors conduct reflect and review activities after finished each task to recheck students learning improvement.
7) *Build shared vision*: 70.59% of sample group use this competency to explain student understand how each assignment objective related with direction and organization objective. Mentors also give some examples about the effected to organization if students cannot complete their jobs/tasks. Nevertheless 29.41% of mentors mention that they don't use this competency because they think the organization target/vision is too serious for student. Some of them think company has the process in this issue and student has well intention to work according to organization's vision.
8) *Coordinate multiple, task-focused teams*: 76.47% of mentors use this competency to explain, suggest, and give details to student about responsibility and different of each work process. This is because they need to train student to work well with other teams that have various jobs/tasks. Some mentors use timeframe as a constraint to do task with team. If work cannot flow to the plan, students must describe problem and re-planning again.
9) *Acknowledge and test mental models*: many mentors (82.35%) utilize this competency by giving freedom to student to share opinion. To check students' understanding, mentors always inquire and ask questions to students' opinion about work. Mentors also repeat to explain principle and reason of working, clarify concept when student confuse. Some mentor train student to understand their work using 5W-1H and why-why analysis.
10) *Engage in systems thinking*: most of sample group (88.24%) uses this competency with an attempt to explain the priority and relationship of each jobs/tasks. Mentors let students to work on each small step until they understand all job views. Some mentors explain and demonstrate working process of all organization (factory zone) and explain their relationship to student.
11) *Encourage creativity, innovation, and risk taking*: most mentors (81.25%) use the competency by allowing students to design their work and let them trial project which is consistent with their skillful. Mentor encourage student to rethinking and analyzing new things to do work beyond existing pattern, and dare to make a decision by student themselves.
12) *Conceptualize and inspire learning and action*: mentor 76.47% uses this competency area for drive student to do various works. They attempt to explain and give some examples on those work concepts and stimulate student to do good work. Some mentors give student a chance to transfer their tacit knowledge, especially IT, to organization working team. This promotes students' confidence and to think out of the box. However some mentors (23.53%) don't use this competency and give the reason that student has their own willingness to develop themselves.

From these analysis can summarize that knowledge worker can apply and utilize every competency of new leadership roles and skills to support student in workplace learning program. Competency which are mostly used and utilized are coaching and mentoring. These competencies can be extended to planning, prioritizing, conducting, monitoring, communicating, and leading skills. The competency in the area of co-learner and model for learning, advocate for learning process and projects, and engage in systems thinking were also used and developed at high level. The rarely used competencies are building shared vision and coordinator. Main reason is student has their own willingness and intention to develop themselves.

In addition, the result found that the university workplace learning program affected on learning atmosphere of team/department/organization. 12 months of student apprenticeship through workplace learning program is very long. This contribute learning together incident occur between student and team in organization. Organizational team must seek and search new knowledge to advice students. Mentors understand student's opinion, conception, and working style of the young generation. Team also has chances to exchange new ideas and technology with students and learn from student's work and project. Moreover, team/department/organization has to design and adjust work structure to fit in student competence and responsibility to contribute student learning appropriately.

V. Discussion and Conclusion

The university workplace learning program, mentor (knowledge worker) is the most importance factor to contribute students learning how to learn. Mentor is like a teacher who dedicates time and use a lot of knowledge and skills in planning, coaching, and mentoring students. Most of them willingness to do this job because they sympathy and understand student. Some mentors treat student like brother/sister because they graduate from the same institute (CMU). These reasons make mentors really intention to training and transfer their knowledge to student. Another factor that stimulate knowledge worker to use and develop

many competencies is the activities obtained in university workplace learning program. The activities are reporting and assessment (according to AAR method) and the professional project. These activities activate student and mentor learning how to learn together.

This paper can be concluded that students can stimulate people knowledge worker in such organization to learn and develop themselves. The workplace learning program design for training student affected on knowledge worker competencies. It is an alternative strategy to build the learning organization.

To further the research, researcher focuses on other aspects of LO such as organization or technology instead of people perspective, also extends the workplace learning program in other curriculum, faculty or educational institutes as well as compares each other.

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