



A Study on the Effects of Knowledge Share in Virtual Community on Creative Teaching Behaviors and Teacher Efficacy

Sri Gunawan & Nuri Herachwati
Airlangga University, INDONESIA

• Received 26 August 2015 • Revised 17 November 2015 • Accepted 26 February 2016

In the information technology advance era with constantly expanded knowledge and the requirements of the general public for school education, a lot of different education ideas are introduced in the education reforms, such as school-based characteristic curriculum, teachers' professional development, professional learning community, learning community, and flip education. Teachers, as knowledge disseminators, therefore are encountering the problem of enhancing the competitiveness. Constant learning has become an important part of teachers pursuing excellence and promoting teacher efficacy in the career. They have to constantly absorb new knowledge to conform to modern demands for professionalized teachers. Aiming at universities in Indonesia, total 500 copies of questionnaires are distributed and 347 effective ones are responded, with the retrieval rate 69%. The research results show significant correlations between 1. Knowledge shares and creative teaching, 2. Creative teaching and teacher efficacy, and 3. Knowledge share and teacher efficacy. Aiming at the results, suggestions are proposed in this study, expecting to promote teachers' creative, active, and innovative teaching methods or teaching contents.

Keywords: virtual community, knowledge share, creative teaching behavior, teacher efficacy, Learning Opportunity

INTRODUCTION

Various education ideas are introduced to education reforms in past years, including school-based characteristic curriculum, teachers' professional development, professional learning community, learning community, and flip education. It is expected to regard students as the body in the field of education and cultivate students' abilities to take by combining curriculum integration, instructional design, and teaching activities with students' life experiences. The development of multiple

Correspondence: Sri Gunawan ,
Department of Management, Airlangga University, Indonesia
Jalan Air-langga No.4 Surabaya, 60286 Indonesia
Email: sgunawan@feb.unair.ac.id
doi: 10.12973/eurasia.2016.1553a

intelligence and potentiality at different levels should be developed and individual differences should be respected in order to help students develop the unique intelligence, urge the development of potentiality, clearly recognize the opportunities and abilities, and flexibly apply the intelligence to the multiple adaptive development. Professional teachers therefore should get rid of traditionally dull instilling teaching methods, lead students to think with heuristic instruction, and recognize each student's plural differences to help the learning. Regardless of educational reforms and environmental changes, it will be in vain when teachers do not change the teaching methods. Huang et al. (2010) indicated that students' learning processes were changed currently and old teaching methods could no longer reach the effective teaching; teachers therefore had to develop more creative teaching methods to instruct students. In short, students could better stimulate the learning interests and motivation.

In such an information technology advance era, the constant expansion of knowledge, the requirements of the general public for school education, the impacts of educational policy reform and sub-replacement fertility, and the promotion of teacher assessment systems have teachers, as knowledge disseminators, encounter the issue to promote the competitiveness. In order to pursue the excellence and promote teacher efficacy, constant learning is a primary part of personal career; the demands for modern professionalized teachers could merely be matched by constantly absorbing new knowledge. A lot of educators, utilizing simple online virtual community interface, information, and community establishment functions, start to establish professional communities with specific research issues, invite teachers with interests in same issues to join in the discussion and share. Aiming at such participation members, this study intends to understand such a space-time transcending online virtual community for studying the effects of knowledge share on creative teaching behaviors and teacher efficacy.

LITERATURE AND HYPOTHESIS INDUCTION

Virtual community

Chilton & Bloodgood (2010) mentioned that there were groups in a virtual space permanently participating and sharing common value and interests without being restricted to time and space, publicly exchanging and communicating, and generating affection for satisfaction to form interpersonal network relationship. Some researchers regarded a virtual community as a group of people with similar beliefs and characteristics interacting with each other, and the community members influenced each other; such influence appeared as such people really contacting and interacting with each other (Holste & Fields, 2010). A social networking service (also called social networking site) is an online community established by a group of people with same interests and activities. Lahiri (2010) deeply and definitely

State of the literature

- Constant learning has become an important part of teachers pursuing excellence and promoting teacher efficacy in the career.
- Many educators, utilizing simple online virtual community interface, information, and community establishment functions, start to establish professional communities with specific research issues, invite teachers with interests in same issues to join in the discussion and share.
- To discuss the Effects of Knowledge Share in Virtual Community on Creative Teaching Behaviors and Teacher Efficacy

Contribution of this paper to the literature

- The progress of network allows professional resources related to instruction being easily searched
- Education sectors, through rewards and promotion, could have the departments or schools establish virtual communities so that teachers are willing to share personal teaching contents, teaching methods, and teaching experiences in communities.
- Teaching demonstration, knowledge share, and exchange among teachers could enhance creative teaching behaviors. Teachers could apply the learned professional cognitive ability to teaching tasks through constant transformation.

defined social networking sites as web-based services allowing participants establishing public or semi-public personal files in ranged systems and clearly listing the interpersonal networking to viewing others' lists; the characteristics and relationship naming were determined by the web sites. Lahiri (2010) indicated that SixDegrees.com was the first social networking site in 1997, which offered users to establish personal files, friend lists, and enquiry functions and integrated various characteristics.

Smith (2011) considered that a virtual community, as the accumulation of people with shared interests, ideas, and ambitions, attracted people from various fields, offered a lively environment for people freely interacting, and allowed people sharing problems and continuously interacting in the community; a person without relevant knowledge could share personal experiences to create new knowledge from the interaction, expecting to find partners with same ideas in the community, constantly exchange and share personal experiences and gained reviews to generate consonance, and enhance the cohesion among people in the community.

Knowledge share

Abili et al. (2011) indicated that message being given meanings would become information, while information was transferred into knowledge after being organized. In other words, knowledge was generated from human beings' comprehension and learning. Boumgarden et al. (2012) proposed that Knowledge, in school situations, was useful information to assist individuals, schools, or groups in creating intelligence and value. Inman et al. (2011) regarded knowledge as the concept of Flow, i.e. knowledge being able to exchange between possessors and demanders. Liao et al. (2010) defined knowledge as essential information for solving problems. Once knowledge was created, other organizations or individuals could not experience the advantages of new knowledge and new knowledge could not develop the functions when it was not properly applied, managed, and shared. In this case, knowledge should be transferred and spread out to create greater benefits. Opfer et al. (2011) argued that knowledge existed in the brain of an employee who therefore could create larger profits for the enterprise merely by sharing and applying personal knowledge. Teachers' knowledge was the accumulation of long-term teacher training and teaching tasks to gradually develop the personal knowledge system (Muhammad et al.,2015).

Smith (2011) pointed out knowledge share as knowledge transfer through information media and the process of knowledge receivers interpreting or interacting new knowledge with others through known knowledge. Wang & Noe (2010) regarded knowledge share as the process to help others' learning and successfully transferring knowledge to others through interaction to form others' effective movement. Wang & Wang (2012) proposed Share as allowing others knowing, i.e. delivering personal knowledge or information to others to possess the same knowledge or information. Yesil et al. (2013) indicated that a person needed to present relevant knowledge background in the knowledge share process in order to share with others. In other words, Knowledge Share was a kind of communication process. In this study, knowledge share is defined as the process of Knowledge Possessors transferring personal professional knowledge to Knowledge Demanders through networking information technology in order to make the knowledge flow among teachers be comprehensive and simultaneously enhance personal and others' capabilities.

Referring to Lee (2012), four dimensions for teachers' knowledge share are utilized in this study.

(1) Sharing motivation: Teachers, through intrinsic or extrinsic motivation, are willing to actively share personal knowledge, teaching skills, and instructional

resources for effective communication.

(2) Personal knowledge: It stresses on sharing personal teaching skills or practical teaching experiences with others through languages, texts, and physical movements or actively providing opinions when participating in interactive discussion to help demanders.

(3) Teaching skills: It focuses on teachers being willing to share teaching experiences and skills with community members, proceed instructional discussion and communication through article publication, and promote teaching innovation and learning with information technology application platforms.

Learning opportunity: It emphasizes to acquire external knowledge through assistance, provide knowledge with inexperienced community members, or acquire necessary knowledge from community members. That is, community members are willing to offer instruction related information for each other, share knowledge through online knowledge sharing platforms in virtual communities, establish share and dialogue mechanism, provide instructional knowledge and teaching methods, and use message boards to communicate and exchange information.

Creative teaching

Creative teaching, as the development and use of novel, original, or inventive teaching methods, refers to teachers applying the creativity to instructions, rather than developing learners' creativity. Atalay et al. (2013) pointed out Creative Teaching as teachers, in teaching processes, being able to apply active and creative teaching methods and diverse and rich teaching contents to stimulate students' intrinsic learning interests in order to cultivate the learning attitudes and promote the learning abilities. Chiappetta et al. (2012) defined creative teaching as the teaching activities of teachers planning, designing, and applying novel teaching methods, approaches, or activities to adapt to students' mental development, induce the learning motivation, and help students generate meaningful learning to effectively achieve educational objectives. Furthermore, Kim et al. (2013) regarded creative teaching as teachers applying personal creative thinking to overcome teaching problems and designing activities with teaching value to instruct students learning relevant cognitive abilities.

Lahiri (2010) analyzed creative teaching from the viewpoint of intention and proposed six essences of 1. activity and creativity, such as flexible instruction, making changes, multiple methods, and materials and space planning, 2. active participation, to encourage students' active participation, provide opportunities to think, and cultivate the learning ability. 3. resource application, to utilize resources for enhancing students' learning motivation. 4. classroom interaction, as democratic, free, and supportive classroom climate, 5. learning motivation, to understand students' needs and motivation for meaningful learning, and 6. problem solving, to offer problem-solving situations, stimulate divergent thinking, and cultivate problem solving skills. Reyachav & Weisberg (2010) proposed four characteristics of creative teaching, including 1. constantly thinking to generate new teaching methods or concepts, 2. creatively organizing teaching contents and constantly creating new materials and rich teaching contents, 3. applying innovative teaching methods or strategies to lead students being glad to learn, discuss, and think, and 4. designing plural and innovative evaluation methods different from traditional ways to evaluate students. Taddese & Osada (2010) proposed the contents of creative teaching, containing 1. innovative teaching philosophy and thinking and paying attention to concept innovation, 2. stressing on openness and integration to innovate curricula and contents of teaching materials, 3. well using computer technology for the innovation of teaching aids and instructional media equipment, 4. flexibly changing various instructional strategies to innovate teaching methods or strategies,

and 5. inspecting the effectiveness of teaching innovation through multiple evaluation methods.

Referring to Li (2013), five indicators for creative teaching behaviors are applied to this study. (1) Interactive discussion: To promote students' analysis and thinking abilities through subject discussion and interaction. (2) Open mind: To keep open-minded to flexibly adjust teaching contents and emphasize life association to cultivate students' adaptability. (3) Problem solving: To enhance students' problem-solving cognitive ability and imagination through questioning and simile. (4) Pluralistic education: To apply diverse materials or activities to enhance students' attention, curiosity, and motivation. (5) Self-directed learning: To encourage and enhance self-directed learning through self-directed learning activities and challenging operation.

Teacher efficacy

The theory of teacher efficacy was originated from self-efficacy theory proposed by Bandura in 1977. Teachers' self-efficacy was the core of instruction, and teachers' beliefs were the key factors in teachers achieving effective teaching. Artz et al. (2010) discussed teacher efficacy from multiple aspects, stressed on teachers' instruction and professional competence, and slowly extended to the level of student learning. Goddard et al. (2010) added the level of classroom management, and Klingenberg et al. (2013) focused on students' individual differences to make the meaning of teacher efficacy wider and more comprehensive. Two ability beliefs could be covered in the application of Bandura's self-efficacy theory to teacher efficacy, including personal teacher efficacy and general teacher efficacy. The former was originated from Bandura's self-efficacy theory, referring to teachers evaluating personal ability of leading students' learning; the latter was based on Bandura's expectation of the degree of teachers believing in the controllability of teaching situations, i.e. students could be taught under the factors of family background, intelligence, and school environment (Mladkova, 2012). When the idea of control beliefs was applied to teacher efficacy, teachers were confident of teaching students with learning difficulties or low learning motivation to present the beliefs in controlling the instruction. It was regarded as intrinsic control beliefs. When teachers regarded the effects of the good and bad of teaching environments on students' learning being larger than the effects of the instruction on students, it was considered as extrinsic control beliefs (Mehmet et al. 2015).

Sainaghi (2010) proposed Teacher Efficacy Structure and 9 factors in teacher efficacy, containing teachers' pre-existing characteristics, teacher competencies, teacher performance, student learning, teacher training, extrinsic environment, intrinsic environment, and students individual difference, which would affect students' learning outcomes and teacher efficacy.

In the research on teacher efficacy, Thoonen et al. (2011) covered the interaction among the variables of content, process, and result in the effective teaching model.

(1) Content included teacher characteristics, student characteristics, classroom characteristics, subject characteristics, school characteristics, community characteristics, and time characteristics, i.e. factors in the background of all learning activities.

(2) Process contained teachers' perceived instructional strategies and behaviors, students' perceived learning strategies and behaviors, and the characteristics of learning tasks and activities, i.e. the mutual effects among teachers' and students' strategies and behaviors, characteristics of learning lessons, and learning activities.

(3) Result covered the results of short-term, long-term cognition and emotional education, as the bases of teachers longing for and constructing instructional curriculum for effectively evaluating primary educational output.

Self-beliefs, Contents of Teaching Materials, Teaching Techniques, and Classroom Management proposed by Liao & Wu (2010) are utilized for discussing teacher efficacy in this study.

(1) Self-beliefs refer to the degree of teachers perceiving the instruction affecting students' learning performance.

(2) Contents of teaching materials indicate that teachers could systematically present the contents of teaching materials and provide complete knowledge structure in the instruction so as to clearly and definitely deliver knowledge.

(3) Teaching techniques refer to teachers being able to apply pluralistic education techniques to induce and maintain students' attention and enhance the teaching skills and students' learning efficiency through various teaching methods and media.

Classroom management refers to creating ordered and cohesive classroom management models through various methods and focusing on students' individual reaction and needs in the instruction in order to create harmonious and pleasant learning atmosphere as well as equally treating and actively caring students

Relevant research on knowledge share and creative teaching

Wallin et al. (2011) discovered that elementary school teachers presented moderate knowledge share and innovative teaching, teachers' knowledge share and innovative teaching appeared significant positive correlations, and teachers' knowledge sharing contents and behaviors showed the most explanatory power on innovative teaching. Zahari et al. (2013) found out the predictive power of teachers' knowledge share on teachers' innovative teaching, partially mediating effects of teachers' knowledge share on principal's transformational leadership and teachers' innovative teaching, as well as direct and indirect effects of principal's transformational leadership and teachers' knowledge share strategies on teachers' teaching innovation. Opfer et al. (2011) concluded the remarkable effects of knowledge sharing network and openness tendency on creative teaching and notably positive effects of knowledge share on teacher efficacy. Moreover, creative teaching showed significant moderating effects on knowledge sharing network and teacher efficacy. As a result, teachers were encouraged to establish knowledge sharing network for delivering knowledge or teaching experiences and further promote teachers' creative teaching and the development of teacher efficacy. Lee (2012) pointed out the moderately positive correlation between teachers' virtual community knowledge share and knowledge innovation and the predictive power of teachers' virtual community knowledge share on knowledge innovation. Accordingly, the following research hypothesis is induced in this study.

H1: Knowledge share reveals significant correlations with creative teaching

Relevant research on creative teaching and teacher efficacy

Zheng et al. (2010) found out the favorable degree of teachers' innovative teaching ability and teacher efficacy, the positive correlation between teachers' overall innovative teaching ability and overall teacher efficacy, and the high predictive power of Thinking innovation capability, Instructional strategies innovation capability, and Multiple assessment innovation capability in teachers' innovative teaching ability on overall teacher efficacy. Reyhav & Weisberg (2010) pointed out the favorable degree of teachers' innovative teaching ability and teacher efficacy, the remarkably positive correlation of teachers' innovative teaching ability on teacher efficacy, as well as the positive effects of teachers' innovative teaching ability on teacher efficacy. Chiappetta et al. (2012) proposed the notably positive

correlation between teachers' innovative teaching ability and teacher efficacy and high predictive power of teachers' innovative teaching ability on teacher efficacy. The following research hypothesis is therefore induced in this study.

H2: Creative teaching shows remarkable correlations with teacher efficacy

Relevant research on knowledge share and teacher efficacy

Klingenberg et al. (2013) discovered the moderate degree of teachers' knowledge share and teacher efficacy, high correlations between teachers' knowledge share and teacher efficacy, and significant correlations between teachers' knowledge share and teacher efficacy. Mladkova (2012) indicated the positive correlation between teachers' knowledge share and teacher efficacy and notable effects of Knowledge sharing motivation, Teaching skill share, and Learning opportunity share in teachers' knowledge share on teacher efficacy. Thoonen et al. (2011) pointed out the positive correlation between teachers' knowledge share and teacher efficacy, the better teachers' knowledge share for the better teacher efficacy, the sufficient predictive power of teachers' knowledge share on teacher efficacy with significance, and the predictive power of teachers' knowledge share on teacher efficacy, where Personal Knowledge Share, Learning Motivation Encouragement, and Teaching Skill Share appeared more predictive power. According to above literatures, the following research hypothesis is proposed in this study.

H3: Knowledge share presents notable correlations with teacher efficacy

RESEARCH METHOD

Model of method

The test of goodness-of-fit for LISREL is generally measured from overall model fit (i.e. extrinsic quality of model) and intrinsic quality of model. In other words, the commonly used goodness-of-fit evaluation indices in the test of goodness-of-fit for the overall mode contain (1) χ^2 ratio (Chi-Square ratio), standing for the difference between actual theoretical model and expected value, which is better smaller than 3, (2)goodness-of-fit index (GFI) and adjusted goodness-of-fit index (AGFI), presenting the better goodness-of-fit when the value is close to 1, (3)root mean square residual (RMR) to reflect the square root of Fit residual variance/Covariance mean, which is better smaller than 0.05, and (4)incremental fit index (IFI), revealing the excellent model fit when the value is larger than 0.9 (Hair, Anderson, Tatham & Black, 1998).

The evaluation indicators for intrinsic quality of model often used for LISREL include (1)square multiple correlation (SMC) of individual manifest variable, which is the R² value of manifest variable and latent variable and is better larger than 0.5, (2)content reliability (ρ) of latent variable, as the Cronbach's α coefficient of the observation indicator of latent variable, which is better larger than 0.6, and (3)average variance extracted of latent variable, which is calculated by dividing the sum of R² of manifest variables of a latent variable with the number of manifest variables, revealing the percentage of latent variable measured with manifest variable, which is better larger than 0.5 (Sharma, 1996).

Research sample and subject

Aiming at 7 universities in Indonesia, including Bandung Institute of Technology -ITB(Bandung), University of Indonesia (Jakarta), Universitas GadjahMada(Yogyakarta), Sepuluh Nopember Institute of Technology -ITS (Surabaya), Gunadarma University (Jakarta), Bina Nusantara University (Jakarta), and Petra Christian University (Surabaya), the teachers are studied. Total 500 copies

of questionnaires are distributed to the 7 universities in Indonesia, and 347 valid copies are collected, with the retrieval rate 69%.

Test of reliability and validity

Validity refers to the degree of a measurement scale being able to actually measure what a researcher intend to measure. Validity generally contains Content validity which tends to quantitative test, Criterion validity which evaluates with known extrinsic criterion and coefficients related to the test, and Construct validity which is used for evaluating the measurement being consistent with other observable variables. Since the questionnaire in this study is based on past theories and designed to really present the nature of things and the complete representative after considering the actual situations of research subjects, the content validity is confirmed. Besides, the final communality of Factor Analysis is utilized for testing the construct validity among measuring questions, and the validity appears in 0.722~0.869, showing the favorable validity of the questionnaire.

Reliability refers to the degree of consistence by repeatedly investigating or measuring the same groups of similar population. Cronbach’s α coefficient is often used for measuring the consistency among various items in the same concept. In fundamental research, the reliability coefficient above 0.8 shows the scale with high reliability, while the reliability 0.7 is acceptable in exploratory research. The Cronbach’s α reliability coefficient measured in this study appears in 0.838~0.941, apparently conforming to Wortzel’s (1979) opinion that Cronbach’s α coefficient between 0.7 and 0.98 reveals high reliability.

ANALYSIS OF EMPIRICAL RESULT

Test of model fit

With Maximum Likelihood (ML), the LISREL analysis results achieve the convergence. The indices of overall model fit standing for the extrinsic quality of model present (1) χ^2 ratio= χ^2 value/degree of freedom=1.742, smaller than 3, (2)goodness-of-fit index GFI 0.93 larger than 0.9, and adjusted goodness-of-fit index AGFI 0.88, larger than 0.8, (3)root mean square residual RMR 0.017, smaller than 0.05, and (4)incremental fit index 0.98, larger than 0.9. Overall speaking, the indices of overall model fit are approved, thoroughly presenting the favorable extrinsic quality of LISREL.

Table 1. SMC between variable and dimension

Sharing motivation	Knowledge share		
	Personal knowledge	Teaching skills	Learning opportunity
0.69	0.74	0.78	0.83

Table 2. SMC between variable and dimension

Creative teaching				
Interactive discussion	Open mind	Problem solving	Pluralistic education	Self-directed learning
0.77	0.81	0.84	0.86	0.89

Table 3. SMC between variable and dimension

Teacher efficacy			
Self-beliefs	Contents of teaching materials	Teaching techniques	Classroom management
0.71	0.75	0.80	0.85

Table 4. Content reliability and average variance extracted of variable

Item	Knowledge share	Creative teaching	Teacher efficacy
Content reliability	0.889	0.838	0.941
Average variance extracted	0.85	0.81	0.92

In regard to the quality test of intrinsic model, the square multiple correlation SMC of manifest variables is larger than 0.5 (Table 1, 2, 3), revealing favorable measuring indicators of latent variables. Furthermore, the content reliability of latent variables (knowledge share, creative teaching, and teacher efficacy) is larger than 0.6, and the average variance extracted of dimensions is larger than 0.5 (Table 4), apparently conforming to the test requirement for intrinsic quality.

Test of path relationship

Selecting latent variables of sharing motivation, interactive discussion, and self-beliefs as the reference indicators with fixed value 1 (Bollen & Long, 1993), the estimates between other dimensions and variables are significant, according to Figure 1 path diagram of causal relationship. That is, teaching skills=1.04 and learning opportunity=1.11 show more explanatory power than sharing motivation, problem solving=1.18 reveals more explanatory power than other dimensions in creative teaching, and classroom management=1.16 appears higher teacher efficacy than other dimensions. The test results of the research hypotheses are shown in Table 5.

Table 5. Hypothesis test

Research hypothesis	Correlation	Empirical result	P	Result
Hypothesis 1	+	0.362	0.00	Supported
Hypothesis 2	+	0.392	0.00	Supported
Hypothesis 3	+	0.314	0.00	Supported

CONCLUSION

From the research results, the importance of teachers' knowledge share is enhancing because of the rapid change of knowledge in the era with changing knowledge and the promotion of teachers' professional development. Teachers have to cope with the changing societies and educational policies through constant learning. Nevertheless, with limited time and space, teachers often feel powerless and anxious to learn new technologies, new teaching methods, and new issues beyond routine teaching tasks and assisting schools in administrative tasks. The prevalence of learning organization has teachers to battle collectively. A school

could establish platforms for knowledge share, teachers could communicate, support, and share with each other by delivering knowledge through virtual and real professional knowledge communities, offer more time for professional conversation and discussion, and encourage and lead teachers, aiming at different learning areas or grades, to share personal teaching processes and gained reviews. The so-called Inheritance of Experiences explains the importance of knowledge share and expansion, in which knowledge would not decrease with share and personal designed teaching plans and learning sheets could be posted on the platform to share with others to flow knowledge. Teachers could create new inspiration and new knowledge through distinct knowledge share to create new teaching models suitable for school students and advance teaching abilities in lessons to promote teacher efficacy.

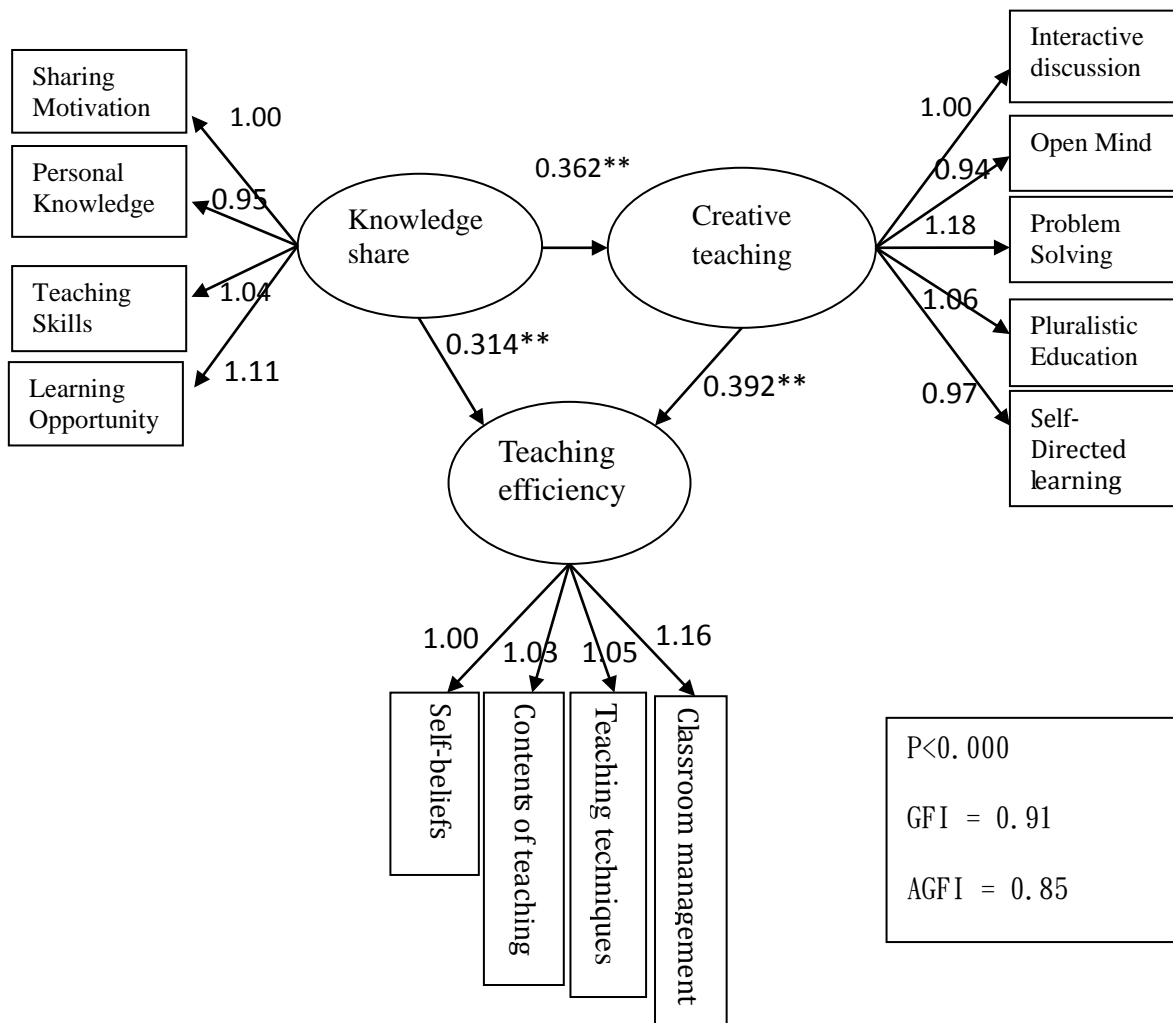


Figure 1. Path diagram of relationship

SUGGESTION

According to the research results and findings, following suggestions for the practicability are further proposed.

1. The progress of network allows professional resources related to instruction being easily searched. Teachers should break the limits of time and space, well apply virtual communities to experience share and professional dialogue, and share various ideas, experiences, and teaching skills in order to stimulate more

sparkles and promote distinct professional competence. Teachers could promote personal professional competence and teaching practice by well applying team-based learning in virtual communities, cohering consensus in community, and establishing shared goal and vision so as to cope with the changes of time and policies for the sustainable management in education. Education sectors could encourage senior teachers helping new teachers or junior teachers but newly members so that junior teachers could have more opportunities to imitate and learn through the inheritance of experiences and newcomers could get used to and flexibly transfer teaching methods and strategy application.

2. Education sectors, through rewards and promotion, could have the departments or schools establish virtual communities so that teachers are willing to share personal teaching contents, teaching methods, and teaching experiences in communities to stimulate more lively and interesting teaching creativity and cross the fences to promote teacher efficacy in the open environment.
3. Teaching demonstration, knowledge share, and exchange among teachers could enhance creative teaching behaviors. Teachers could apply the learned professional cognitive ability to teaching tasks through constant transformation. For this reason, teachers are suggested to share knowledge through virtual or physical professional communities and create new teaching methods and skills by sharing personal knowledge, learning others' knowledge, and interacting and cooperating with others so that the teaching becomes more diversified with more inspiration to achieve the efficiency.

REFERENCE

- Abili, K., Thani, F. N., Mokhtarian, F., & Rashidi, M. M. (2011). The role of effective factors on organizational knowledge sharing. *Procedia-Social and Behavioral Sciences*, 29, 1701-1706.
- Atalay, M., Anafarta, N., & Sarvan, F. (2013). The relationship between innovation and firm performance: An empirical evidence from Turkish automotive supplier industry. *Procedia-Social and Behavioral Sciences*, 75, 226-235.
- Artz, K. W., Norman, P. M., Hatfield, D. E., & Cardinal, L. B. (2010). A longitudinal study of the impact of R&D, patents, and product innovation on firm performance. *Journal of Product Innovation Management*, 27(5), 725-740.
- Boumgarden, P., Nickerson, J., & Zenger, T. R. (2012). Sailing into the wind: Exploring the relationships among ambidexterity, vacillation, and organizational performance. *Strategic Management Journal*, 33(6), 587-610.
- Chilton, M. A., & Bloodgood, J. M. (2010). Adaption-innovation theory and knowledge use in organizations. *Management Decision*, 48(8), 1159-1180.
- ChiappettaJabbour, C. J., Lopes de Sousa Jabbou, A. B., Govindan, K., Teixeira, A. A., & Ricardo de Souza Freitas, W. (2012). Environmental management and operational performance in automotive companies in Brazil: The role of human resource management and lean manufacturing. *Journal of Cleaner Production*.
- Goddard, Y. L., Neumerski, C. M., Goddard, R. D., Salloum, S. J. & Berebitsky, D. (2010). A multilevel exploratory study of the relationship between teachers' perceptions of principals' instructional support and group norms for instruction in elementary schools. *The Elementary School Journal*, 111(2), 336-357.
- Hair, J. F., Anderson, R., Tatham, R. L. & Black, W. C. (1998), *Multivariate Data Analysis*, N. J.: Prentice Hall Inc., 5th ed.
- Holste, J. S., & Fields, D. (2010). Trust and tacit knowledge sharing and use. *Journal of Knowledge Management*, 14, 128-140.
- Huang, Q., Davison, R. M., & Gu, J. (2010). The impact of trust, guanxi orientation and face on the intention of Chinese employees and managers to engage in peer-to peer tacit and explicit knowledge sharing. *Information Systems Journal*, 21(6), 557-577.
- Inman, R. A., Sale, R. S., Green Jr, K. W., & Whitten, D. (2011). Agile manufacturing: Relation to JIT, operational performance and firm performance. *Journal of Operations Management*, 29, 343-355.

- Kim, T. T., Lee, G., Paek, S. & Lee, S. (2013). Social capital, knowledge sharing and organizational performance: What structural relationship do they have in hotels? *International Journal of Contemporary Hospitality Management*, 25(5), 683-704.
- Klingenberg, B., Timberlake, R., Tom, G.G., & Roger, J. B. (2013). The relationship of operational innovation and financial performance - A critical perspective. *International Journal of Production Economics*, 142(2), 317-323.
- Lahiri, N. (2010). Geographic distribution of R&D activity: How does it affect innovation quality? *The Academy of Management Journal (AMJ)*, 53, 1194-1209.
- Lee, S. S. (2012). The Impact of Manufacturing Practices on Operational Performance. *Review of business research*, 12(5).
- Li, X. (2013). The Impact of Job Engagement on Tacit Knowledge Transfer. *International Business & Management*, 6(2), 115-120.
- Liao, S. H., & Wu, C. C. (2010). System perspective of knowledge management, organizational learning, and organizational innovation. *Expert Systems with Applications*, 37(2), 1096-1103.
- Liao, C. C., Wang, H. Y., Chuang, S. H., Shih, M. L., & Liu, C. C. (2010). Enhancing knowledge management for R&D innovation and firm performance: An integrative view. *African Journal of Business Management*, 4, 3026-3038.
- Lahiri, N. (2010). Geographic distribution of R&D activity: how does it affect innovation quality? *Academy of Management Journal*, 53(5), 1194-1209.
- Mladkova, L. (2012). Sharing Tacit Knowledge Within Organizations: Evidence From The Czech Republic. *Global Journal of Business Research (GJBR)*, 6(2)105-115.
- Opfer, V. D., Pedder, D. J. & Lavicza, Z. (2011). The influence of school orientation to learning on teachers' professional learning change. *School Effectiveness and School Improvement*, 22(2), 193-214.
- Reychav, I., & Weisberg, J. (2010). Bridging intention and behavior of knowledge sharing. *Journal of Knowledge Management*, 14, 285-300.
- Sainaghi, R. (2010). A meta-analysis of hotel performance. Continental or worldwide style? *Tourism Review*, 65(3), 46-69.
- Sharma, S. (1996). *Applied Multivariate Techniques*, N. Y.: John Wiley & Sons, Inc.
- Smith, A. D. (2011). Competitive approaches to new product development: A comparison of successful organizations in an unstable economic environment. *Team Performance Management*, 17, 124-145.
- Taddese, F., Osada, H. (2010). Process Techno-Innovation Using TQM in Developing Countries: Empirical Study of Deming Prize Winners. *Journal of technology management & innovation*, 5(2), 47-65.
- Thoonen, E., Slegers, P., Oort, F., Peetsma, T., & Geijsel, F. (2011). How to improve teaching practices: The role of teacher motivation, organizational factors, and leadership practices. *Educational Administration Quarterly*, 47(3), 496-536.
- Wang, S., & Noe, R. A. (2010). Knowledge sharing: A review and directions for future research. *Human Resource Management Review*, 20, 115-131.
- Wang, Z., & Wang, N. (2012). Knowledge sharing, innovation and firm performance. *Expert Systems with Applications*, 39(10), 8899-8908.
- Wallin, J., Larsson, A., Isaksson, O., & Larsson, T. (2011). Measuring Innovation Capability - Assessing Collaborative Performance in Product-Service System Innovation. In *Functional Thinking for Value Creation* (pp. 207-212). Springer Berlin Heidelberg
- Woerkom, M., & Sanders, K. (2010). The romance of learning from disagreement: The effect of cohesiveness and disagreement on knowledge sharing behavior and individual performance within teams. *Journal of business and psychology*, 25(1), 139-149.
- Wortzel (1979). *Multivariate Analysis*. New Jersey: Prentice Hall.
- Yesil, S., Koska, A., & Buyukbeşe, T. (2013). Knowledge Sharing Process, Innovation Capability and Innovation Performance: An Empirical Study. *Procedia-Social and Behavioral Sciences*, 75, 217-225.
- Zahari, A. S. M., Rahman, B. A., Othman, A. K., & Wahab, S. (2013). Investigating the Relationship between Customer Knowledge Management and Knowledge Sharing among Insurance Companies in Malaysia. *Asian Social Science*, 9(10). DOI: 10.5539/ass.v9n10p60

Zheng, Y., Liu, J., & George, G. (2010). The dynamic impact of innovative capability and inter-firm network on firm valuation: A longitudinal study of biotechnology start-ups. *Journal of Business Venturing*, 25(5), 593-609.

